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Developing E-Comic Learning Media for Indonesian Language to Enhance Fifth-Grade Students' Learning Interest

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ABSTRACT

This study aims to develop e-comic learning media for teaching imperative sentences in fifth-grade Indonesian language classes. Employing the Research and Development (R&D) method based on the ADDIE model, the development process includes stages such as analysis, design, development, implementation, and evaluation. The resulting product underwent expert validation, receiving feasibility scores of 89.23% from media experts and 92.30% from language experts, both of which were categorised as "very feasible." A limited trial was conducted with 29 fifth-grade students, yielding a positive response rate of 81.10%. The e-comic media integrates visual, interactive, and narrative elements tailored to the characteristics of the digital native generation, thereby increasing students' learning interest and engagement. The findings indicate that e-comic media is not only highly feasible but also effective in enhancing learning motivation and participation in Indonesian language lessons. This media provides a practical and innovative solution for addressing the need for engaging instructional tools in primary education, supporting educators in optimising the learning experience for young students.

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1. INTRODUCTION

The transformation of the contemporary educational paradigm presents a complex set of challenges in optimising the learning process, particularly concerning the limitations of available instructional media. This condition is exacerbated by the phenomenon of disparity in the pedagogical competence of educators in constructing learning media that is adaptive to the characteristics of the native digital generation. Pratami [1] identifies substantial deficiencies in teachers' understanding of the development of learning media that is responsive to the needs of students in the digital era. This problem has significant implications for the effectiveness of the knowledge transfer process, considering the

strategic role of educators as learning facilitators in providing adequate instructional facilities for the generation that is experiencing technological acceleration.

The implementation of technology in the context of education offers an innovative alternative solution for educators to diversify learning methodologies. This perspective aligns with the argument of Damarpuri and Taufik [2], which emphasises that the characteristics of contemporary students who have been integrated into the digital technology ecosystem should not be confronted with monotonous and repetitive learning modalities. This conceptualisation is reinforced by Zega et al. [3], which affirms that the essence of education has an intrinsic correlation with the existence of educators as agents of transformation. In contrast, learning is defined as the process of behaviour modification that is manifested through empirical practice and experience.

Teachers function as a connective bridge between students and the knowledge corpus, where the multidimensional role of educators is not limited to information transmission but also extends guidance, development, and management of learning activities that facilitate the achievement of instructional objectives through meaningful experiences [4]. This paradigm suggests that learning media are a strategic tool that determines the success of the pedagogical process, making continuous innovation in the development of instructional media imperative for achieving optimal learning goals.

The psychological characteristics of elementary school students show a significant preference for visual and interactive learning modalities, including colour-based media, engaging narratives, and novelty elements in the learning process. Diagnostic findings conducted at SDN Semeru 1 indicated that students showed a positive response to visual learning media and maintained a high level of engagement, which had implications for their preference for an interactive and stimulating learning environment. This phenomenon can be attributed to the use of digital technology media as a manifestation of 21st-century learning innovation, where educators, as facilitators, are required to develop creativity and competence in preparing media diversity before implementing learning in the classroom.

Multimedia technology enables the presentation of learning content through a modern and innovative approach, supporting educators in incorporating animated elements and enhancing student enthusiasm [1]. In this context, e-comic media emerges as an enjoyable instructional alternative for the digital native generation. The contemporary generation tends to look for accessible and economical learning facilities, where e-comics designed with user-friendly and engaging characteristics will be the preference of students in the era of educational digitalisation.

The validity of this approach is supported by an investigation by Syilviana and L. Qurrotani [5] regarding the implementation of digital comic learning media as an alternative solution to the problems faced by students and educators at the elementary school level. The study builds on previous research that found digital comics to be an effective tool for primary education. The continuity of this research stems from the findings of Damayanti et al. [6], which confirm that digital comic media have a high level of feasibility for implementation as a learning medium in the instructional process of second-grade elementary schools [7].

This research aims to develop innovative and constructive media use in building students' academic motivation by creating e-comic materials in the Indonesian language. E-

comic is positioned as a comprehensive solution for learners' learning media, as stated by Gie [8], that interest catalyses reducing intrinsic learning boredom. This study hypothesises that e-comics can be an effective tool in fostering literacy interest and increasing the active participation of students in the Indonesian learning process at Gde V Elementary Sool [9].

