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Comic Media on Force Topic in Science Lessons for Grade IV Elementary School

Ni Kadek Vilasa Devi[1*], D.B. Kt. Ngr. Semara Putra [2]
[1,2] Jurusan Pendidikan Dasar, Universitas Pendidikan Ganesha, Singaraja, Indonesia
*Corresponding author: vilasa@undiksha.ac.id

Abstrak

Media pembelajaran yang digunakan di situasi tidak menentu pada masa pandemi seperti saat ini harus memiliki sifat fleksibel, efisien dan praktis. Penelitian ini bertujuan untuk mengetahui kelayakan media Komik pada muatan IPA materi gaya kelas IV SD. Jenis penelitian ini adalah penelitian pengembangan dengan menggunakan model ADDIE (Analyze, Design, Development, Implementation, dan Evaluation). Pengumpulan data menggunkan metode angket. Validasi instrumen penilaian dilakukan oleh 3 orang ahli yang terdiri atas ahli isi, ahli desain, dan ahli media serta 26 siswa pada uji lapangan. Penelitian ini memperoleh hasil yang sangat baik, terbukti dari hasil validasi oleh ahli materi, ahli desain, dan ahli media memperoleh skor masing-masing 93%, 97%, dan 92%. Sementara untuk uji lapangan memperoleh skor 92%. Dari hasil tersebut dapat disimpulkan bahwa media komik yang dikembangkan ini layak digunakan pada muatan IPA materi gaya untuk kelas IV SD. Implikasi penelitian ini yaitu media Komik ini dapat digunakan dalam pembelajaran daring dan luring.

***Kata kunci*:** *Media Komik, IPA*

Abstract

Learning media used in uncertain situations during pandemics such as today must have a flexible, efficient and practical nature. This research aims to find out the feasibility of Comic media on the content of natural science grade IV elementary school style material. This type of research is development research using the ADDIE (Analyze, Design, Development, Implementation, and Evaluation) model. Data collection uses the questionnaire method. Validation of assessment instruments is carried out by 3 experts consisting of content experts, design experts, and media experts and 26 students on field tests. This study obtained excellent results, as evidenced by validation results by content experts, design experts, and media experts obtained scores of 93%, 97%, and 92% respectively. While for field tests obtained a score of 92%. From these results it can be concluded that this developed comic media is suitable for use on natural science material style content for grade IV elementary school. The implication of this research is that this comic media can be used in online and offline learning.

Keywords: Comic Media, Natural Science

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1. INTRODUCTION

The success of teachers in delivering learning materials is determined by several supporting components, one of which is learning media. In addition to having a good mastery of the material, teachers must also have skills in using learning media (Fitria & Juwita, 2018; Hayati, 2016; Wibowo & Rahmayanti, 2020). Learning media is a tool to convey information from teachers to students that can make learning more effective to achieve maximum learning goals (Rasvani & Wulandari, 2021; Saputra & Putra, 2021; Wicaksono et al., 2018). Moreover, in the modern era like today, learning media have varied forms and operations that can make learning more meaningful and stimulate students to think critically and systematically (Auliaty et al., 2021; Febriyandani & Kowiyah, 2021; Mertasari & Ganing, 2021). Integrating learning with technology is one way that can help students and teachers achieve learning goals and make them more meaningful.

Learning varied or not monotonous can help students achieve learning goals (Ayuni et al., 2017; Lestari et al., 2017; Seika Ayuni et al., 2017). The current pandemic makes

learning carried out online and becomes a challenge for teachers so that learning remains meaningful for students (Putri et al., 2021; Sari et al., 2021; Sulistyo & Alyani, 2021). The limited communication between teachers and students resulting from online learning is one of the problems that need to be a concern for teachers. Innovating by utilizing technology in implementing learning can motivate students, which can train students to think critically in modern learning styles (Jannah & Sukidi, 2018; Juniari, 2021; Wicaksono et al., 2018). Utilizing technology in learning is a solution that can help teachers in online learning as it is today (Chin & Wang, 2021; Liao et al., 2018; Sahin & Yilmaz, 2020)

Based on interviews that have been conducted with resource persons, namely fourth-grade teachers at SD Negeri 1 Serongga, revealing the fact that online learning activities have caused several problems related to communication. Online learning activities are more oriented towards cellphones which cause problems such as cellphones used by parents or being used with brothers or sisters in the same family. In addition, signals and quotas are components needed in online learning as an intermediary. Online learning like today, teachers tend to carry out learning through WhatsApp groups and use learning video media as a medium. From these problems, teachers must indirectly find solutions and innovations in facing the challenges that exist in the online learning process. Some lesson content, such as science, requires creative media to help students understand the material presented.

