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Development of Ethnoscience-Contained Digital Comics to Improve Literacy and Instrument Local Wisdom Values in Class IV Students in Jembrana

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Abstract

This study aims to know the development of digital comics containing etnhosains to Increase Literacy and Instrumental Local Wisdom. The population of this study is 4 rd grade students in Jembrana Elementary School. This study uses the development of R&D (Research and Development), with the ADDIE method (Analysis, Design, Development, Implementation, Evaluation). Facts collection techniques the usage of the method of statement, interviews, questionnaires, and documentation. The contraptions in this take a look at had been validation sheets of media professionals and fabric experts as well as pupil response questionnaires. Record analysis the usage of a Likert scale to determine the excellent of the evolved comic media products. Furthermore, practicality is obtained from the responses of elementary students in the preliminary trial, restrained trial, and scale trial score in the "very good" category. Based totally at the outcomes of facts analysis of media, material specialists, and pupil responses, it could be concluded that comic media are declared appropriate to be used for mastering.

Keywords:Comic, Media, Local Wisdom, Etnhosains

Introduction

According to the opinion of Yao & Guo (2018), education can be said to be important in the development of science and technology. Added to the opinion of Graham (2020) that education is an important investment in the creation of human resources, the opinion of an expert named Kang et al. (2021) that one effort to improve the quality of human resources is through learning (Kang et al., 2021). According to Cofré et al (2019) in his opinion, learning means a process organized by the teacher to teach students in the learning process to acquire and process knowledge, skills, and behavior. Conceptually, learning activities must be close to the environment (Liu et al., 2019). Learning activities must take time to take advantage of the existing potential of the environment and local wisdom so that learning is more meaningful, but in reality this has not been done by the teacher. Medium learning can be achieved through experience, learning media, environment, and cognitive strategies (Hu et al., 2018).

Based on the opinion of Agustina (2013) states that if the era in the field of information technology continues to move rapidly, the need for an IT-based concept and teaching and learning (education) mechanism becomes inevitable. According to an expert named Nugraha et al (2020) How to grow the quality of education requires many solutions in improving curricula, learning innovations, or creating educational infrastructure for optimal learning activities. Based on Riyadi (2018) The development of this technology has a major influence on human

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life, especially in the field of education. The influence of increasingly rapid technological advances provides a new atmosphere in the world of education, encouraging educators to guide and direct how to use digital media technology in the world of education.

The development of Science and Technology (IPTEK) has had an impact on the world of education, especially in the learning process. Based on Suryadi (2019) he has an opinion that with the development of the use of technology, the learning process experiences changes or changes, for example from the classroom to be anytime and anywhere, and from offline to online. According to a survey by the National Counterterrorism Agency (BNPT) in 2018, local wisdom can ward off radicalism, the public's belief that local wisdom is crucial for reducing radicalism and all negative understandings is in the high category score, namely 63.60%. Also added by Hidayat & Sugiarto (2020) stated that the community's knowledge of local wisdom is still relatively low, namely 30.09%.

According to experts named Arneson & Offerdahl (2018) in their opinion, one of the basic knowledge of scientific disciplines is scientific learning, because science continues to equalize the existing era. Learning science has objectives based on (Kemendikbud, 2020), namely increasing intellectual abilities (high level thinking), solving problems systematically, achieving high learning outcomes, practicing expressing ideas, and developing student characteristics.

According to an expert named Njatrijani (2018), local wisdom is any form of wisdom that is based on good values that are believed in, implemented and maintained continuously from generation to generation by a group of people in a certain area or environment where they live. Added to the opinion from Santosa (2015) if local wisdom values have been integrated into the people who inhabit an area and become a reference in interacting with nature and behaving in a way that can provide a solid foundation for the environment that has been managed, including the relationship between nature and humans, it can so it's more appropriate and harmonious. This local wisdom starts from the community, then is spread in a non-formal way and is owned collectively in the relevant communities. However, advances in modern technology have triggered a cultural development, this is due to life having a dynamic nature.