2. METHOD

The research methodology implemented in this investigation uses a Research and Development (R&D) approach with a quantitative-qualitative paradigm. The conceptualisation of R&D in the context of education is defined as a systematic process that aims to develop and validate instructional products through a series of structured methodological procedures. According to Gay [10], the R&D cycle in the field of education involves a comprehensive review of research findings relevant to the product to be developed, product construction based on the empirical evidence, implementation of trials in an applicable environment, and continuous revision to optimise the deficiencies identified during the field validation phase.

The orientation of this development research focuses on the production of learning instruments that have optimal effectiveness for implementation in educational institutions, as compared to theoretical construction testing alone. Sugiyono, in the context of educational research methodology, emphasised that R&D is an investigative method used to construct specific products, with validation of effectiveness as the primary parameter of success [11]. Waruwu [12] identifies that development research has multiple strategic objectives, including the acceleration of knowledge and cultural transformation of society through discovery and innovation, exploration of the potential application of knowledge, meeting the needs and optimisation of human welfare, increasing the productivity of anthropological activities including revenue generation and operational independence, and amplifying competitive power.

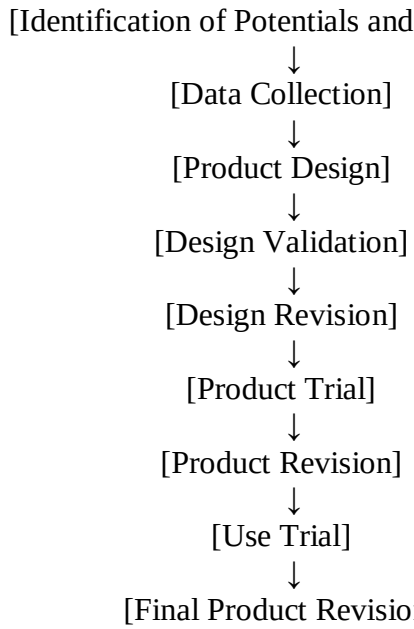

Figure 1. R&D Research Steps Flow Diagram

As seen in Figure 1, the development model in this study employs a step-by-step framework that outlines the procedural sequence the researcher must follow to ensure the developed product meets the established feasibility standards. The implementation of this development model is limited to the ninth stage, which includes the following phases: identification of potentials and problems, data collection, product design, design validation, design revision, product trial, product revision, use trial, and final product revision. The research subjects comprise students, expert validators of learning materials, and instructional media experts. The object of research is e-comic learning media for Indonesian subjects.

This research was conducted to optimise the quality of the product developed, specifically Indonesian learning media utilising digital comic technology. Product evaluation was conducted through systematic observation to gather empirical data on the effectiveness of implementing e-comic media in the learning context. The e-comic validation procedure is carried out through two main stages: first, expert validation, which involves evaluation by instructional media experts and learning material experts; second, the trial was limited to a sample of 29 fifth-grade elementary school students in one experimental class.

The research instruments used included an evaluation questionnaire with three main assessment aspects for expert validators: utility, feasibility, and accuracy. The utility aspect measures the benefits of e-comic media for teachers and students in learning activities, the capacity of media to facilitate the teaching and learning process, and the potential of media to arouse students' interest in learning with a total of four indicator items. The feasibility aspect evaluates the visual attractiveness of the media, the comprehensibility of the language used, the ease of use, and the accessibility of the media, encompassing a total of four indicator items. The accuracy aspect analyses the completeness of the material, its suitability for learning objectives, the systematisation of content, and its alignment with the characteristics of students through four indicator items, resulting in a total of twelve expert validator instruments.

Table 1. Expert Validation Assessment Instrument

Assessment aspects	Indicators	Number of items
Utility	E-comic media is helpful for teachers in learning activities.	1
	E-comic media is useful for students in learning activities.	1
	E-comic media can facilitate the teaching and learning process in the classroom.	1
	E-comic media can arouse students' interest in learning	1
Feasibility	Media appearances can attract students' interest in learning.	1
	The language used in the delivery of material in e-comic media is easy to understand.	1
	E-comic media is easy to use in learning activities.	1
	E-comic media is easily accessible.	1
Accuracy	The completeness of the material/information contained in the e-comic media.	1
	Suitability of the material with the learning objectives.	1
	The material in e-comic media is compiled systematically.	1
	Compatibility of the use of e-comic media with the characteristics of students.	1
	Entire	**13**

The student response assessment instrument is constructed with three aspects that are parallel but adjusted to the student's perspective. The utility aspect measures students' perception of the usefulness of media as a learning resource, the contribution of media in increasing learning interest, and the ease of knowledge acquisition through three indicator items. The feasibility aspect evaluates visual appeal, language comprehension, and ease of use from the perspective of students with three indicator items. The accuracy aspect assesses the completeness, suitability, and systematisation of the content, as determined by the student's assessment through three indicator items, resulting in a total of nine items in the student response instrument.

