DEVELOPMENT OF DIGITAL COMIC MEDIA BASED ON PROBLEM-BASED LEARNING (PBL) MODEL IN PANCASILA EDUCATION FOR FOURTH GRADE STUDENTS AT ELEMENTARY SCHOOLS

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ABSTRACT

The rapid advancement of technology, particularly within the framework of the industrial revolution 4.0, necessitates the integration of technology into the educational sector to enhance learning processes. This study focuses on developing a Problem-Based Learning (PBL) based digital comic medium for teaching Pancasila Education elements in fourth-grade elementary school students. Utilizing the ADDIE development model, this research encompasses analysis, design, development, implementation, and evaluation phases. Validation tests with material, linguistic, and media experts indicated high validity, while practicality tests with teachers and students demonstrated strong practicality. Effectiveness tests revealed significant improvements in student engagement and learning outcomes. The results suggest that the digital comic medium is a viable, practical, and effective educational tool that enhances student comprehension and character development.

KEYWORDS	*Industrial Revolution 4.0, Technology in Education, Digital Comics, Problem-Based Learning (PBL)*

INTRODUCTION

The presence of the industrial revolution 4.0 requires the world of education to be able to use technology in the learning process in order to have skills. Technology has been a bridge between engaged students and positive classroom environments. Appropriate technology can be hugely helpful in providing students with tools to become productive learners and assist in creating a learning environment that allows active student engagement (Tarbutton, 2018). Appropriate

technology can be hugely helpful in providing learners with tools to become productive learners and assist in creating a learning environment that allows active student engagement.

The rapid development of technology is seen in the utilization of gadgets in daily activities, including as a companion and learning for children. With various interesting features and applications, parents use gadgets to accompany their children so that they can carry out their activities calmly. At elementary school age, children are reliable imitators and smarter than we think. This makes teachers have to be extra in carrying out the learning process. In the world of education, technological developments can simplify and streamline the educational process through the use of learning media. Current learning uses the Merdeka Curriculum, which is designed to overcome the learning crisis exacerbated by the pandemic. The education crisis is characterized by low learning outcomes and the cultivation of student character. Based on AN's 2021 results, 43 percent of learners were able to meet the minimum standards for literacy. For this reason, it is necessary to encourage initiatives that focus on improving literacy skills, one of which is by implementing Merdeka Curriculum.

Learning media are tools, methods, and techniques used to make communication and interaction between teachers and learners more effective. The procedure for selecting learning media begins with analyzing needs, which are based on the characteristics of learners, expected competencies, and characteristics of teaching materials. Media availability, limited resources, school facilities, costs, and time also need to be considered. One of the learning media that can be used is media that streamlines limited learning time (Reinita et al., 2023).

Based on observations in class IV UPT SDN 13 Saruaso, the teacher has used media in teaching, but the media is still very simple. Learners are asked to read the text of the story related to the picture presented by the teacher, so they are less active and not directly involved in the learning process. Learners' motivation in learning is still lacking, and they find it difficult to focus and not concentrate. Learners are more interested in text accompanied by interesting and fun pictures.

According to (Putri & Reinita, 2022) in (Saralee, 2022), teachers must be able to prepare themselves by learning to improve the quality of teaching in schools. The development of science and technology has a huge influence in various fields of life, including education. One of the influences is the effort to update and utilize technological results in the teaching and learning process, as well as facilitate and streamline the learning process through the application of learning media (Chusna et al., 2021).

One of the media that utilizes technology is digital comics. Digital comic media has several advantages such as being durable, cheap, interactive and easily accessible. Comics can improve students' literacy skills. Comics make readers want to read well because they see reading as a direct means of getting pleasure. In addition to the use of digital comic learning media, the use of models in the implementation of learning is also important (Ramadhani & Rumaur, 2020). One of the learning models that can make students active is the Problem Based Learning (PBL) model.

