



Natural Resources Utilization Comic Media Based on Local Wisdom: Mount Kelud Kediri

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ABSTRAK

Materi pembelajaran IPS yang memanfaatkan sumber daya alam sangat minim dalam media pembelajaran, sehingga hasil belajar siswa rendah. Untuk mengatasi hal tersebut dikembangkan media komik berbasis kearifan lokal Gunung Kelud. Tujuan pengembangan media komik berbasis Kearifan Lokal Gunung Kelud adalah untuk mengetahui validitas, efektifitas, dan kepraktisan. Penelitian dilakukan dengan menggunakan penelitian R&D (Research and Development) dengan model pengembangan ADDIE. Subyek penelitian adalah pakar, guru, dan siswa kelas IV SD. Mengumpulkan data menggunakan metode observasi dan kuesioner. Instrumen yang digunakan dalam mengumpulkan data yaitu kuesioner. Teknik analisis data yang digunakan adalah analisis kuantitatif yang dijabarkan secara kualitatif. Hasil penelitian yaitu rata-rata hasil validasi media oleh ahli media dan materi sebesar 89%. Hasil keefektifan penggunaan media melalui uji coba menunjukkan peningkatan hasil belajar siswa mencapai 87%. Rata-rata hasil kepraktisan melalui respon guru dan siswa sebesar 93%. Berdasarkan hasil tersebut dapat diketahui bahwa media komik berbasis kearifan lokal Gunung Kelud yang dikembangkan adalah valid, efektif, dan praktis sehingga layak untuk digunakan dalam mendukung proses pembelajaran.

ABSTRACT

Social studies learning materials that utilize natural resources are minimal in learning media so student learning outcomes could be better. To overcome this problem, comic media based on the local wisdom of Mount Kelud has been developed. The purpose of developing comic media based on Mount Kelud Local Wisdom is to determine validity, effectiveness, and practicality. The research was conducted using R&D (Research and Development) research with the ADDIE development model. The research subjects were experts, teachers, and fourth-grade elementary school students. Collecting data using observation and questionnaire methods. The instrument used in collecting data is a questionnaire. The data analysis technique used is the quantitative analysis which is described qualitatively. The study results are that the average media validation results by media and material experts are 89%. The results of the effectiveness of using media through trials showed an increase in student learning outcomes reaching 87%. The average practicality results through teacher and student responses are 93%. Based on these results, the comic media based on the local wisdom of Mount Kelud that has been developed is valid, effective, and practical so that it is feasible to be used to support the learning process.

1. INTRODUCTION

Learning media is needed in teaching material social studies. Social Studies is knowledge which used to explain solutions to any existing problems in human life (Budiaman et al., 2021; Diacopoulos & Crompton, 2020; Sapriya, 2017). Thus can said that Social Studies is lesson which load theory about humans and their lives (Aslamiah et al., 2021; Rahmad, 2016; Syawaluddin et al., 2020). So that in Social Studies lessons there is a lot of material that must be studied. The reality in carrying out learning activities, The usage of media is still rarely found, especially in Social Studies. Student learning activities are still limited and only dominated by the teacher, resulting in weak learning processes and experiences, as well as low student learning outcomes (Maulida et al., 2020; Susanto, 2014). The other condition which cause learning Social Studies not interesting and boring because of learning Social Studies considered just for the sake of a moment and no practical benefit in daily life (Budiwibowo, 2016; Khasana et al., 2018).

The fourth-grade teacher at the University of Nusantara PGRI Kediri Laboratory Elementary School, she said that, learners not able to identify utilization of natural resources material in Social Studies. This happens because the material provided too much and the media used is limited such as pictures. Based on the description above, it is necessary presentation material that arranged in such a way by utilizing the

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media so that Social Studies learning becomes more interesting and improve students' enthusiasm (Damayanti et al., 2020; Paramida & Permadi, 2019; Wahidin, 2021). It can be done by packing material in the form of a story accompanied by illustrations picture. It is potential for develop comic as media learning Social Studies. Comic characteristics can reduce children's stress during learning (Saltzman, 2022; Udayani et al., 2021; Yulianti et al., 2016).

