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Problem-Based Learning Virtual Comic Media Based on Cultural Diversity Material

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ABSTRAK

Terbatasnya media yang dimiliki guru untuk menunjang proses pembelajaran daring berdampak pada pembelajaran yang kurang optimal. Selain itu, guru memberikan penugasan sebagai metode yang paling dominan dalam pembelajaran daring. Penelitian pengembangan ini bertujuan menciptakan media komik virtual muatan IPS materi keberagaman budaya. Jenis penelitian ini yaitu pengembangan dengan menggunakan model ADDIE. Subjek uji coba para ahli terdiri dari 1 orang ahli isi, 1 orang ahli desain pembelajaran dan 1 orang ahli media pembelajaran. Uji coba siswa terdiri dari 3 orang siswa uji coba perorangan dan 9 orang siswa uji coba kelompok kecil. Metode pengumpulan data yang digunakan dalam penelitian ini adalah metode non tes dengan instrumen yang digunakan berupa lembar kuesioner/angket. Teknik analisis data yang digunakan yaitu analisis deskriptif kualitatif dan kuantitatif. Hasil penelitian yaitu media yang dikembangan layak dengan hasil review ahli isi mata pelajaran, ahli desain, ahli media pembejaran, hasil uji coba perorangan dan kelompok kecil secara berturut-turut memperoleh persentase skor (91,6%), (100%), (98,8%), (97,2%), dan (95,3%). Disimpulkan media pembelajaran komik virtual yang dikembangkan layak untuk digunakan sebagai media pembelajaran untuk membelajarkan materi IPS dalam muatan materi keberagaman budaya kelas IV SD. Media pembelajaran komik virtual dapat membantu siswa dalam belajar.

ABSTRAK

The limited media owned by teachers to support the online learning process impacts learning that could be more optimal. In addition, the teacher gives assignments as the most dominant method in online learning. This development research aims to develop virtual comic media for IPS content on cultural diversity. This type of research is developed using the ADDIE model. The data collection method used in this study is a non-test method, with the instrument used in the form of questionnaires. The data analysis technique used is descriptive qualitative and quantitative analysis. The results of the research are media that are developed properly with the results of the review of subject content experts, design experts, and instructional media experts, the results of individual and small group trials successively obtaining a percentage score (91.6%), (100%), (98 .8%), (97.2%), and (95.3%). Based on the validation and trial results, the developed virtual comic learning media can be used as a learning medium for teaching social studies material in the context of cultural diversity material for class IV SD. Virtual comic learning media can help students in learning.

1. INTRODUCTION

The Covid-19 virus impacts many parties, including the world of education. Changes in the learning system were initially carried out face-to-face (offline), but now learning has changed to long-distance or done in the network (R. D. P. Putri et al., 2021). Online learning is a learning method by utilizing an online network already connected to the internet while remaining in their homes and doing all learning activities online. Education during the Covid-19 pandemic resulted in all teachers learning distance online (Badriyah et al., 2021; R. D. P. Putri et al., 2021). In online learning, students are expected to be able to understand the material even though the teacher provides material without face-to-face meetings with technological developments. The speed of science and technology development requires

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changes in teacher teaching strategies. Teachers should guide students to find and process and develop data and information. Therefore, efforts are needed to improve the quality of learning by changing the role of the teacher as an information center (teacher-centered) to acting as a facilitator, mediator, and friend who provides conditions conducive to learning knowledge construction take place. The rapid development of technology in education demands teacher skills in using technology to manage learning in the classroom (Magdalena et al., 2022; Pendy et al., 2021).

The existence of technology is very influential in online learning applied by teachers. This is because technology can help teachers and students to think innovatively to make the learning atmosphere more interesting, and of course, students are more enthusiastic about learning and enthusiastic about taking lessons even with an online learning system (Aurora et al., 2019; Suarni et al., 2021). Advances in technology, especially in the field of multimedia applications. Multimedia applications are often of strategic value or can increase excellence. In their implementation, multimedia is used as a learning medium in elementary schools (Kumalasani, 2018; Nauman et al., 2020). Learning media can transmit messages from the sender to the recipient to stimulate students' thoughts, feelings, attention, and willingness to encourage the learning process (Habibah et al., 2020; Wicaksono et al., 2020). Learning media often provides material to support both thematic learning and other learning. In integrative thematic learning, one of the material contents is Social Sciences. Social Sciences, namely studying various social sciences and humanities disciplines which are scientifically summarized in providing insight and in-depth understanding to students (Kanji et al., 2019; Yuanta, 2020).