Table 2. Student Response Assessment Instrument

Assessment aspects	Indicators	Number of items
Utility	E-comic media is a valuable learning resource for me.	1
	E-comic media helps increase my interest in learning.	1
	This e-comic media makes it easier for me to gain knowledge.	1
Feasibility	The media's appearance was able to capture my interest in learning.	1
	The language used in the delivery of material in e-comic media is easy for me to understand.	1
	E-comic media is easy for me to use in learning activities.	1
Accuracy	The completeness of the material/information contained in the e-comic media.	1
	Suitability of the content of the material contained in e-comic media.	1
	The material in e-comic media is compiled systematically.	1
	Entire	9

The data analysis technique employs the Likert scale, which involves transforming qualitative data into quantitative data through a tiered scoring system. Pranatawijaya [13] emphasises that the Likert scale is an effective measurement instrument for assessing individual attitudes, opinions, or reactions to specific social phenomena. The scoring system uses five categories: very deserving (score 5), deserving (score 4), moderately deserving (score 3), undeserving (score 2), and highly undeserving (score 1).

Table 3. Likert Scale Assessment Criteria

Score	Criteria
5	very deserving
4	deserving
3	moderately deserving
2	undeserving
1	highly undeserving

Statistical analysis was carried out using the formula.

$$x_i = \frac{\sum S}{S_{max}} \times 100\% \quad (1)$$

where

Smax represents the maximum score

$\sum$S is the total score

x_i is the questionnaire eligibility value for each aspect of the assessment.

Interpretation of the percentage of results using validity criteria: 81%-100% (very valid/very feasible), 61% - 80% (valid/feasible), 41% - 60% (moderately feasible), 21% - 40% (less feasible), and < 20% (invalid/not feasible). This analysis framework allows a comprehensive evaluation of the effectiveness of e-comic media in increasing the learning interest of grade V students in Indonesian subjects [14].

Table 4. Validity Interpretation Criteria

No	Validity Criteria (Percentage)	Validity Level
1.	81% - 100%	very valid/very feasible
2.	61% - 80%	valid/feasible
3.	41% - 60%	moderately feasible
4.	21% - 40%	less feasible
5.	< 20%	invalid/not feasible

3. RESULTS AND DISCUSSION

3.1 RESULTS

The implementation of the Research and Development (R&D) methodology, incorporating the adaptation of the ADDIE model, has yielded e-comic learning media products that have undergone a series of comprehensive validations. The research adopts a phased approach that includes phases of analysis, design, development, implementation, and evaluation to optimise the quality of the final product.

3.1.1 Early Stage: Analysis and Design

The analysis phase identifies fundamental problems, including the limited use of instructional technology in the Indonesian learning process at the elementary school level. The diagnostic findings indicate that learning still relies on conventional media, such as video, and students do not have access to other innovative media. This condition has the potential to cause boredom in learning activities, considering the characteristics of the native digital generation that has been integrated with the technology ecosystem.

The design stage constructs a conceptual framework for e-comic media that aligns with the Learning Outcomes (CP) and Learning Objectives (TP) of the Indonesian curriculum for Grade V. The material chosen is "Command Sentences" in Phase C, with a narrative specifically designed to accommodate the cognitive characteristics of elementary school students. The visual design of the e-comic integrates interactive elements that aim to increase engagement and facilitate the process of independent knowledge construction.

3.1.2 Expert Validation Results

The validation of e-comic products is carried out through the evaluation of media experts and linguists with the following results:

Table 5. Initial Validation

Media Expert	Validity Level
75,40%	Valid / Good / Worthy
Language Specialist	Validity Level
76,92%	Valid / Good / Worthy

After the revision process based on validator input, the validity rate has increased significantly:

Table 6. Validation After Revision

Media Expert	Language Specialist	Middle	Validity Level
89,23%	92,30%	90,80%	Very Valid / Very Good / Very Worthy

3.1.3 Limited Test Results

The implementation of a limited trial involving 29 students in class V of SDN Semeru 1 produced significant empirical data:

Table 7. Student Trial Data Here

Total Students	Score	Maximum	Middle	Validity Level
29	1058	1305	81,10%	Very Valid / Very Good / Very Worthy

Analysis of student responses showed a high level of acceptance of e-comic media. Students responded positively to the utility, feasibility, and accuracy aspects of learning media. E-comic media has successfully created an interactive and engaging learning environment for fifth-grade elementary school students.