The problem-based learning (PBL) model according to Fatorrohman in (Gusriyenti & Reinita, 2023) is a learning model that involves students to solve a problem so that students can learn knowledge related to the problem and at the same time have the skills to solve problems. The utilization of comics in learning is in accordance with the level of thinking of students, especially in elementary school students (Azizi & Prasetyo, 2017). The success of a teacher in the learning process is when students can understand the material presented by the teacher to shape the character of students through learning media. Based on the description that the researcher has put forward, the researcher chose the research title "Development of PBL-Based Digital Comic Media in Learning Pancasila Education NKRI Elements to Improve the Character of Learners in Class IV Elementary School.

Based on the background of the problem, the formulation of the problem raised includes three main aspects: validity, practicality, and effectiveness of PBL (Problem Based Learning) Based Digital Comic Media on Learning Pancasila Education Elements of the Unitary Republic of Indonesia in Class IV Elementary Schools Gugus 3 Tanjung Emas District. The purpose of this development is to determine the validity, practicality, and effectiveness of the digital comic media. The expected product is a digital comic packaged in the form of a PowerPoint file, which is inserted into Google Drive and can be accessed via a link (Saputri et al., 2021). This comic will present material in the form of illustrated stories with sound, balloon text, and attractive and colorful cartoon images, using language that is easy for students to understand, and equipped with specially designed menus. The benefits of this research are to increase knowledge and insight for researchers, provide references for teachers, help motivate learning and build the character of students, improve the quality of learning in schools, and become a reference for PGSD FIP UNP students in creating and developing learning media in the form of digital comics (Hidayat & Syahidin, 2019). The assumption of this study is that digital comic media can be tested for validity, practicality, and effectiveness. The limitations of this study include time, cost, and energy, so it was only developed on the elements of Pancasila in grade IV SD.

Research relevant to the development of digital comic media for learning in elementary schools includes several studies. Puji Handayani (2020) in her research found that comic media can increase elementary school students' interest in reading, with an average score of 3.75 and a percentage of 79% which is in the "high" category. Ashabul Khairi (2016) developed character-based comic media that was very valid and practical to use, obtaining a validity value of 94.22% and a practicality value of 87%. Mila Kurnia Warsih (2018) examines the effectiveness of culture-based mathematics comic learning media for grade IV elementary school students on semester II material. Riskika Febriyandani (2021) developed comic media for learning math fraction material for grade IV SD with the Research & Development development research method.

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RESEARCH METHOD

Development Model

This research is Research and Development. According to Sudaryono (2016), development research is a method used to produce and test the effectiveness of certain products. Sugiyono in Haryati (2016) states that development research aims to develop or improve products, and test their validity, practicality, and effectiveness. Borg and Gall in Ainin (2013) added that this research aims to develop and validate educational products.

The development model used in this research is the ADDIE model. Angko and Mustaji in Kurnia et al (2019) explained that the ADDIE model is very relevant to use because it can adapt to various conditions, has high flexibility, and is effective. This model consists of five stages: analysis, design, development, implementation, and evaluation. Each stage provides a structured framework for the development of instructional interventions with revision and evaluation at each stage.

Development Procedure

Preliminary Study

At this stage, researchers collected information through observations and interviews in several elementary schools. The observation results showed that the majority of learning methods used were lectures, questions and answers, and occasionally using learning media such as teaching aids.

Model Development

The model used is the ADDIE model with the following stages:

- Analysis Stage
- Design Stage
- Development Stage
- Implementation Stage
- Evaluation Stage

The learning media was tested on fourth grade students of UPT SD Negeri 13 Saruaso. The research subjects were selected based on several criteria, such as suitability of school conditions, willingness to accept updates, and the absence of the use of digital comics in Civics learning. The data collected in this study include primary data obtained directly from research subjects and secondary data which is pre-existing information. Primary data includes the results of interviews and learning media validation questionnaires, while secondary data comes from the results of teacher and learner response questionnaires, as well as evaluation results, interviews, and observations.