However, teachers still experience limitations in supporting the learning process, especially in preparing learning media. In the learning process, many teachers do not use audio-visual media during learning because the teacher still needs to be more skilled in using this media. Finally, in the learning process in the classroom, the teacher is more dominant in explaining the material without learning media (Astutik et al., 2021; Supartayasa et al., 2022). The technological competence of teachers still needs to improve in developing computer-based media independently, and the use of media in social studies learning still needs to be improved (Sinsuw et al., 2017). Based on the results of observations and interviews that have been carried out, it is known that teachers have limited media to support the online learning process. Teachers usually only use textbooks provided by schools. In addition, the teacher gives assignments as the most dominant method in online learning. Assignments made by the teacher regarding the content of the material. So that in the learning process, students tend to memorize the content of the subject matter rather than interpret or understand the content of the material studied in integrative thematic learning. One of the material contents is Social Sciences.

There is a gap between expectations and the reality that there is a need for learning innovations during a pandemic. In response, efforts are needed to develop learning media that can help facilitate learning activities during this pandemic. Media use in learning can overcome the diversity of student learning styles. In addition, using media can make learning more meaningful (meaningful learning) (S. D. Putri et al., 2019; Wahyuningtyas et al., 2020). Meaningful learning is a learning process so students more easily understand and learn because the teacher can easily relate experiences or knowledge already in their minds (Ardiani et al., 2022; Handayani, 2017). One of the media that can be used is virtual comic media. Virtual comics are pictorial media packaged in a virtual form that can be accessed online. The use of virtual comic learning media helps students learn independently because comics have simple language characteristics so that they are easily understood by students, especially at the elementary school level. It can make it easier for students to find concepts independently. Previous research findings state that comic media is appropriate for learning (Puspitasari, 2017; Wibowo et al., 2021). Comic media with the discovery learning model is effectively used for Civics subjects (Pitaloka et al., 2017). Virtual comic media is very effective in online learning (N. K. Darmayanti et al., 2021; Megantari et al., 2021). Virtual comic media is suitable for learning (Kusuma Putra et al., 2021). In this regard, we need an innovative, efficient, and flexible learning media that is adapted to the needs of students and the current state of education. Thus, this research aims to create problem-based learning virtual comic learning media on social studies content on cultural diversity in fourth-grade elementary schools.

2. METHOD

This type of research is development research carried out to develop certain products and test the effectiveness of the products developed. The procedure used in this research is the ADDIE development model, which consists of five systematic steps: analysis, design, development, implementation, and evaluation (Tegeh, 2014). Visually the stages of the ADDIE model can be seen in Figure 1.

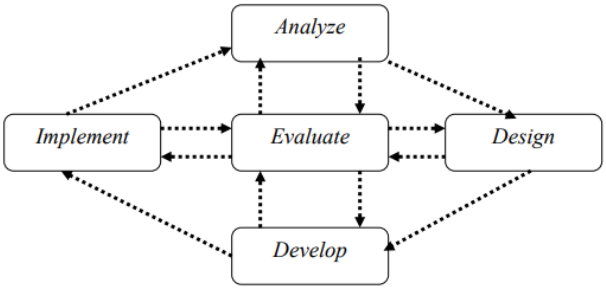

Figure 1. Stages of the ADDIE Model

(Tegeh, 2014)

