

## Development of E-Comic Learning Media for Students in Grade IV of Xaverius 1 Elementary School Jambi

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### Abstract

This research aims to develop e-comic learning media that meets the criteria of validity, practicality, and effectiveness to enhance the learning motivation of 4th-grade elementary school students in IPAS subject, specifically concerning the heritage of the Sriwijaya Kingdom. The research method applied was Research and Development (R&D) using the ADDIE model, which consists of analysis, design, development, implementation, and evaluation stages. The subjects involved students across three stages: one-to-one, small group, and field test, with data collected through interviews, tests, and questionnaires. Validation results indicated that the media was highly feasible, with feasibility percentages of 92.5% for the media aspect, 90.83% for materials and questions, and 91.6% for language. Furthermore, trial results demonstrated a practicality level of 83.36% and an effectiveness rate of 85%, categorized as very effective. Based on these results, it can be concluded that the developed e-comic media is proven to be valid, practical, and effective for use in the learning process, also capable of enhancing students' motivation and understanding of historical material.

**Keywords :** E-comic, IPAS, Learning Media, Historical Heritage

### Abstrak

Penelitian ini bertujuan untuk mengembangkan media pembelajaran *e-comic* yang memenuhi kriteria valid, praktis, dan efektif guna meningkatkan motivasi belajar peserta didik kelas IV SD pada mata pelajaran IPAS, khususnya mengenai materi peninggalan Kerajaan Sriwijaya. Metode penelitian yang diterapkan adalah *Research and Development* (R&D) dengan menggunakan model ADDIE yang terdiri atas tahapan analisis, desain, pengembangan, implementasi, dan evaluasi. Subjek dalam penelitian ini melibatkan peserta didik yang terbagi dalam tiga tahapan, yaitu *one-to-one*, *small group*, dan *field test*, di mana data dikumpulkan melalui instrumen wawancara, tes, dan angket. Hasil validasi menunjukkan bahwa media ini sangat layak dengan persentase kelayakan aspek media sebesar 92,5%, materi dan soal 90,83%, serta bahasa 91,6%. Selanjutnya, hasil uji coba menunjukkan tingkat kepraktisan sebesar 83,36% dan efektivitas mencapai 85% dengan kategori sangat efektif. Berdasarkan hasil tersebut, dapat disimpulkan bahwa media *e-comic* yang dikembangkan terbukti valid, praktis, dan efektif untuk digunakan dalam proses pembelajaran serta mampu meningkatkan motivasi dan pemahaman siswa terhadap materi sejarah.

**Kata Kunci:** E-comic, IPAS, Media Pembelajaran, Peninggalan Kerajaan

### Introduction

Education is a conscious effort undertaken by educators with careful planning to achieve specific goals and improve the quality of life. Education can be understood as a systematic process to improve the standard of living and achieve greater progress, as

reflected in the ever-evolving basic concepts of media and learning (Ani Daniyati et al., 2023). In this regard, improving the quality of education aims to shape individuals capable of maintaining and preserving cultural values and national identity. This aligns with the human resource development efforts mandated by law to create an active learning environment and develop students' spiritual potential, personality, and skills (Taufina, 2017).

Educational goals can be effectively achieved if supported by a curriculum that plays a role in organizing and directing the learning process so that it remains in line with the established plan. The curriculum is a plan used as a guideline in implementing the learning process (Prabowo, 2019). A good curriculum is one that can adapt to the needs of students. Currently, the Independent Curriculum (Kurikulum Merdeka) is available, giving schools the flexibility to develop relevant learning. One implementation is the Natural and Social Sciences (IPAS) subject, which combines an understanding of nature and society. However, challenges arise with historical material, such as the Srivijaya Kingdom, which is often considered abstract and boring (Syilviana & Qurrotani, 2024).