Data collection instruments include learning media validation sheets, teacher and learner response questionnaires to assess the practicality of the media, as well as tests, interviews, and observations to measure the effectiveness of the media in shaping learner character. The validity data was analyzed using a Likert scale and the calculation of the final score based on the percentage of scores from the experts.

The validity category of the learning media is determined from the percentage obtained, with categories ranging from very valid to very invalid.

Practicality data analysis techniques involve assessing teacher and student responses to learning media using a Likert scale, with categories ranging from very good to less good. The final score of practicality is calculated to determine the category of media practicality. To test the effectiveness of the media, the test data of students' learning outcomes seen from the pretest and posttest results, as well as interviews, observations, and sociometric techniques that measure the improvement of students' appreciative character are used. The sociometry technique collects data on learners' social relationships by choosing friends who are liked and disliked.

The steps of the effectiveness test involved asking students respectful questions, interviewing fourth grade teachers, and observing students' attitudes before, during, and after learning using digital comic media. The observation data was analyzed using the percentage scoring formula to determine the final score.

RESULT AND DISCUSSION

Data Analysis

Analysis of the Validity Test Results of Digital Comic Media The digital comic media that has been developed is then validated by the validators. Suggestions for improvement and validator comments become a reference for revision so that it can produce comic media that is valid and ready to be tested.

Material Expert Validity Test Results

The material validity test was carried out by giving an assessment questionnaire sheet to the material expert. Assessment by Mr. Hasmai Bungsu Ladiva, M.Pd as a material expert on May 06, 2024 as the first validation and on May 18, 2024 as the second validation. Based on the results of the validation calculation in the attachment, the results of the first material validation calculation, obtained a percentage of 56.25% with a valid category. The general assessment given by the validator is that it can be used with minor revisions with some suggestions for improvement, namely the media must start from the exposure of CP (Lesson Outcomes) which is then derived into learning objectives the material must be added in depth. After the media was revised based on these suggestions, it was continued with the second validation. The results obtained are a percentage of 81.25% with a very valid category. So, based on the results of the validation that has been carried out, the number of scores in the second validation is more than the first validation. The general assessment in the second validation is that it can be used without revision. Thus, the development of this digital comic media product is suitable for use in the field with material that is easy to understand.

Results of Validity Test for Linguistic Experts

The linguistic validity test was carried out by giving an assessment questionnaire sheet to linguists. Assessment by Mr. Chandra, S.Pd, M.Pd as a linguistic expert on May 06, 2024 as the first validation and on May 07, 2024 as the second validation.

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Based on the results of the validation calculation in the appendix, the results of the first language validation calculation, obtained a percentage of 62.05% with a valid category. The general assessment given by the validator is that it can be used with many revisions. Some suggestions for improvement, namely the use of effective sentences, the use of proper punctuation, the use of capital letters and many sentences that are typos or disconnected. After the media was revised based on these suggestions, it was continued with the second validation. The results obtained were a percentage of 87% with a very valid category. So, based on the results of the validation that has been carried out, the number of scores in the second validation is more than the first validation. The general assessment in the second validation is that it can be used without revision. Thus, the development of this digital comic media product is suitable for use in the field with language that is easy to understand.

Media Expert Validity Test Results The media validity test was carried out by giving an assessment questionnaire sheet to media experts. Assessment by Mr. Drs.Yunisrul, M.Pd. as a media expert on April 23, 2024 as the first validation and on April 30, 2024 as the second validation. Based on the results of the validation calculation in the attachment, the results of the first media validation calculation, obtained a percentage of 67.85% with a very valid category. The general assessment given by the validator is that it can be used with minor revisions. Some suggestions for improvement, namely the cover is made according to the learning media, the color composition is considered according to the proper composition and use harmonious colors. After the media was revised based on these suggestions, it was continued with the second validation. The results obtained were a percentage of 96% with a very valid category. So, based on the results of the validation that has been carried out, the number of scores in the second validation is more than the first validation. The general assessment in the second validation is that it can be used without revision.