The characteristics of comics, which are illustrated stories, present a coherent and orderly storyline to make it easier for students remember (Saltzman, 2022; Senen et al., 2021). These characteristics match Piaget's theory, elementary school age children (7-12 years) are in the concrete operational stage. Through picture, elementary school students can reason logically as far as this reasoning goes applied to specific or concrete examples (Hobri et al., 2021; Santrock, 2018; Yulian, 2018). Images in comics are shaped and have character cartoon images, has a simple nature in its presentation, and have element order story that load big message, but served by concise and easy digested, more again be equipped with a dialogical and communicative verbal language, so that speed up reader understand the content of the message in question and attractive to students (Munadi, 2013; Reis et al., 2022). Comic media can improve student understanding of the concepts being studied, as well as the figures who character can be used as an example for students to act, besides that, comic is a media that is easy to understand and popular (Lin et al., 2015; Saputro & Soeharto, 2015). Comics also have an impact on readers to remember in the long term (Abdurrohim et al., 2020; Ghofur, 2022).

Media which will be developed in this study is comic. This media aims to help deliver material of natural resources utilization in fourth grade. As a tool to help teacher in conveying theory, comic is media containing story which served in form picture to convey information to its readers (Istiq'faroh et al., 2020; Saputri & Qohar, 2020). Comics containing material that related to education called didactic. By because that, in develop educational comics must be adjusted with the needs and characteristics of students (Alit et al., 2021; Istiq'faroh et al., 2020; Udayani et al., 2021). Comic which used in education must developed properly and adjusted needs students, because of comics education does not only pay attention to the material but also physical appearance, such as pictures and text used, must be clear and attractive, so that when reading students do not feel bored (Cahyono et al., 2019; Jariah, 2017; Lestari et al., 2021). Based on the description of previous research and theoretical studies, the comic principles that became the reference for this development were formulated as follows. First, used in learning for help teacher explain Social Studies material, especially the material of natural resources utilization. Second, used to make it easier for students to accept material so as to identify the characteristics of natural resources utilization (Hobri et al., 2021; Yulian, 2018). Third, used to attract students in learning.

From the theoretical review and previous research above, it is known that to solve this problem a comic media is needed. Comic media has been widely researched before and is said to be effective for the above problems (Burns, 2018; Fägersten, 2017; Ghofur, 2022; Lin et al., 2015; Reis et al., 2022; Saltzman, 2022; Saputro & Soeharto, 2015; Senen et al., 2021; Tekle-Haimanot et al., 2016). The difference in this comic with previous research is that it is based on the local wisdom of Mount Kelud, Kediri. Local wisdom is the values that are believed to be true by the community and become a reference in the daily behavior of the local community (Suastra et al., 2017; Sumardjoko & Musyiam, 2018). Local wisdom is knowledge experienced by people from generation to generation (Sungkharat et al., 2010; Syahrial et al., 2021). Local wisdom is an idea that arises and develops continuously in a society in the form of customs, rules/norms, culture, language, trust, and habit daily. The advantages of local wisdom that are close to the community are expected to help guide material to students easier.

The local wisdom referred to in this comic media is related to the daily habits of the people living around Mount Kelud, Kediri Regency. This meant so that students can focus on one draft which close with environment. The characteristics of Mount Kelud have made the people of Kediri Regency, especially the people around Mount Kelud, a manifestation of their local wisdom (Fajar et al., 2021; Herminingrum & Junining, 2016). By using comic learning media based on mount Kelud local wisdom, it is hoped that it will be able to provide new innovations in Social Studies learning, especially material for resource utilization, so that students can easily learn about their surroundings well. Based on the above, the purpose of this research is to develop comic media based on Kelud local wisdom that is valid, practical, and effective so that it is suitable for use in supporting the learning process.