The use of instructional media is quite crucial to support the learning process so that it makes it easier for students to be able to receive the information provided by the teacher. Learning media is an important element in the learning process. So that in order to create effective learning activities, we need a learning media that supports the absorption of as much information as possible by students. According to Nurrita (2018), learning media can be a stimulus for students if it is interesting in the learning process. Added by the expert, Widianto (2021), learning media is a tool that can be used by educational staff to support learning so that it runs well.

One of the learning media that is suitable to be applied in science learning in elementary schools is graphic media, namely comics. Comics are cartoon-shaped books that contain pictures and a series of words written in balloons to form a story designed to provide entertainment for readers. Based on Sudjana & Rivai (2020) there is an opinion that comic books can be used effectively by teachers in an effort to generate interest, develop vocabulary and reading skills, and broaden reading interest.

This is reinforced by the opinion of Kharisma (2019) who explains that comic media containing characters used in learning can effectively increase student learning outcomes and student character values such as honesty, responsibility, discipline, creativity and hard work. According to Yuberti (2015) Learning is a reciprocal relationship that occurs between students and other students as well as learning resources in a learning environment. Apart from that, comic media also entertains students, as in the opinion of Swandi et al., (2020) "Based on elementary school material, cartoon stories are unique and interesting, not only educational but also entertaining for students. Many children love and are interested in cartoon-shaped stories. The story of many children because they are so funny.

Kim & Lee (2016) said that "Since young children are more familiar with images than alphabetic text, more diverse media such as animated images will help children understand complex words more easily to support learning" media can support and help students understand learning easily with pictures. According to Muhson

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(2010), the definition of learning media is part of a learning resource that combines software (learning materials) with hardware (learning tools) to distribute information or as a source of information.

Learning that does not use media will make the interactions that occur cannot run optimally and the learning activities carried out cannot run optimally (Fakhrurrazi 2018) because the imagination of students is different and not directed without media which can make it easier for students to understand things explained by feeling and see the same thing in the reception of the material. Based on opinion from Siregar and Melani 2018; Wahyuningsih 2012) Especially comic media, this media is a visual communication medium that is quite unique because it combines images and text creatively, which can make it easy to convey information and easy to understand. According to Rizkiah (2018) One way to improve learning activities is to use or apply learning media needed by students and in accordance with the character of students and media that will be designed to support existing facilities in schools and support the abilities possessed by students.

Referring to previous research, research conducted by Arifah (2020) with the results of research that interactive comic media is valid and practical to use in learning science on heat transfer material. This may be the tendency for many students to prefer reading entertainment media such as comics compared to reading textbooks. Another reason, there are many pictures that stimulate students to read comics. This means that with comics as a medium that is simple, uses everyday language and is informative and educative accompanied by interesting pictures, it is expected to be able to motivate students to increase understanding of the material and knowledge. The author found a gap, namely with the same media so that later it is able to increase literacy values and Instruments of Local Wisdom Values.

The phenomenon that is happening now is learning activities, teachers are only guided by textbooks and LKS books and a lack of understanding about literacy, of course, in terms of ethnoscience. When viewed in terms of appearance, the teaching material also looks less attractive and can make students feel bored quickly. Effective use of learning media can certainly have an effect on student learning outcomes. This is corroborated by Lestari's opinion (2016: 148) which reveals that students are more pleased with the use of learning media because it makes it easier for students to understand the material so that it has an impact on increasing student learning outcomes. In addition, the literacy of students is increasingly decreasing. The material in the thematic books is still relatively small, making it difficult for students to anticipate existing problems, so that students deepen the learning material optimally and are motivated in learning, an effective way is needed.

With the description of the problem above, the researcher was tempted to do development research with the title "Development of Digital Comics with Ethnoscience Content to Increase Literacy and Instruments for Local Wisdom Values in Grade IV Students in Jembrana".

1.   Method

In this research, using the research and development (RnD) method or also called research development using the ADDIE model. The ADDIE development model is Analysis, Design, Development, Implementation, and Evaluation. The development of ADDIE was chosen because it is more appropriate for it to be applied in research to disseminate Ethnoscience-laden learning media to improve literacy and instrument local wisdom values in students.