Thus, the development of this digital comic media product is suitable for use in the field. Analysis of the Practicality Test Results of Digital Comic Media The practicality test was conducted to determine the level of practicality of the development of digital comic media that had been carried out. This digital comic media was tested in class IV UPT SDN 13 Saruaso with 19 students. The results of the practicality test can be seen based on the teacher and student response questionnaires as follows:

Results of Teacher Response Questionnaire on the Practicality of Digital Comic Media

During the learning process using digital comic media, the teacher observed carefully while monitoring students. Taking teacher responses as a practicality test was carried out by Darnawati, S.Pd.SD as the fourth grade teacher of UPT SDN 13 Saruaso which was held on May 22, 2024. Based on the results of the calculation of practicality in the attachment, the results obtained are a percentage of 95.83% with a very practical category. With a few suggestions when using the media, the image is enlarged again so that students see clearly. Thus, this digital comic media is declared very practical and can be used as one of the learning media innovations.

After the media trial at the research school and it has been improved according to the suggestions of the class teacher at the research trial elementary school, the author continues to disseminate digital comic media by teaching practice using digital comic media at the dissemination elementary school. The results of the teacher response questionnaire as a practicality test were obtained, namely a percentage of 100% with a very practical category carried out by Mrs. Lesly Diakhtari, S.Pd as a teacher of class IV UPT SDN 18 Saruaso which was held on May 22, 2024, the results of the teacher response questionnaire as a practicality test were a percentage of 100% with a very practical category carried out by Mrs. Anggi Idola Puyri, S.Pd.I as a teacher of class IV UPT SDN 03 Koto Tangah which was held on May 27, 2024.

Results of Student Response Questionnaires on the Practicality of Digital Comic Media

After learning using digital comic media is completed, the researcher directs students to fill out the student response sheet as a practicality test. This was carried out on May 22, 2024 in class IV UPT SDN 13 Saruaso with 19 students, on May 22, 2024 in class IV SDN 18 Saruaso with 11 students, on May 27, 2024 in class IV SDN 03 Koto Tangah with 20 students.

Based on the results of the calculation of practicality in the appendix, the results obtained are a percentage of 97% with a very valid category. Based on the results of these calculations, this digital comic media has been practically used in classroom learning. Students are also very excited during the learning process.

Analysis of the Results of the Digital Comic Media Effectiveness Test The effectiveness test is obtained from the learning outcomes of students through evaluation tests that have been done, the results of interviews, the results of observations and sociometric techniques which will later be used as a benchmark to measure the increase in the character of respect for students. Learners are said to have improved their character if there is a change in good attitude from the results of interviews, observations and increased student learning outcomes seen from the evaluation results. The test was attended by 50 students, consisting of 29 boys and 21 girls in elementary school.

Product Revision
Revised Results of Material Expert Validation

Based on the suggestions for improvements and comments from the material expert validators, the digital comic media developed can be used with minor revisions first. The following are things that must be corrected:
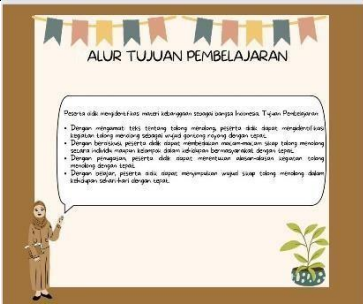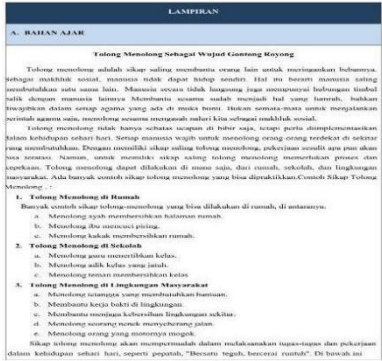
Table 1. Suggestions and Revisions from Material Experts

No.	Advice	Revised
1.	The media must start from the presentation of the CP (Lesson Outcomes)	The media has already started from the presentation of CP (Lesson Outcomes)
2.	The learning objectives of the material must be added in depth	The learning objectives of the material must be added in depth

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The following is a display of digital comic media based on suggestions for improvement and comments from material validators:

Table 2. Before and After Materials

No.	Before	After
1.		
2.		