2. METHOD

This study uses research and development methods. Through Research and development it is hoped that it will produce effective products (Sugiyono, 2016). The development used is the ADDIE model which consists of Analysis, Design, Development, Implementation, and Evaluation (Branch, 2010). At each stage an evaluation will be carried out to get improvements. The research begins with the analysis stage. At

the analysis stage, performance analysis and needs analysis is carried out (Pribadi, 2010). Performance analysis produce Social Studies learning problems in the material of utilization of natural resources in class four elementary schools at the University of Nusantara PGRI Kediri, needs analysis produces problem solving solutions in the form of developing media comic products based on the local wisdom of the Kelud Mountain in Kediri. The next stage is the comic design. At this stage the front cover design, the characters, the outline, and the back cover is formulated. The results of the design are then evaluated and continued at the development stage. During the development stage, based on the comic script, sketches were made, then filled with text in word balloons. It is then evaluated or validated by media construction experts and Social Studies learning material experts. After the product is said to be valid, in the implementation stage a practicality test is carried out on teachers and students, as well as an effectiveness test on students. Practicality test to find out how practical the product is for the user. Effectiveness test to determine the extent to which the product is effective on student learning outcomes.

The subjects in this study were material experts and media construction experts from lecturer of University of Nusantara PGRI Kediri, teachers and four students form fourth grade of University of Nusantara PGRI Kediri Laboratory Elementary School. Material experts to adjust the suitability of comic content with the use of natural resource materials in Social Studies. Media construction experts to adjust the suitability comics to the principles, characteristics, and elements of comics. Teacher to test comic practicality. Students to test the practicality and test the effectiveness of comics on their learning outcomes. The study was conducted on fourth grade students of University of Nusantara PGRI Kediri Laboratory Elementary School. Product validation was carried out by two experts on aspects of learning materials, and learning construction media. There are two types of instruments used, namely questionnaires and tests. Questionnaires are used to determine the validity product of the media (construction and material) and the practicality of the media. Tests are given to students to determine the effectiveness of the media. The instrument grid in the [table 1](#).

Table 1. Instrument Grid

No	Expert	Aspect	Indicator
1	Media Construction Expert	Comic Anatomy	The appropriateness of the panels and word balloons
			The clarity of the motion lines in the pictures in the story
			The suitability of the selection of characters with the characteristics of the students
			The suitability of the facial expressions of the characters with the contents of the story
			The balance of the size of images and text so that they can be read clearly
		Design and Color	The appropriateness of the selection of colors in images and text
			Conformity of the cover with the contents of the story
			Suitability of the sequence of contents of the comic
		Appearance	Clarity of the sequence of the arrangement of the contents of the story in each panel
			An attractive appearance of the comic
2	Material Experts	Local Wisdom	Compatibility of local wisdom elements of the Community Around Mount Kelud, Kediri
			The suitability of basic competencies for materials utilizing natural resources
		Material Language	The suitability of good and correct Indonesian grammar
			Practicaly
3	Teacher and Student Response	Attractiveness	Media Attractiveness in the use of learning
		Meaningfulness	Media Meaningfulness in the use of learning

(Arsyad, 2015; Masdiono, 2014).

Data Analysis technique that used in research this is analysis quantitative which is then elaborated with analysis qualitative. The purpose of this technique is to determine the validity, practicality, and effectiveness product. Expert validation results were measured using a Likert scale, then the acquisition score is calculated compared to the maximum score, then seen as including the ranking criteria from invalid to very valid. The process was also carried out on the teacher and student response questionnaires. The response results are calculated with the acquisition score and the maximum score, then compared with

qualitative criteria from impractical to very practical ratings. Material and Media Validity and Practicality Criteria showed in Table 2.

