

Comics as Learning Medium During the Covid-19 Pandemic

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Abstract: This development research aims to develop products in the form of learning media which are packaged in the form of digital comics. The development method used is R & D-4D and comic design using Adobe Pothoshop and Comic Life software. Then to test the feasibility of the media, validation was carried out regarding the material and design. The development of learning media in the form of digital comics aims to facilitate teachers and students in the learning process and parents of students in accompanying their children to study at home during the Covid-19 pandemic. This research succeeded in developing comic learning media based on the scientific approach for class students. IV on the material around the rectangle in jpg and pdf format, so that it can be accessed via Android-based mobile phones. The percentage of validation test design experts and material experts was 81.667% and 83.571%. This shows that the media developed is suitable for use as learning media.

Keywords: Learning Media, Comic, R&D-4D, Covid-19

Running title: Comics as Learning Medium During Pandemic

INTRODUCTION

Implementation of the 2013 curriculum implemented through a scientific approach. In practice, this approach apply five important aspects, that is observing, asking, trying, reasoning and communicating. These five aspects must be clearly visible in the implementation of learning. Teachers must strive to organize cooperation in study groups, train students to communicate so that students find various concepts, problem solving results, rules and principles found through the learning process as a result of implementing the scientific approach

The problems that arise from the implementation of the 2013 curriculum are related to teaching materials, about how to prioritize the depth of the material with students' thinking abilities, the material that is too deep and makes students passive and their interest in learning decreases. Especially at this time during the Covid-19 pandemic, the learning process done online, therefore it is necessary to design learning methods so as to motivate students and the material can be conveyed optimally.

Learning media is one of the important elements in the learning process, the function of learning media is as a stimulus between teachers and students. Rayandra Asyar (2012) learning media is anything that can convey messages from sources in a planned manner, so that a conducive learning environment occurs. Widodo, S.A (2018) states that media is a tool that can be used to send messages to students so that learning objectives can be achieved. The learning media used must be designed in accordance with the curriculum so that learning objectives can be maximally implemented, this is in line with opinion Hujair's. A.H Sanaky (2013) which states that in order to create effective learning, the media design used must be adjusted to the applicable curriculum.

One of the learning media that can be used to motivate students is learning media in the form of comics. In addition, comic-based learning media can also foster a disciplined and responsible character for students. Wibowo, E. J (2013) learning media are used to introduce learning material that is difficult for students to understand in written form so that an attractive appearance is needed in the form of a combination of image visualization and animation. Comics are alternative media that can visualize material in the form of images. Meanwhile Subroto, E. N., Qohar, A., & Dwiyana, D. (2020) stated that math comics are a fun lesson. In line with this opinion Mediawati E (2011) comics can help learn difficult concepts and make it easier to remember lessons. Although comics can be used as learning media, not all material can be used as material in comics depending on the characteristics of the material (Mudlaafar, K., Setiawan, E., & Al Muflih, I. K. 2019). Therefore, the development of learning media is expected to be able to provide a variety of learning resources for students and increase motivation in learning mathematics during the Covid-19 pandemic.

Based on the explanation that has been described, the researcher aims to develop scientific-based learning media for grade IV Elementary Schools on Plane Figure material around a rectangle which is packaged in the form of a pictorial story by applying the steps in the 2013 curriculum characteristics, namely observing, asking, trying, reasoning and communication, to make it easier for teachers, students and parents to assist students in the online learning system during the Covid -19 pandemic.

MATERIALS AND METHODS

Method

The research method used R & D-4D which includes define, design, develop, and disseminate. The instrument

used in this study was a questionnaire given to media experts, material experts, which were then analyzed to see the ideals of comic media developed as a suitable medium for learning.

Procedure

define stage

Identifying problems in implementing the 2013 curriculum related to the delivery of online learning materials. The information obtained from this stage will later be used as the basis for designing scientific method-based learning comics

Design Stage

This stage of designing and making media which aims to produce scientific method-based learning comics on plane figure material which contains finding concepts and the circumference of rectangle. At this design stage, researchers used Adobe Photoshop and Comic Life software to design mathematics learning comics on rectangular material. The steps at the design stage, namely

1. Designing a scientific method-based math comic story line on rectangular material
2. Designing the characters in the comic.
3. Determine the names of the characters in the comic
4. Design the background for the comic

Develop stage

The development stage is the validation stage of learning media in the form of a comic based scientific method. This validation stage done to see the feasibility of the media being developed in terms of design and content. This validation done two design experts to see the feasibility in terms of appearance and design, content validation done three teachers to see whether the contents of the comics were in accordance with the basic competencies and material competency standards.

Dissiminate Stage

After being declared feasible by the validators, namely media experts and material experts, the scientific method-based comics can be implemented as learning media.