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Figure 1. Model ADDIE

The development of learning e-comic media based on local wisdom runs smoothly in five stages and product testing activities, namely expert testing and individual testing. The subjects of this study were media experts, material experts, learning experts (fourth grade elementary school teachers) and 17 students of SD Negeri 1 Lelateng, 19 students of SD Negeri 2 Lelateng, 29 students of SD Negeri 3 Lelateng, 14 students of SD Negeri 1 Loloan Barat, 34 students at SDN 4 Lelateng, and 15 students at SDN 2 Loloan Barat. The data collection method used is a non-test method in the form of a list of questions. Validators and individual test subjects received questionnaires to determine the feasibility of learning e-comic media based on local wisdom from media experts, material experts, and learning experts.

Meanwhile, individual trials were carried out to determine the feasibility and attractiveness of e-comic learning media based on local wisdom. The data analysis technique used is quantitative descriptive analysis and qualitative descriptive analysis. Quantitative descriptive analysis was used to manage data from expert validation results as well as individual test-response questionnaires in the form of descriptive percentages.

2. Results And Discussion

This research produces a product in the form of a comic product "Ethnoscience". The results of the development research were obtained through the ADDIE design, which was carried out at each stage, so that they could materialize, explained as follows:

3.1. Analysis Phase

At the analysis stage, four analyzes must be carried out, namely student analysis, curriculum analysis, objective specification and material analysis.

3.1.1. Learner Nature Analysis

According to the results of student analysis, there were 7 students from SD Negeri 1 Lelateng, 9 students from SD Negeri 2 Lelateng, 9 students from SD Negeri 3 Lelateng, 4 students from SD Negeri 1 Loloan Barat, 4 students from SDN 4 Lelateng, and 5 students from SDN 2 Loloan Barat, the researcher conduct interviews with students using problem solving steps. It turned out that students had never used step problem solving and felt uneasy.

3.1.2. Curriculum Analysis

The results of the curriculum analysis carried out in elementary schools were based on the 2013 curriculum. According to an interview conducted with teachers at the school, 17 students at SD Negeri 1 Lelateng, 19 students at SD Negeri 2 Lelateng, 29 students at SD Negeri 3 Lelateng, 14 students at SD Negeri 1 LoloanBarat , 34 students of SDN 4 Lelateng, and 15 students of SDN 2 Loloan Barat, it was found that during the implementation of the 2013 Curriculum, teachers were still using a scientific approach in teaching and learning activities. Teachers are more dominant and do not involve students in finding solutions to the problems they face, resulting in students being less active and not used to solving their own problems. In the 2013 curriculum, there are several skills that are needed to be developed, including problem solving skills. To encourage students

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to solve problems independently, it is necessary to develop learning media. The media offered is digital comics based on local wisdom with the aim of training students to solve problems.

3.1.3.   Objective Specifications

After compiling indicators and determining basic skills, the researcher formulates learning objectives to be achieved by using digital comic media. The formulation of learning objectives is composed to contain elements of behavior, audience, class and conditions.

3.2. Design Stage

There are several stages in the design, namely test preparation, media selection, format selection and the initial design chosen according to the results of the analysis.

3.2.1. Test Compilation

Researchers prepared pretest and posttest questions based on valid and reliable test questions

3.2.2. Media Selection

The media used in ethnoscience to improve literacy and the instrument of local wisdom values is an attractive visual media and used as a medium for introducing local wisdom-based ethnoscience to students in Jembrana and can develop better problem-solving skills. Researchers developed digital comic media based on local wisdom, namely modifications of digital comics that are applied to ethnoscience and the relationship between media and local wisdom in Jembrana. Material in digital comics based on local wisdom in Jembrana contains explanations of environmental, cultural and social material. Apart from this material, there is a Google Link Drive where comic content can be accessed by students wherever they are and introduces Jembrana's local potential to the wider community.

3.2.3. Format Selection

Before compiling a digital comic based on local wisdom, the researcher first developed the plot so that the images were in sync with the dialogue flow, designed a layout consisting of character images and a narrative layout, colored the images, and entered the narrative using an application.