Revised Results of Linguistic Expert Validity

Based on the suggestions for improvements and comments from the linguistic expert validators, the digital comic media developed can be used with many revisions. The following are things that must be corrected:

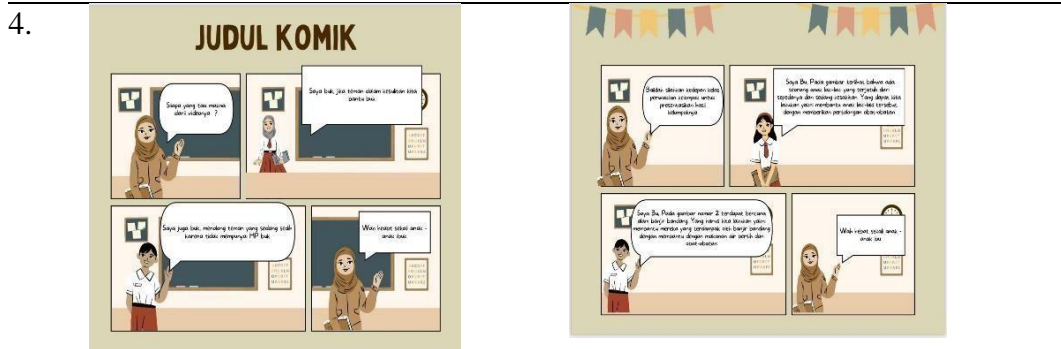Table 3. Suggestions and Revisions from Linguists

No.	Advice	Revised
1.	Use of effective sentences	the use of effective sentences is appropriate
2.	Improper use of punctuation	Use of punctuation is correct
3.	Inappropriate use of capital letters	The use of capital letters is correct
4.	Many sentences are typos or inconsistent.	Many sentences with typos or inconsistencies have been corrected correctly.

The following is a digital comic media display based on the improvement suggestions and comments of the linguistic validator:

Table 4. Before and After Language

No.	Before	After
1.		
2.		
3.		

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4.

Media Expert Validity Revision Results

Based on the suggestions for improvements and comments from the media expert validators, the digital comic media developed can be used with minor revisions first. The following are things that must be corrected:

Table 5. Media Expert Suggestions and Revisions

No.	Advice	Revised
1.	Cover is made according to learning media	Cover customized to suit learning media
2.	Color is considered according to the composition	The color is in accordance with the composition
3.	Use harmonious colors	Already using harmonious colors
4.	Embellishments and lack of interesting items	Attractive embellishments and items have been added

The following is a digital comic media display based on improvement suggestions and comments from media validators:

Table 6. Before and After Media

No.	Before	After
1.		

2.		
3.		
4.		

Discussion

Based on the research results described, it can be seen that the process of developing digital comic learning media is in accordance with the ADDIE model applied in this study. In this study, it consists of 5 stages, namely (1) the analysis stage consists of field observations and preliminary studies, (2) the design stage consists of designing and making media in the form of digital comics in Independent Curriculum learning, (3) the development stage consists of the validity test and media revision stages, (4) the implementation stage, namely the media will be tried out on the test subjects, (5) the evaluation stage which is the improvement stage of the developed learning media.