Based on observations and interviews conducted on July 21, 2025, in class IV B of SD Xaverius 1 Jambi, a real problem was discovered in the field. Students' interest in learning historical heritage materials was relatively low. When the teacher explained the material, most students did not pay attention, chatted, or played by themselves. This occurred because learning was still dominated by lecture methods and textbooks without adequate visual aids. This condition is in line with the finding that the lack of visual media makes social studies/history material difficult to understand and reduces student motivation (Kristin & Mulia, 2022). Teachers need media that is not only informative, but also interesting and meaningful.

The solution to address these problems is the development of innovative learning media in the form of e-comics (online comics). Comics, as a visual medium, possess the power of a series of images and a structured storyline. The use of e-comics in learning has been proven to foster motivation and enthusiasm for learning in elementary school students (Afriana & Prastowo, 2022). Digital comics help transform abstract historical ideas into concrete, easily understood forms. Furthermore, e-comics are considered effective and efficient because they are practical, low-cost, and accessible anytime through digital devices, making them highly relevant to the needs of today's generation (Slarindya & Wicaksono, 2025).

Several previous studies have strengthened the potential of using comics in learning. Research by Ferdiansyah et al. (2023) shows that developing digital comics for historical material can effectively visualize past civilizations. Similarly, the use of e-comics has also been shown to increase elementary school students' interest in reading (Handayani & Koeswanti, 2020) and aid conceptual understanding of cultural diversity (Ambarwati & Rezania, 2023). Other research also confirms that digital comics in social studies learning can significantly improve student learning outcomes (Salahuddin et al., 2020).

Despite numerous studies on digital comics, the development of e-comics specifically addressing local material on the Srivijaya Kingdom for fourth-grade elementary school students in Jambi using an interactive digital platform is not yet available at the school where the research was conducted. Based on the background of the problem and the gap, this research is important to conduct. The purpose of this research is to produce e-comic learning media for the science subject on the historical heritage of the Srivijaya Kingdom that meets the criteria of validity, effectiveness, and practicality, in order to increase interest and quality of learning at SD Xaverius 1 Jambi.

## Method

**Type and Design of Research,**This research is a type of research and development (R&D). The development model applied is the ADDIE (Analysis, Design, Development, Implementation, Evaluation) model. The ADDIE model was chosen based on its systematic yet flexible characteristics, and its emphasis on evaluation at every stage. This is considered highly relevant for developing e-comic media on historical materials because it allows researchers to make continuous improvements, from needs analysis to the final product being ready for use.

**Time and Place of Research**The research was conducted at SD Xaverius 1 Jambi, located at Jalan Abdurrahman Saleh No. 20, The Hok, South Jambi District, Jambi City. The research activities are scheduled to take place in the odd semester of the 2025/2026 academic year, starting from February to September 2025. Details of the schedule and description of the research activities can be seen in Table 1 below:

Table 1. Research Implementation Schedule

No.	Stage	Time	Activity Description
1.	Analysis stage	February 2 - February 28, 2025	Initial preparation involves analyzing student needs by conducting interviews with fourth grade teachers, analyzing the curriculum, and reviewing the materials to be used.
2.	Design Stage	March 1 - April 15, 2025	Designing e-comic learning media using the ibisPaint X application. Design process includes: - Make a storyboard/storyline. - Create dialogue scripts and narrative texts. - Create character designs, backgrounds, and illustrations. - Selection of applications for drawing and design e-comic layouts using ibisPaint X.
3.	Development Stage	April 16 - May 26, 2025	Develop e-comic learning media according to the design until finalization.
4.	Implementation Stage		
	<i>Expert reviews</i>	May 27 - June 25, 2025	Validation of prototype 1 by three experts to obtain input and produce prototype 2.
	<i>One-to-one</i>	July 28, 2025	Prototype 2 was tested on three students after going through the expert review stage, with the aim of obtaining initial feedback and suggestions from students to produce prototype 3.
	<i>Small group</i>	July 30, 2025	Trial of revised prototype 3 on 6 students to assess the practicality of e-comic media.
5.	Evaluation Stage		Final prototype trial on 32 students to see the effectiveness of the developed e-comic media.