The ADDIE development model is used because it has the advantage that a systematic work procedure for each step that will be passed or carried out always refers to the previous step so that an effective product is obtained. As for the steps of the ADDIE development model, the first stage, namely analysis, is the stage of identifying the problems and needs of students and defining what will be developed. The analysis that will be carried out in this study is to analyze the needs of students in learning as it is today, namely distance learning. It is necessary to need learning media that will be easy to understand and interesting for students. This stage is carried out to design ideas and concepts from the results at the analysis stage. The second stage, namely the design or planning stage, is needed to easily implement virtual comic learning media at the development stage because the design is clear and systematic. A dialogue design, usually a storyboard, is carried out at this stage. This storyboard functions as a medium for conveying ideas to others through images or text, then designing a display that consists of several displays such as color display, background, and font type. After creating a storyboard and display design, the next step is selecting characters for virtual comics. Then proceed with the development stage. At this stage, the designs made to make comics are visualized. At this development stage, a recreating comic is carried out, which is taken from internet sources in the form of pictures of cartoon characters. After the comic drawing is finished, then proceed to Microsoft PowerPoint. The finished comic image is typesetting and audio recorded on Microsoft PowerPoint. After making comics on Microsoft PowerPoint, the next step is to convert them into video form to become virtual comics. The fourth stage is the implementation stage. At this stage, it is necessary to have a product testing stage for the development of virtual comic learning media, which is applied to students by the material specified in the development of virtual comic learning media. Then the last stage is the evaluation stage (evaluation). This stage is a process to see whether the virtual comic that has been made is successful according to initial expectations or not. The evaluation phase is carried out after the data at the implementation stage has been collected.

Product trials in this study were trials by experts and trials on students. The test subjects for the experts consisted of 1 content expert, one instructional design expert, and one instructional media expert. At the same time, the subject of the student trial consisted of 3 individual trial students and nine small group trial students. The assessment results are used as a guide in improving the media developed to produce learning media suitable for the learning process. Data collection methods in this development research use questionnaires, observations, and interviews. The observation method is used to collect information data through direct observation. The interview method collects the required data by conducting systematic debriefing. The Questionnaire/Questionnaire method is used at the implementation stage to measure the feasibility of products made properly. This questionnaire method is very useful for collecting student data or information. The instrument used in this development research is a questionnaire. The questionnaire grids used in the study are presented in Table 1, Table 2, Table 3, Table 4, and Table 5.

Table 1. Design Validation Instruments

No.	Components	Indicator	Ket.
1	Development Model Used	a. The suitability of the development model used with the characteristics of the product produced	
		b. Appropriate reasons for selecting the development model	
2	Development Stages	a. Compatibility of the stages of development carried out with the development model used.	
		b. The accuracy of the description of the stages of development	

No.	Components	Indicator	Ket.
3	Clarity, Practicality, and Consistency	a. Clarity of development stages based on the development model used b. The level of practicality of the development process implemented c. The sequence of development steps	
4	Formative Evaluation	a. The accuracy of the evaluation design according to the model used b. Clarity of evaluation instruments developed c. The accuracy of the experimental subjects involved	

Table 2. Material Expert Instrument

No.	Aspect	Indicator	Item Number	Total Item
1.	Curriculum	1. Suitability of the material with Basic Competency	1	3
		2. Conformity of material with indicators	2	
		3. Suitability of the material with the goal	3	
2	Contents/ materials	1. Material truth	4	9
		2. The accuracy of the material	5	
		3. The importance of the material	6	
		4. The depth of the material	7	
		5. The attractiveness of the material	8	
		6. Suitability of the material with the characteristics of students	9	
		7. The material is easy to understand	10	
		8. The material presents real life	11	
		9. The concept of matter can be logically clear	12	
3	Grammar	1. Using appropriate and consistent language.	13	3
		2. The language used is by the characteristics of the students	14	
		3. Appropriate intonation of words/sentences with student characteristics	15	
		Jumlah		**15**

(Suartama, 2016)

Table 3. Instructional Design Expert Instruments

No.	Aspect	Indicator	Item Number	Total Item
1.	Objective	1. Clarity of learning objectives	1,2	4
		2. Consistency of goals, materials, with evaluation	3,4	
2	Strategy	1. Submission of material provides logical steps and a free flow of navigation	5,6	6
		2. Learning activities can motivate students	7	
		3. Give examples in the presentation	8	
		4. The explanation of the material is interesting, and the characteristics of the students	9,10	
3	Evaluation	1. Provide feedback on evaluation results	11	3
		2. The questions presented are by the indicators and learning objectives or material	12	
		3. Clarity of instructions for working on the problem	13	
		Total		**13**