Table 2. Material and Media Validity and Practicality Criteria

Percentage Score (%)	Category	Note
0.00 % - 20.00%	Invalid/Impractical	Should not Used
21.00% - 40.00%	Not enough valid/Not enough practical	Should not Used
41.00% - 60.00%	Valid Enough /Practical Enough	Usable After Major Revision
61.00% - 80.00%	Valid/Practical	Usable After Minor Revision
81.00 % - 100.00%	Very Valid/ Very Practical	Very Good for Used

(Akbar, 2015)

Effectiveness data analysis was carried out by quantitative analysis. The results of the analysis are used to determine the effectiveness of the media developed in learning. Effectiveness data obtained from the results of classical post-test students. Media is effective if students' classical learning outcomes are at an average score above 73 points

3. RESULT AND DISCUSSION

Result

Based on the performance analysis stage, it is known that there are problems in learning social studies on the use of natural resources. Students feel bored and not interested in learning the material. Based on this, a needs analysis was carried out through interviews and literature tests and it was found that a comic media development based on local wisdom was needed to solve this problem. Basically comic media based on local wisdom: Mount Kelud Kediri community is form media visual graphic-print which made attractive as possible containing picture and writing in accordance contents. So that, could interesting participant educate in study the material of social studies. At this stage the front cover design, the characters, the outline, and the back cover is formulated. On the cover page is designed with a picture of a character with a mountain background, there is an identity material for the study material and the author. The characters are designed with two main child characters, the outline arrangement is colored and local wisdom, and the back cover contains a list of references and about the author. The results of the design are then evaluated and continued at the development stage.

At the development stage, the complete comic script is compiled, the number of panels is determined and the content of each comic panel is carried out, after which it is continued to make comic sketches and determine the most appropriate sketch. The predetermined sketch (line art) is then filled with text in word balloons. After the sketch is complete, it is then colored using the Clip Studio Paint 2019 application, followed by the process of applying effects using the Adobe Photoshop 2019 application. The results of comic sketches are presented in Figure 1.

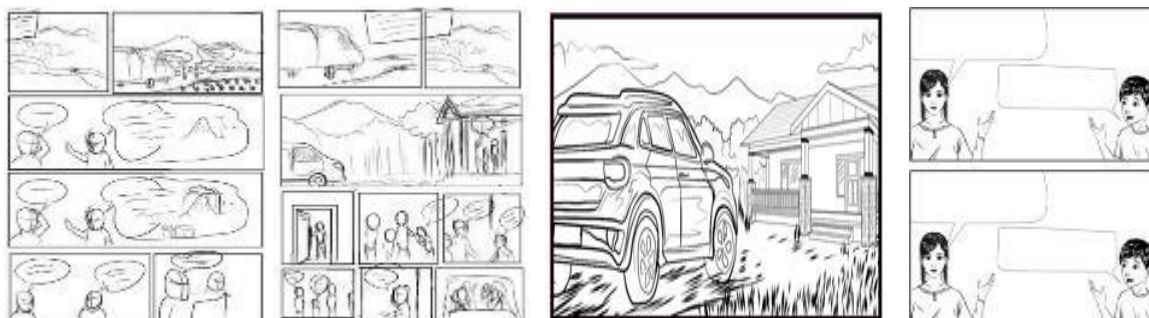


Figure 1. Comic Sketch

The opening page of the comic consists of the cover, splash page, and an overview of the comic content. Page cover contains images that describe content in comics which be equipped with title and name writer. Page Splash Page is the opening page that contains title, name writer, editor, and illustrator comic. Page at a glance contents describe the entire content of the story in the comic. Next page is contents page design. This page contains the story presented in the form of panels that are equipped with pictures, narrations, word balloons contains material text, stories, and pages containing about understanding to story. The understanding page or question page contains questions that can be worked on by students or

debriefed with the teacher. At the end of the page is Closing Page. This page contains reference sources used for contents, theory on story in comic and information about composer of comic. Contents Page showed in Figure 2.