**Research Targets and Subjects,**The main objective of this research is to produce an e-comic learning media on the heritage of the Srivijaya Kingdom that meets the criteria of being valid, practical, and effective in increasing students' learning interest. The research

subjects were selected using a purposive sampling technique among fourth-grade students at SD Xaverius 1 Jambi. The subjects were divided into three trial groups to ensure the data obtained were representative:

1. Individual Trial (One-to-one): Involving 3 class IV B students with varying abilities of high, medium, and low.
2. Small Group Trial: Involving 6 students from class IV B (different from the previous stage), consisting of 2 students with high, 2 medium, and 2 low abilities.
3. Field Test: Involving 32 class IV D students as the real implementation class.

**Research Procedures**, This media development procedure follows the ADDIE cycle. Visually, these stages involve interconnected evaluation and revision processes, as illustrated in the following diagram:

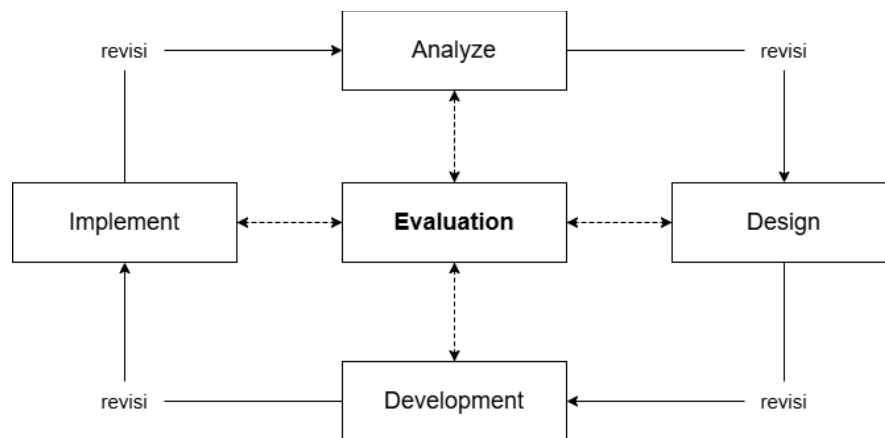


Figure 1. ADDIE Model Development Stages (Zamsiswaya et al., 2024)

In detail, the research procedure is carried out as follows:

1. Analysis: Analyze the curriculum (Learning Outcomes and Learning Objectives), historical heritage materials, and student needs through observing problems in the classroom.
2. Design: Designing the framework of an e-comic entitled "Traces of the Heritage of the Sriwijaya Kingdom", including the preparation of storyboards and visual sketches.
3. Development: Realizing the design into a visual product using ibisPaint X, merging it into a PDF, and converting it into a digital flipbook via Heyzine. This stage also includes expert validation.
4. Implementation: Testing the product through one-to-one and small group stages to assess practicality.
5. Evaluation: Measuring the success of the media through field tests to see its effectiveness on learning outcomes.

**Data collection technique**, To obtain accurate data, this study uses three data collection techniques, namely:

1. Interview: Conducted with the fourth grade homeroom teacher to gather initial information regarding obstacles to learning science.
2. Test: In the form of 15 multiple choice questions to measure students' cognitive understanding of the historical material of Sriwijaya after using media.
3. Questionnaire: Used to validate the product (by experts) and assess practicality and student responses. The questionnaire was compiled using a 4-point Likert Scale (1-4).

**Data Analysis Techniques**, The collected data was analyzed descriptively quantitatively to determine the suitability of the media based on the following criteria:

1. Analysis of Learning Outcomes Tests Students' understanding scores are calculated using the percentage score formula, then categorized based on the table below:

Table 2. Test Analysis Criteria

<b>Category</b>	<b>Evaluation</b>
Very Low	0 - 54
Low	51 - 64
Currently	65 - 74
Tall	75 - 84
Very high	84 - 100