Science is one of the subject matter that needs learning media in delivering material (Jampel et al., 2018; Setiawan et al., 2017; Tanti et al., 2020). Science is a lesson content that is used as a vehicle for students to learn about themselves and their environment and train students to think critically and carefully (Juniari & Putra, 2021; Manuarti, 2021; Ningrum et al., 2022). To achieve this, of course, a suitable media is needed according to the characteristics of the content of science lessons ((Ayuni et al., 2017; Seika Ayuni et al., 2017; Wulandari et al., 2020). Moreover, in this online learning period, science content requires creative, innovative, and flexible media to facilitate and support online learning (Ayuni et al., 2017; Pramita et al., 2019; Saripudin et al., 2018).

Comics are a learning media that are widely used to convey material (Angga et al., 2020; Wahyudin et al., 2020). *Comics* are a two-dimensional art form consisting of pictures arranged so that it is easier for students to understand the material and increase their reading interest (Nurmitasari et al., 2019; Susilowati & Prasetyaningtyas, 2019; Suwarti et al., 2020). Referring to the problems described above, the comic media developed in this study is suitable for use in uncertain learning conditions like today. This comic media is flexible and can be used in online and offline learning (Aeni & Yusupa, 2018; Angga et al., 2020). In addition, this comic media has attractive visual elements with a blend of appropriate images, colors, and writing (Azizul et al., 2020; Sukmanasa et al., 2017). With that, the comics media in this IPA content can solve the problems described previously.

This development research is in line with similar research that has been done previously, which revealed that comics media are proven to improve the learning outcomes of fourth-grade students on science content (Abdurrohim et al., 2020; Nurvianti & Syarkowi, 2018). Furthermore, comics media also have excellent feasibility of being used as learning media for science content (Laksmi & Suniasih, 2021). Furthermore, comics media have also been proven to improve students' literacy skills because they contain interesting written images (Handayani, 2021). From the relevant studies above, it can be concluded that this comic learning media is feasible to be developed and taught to elementary school students. The difference between this research and previous research is that this comic media product is easy to develop, especially for educators, because it only uses Microsoft Office PowerPoint applications. This research aims to test the feasibility of the comic media product for science content Gaya material for the fourth grade of elementary school.

2. METHODS

This research is a research and development conducted at SD Negeri 1 Serongga. This comic media product was developed using the ADDIE development model (Analyze, Design, Development, Implementation, and Evaluation). The selection of the ADDIE development model has based on the reason that this development model is very suitable and relevant to the product in this research. In addition, the ADDIE model is more flexible and has systematic stages (Tegeh et al., 2014). The subjects in this study included 3 experts consisting of material experts, design experts, media experts, and 26 fourth grade students of SD Negeri 1 Serongga in the field test. This research can be carried out to field trials during a pandemic while still prioritizing health protocols. The data on the results of the validity of this media were collected using a non-test method through a questionnaire and interviews that were used to determine the feasibility of the research product. The data in this study consisted of two types: qualitative data including criticism, responses, input to questionnaires, and interviews, and quantitative data including scores obtained through questionnaires. The lattice instruments used in this study are presented in Tables 1, 2, and 3.

Table 1. The Framework of Material Expert Instruments

No.	Aspects	Indicator	Number of Items	Total of Items
1.	Curriculum	1. The suitability of the material with Basic Competence.	1	3
		2. The suitability of the material with the indicators.	2	
		3. The suitability of the material with the purpose.	3	
2.	Content/ material	1. The attractiveness of the material.	4	9
		2. The correctness of the material.	5	
		3. The depth of the material.	6	
		4. The importance of the material.	7	
		5. The suitability of the material with the characteristics of students.	8	
		6. Material accuracy.	9	
		7. Materials represent real life	10	
		8. The concept of lessons is logical.	11	
		9. The material is easy to understand	12	
3.	Grammar	1. The language used is easy to understand	13	3
		2. The language used is in accordance with the characteristics of students.	14	
		3. Appropriate and consistent use of language.	15	
Total				**15**

Table 2. The framework of Learning Design Expert Instruments

No.	Aspect	Indicator	Number of Items	Total of Items
1.	Objective	1. Clarity of learning objectives.	1, 2	3
		2. Consistency of objectives, materials, with evaluation.	3	
2.	Strategy	1. Learning activities can motivate students.	4	3

No.	Aspect	Indicator	Number of Items	Total of Items
		2. Lessons delivery provides logical steps.	5	
		3. Providing examples in the presentation.	6	
		4. Explanation of the material is interesting and in accordance with the characteristics of students.	7.8	
3.	Evaluation	1. The clarity of learning objectives.	9	
		2. Providing evaluations to measure students' abilities.	10	2
		Total		**10**

(Suartama, 2016)