Figure 2. Contents Page

After the product is developed, it is then evaluated with expert validation. The validity was obtained from the average validation results from media construction experts and material experts. The result of media construction experts is 86% and material experts is 92%, so the average is 89%. With reference to the validity criteria guidelines, comic media is very valid. Through the validation stages carried out by experts, it will obtained improvement suggestions so that comic media which developed by become better and more usable in support classroom learning.

At the implementation stage it is carried out in class four elementary schools University of Nusantara PGRI Kediri. At this stage, learning is carried out on the material of utilization of natural resources in social studies subjects using comic media based on the local wisdom of Mount Kelud Kediri. After the implementation stage, an evaluation was carried out by submitting a teacher and student response questionnaire to measure the level of practicality. Practicality is obtained from the average results of the teacher's response questionnaire and student responses. Based on the data, the teacher's response rate is 94% and the students' response is 92%, so the average result is 93%. Both students and teachers stated that this media was easy to use. By referring to the practicality criteria guidelines, it can be stated that it is very practical to use in learning. Effectiveness can be seen from the students' post-test data after using comic media. The average score of students after using comic media is 87%, meaning greater than completeness criteria (73%). Thus this comic media is declared effective in supporting learning.

Discussion

In the early stages of development, starting with analysis activities. Activity analysis consists of performance analysis and needs analysis. In the performance analysis, it was found that social studies learning, especially material for the use of natural resources, is still dominated by teachers, less use of media, so that it makes students bored, while the results of the needs analysis state that learning media is needed to solve the problems found in the performance analysis (results of teacher interviews) (Heafner, 2004; Kelley, 2021; Schug & Others, 1984; Stodolsky et al., 1991). The learning media is comic, comic media has the characteristics of pictures that tell an interesting story. Comic media that presents a coherent and orderly pictorial storyline so that it is easier for students to remember (Senen et al., 2021; Udayani et al., 2021; Yulian, 2018). These characteristics match Piaget's theory, elementary school age children (7-12 years) are in the concrete operational stage. Through picture, elementary school students can reason logically as far as this reasoning goes applied to specific or concrete examples (Nurmitasari et al., 2020; Santrock, 2018; Suyanti et al., 2021; Winarni et al., 2021). To add innovation to comic media and to bring comics closer to users, this comic media was developed based on the local wisdom of Mount Kelud which is close to the people of Kediri.

After the analysis phase has succeeded in formulating a solution to solving the problem using comic media, then the design stage is carried out. In the design stage, it is necessary to pay attention to the reference material to be developed because it will have an impact on determining the character. In this media, the material is the use of natural resources. The design process is an important step for determining the learning experiences needed by students during the learning process (Ambarsari et al., 2021; Pribadi,

2010; Yuanta, 2019). In developing character designs, one must also pay attention to aspects of the methods used to draw characters, character facial expressions, word balloons, motion lines, backgrounds, and panels (Ambarsari et al., 2021; Danaswari et al., 2013; Satria et al., 2020). The characters in the comic consist of Sinta, Deri, and Deri's parents, the main characters are Sinta and Deri. Apart from determining the character, the front cover is designed, the comic storyline, the outline of the story line, and the back cover page design are also determined. The results of the design are then evaluated and continued at the development stage.

During the development stage, researchers did not experience significant obstacles. As stated above, the development stage starts with making scripts, then the scripts are arranged in panels, sketches, word balloons, coloring is done, then evaluation is carried out through expert validation (Danaswari et al., 2013; Özdemir, 2017). Suggestions for improvement from experts are only in the form of positioning the gutter page, providing a dividing page between the comic content page and the understanding or question page, as well as coloring to make it brighter. The validation results are obtained from the average validation results of media construction experts and Social Studies material experts. The result is 89% and is included in the very valid criteria. The highest scores from media construction experts are on the indicators of clarity of motion lines, facial expressions, and cover design. Then, for material experts, in a balanced way, the material and language aspects are very appropriate. The validation aspect was developed from previous theories (Azhar Arsyad, 2015; Masdiono, 2014). From this process, other similar researchers can pay more attention to aspects of color brightness, because of the characteristics of children who like bright colors. In addition, if other researchers want to add sections to the comic book, such as questions or something else, it should be given a separator page between the story series and the additional sections so that readers can partially understand the meaning of the comic parts.