(Suartama, 2016)

Table 4. Instruments of Learning Media Experts

No.	Aspect	Indicator	Item Number	Total Item
1	Appropriateness	1) Media according to Basic Competency	1	3
		2) Media according to indicators	2	
		3) Media according to learning objectives	3	

2	Accuracy, Current, Clarity	1) The material in the medium is accurate	4	5
		2) The material in the latest media	5	
		3) The material is clear in explaining the concept	6	
		4) The material is not biased	7,8	
3	Appearance	1) Text	9,10,11	14
		2) Image	12,13,14	
		3) Color	15	
		4) Animation	16,17	
		5) Sound	18,19,20,21	
		6) Videos	22	
		Total		**22**

(Suartama, 2016)

Table 5. Individual and Small-Group Trial Instruments

No.	Aspect	Indicator	Item Number	Total Item
1.	Media	1. The fun of learning using virtual comics.	1	5
		2. Ease of use.	2	
		3. The attractiveness of virtual comic display	3	
		4. The effectiveness of virtual comics.	4	
		5. Clear instructions for using virtual comics.	5	
2	Material	1. Ease of learning material.	6	4
		2. Material usefulness.	7	
		3. Clarity about the evaluation.	8	
		4. Clarity of feedback.	9	
3	Learning	1. Media interactivity.	10	3
		2. Increase interest in learning.	11	
		3. Provision of examples.	12	
		Total		**12**

(Sudarma, 2015)

The data analysis method used in this development research is a qualitative descriptive analysis method and a quantitative descriptive analysis method. The qualitative descriptive analysis method processes data by systematically compiling data in sentences, words, and categories to find general conclusions. The results of the data analysis are then used to revise the product being developed (Agung, 2018). At the same time, the quantitative descriptive method is a way of processing data by systematically compiling it into numbers and percentages to get general conclusions (Agung, 2018). This study used quantitative descriptive analysis to process qualitative data obtained through a questionnaire in the form of a score. Using a modified Likert scale presented in Table 6.

Table 6. Table of Likert Scale Assessment Categories

No	Score	Description
1	1	Strongly Disagree
2	2	Disagree
3	3	Agree
4	4	Strongly agree

(Sugiyono, 2017)

To provide meaning and make decisions on the feasibility of the product being developed, the conversion of the level of attainment of a scale of 5 in Table 7 is used.

Table 7. Achievement Level Conversion Table

No	Achievement Level (%)	Qualification	Description
1	90 - 100 %	Very good	No need to revise
2	75 - 89 %	Good	Slightly revised
3	65 - 74 %	Enough	Adequately revised
4	55 - 64 %	Not good	Many things were revised

No	Achievement Level (%)	Qualification	Description
5	1 - 54 %	Less	Repeated product creation

(Tegeh, 2014)

3. RESULT AND DISCUSSION

Results

The design for the development of virtual comic media applies the ADDIE development model, which consists of analysis, design, development, implementation, and evaluation stages. The results of the design assessment that has been carried out are presented in Table 8.

Table 8. Results of the Design Assessment

No.	Aspect/Statement	Evaluation	
		Yes	No
	ADDIE Development Model Components		
1	The ADDIE development model fits the characteristics of virtual comic media	√	
2	The reason for choosing the ADDIE development model is right	√	
	Components of the development stages of virtual comic media		
3	The stages of developing virtual comic media are by the ADDIE development model	√	
4	The stages of the development of virtual comic media are described precisely	√	
	Components of Clarity, Practicality, and Consistency		
5	The stages of developing virtual comic media with the ADDIE development model are clear	√	
6	The process of developing virtual comic media is carried out practically	√	
7	The steps for developing virtual comic media are carried out sequentially	√	
	Formative Evaluation Component		
8	The evaluation design of virtual comic media is by the ADDIE development model	√	
9	The evaluation instrument developed is clear	√	
10	The test subjects involved were just right	√	