Table 3. Framework of Learning Media Expert Instruments

No.	Aspect	Indicator	Number of Items	Total of Items
1.	Eligibility	1. The Media is in accordance with the Basic Competence	1	
		2. The Media is in accordance with indicators	2	3
		3. The Media in accordance with learning objectives	3	
2.	Accuracy, current, clarity	1. The material in the media is accurate.	4	
		2. The materials in the media are up-to-date.	5	3
		3. The material is clear in explaining the concept.	6	
3.	Display	1. Text	7, 8, 9	
		2. Figure	10, 11.12	7
		3. Color	13	
		Total		**13**

(Suartama, 2016)

The score results at the validation stage carried out by research subjects were analyzed using qualitative and quantitative descriptive analysis techniques. The qualitative descriptive analysis technique is done by compiling data in sentences or words containing variables that are arranged systematically. Meanwhile, the quantitative descriptive analysis technique is carried out by compiling data in numbers or percentages on a questionnaire and then systematically arranging to obtain a conclusion. The references used in concluding are based on the criteria presented in Table 4.

Tabel 4. Conversion of Achievement Level with a Scale of 5

No	Achievement Level (%)	Qualification	Remarks
1	90 – 100	Very Good	No need for revision
2	75 – 89	Good	Slightly revised
3	65 – 74	Fairly Good	Revised moderately
4	55 – 64	Not good	Many things have been revised
5	0 - 54	Very Not good	Products need to be remade

(Tegeh & Kirna, 2013).

3. RESULTS AND DISCUSSION

Results

Comic media in this science content was developed using the ADDIE development model through five systematic stages. The first stage is analysis (Analyze). At this stage, an analysis of the needs related to the research location is carried out, namely at SD Negeri 1 Serongga through the interview stage with the principal and the fourth-grade teacher at the SD. The interview results obtained a problem where student learning outcomes were less than optimal caused by less varied learning and pandemic conditions that limited teachers and students in communicating. Another finding was that most of the fourth graders enjoyed learning science content but could not understand the material due to the limitations that existed in this pandemic situation. Based on these problems, the science content was chosen with Style material applied through comics media which contained exciting pictures to help students understand the material and make learning more enjoyable.

The second stage is design (Design). At this stage, the drafting or design of concepts applied to comics media in science content is carried out. This design or preparation includes making storyboards, making flowcharts, making lesson plans, and product assessment instruments. The concepts contained in this design stage will later be used at the development and implementation stages as a reference in making and developing products that meet expectations. The third stage is development (Development). This stage is the stage of application or formulation of the design that has been prepared in the previous stage, namely at the design stage. The comic media product in this IPA content was developed using the Microsoft Power Point application which went through several stages which included: 1) determining the size, selecting and adjusting the background, 2) selecting and adjusting visual elements such as images, text, and colors, 3) Media finishing, namely export media into pdf format. The process of developing comics media on this IPA content can be seen in Figure 1.