2. Product Validity Criteria, Used for analysis of validation questionnaires from experts (media, materials, language).

Table 3. Product Validity Criteria

<b>Category</b>	<b>Evaluation</b>
Very Valid	81% - 100%
Valid	61% - 80%
Quite Valid	41% - 60%
Invalid	21% - 40%
Totally Invalid	< 20%

3. Product Practicality Criteria, Used to assess the practicality of media based on questionnaires.

Table 4. Product Practicality Criteria

<b>Category</b>	<b>Evaluation</b>
Very Practical	$85\% \leq x \leq 100\%$
Practical	$70\% \leq x < 85\%$
Quite Practical	$55\% \leq x < 70\%$
Less practical	$40\% \leq x < 55\%$
Impractical	$0\% \leq x < 40\%$

4. Product Effectiveness Criteria, Used to assess the effectiveness of media based on student learning outcomes.

Table 5. Product Effectiveness Criteria

<b>Category</b>	<b>Evaluation</b>
Very Effective	$80\% < x \leq 100\%$
Quite Effective	$60\% < x \leq 80\%$
Less Effective	$40\% < x \leq 60\%$
Ineffective	$20\% < x \leq 40\%$
Very Ineffective	$0\% \leq x \leq 20\%$

5. Student Response Criteria Table, Used to categorize student responses to media.

Table 6. Student Response Criteria

Category	Evaluation
Very Good	76% - 100%
Good	51% - 75%
Not Good	26% - 50%
Very Bad	0% - 25%

## Results and Discussion

This study developed an e-comic learning media on the material of the Srivijaya Kingdom heritage using the ADDIE model (Analysis, Design, Development, Implementation, Evaluation). The initial analysis stage through observation and interviews with teachers at SD Xaverius 1 Jambi identified obstacles in science learning, where the use of conventional media (printed pictures and puzzles) caused students to feel bored and had difficulty understanding the historical material. Therefore, the development of the e-comic was designed using the IbisPaintX application and packaged in a flipbook format to present interactive and interesting illustrated story visualizations.



Figure 1. Flipbook view

Product feasibility was assessed through a validation stage by nine experts, including media experts, material experts, and linguists. Based on the recapitulation of expert reviews, the e-comic media was declared highly valid and worthy of testing. Validation by media experts was 92.5%, by material and question experts 90.83%, and by linguists 91.6%. Input from these experts was used to revise prototype 1 into prototype 2 before moving on to the user testing stage. The media's practicality was measured through two trial stages: one-to-one and small group. The one-to-one trial with three students with heterogeneous abilities yielded a positive response with a score of 95% (very good).



Figure 2. One-to-One Stage

Furthermore, in a small group trial involving six students, an average practicality score of 83.36% was obtained. These results indicate that the e-comic media is practical and easy for students to use independently, so development continues with the refinement of prototype 3 for the final evaluation stage.



Figure 3. Small Group Stage

The effectiveness of the media was tested in a field test (evaluation) involving a large class. Effectiveness indicators were assessed based on learning outcomes (material understanding) and student responses to media use. The analysis showed that the average student learning outcome test score reached 85.71%, indicating high learning completion. Similarly, the student response questionnaire at this stage scored 85.00%, categorized as very effective.



Figure 4. Field Test Stage

Overall, the development of this e-comic has proven successful in addressing the boredom and learning difficulties identified during the initial analysis. The digital comic format, which combines historical narrative with engaging visuals, has been shown to increase students' interest and motivation to learn. This is confirmed by consistent data from the validation stage to the field evaluation, which indicates that this medium is theoretically valid, practically usable, and effective in enhancing the understanding of the history of the Srivijaya Kingdom among fourth-grade elementary school students.

### **Conclusion**

The conclusion of the research that has been conducted is that the resulting e-comic learning media material on the legacy of the Srivijaya Kingdom is proven to be valid, practical, and effective for use in grade IV of SD Xaverius 1 Jambi. The media is declared very suitable based on validation of media aspects (92.5%), material and questions (90.83%), and language (91.6%). In addition, this e-comic learning media is practical (83.36%) and very effective (85%) in increasing learning motivation and student understanding of historical material.

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