This ADDIE model consists of five components that are interrelated and systematically structured, which means that from the first to the fifth stage in its application must be systematic, cannot be sequenced randomly or we can choose which one we think comes first. The first stage, namely the analysis stage, is carried out by analyzing the needs and curriculum analysis. The second stage is the design stage, at this stage a product development design will be designed based on the analysis carried out. The third stage is the development stage, as for the digital comic development stage, namely making scenario scripts, making character

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drawings as well as comic text and comic story sounds. The fourth stage is the implementation stage, at this stage the product is implemented to students who have been validated by experts. The fifth stage is the evaluation stage, at this stage to find out how good the product developed is seen from the results of the teacher and student responses.

The results obtained from this research are as follows:

Validity Test Results

Material Expert Validity

The first material expert validity test was carried out by Mr. Hasmai Bungsu Ladiva, M.Pd as a material expert on May 06, 2024 as the first validation and on May 18, 2024 as the second validation. Based on the results of the validation calculation in the attachment, the results of the first material validation calculation, obtained a percentage of 56.25% with the category (valid). After the media was revised based on these suggestions, it was continued with the second validation. The results obtained are a percentage of 81.25% with a very valid category. It is in accordance with the modified opinion of Arikunto in (Firdawela & Reinita, 2021).

Linguist Validity

The first media expert validity test was carried out on May 06, 2024 as the first validation and on May 07, 2024 as the second validation. The results of the calculation of the first linguistic validation, obtained a percentage of 62.05% with the valid category, then continued with the second validation. The results obtained are a percentage of 87% with a very valid category. It is in accordance with the modified opinion of Arikunto in (Firdawela & Reinita, 2021).

Media Expert Validity

The first linguist validity test was carried out on April 23, 2024 as the first validation and on April 30, 2024 as the second validation. Based on the validation calculation results in the appendix, the results of the first media validation calculation, obtained a percentage of 67.85% with valid. After the media was revised based on these suggestions, it was continued with the second validation. The results obtained were a percentage of 96% with a very valid category. . It is in accordance with the modified opinion of Arikunto in (Firdawela & Reinita, 2021).

Practicality Test Results

The results of the media practicality test by teachers and students were overall very good. The results of the teacher's response showed very practical results, namely with a percentage of 100% and the results of the students' response were 97% with a very practical category. . It is in accordance with the modified opinion of Arikunto in (Firdawela & Reinita, 2021).

Effectiveness Test Results

Students' learning outcomes improved from before. Based on the table of calculation of the effectiveness sheet, it was found that the percentage of learning increased by 92%, meaning that 46 out of 50 students experienced an increase,

while 4 more people remained. The results obtained from this study are learning media in the form of digital comic media developed meet the criteria of valid, practical, and effective. The research shows that this digital comic media has a positive impact in learning Pancasila Education elements of NKRI (Unitary State of the Republic of Indonesia) in grade IV SD. In the learning process using digital digital comic media can provide many benefits, namely students easily understand learning due to interesting media and explanations that are easy to understand on learning media. As well as classroom management becomes easier and more comfortable. This research is supported by a statement (Widiantoro, 2015) which states that the effectiveness of the media developed must have an effect on learning outcomes.

CONCLUSION

The validity test results show that the digital comic learning media developed is valid and feasible to use in the field, with material expert validation of 81.25%, language validation of 87.5%, and media validation of 96%. The results of the practicality test show that this media is very practical to be used by grade IV elementary school students, with teacher responses reaching 100% and student responses 97%. The effectiveness test shows that this digital comic media is effective to use, as evidenced by the increase in evaluation results and interviews with classroom teachers. For utilization suggestions, teachers can use this digital comic media to improve student character because it has been proven feasible, practical, and effective. This media can also be used by students as a learning tool. For dissemination suggestions, this product can be used in all grade IV elementary schools in three schools in Tanjung Emas, Tanah Datar Regency, taking into account the characteristics of students. Further product development suggestions include media development with different materials or subjects, media accessibility outside the classroom, and attention to student characteristics and needs for maximum benefits.

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