Based on the assessment results, it is known that the design for the development of virtual comic media is stated to be by the ADDIE development model, namely the analysis stage, the design stage, the development stage, the implementation stage, and the evaluation stage. At the analysis stage (Analysis), an analysis of the needs of teachers and students is carried out in learning. From the results of the interviews, it is known that the teacher has limited media to support the online learning process. Teachers usually only use supporting books the school provides, so teachers need varied and effective media. Then proceed with analyzing learning facilities in schools and analyzing the material. Based on the analysis of learning needs, the Basic Competencies and Learning Indicators are selected to be better understood by students in learning. The goal is that the developed media can help teach students by the demands of competence in a lesson. Basic competencies and indicators are described in Table 9.

Table 9. Table of Basic Competencies and Indicators

Basic Competencies	Indicators
3.3 Identify social, economic, cultural, ethnic, and religious diversity in the local province as the identity of the Indonesian nation and its relationship with spatial characteristics.	3.3.1 Identifying the diversity of Indonesian culture 3.3.2 Analyzing the characteristics of traditional houses, traditional clothing, regional dances 3.3.3 Analyzing the diversity of surrounding cultures 3.3.4 Implementing a tolerant attitude toward cultural diversity

The second stage is the design (design). At this stage, the activities are making design plans (storyboards) and designing virtual comic learning media components using the Canva application. The third stage is the development stage. The development stage is the step for making real learning media. The steps carried out at this stage include making cover designs and contents of comics, uploading comics, making product feasibility questionnaires for media design experts, making product feasibility questionnaires for material experts, and validation from media experts and material experts. The

development stage evaluates the final product results from questionnaires given by learning content experts, learning design experts, learning media experts, and students. The process of revising or improving the product is carried out by the comments and suggestions of experts and students so that the final product is suitable for use. Product trials were conducted by trial subjects, namely subject content experts, instructional design experts, instructional media experts, and students through individual trials and small group trials. Product trials were conducted to determine the feasibility of the product developed using a questionnaire instrument. The results of product trials by trial subjects are presented in Table 10.

Table 10. Percentage of Product Trial Results

No.	Trial Subjects	Result	Qualification	Information
1.	Content/Study Material Expert	91,6%	Very good	Revision according to expert advice
2.	Learning Design Expert	100%	Very good	Revision according to expert advice
3.	Learning Media Expert	98,8%	Very good	Revision according to expert advice
4.	Individual Trial	97,2%	Very good	No revision needed
5.	Small Group Trial	95,3%	Very good	No revision needed

Based on the results of the product trials that have been carried out show that the percentage of the feasibility results of developing problem-based learning virtual comic learning media on social studies content on cultural diversity material according to the trial subjects successively obtained percentage results of 91.6%, 100%, 98, 8%, 97.2%, and 95.3% overall have a score percentage with very good qualifications, so that the developed virtual comic learning media is very feasible to use in the learning process. The fourth stage is the implementation stage. This stage is carried out to determine whether the developed comics have good criteria. This implementation stage is implemented on several randomly selected readers. This stage aims to find out how the reader responds to the comics that are made. Comments and suggestions from readers during this procedure are considered for product improvement so that the product becomes perfect. The final stage of developing virtual comics using the ADDIE model is the evaluation stage. Evaluation is carried out in a formative manner. Evaluation activities are carried out during the learning media product development process to avoid errors in the final product. Evaluation is carried out at the development stage of the process, namely at the analysis stage, design stage, and development stage.

Discussion

This development research produces a product, namely learning media. The learning media developed is virtual comics based on problem-based learning for fourth-grade students on cultural diversity. The purpose of developing problem-based learning virtual comic learning media is to help students learn and find concepts independently and to regenerate students' enthusiasm and attention in learning. Problem-based learning virtual comic media based on social studies content on cultural diversity was developed using the ADDIE development model. It is because the ADDIE development model is very appropriate for developing problem-based learning-based virtual comic media. The results of the review from experts regarding the design of virtual comic media based on problem-based learning, which was developed according to the ADDIE development model. The components assessed include the development model used, development stages, clarity, practicality, coherence, and formative evaluation. In the development component used, what is assessed is the suitability of the development stages carried out with the development model used in the components of clarity, practicality, and coherence. The formative evaluation component that is assessed is the clarity of the instruments and test subjects involved.