Data analysis

Data analysis in this study includes the validity of the media obtained from the validation results of material experts and media experts, analyzed quantitatively by using the following formula

$$N = \frac{\sum_{i=1}^n xi}{m}$$

Meanwhile, to determine the level of media validity is shown in Table 1 .

Table 1. Validity Criteria

Score Range	Category
$\bar{x} > (M_i + 1.5 SB_i)$	Very Good
$(M_i + 0.5 SB_i) < \bar{x} \leq (M_i + 1.5 SB_i)$	Good
$(M_i - 0.5 SB_i) < \bar{x} \leq (M_i + 0.5 SB_i)$	Adequate
$(M_i - 0.5 SB_i) < \bar{x} \leq (M_i - 0.5 SB_i)$	Poor
$\bar{x} \leq (M_i - 1.5 SB_i)$	Not Applicable

Anas Sudijono, (1987).

RESULTS AND DISCUSSION

Results

This research succeeded in developing scientific-based comic learning media for elementary school students in grade IV on rectangular circumference material. With basic competencies 3.1 and 3.2. Comics are designed using comic life software, the design results are converted into pdf and jpg formats so that they can be accessed via Android-based cellphones. The following are the results of the comics that have been developed



Figure 1. Comic Cover

Figure 1.Front page (comic cover) which informs the material in the comics and competencies according to the 2013 curriculum teacher handbook reference, namely lesson 6 on flat buildings with basic competencies 3.1 and 3.2. The comic developed in this study (part 2) is a continuation of previous research (part 1) about the circumference of a rectangle that has been tested and has been declared worthy of being a learning medium.



Figure 2. Basic Competencies

Figure 2. Describe the basic competencies that are on the front page of the comic, namely Competence 3.2 distinguishing the nature of the multi-faceted regular and irregular and basic competence 3.2 explaining and determining the circumference.

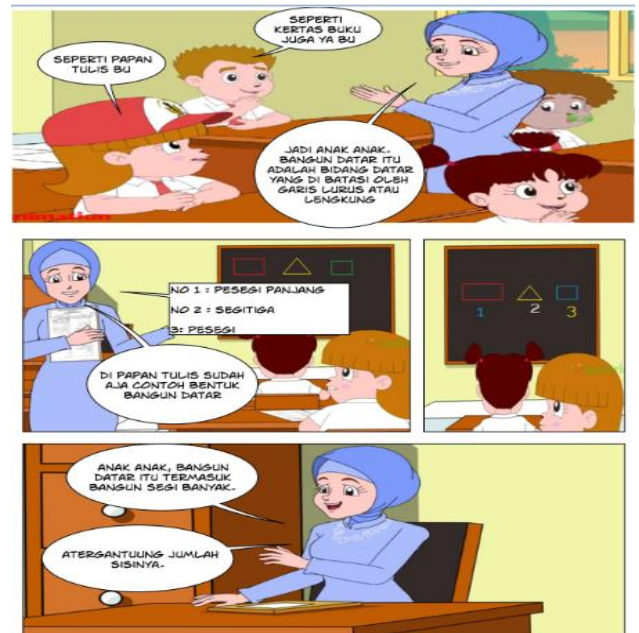


Figure 4. Interaction between Teacher and Student

Figure 4. In this section, the teacher gives questions, which stimulates students to think and try to answer questions given by the teacher. The scientific approach applied in this section is to ask and communicate



Figure 3. learning Process in the Classroom

Figure 3. Learning in the classroom. The teacher greets students and begins to stimulate students with questions so that there is feedback between the teacher and students regarding the material circumference the rectangle. In this section, the scientific approach that is applied is observing and asking questions



Figure 5. Giving Discussion Assignments

Figure 5. In this section, the teacher gives assignments to do at home, before giving assignments, the teacher stimulates students with explanations in the direction of realistic reasoning. It is designed so that there is communication between students and students as well as students and parents of students. The scientific approach applied in this section is trying and reasoning.



Figure 6. Proses Diskusi Siswa dengan Siswa

figure 6. The discussion process between students and students related to the assignment given by the teacher about the flat building material. In this section students reason realistically about the concept of a flat shape that has been explained by the teacher during learning, which then becomes material for questions or discussions with parents.