3.3. Development Stage

As a result of this development, the initial digital comic design included a cover to clarify the contents of the digital comic, gave comic characters so that students were interested in reading, provided an opening digital comic so that students knew the topic of discussion, the content of the digital comic itself contained ethnoscience narratives in Jembrana as well as depictions of comic characters. who wear traditional clothing according to environmental conditions in multi-ethnic Jembrana based on local wisdom in digital comic media as an innovation in this digital comic. A digital comic book product based on local wisdom with ethnoscience content

Figure 2. Cover Comic Digital

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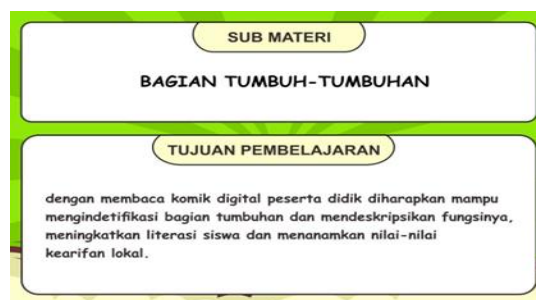**Figure 3. Introduction of Comic Digital**

Figure 4. Opening Comic Digital

Figure 5. Contents Of Comic Digital

3.4. Implementation Stage

The existing comic learning media that was developed was then tested on elementary school students totaling 17 students at SD Negeri 1 Lelateng, 19 students at SD Negeri 2 Lelateng, 29 students at SD Negeri 3 Lelateng, 14 students at SD Negeri 1 Loloan Barat, 34 students at SDN 4 Lelateng , and 15 students from SDN 2 Loloan Barat. Then, based on these results, the evaluation assessment carried out by fourth grade elementary school students achieved a score of 128 with a result percentage of 89.375%. some of them can be classified as very valid for use.

3.5. Evaluation Stage

The evaluation stage was carried out to analyze the validity and practicality of learning media based on local comic knowledge.

3.5.1. Validity Test Results

Media Expert Validation, there are 8 elements of questions, which include 6 elements of graphic aspects and 2 elements of linguistic aspects. According to the results of media experts, the digital comic developed achieved a score of 29 with a percentage of 90.6%, as a result it can be classified as very valid for use. Material Expert Validation, based on a score of 10 elements which include 4 elements of content feasibility aspects, 2 elements

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of language feasibility aspects and 4 elements of feasibility aspects of presentation. The results of expert evaluation of digital comic media development reached a score of 37 with a percentage of 92.5%, as a result it can be classified as very valid for use.

3.5.2. Practicality Test Results

According to the results of the assessment carried out by expert learning which develops a score of 53 with a percentage of 94.64% as a result it can be classified as very valid to use. There is a difference in the increase in ethnoscience literacy in students who use digital comics based on local wisdom which is higher and significant compared to classes using ethnoscience textbooks, namely in the medium category with an N-gain value obtained of 0.40 in the aspect of ethnoscience knowledge and 0 .37 on the aspect of scientific competence. The N-gain value of the experimental class was higher and significant than the control class in the aspects of knowledge, competence and scientific attitude and the N-gain value of the experimental class was not higher and significant than the control class which found indicators of content knowledge, procedural knowledge, explaining phenomena of scientific knowledge, interpreting scientific data and evidence and reflecting on the importance of science from a personal perspective.

3. Conclusion

The design of digital comic learning media based on local wisdom uses the ADDIE development model, which includes the Analysis, Design, Development, Implementation Stages, only up to individual trials, and Evaluation. The results from the media expert validator obtained a score of 29, which is a percentage of 90.6% in the very valid category. The results of the validator material expert get a score of 37, the percentage is 92.5% categorized as very valid. That is the result of the learning expert validator getting a score of 53 percentage 94.64% categorized as very valid. And the results of the responses of elementary school students got a score of 128 with a percentage of 89.375% in the very legitimate category. It can be concluded that the development of digital comic media can be used to increase literacy and values of local wisdom instruments in fourth grade elementary school students. Learning using comic-based media about local wisdom can be used as an alternative for teachers to add a variety of learning media, so that understanding of concepts can be increased because the media helps students improve scientific attitudes, remember material and make learning more exciting.

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