3.2 DISCUSSION

The findings of this study are consistent with the results of previous investigations, which have confirmed the effectiveness of e-comic media in the context of basic education [15]. In his research on the development of e-comic learning media for human respiratory system material, the validity level reached 86%, categorised as "Very Valid," and the effectiveness level was 87.8%, categorised as "Very Effective." The consistency of these results strengthens the argument that e-comic media has high adaptability potential for various learning content at the elementary school level. Afriana and Prastowo [16] strengthen these findings through research on the development of e-comics in social studies learning, which showed significant effectiveness with an N-gain test result of 0.40-0.42. The results of the paired sample T-test showed a significant difference between the pretest and the posttest with a significance level of $0.000 < 0.05$. These findings indicate that e-comic media not only increases engagement but also has a positive impact on student learning outcomes.

Nurfadhillah et al. [17] confirm that the use of e-comic media can foster motivation and enthusiasm for learning in elementary school students. The display of e-comic with pictures with an interesting storyline can increase students' enthusiasm to read until the end. This finding aligns with the results of this study, which showed a positive response of 81.10% to e-comic media. Reski [18] emphasises that learning media plays a significant role

in increasing students' interest in learning. Their research shows a positive correlation between the use of learning media and improved student learning outcomes. Nafisyah[19] identified that students' interest in learning is influenced by the factors of feeling happy (36.71%), interest (82.53%), attention (72.84%), and involvement (45.40%) in the learning process. E-comic media effectively integrates all four factors through engaging design and relevant content [20].

Ali [21]demonstrated a positive and significant influence between learning interest and learning outcomes, with a determination coefficient of 0.369. Statistical analysis yielded a regression equation $\hat{Y} = -17.14 + (0.75X)$, indicating a strong level of influence with a t-count of 33.28, which exceeds the t-table value of 4.04. These findings strengthen the argument that e-comic media, which can increase learning interest, will have a positive impact on student learning outcomes. Irman et al. [22] emphasised that Indonesian learning aims to develop the ability to communicate effectively and efficiently following applicable ethics. Learning must enable students to appreciate and take pride in using Indonesian as the language of unity and the national language. The e-comic media in this study successfully integrated these goals through the presentation of the "Command Sentence" material, which was packaged attractively and interactively [23].

Laksmi and N. W. Suniasih [24] identify various problems in Indonesian language education in elementary schools. They emphasise that language learning provides an opportunity for students to choose language activities that suit their preferences. E-comic media is an effective solution to overcome these problems by providing engaging and interactive learning alternatives. Dika and Kurniana [25] develop e-comics based on Problem-Based Learning materials related to the water cycle, achieving very high validity. The validation results showed that 97% of learning content experts, 97% of learning design experts, 100% of learning media experts, and 90% of individual trials were successful. These findings confirm that e-comic media has the flexibility to be integrated with a variety of innovative learning approaches.

The implementation of e-comic media in Indonesian learning shows significant potential in optimising the educational process in the digital era [26]. The validity and effectiveness proven through this study provide a theoretical contribution to the development of innovative learning media. Practically, this study offers an alternative solution for educators to diversify learning methodologies that are responsive to the characteristics of the digital native generation [27]. E-comic media can be positioned as a strategic instrument in transforming the educational paradigm towards more interactive, engaging, and meaningful learning for elementary school students [28].

4. CONCLUSION

The implementation of the Research and Development (R&D) methodology, utilising the ADDIE model, has resulted in a comprehensively validated e-comic learning medium for the Imperative Sentence material in the Indonesian language subject for class V at SDN Semeru 1. The expert validation process revealed a very high level of eligibility, with percentages of 89.23% from media experts and 92.30% from language experts, both of which were categorised as very effective for instructional implementation. A limited trial

involving 29 students yielded a positive response rate of 81.10%, indicating that e-comic media is well-suited for instructional use in the classroom. The study's findings demonstrate that e-comic media has successfully increased student engagement by integrating visual, interactive, and narrative elements that cater to the characteristics of the native digital generation. This media is supported by empirical evidence as an effective tool for optimising the Indonesian learning process, particularly in engaging elementary school students through innovative and adaptive multimedia technology approaches.

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