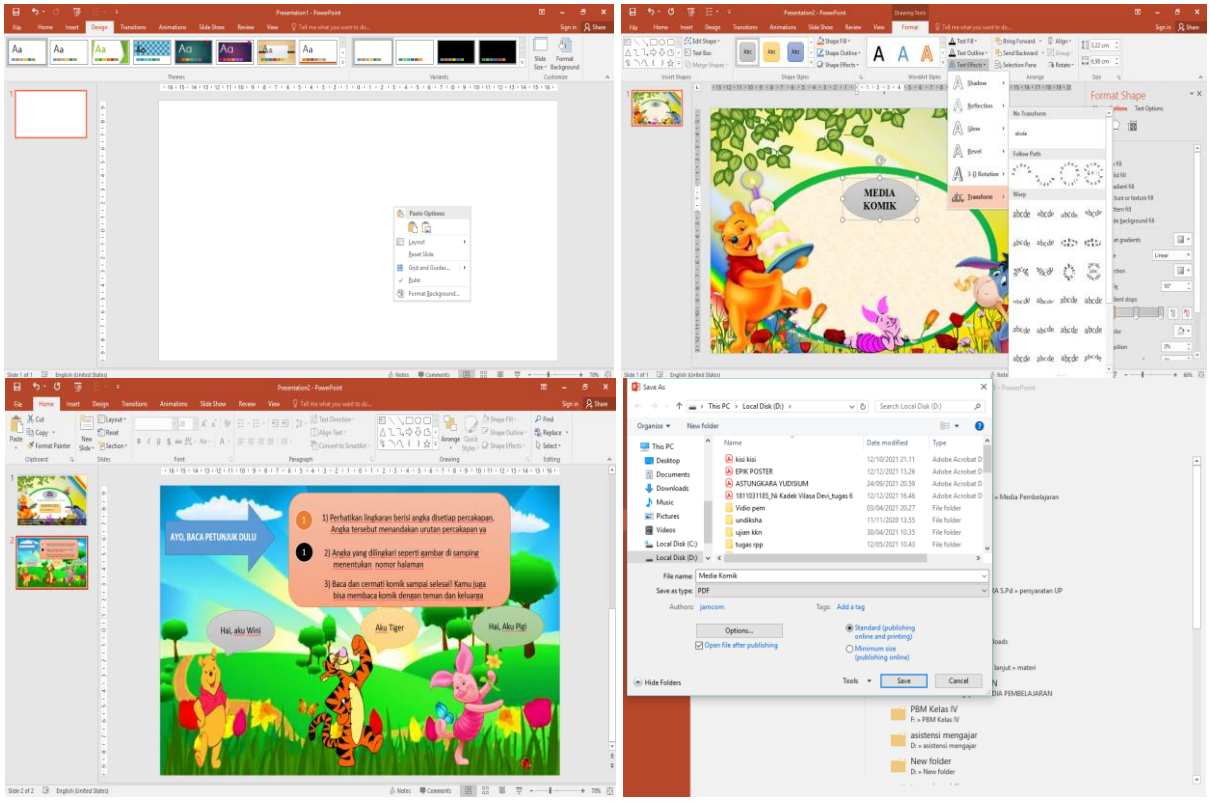

Figure 1. Comic Media Development Process

The fourth stage is implementation (Implementation). At this stage, validation and product testing are carried out on the subject. Before the product is tested on students, the validity of the product will be tested first by material experts, design experts, and media experts. The product is validated by experts from the Ganesha University of Education, especially from the Faculty of Education. The trial phase in this study reached the field test phase using 26 fourth-grade students of SD Negeri 1 Serongga. Students obtained an average of excellent results at the validation stage and the product trial stage. The more detailed results from the implementation stage can be seen in the following Table 5.

Table 5. Percentage of Validity Results of Comic Media Development

No.	Test Subject	Validity Results (%)	Qualification
1.	Subject Content Test	93.00	Very Good
2.	Learning Design Test	97.50	Very Good
3.	Learning Media Test	92.00	Very Good
4.	Individual Test	91.60	Very Good
5.	Small-Group Test	82.36	Good
6.	Field Test	92.02	Very Good

Discussion

Comic media on science content obtained very good average results with a score above 90%, so it can be said that the product is feasible to use or can be tested on students. Comic media products in science content also get a very good response to use, so this comic media product is appropriate for science content for grade IV elementary school. The Comic Media in this science content contains accurate and in-depth material because it is arranged systematically, making it easy for students to understand. Good media are media that can facilitate students in learning and are arranged systematically, according to KD, indicators, and learning objectives, so that the learning process can run in a conducive manner (Ariyani & Ganing, 2021; Darmayanti & Abadi, 2021; Putra & Suniasih, 2021). Moreover, the content used in this comics media is science, the application of which requires appropriate learning media. In addition to choosing learning models, teachers must also be selective in adjusting media because effective media are media that can increase students' learning motivation (Audhiha et al., 2021; Darlis et al., 2020; Pinatih et al., 2021). Therefore, the content of the learning media must be by the learning objectives so that it can increase students' interest in learning.

The comic media has an attractive design because it is composed of character images and the appropriate color combination. Media such as comics in general, this science content comic contains a series of clear and easy-to-read writings and is equipped with animal cartoon characters that add to the attractiveness of this media. Learning media must be by the character of students who have exciting and educative elements and help students maximize exploration, discovery, creation, development of thinking power so that learning is more meaningful (Hardiyanti et al., 2019; Prihastari & Widyaningrum, 2018; Saputri & Estiastuti, 2018). So learning media must be designed carefully and structured to obtain maximum results.

In general, the Comics media in this science content has the flexibility that is very suitable for use in online learning today. Learning media should be made by considering the efficiency and effectiveness, and practicality of using media (Astutik et al., 2021; Megantari et al., 2021; Muyassaroh et al., 2022). This comic media is made by considering the flexibility in its use and the flexibility in its manufacture. This comic media can also reference other educators to develop similar products with their creativity. Other research findings also state that comics media can help students learn (Pinatih et al., 2021; Puspitorini

et al., 2014). The implication of research on comics media products on science content can be a solution to problems in online learning because it is flexible and can be used both online and offline.

4. CONCLUSION

The development of comics media products for science content material This style obtained very good qualifications at the validation and trial stages. Based on these results, it can be said that the developed comic media is suitable for use in science content for style material for fourth-grade elementary school students. In addition, this comic media can help teachers learn as it is today because it can be used in online and offline learning.

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