At the implementation stage, a practicality test was carried out. Practicality tests were conducted on teachers and students. The results of the practicality test were obtained from the average results of the teacher and student response questionnaires. Based on the practicality test, the teacher's response was 94% and the student's response was 92%, so the average result was 93%. With reference to the practicality criteria guidelines, the comic media developed in this study is stated to be very practical to use in learning. Both teachers and students stated that this media was quite easy to use, because it was the right size, the language was easy to understand, and it was close to the students' environment. Teachers also stated that this media can assist teachers in delivering learning material (Udayani et al., 2021; Yulianti et al., 2016). From the students' point of view, they stated that they were very interested in this media, the character, the colorful pictures in the comic and the nuances of the comic background using stories around Mount Kelud made them feel close to the story in the comic. The advantages of local wisdom that are close to the community are expected to help guide material to students easier. This meant so that students can focus on one draft which close with environment (Hobri et al., 2021; Yulian, 2018).

At the implementation stage, an effectiveness test was also carried out. The results of the effectiveness test show that the average student learning outcomes get a point of 87%, meaning that it is greater than the minimum completeness criteria of 73%. Comic media used in learning process become more effective and pleasant. This matter in line with study which proves that, "comic can help participant educate in understand Theory and support students to learn independently" (Aggleton, 2019; Enteria & Casumpang, 2019; Masdiono, 2014; Ntobuo et al., 2018). In addition, comic media with serving which interesting can improve interest and effectiveness participant educate in study (Damopolii et al., 2022; Rengur & Sugirin, 2019). The characteristics of comics, which are illustrated stories, present a coherent and orderly storyline to make it easier for students remember (Saltzman, 2022; Senen et al., 2021). From the results of this implementation, it shows the success of comic media in making students more active, enthusiastic, and producing learning outcomes above the minimum completeness criteria.

Based on the results of the current study which is supported by previous studies, it can be seen that the advantages of this comic media are as follows. First, the media is easy to use in the learning process and can be used to support the learning process of students independently both at school and outside of school (Abdurrohim et al., 2020; Saputri & Qohar, 2020). Second, this media contains pictures and concise material, so that students are able to understand theory easily. Third, this media contains elements of local wisdom, so that it helps students in associating the material with life in the surrounding environment. Fourth, comic media is able to attract students' attention to learning, because comic media is based on picture stories that have an interesting storyline (Cahyono et al., 2019; Lestari et al., 2021).

In addition to the advantages above, the weaknesses of media comics that must be considered so that can be anticipated by the next researcher are: first, Comic is visual media which printed with a limited size, so the material in comics only focuses on one competency. Second, comic media has a size small so that there are some images that are not clear (Azizi & Prasetyo, 2018). Third, comic media does make it easier for students to understand reading, but this will lead to students' laziness in reading non-pictorial reading, so that creative activities are still needed by the teacher to overcome these deficiencies. Although this

research was conducted in class four elementary schools at the University of Nusantara PGRI Kediri and limited to material utilization of natural resources, it is hoped that it will have implications and be useful in other cases. The problem of students getting bored with social studies is also found in other schools. Then, with the experience of researchers integrating local wisdom in comics, it can provide insight to readers.

4. CONCLUSION

Comic media based on local wisdom of Mount Kelud is valid, practical and effective. This media is very suitable for use in fourth grade learning material on the use of natural resources in Social Studies subjects. The use of comic media based on the local wisdom of Mount Kelud can make it easier for students to learn because the comic storyline is interesting, there are pictures that have stories, are in accordance with the stages of student development, and are close to the daily lives of students in Kediri. In the learning process, the use of this media helps teachers deliver more innovative material, and makes it easy for students to understand the competencies of natural resource users.

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