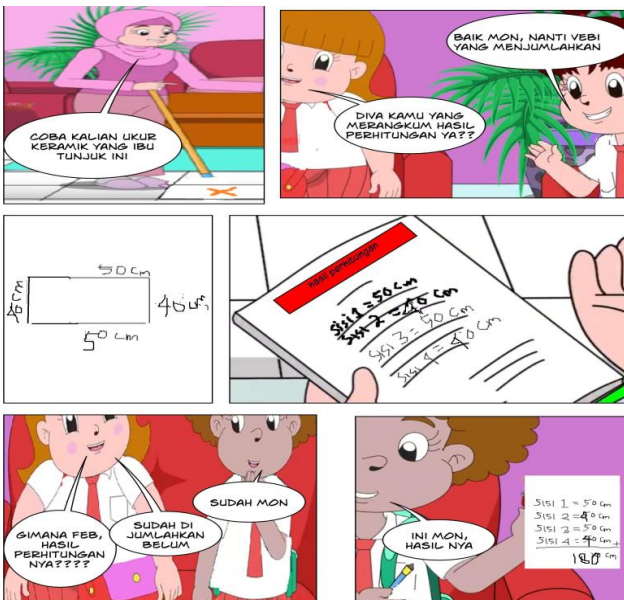


Figure 7. Proses Diskusi Siswa dengan Siswa dan Orang Tua Siswa

Figure 7. This section of the parents of students assisting the learning process and guiding students in doing assignments given at school related to flat building about the circumference of the rectangle. The scientific approach that appears in this section is observing, asking, trying, reasoning and communicating.

Comics developed were then validated by validators, namely media experts, material experts to see the feasibility of comics that have been created and developed as learning

media. Following are the validation results and the percentage of validity of the comics that have been developed.

Tabel 2. Comic Validation Results for Each Validator

No Validator	Average Score	Ideal Score	Persentase	Category
1 Media experts	58.5	70	83.571	Very Good
2 Material experts	49	60	81.666	Very Good

DISCUSSION

Learning media is a facilities the learning process, this is in accordance with the function of the media, namely as a stimulus in delivering material from teachers to students and media as well as a means of communication so that the learning process both in class and at home is more effective, creative and enjoyable. The development of learning media should be adjusted to the material to be taught so that the objectives of learning can be conveyed thoroughly. In line with this opinion Saputra. V.H., et al (2020) stated that media developed in accordance with the applicable curriculum will support the feasibility of the desired teaching and learning process. Selection of the right material and the right media will foster creativity and reasoning of students in interpreting the material provided, this will have an impact on mastery of the material provided. In line with this opinion, Saputra, V. H., & Permata, P. (2018) stated that attractive media designs will be easier for students to learn so that it can lead to creative questioning and reasoning.

The use of technology during this pandemic is very important so that the online learning system continues to run. But the problem with this online learning system is the lack of skills in utilizing technology, besides the negative impact of online learning during this pandemic, students tend to use cellphones not for the purpose of the learning process. The role of parents during the Covid-19 pandemic is very much needed to accompany their children to study at home, especially for elementary school children. Sabiq. A. F (2020) in his research related to parents' perceptions regarding learning at home, namely parents find it difficult to control and direct their children to learn. The problem based on the results of interviews with the parents of students is that they cannot understand the material provided by the teacher to students through learning applications, so that learning assistance at home is not optimal. Another problem with this online learning method is the difficulty of teachers in delivering material via online applications, because not all students can understand the instructions given by the teacher, especially students who have parents who cannot operate cellphones for learning.

This development research has produced learning media in the form of comics with validation results from media experts showing a value of 83.571% which means that the media design developed has very good quality in terms of design. Meanwhile, from the results of the material expert's validation, it was obtained a value of 81.66%, which means that the material provided was in accordance with the basic competencies and material indicators that were packaged in comic form, the comic story line was in accordance with the objectives of the 2013 curriculum, namely the steps of the scientific approach. From the analysis of the results of the validation of media experts and material experts, it means that the media developed is in accordance with the applicable curriculum and attractive media designs so that when the media is used as a learning medium, it can increase the creativity and reasoning of students. Another analysis related to the media being developed was that the results of the validation of the students' parents obtained a score of 86.428%, which means that the developed comics have very good quality from the point of view of the students' parents.

The comics developed in this study can be accessed in pdf and jpg formats so that it will be easier to use by teachers, students and parents of students, because in the developed comics the story line is designed sequentially in understanding the material and bending a concept. This is in accordance with the statements of previous researchers Widyastuti, P. D., Mardiyana, M., et al (2017) comics are figures that have an interesting storyline, are easy to understand, and can make it easy for them to understand difficult material. In line with this opinion Budiarti, WN, & Haryanto, H. (2016) in their research results stated that comic media can improve memory because children learn in a fun way, namely in their own way by imagining directed through the provision of material contained in the comic. The storyline in the comic allows students and parents to discuss with each other so that parents can accompany their children to study at home

CONCLUSION

Based on the results of research and analysis, it can be concluded that this study succeeded in developing scientific-based comic learning media on rectangle circumference material for grade IV elementary school students. Comics that are made have a jpg and pdf format so they can be accessed online or offline without requiring a lot of internet quota. The results of the validation test show

that both from media experts, material and assessments from students' parents, as a whole the developed comics have very good quality, so that the developed comics can be used as online or offline learning media during the Covid-19 pandemic.

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