The study results show that PBL-based virtual comic media is very suitable for use in the learning process. The assessment results by experts and the test subjects evidence it. The feasibility results of the content/subject matter expert, namely the Social Sciences content/material discussing cultural diversity in the developed virtual comic, obtained very good qualifications. This virtual comic material assessment aspect is assessed from curriculum, materials, and grammar. In the curriculum aspect, assessing the suitability of the material with basic competencies, indicators, and learning objectives. The material aspect assesses the correctness of the material, accuracy of the material, the importance of the material, depth of the material, the suitability of material with student characteristics, the material is easy to understand, the material represents real life, and the concept of the material can be logically understood. Grammatical aspects are assessed regarding appropriate and consistent language, the language used according to

student characteristics, and the suitability of intonation/sentences with student characteristics. The preparation of material carried out in media development must pay attention to several aspects, namely the accuracy of the material, the depth of the material, the attractiveness of the material, and suitability with student characteristics (Aprilla, 2020; N. K. D. Darmayanti et al., 2021; Irianti, 2022). It is very important to do so that the material presented can achieve the learning objectives. It corresponds to the steps needed to match the desired learning objectives (Mahendra et al., 2021; Rohmanurmeta et al., 2019).

The virtual comic media that was developed obtained very good qualifications. Aspects of the design assessment of virtual comic learning are assessed from the design aspect. All aspects have very good qualifications and are highly approved by experts. The expert comments that revising the learning design complements the learning methods used in the lesson plan. In learning, selecting and using the right method will facilitate the learning process so that the expected learning objectives can be achieved optimally (Harahap et al., 2022; Marliani, Siagian, 2022). Vary the background in the virtual comic conversation column to make it more interesting for students. In this case, it is necessary to improve the conversation column to attract students' attention more so that the learning objectives can be achieved by using virtual comic media. The teacher must consider seven criteria in the use of learning media, namely, the media used is by learning objectives, the media used is by the characteristics of the subject matter, the media used is by the student's condition, the teacher's ability to use the media, the media used can increase motivation student learning, the media used is varied and innovative, and the media used should be well known to students or be contextual. Virtual comic media is expected to facilitate teaching and learning to achieve learning objectives (Harahap et al., 2022; Miftah et al., 2022).

The virtual comic that was developed received a positive response. This virtual comic has an interesting story and easy-to-understand material. Interesting media can make it easier for students to understand a material (Ayu Cahya Pinatih, 2021; Fitriani et al., 2021). The virtual comic media develops All these aspects so that students can easily understand the material presented in this virtual comic and increase student interest and motivation in learning (Angga et al., 2020; Kurniawati et al., 2021). The PBL-based virtual comic media that was developed is very feasible to be used in the learning process, especially in social studies content. This finding is reinforced by previous research, which shows that comic media is very feasible to use in learning (Irianti, 2022; Salahuddin et al., 2020). PBL-based virtual comic development research is limited to design and validity testing. The effectiveness test cannot be carried out due to the pandemic, which requires all students to study from home, so the learning process cannot be carried out directly in the classroom to collect effectiveness test data. For future researchers, it is hoped that they can use the results of this study to serve as guidelines for further research. The implication of the research results on the development of PBL-based virtual comic media is that students can learn social studies, especially cultural diversity material, using the developed PBL-based virtual comic learning media. To get meaningful learning activities, students are led to construct their knowledge through problem-based learning experiences actively.

4. CONCLUSION

PBL-based virtual comic media social studies subject material on cultural diversity have very good qualifications and is suitable for learning. This research motivates teachers to take advantage of increasingly sophisticated technology because the virtual comics developed can help the online learning process and add to the teacher's digital media collection.

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