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THE USE OF E-COMICS IN MICROTEACHING TO OPTIMIZE LEARNING AMONG ELEMENTARY SCHOOL STUDENTS

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ABSTRACT

This study aims to examine the use of e-comic media in microteaching practices to optimize learning among elementary school students. This study employs a Research and Development (R&D) approach using the ADDIE model, which includes the analysis, design, development, implementation, and evaluation stages. The resulting product is an interactive digital e-comic learning medium integrated with the local culture of North Sumatra and accessible via a flipbook platform. The results indicate that the e-comic medium has a very high level of feasibility. The use of e-comics is able to increase learning motivation, conceptual understanding, and student engagement through engaging visual and narrative presentations. Additionally, this medium also helps prospective teacher students in developing creativity, digital literacy, and innovative teaching skills in microteaching activities.

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INTRODUCTION

Education is a vital process for developing students' potential so that they acquire the knowledge, skills, and attitudes necessary for life. In the learning process, teachers play a crucial role as facilitators who help students understand the subject matter effectively. Therefore, teachers are expected not only to master the subject matter but also to be able to use a variety of engaging teaching strategies and media to optimize the learning process.

One way to prepare prospective teachers to become professionals is through microteaching activities (Rasyika et al., 2025). Microteaching is a small-scale teaching practice activity designed to help prospective teachers develop basic teaching skills before they enter actual classrooms. Through this activity, students can practice various teaching skills, such as opening a lesson, explaining material, using instructional media, and managing the classroom effectively. Microteaching also serves as a means for students to develop creativity in designing engaging learning processes.

However, in practice, some students still tend to rely on lecture-based methods without utilizing a variety of learning media. This results in less engaging material delivery and can lead to students being less active in the learning process. In fact, the use of learning media. The right approach can help students understand the material more easily and increase their interest in learning

One of the learning tools that can be used in microteaching activities is the e-comic. E-comics are comics presented in digital form, making them accessible via electronic devices such as laptops, tablets, and smartphones. This medium combines engaging visuals, text, and storytelling, helping students understand the material more easily and enjoyably. Additionally, using comics in learning can boost student motivation because the presentation of the material becomes more visual and less monotonous.

The e-comic medium used in this study is a digital learning tool specifically designed to facilitate the delivery of instructional content during microteaching sessions. Through the use of e-comics, prospective teachers are expected to be able to present instructional content in a more engaging, interactive, and easily understandable manner for students. Thus, the use of e-comics can serve as an innovative approach to learning that optimizes the teaching and learning process.

RESEARCH METHODOLOGY

This study employs a Research and Development (R&D) approach using the ADDIE model (Analysis, Design, Development, Implementation, Evaluation) to develop digital E-Comic learning materials optimized for microteaching activities in elementary school (SD) education. (Slamet, 2022:1)

The development focused on creating interactive digital comics using the E-Comic creator website (e-comic.id), with the final product uploaded to a flipbook platform (such as AnyFlip) so that it could be accessed online by teachers and students via a link or QR code. This research is purely product development in nature, without involving respondents, interviews, or field trials; rather, it focuses on the design and production process aimed at addressing elementary school learning challenges (Slamet, 2022:5)

The research was conducted through the five stages of the ADDIE model as follows: (Widodo, 2021:176–178)

1. Analysis :Identifying the needs for instructional materials for elementary schools microteaching, icluding challenges related to students motivation, digital literacy, and online accesbility. The analysis was conducted through of literature and a assesment of elementary school curriculum needs.
2. Design : Designing the structure of an E-Comic, including storyboards, visual elements (character illustrations, simple animations), interactive narration, short text, and zoom/pan features for the flip book. The design is tailored to the principles of visual learning for elementary school students, with each comic consisting of 12 panels.
3. Development : Create an e-comic prototype using the E-Comic digital website (a drag-and-drop tool for adding images, text, speech bubbles, and sound effects). The finished comic is exported as an interactive PDF, then uploaded to a flipbook platform to be converted into a digital book with page-turning functionality, along with embedding, link-sharing, and full-screen modes.

4. Implementation : Integrating media into microteaching scenarios as ready-to-use examples. The media is technically tested (browser compatibility, flipbook loading speed) and shared via an open-access link for elementary school teachers and students.
5. Evaluation : Validation by experts in educational media and graphic design (2–3 experts) using a rating sheet based on a Likert scale. The criteria include content (relevance to elementary school curriculum), visual design (attractiveness and interactivity), technical aspects (flipbook accessibility), and suitability for use in microteaching.

The resulting e-comic focuses on the topic of elementary school education integrating the culture of North Sumatra, with a small file size (<5 MB) for easy access on mobile devices. This approach ensures optimized learning through innovative and easily adoptable digital media.

RESEARCH FINDINGS AND DISCUSSION

The result of this study is a digital educational resource in the form of an E-Comic designed for use in microteaching activities for elementary school students; this resource was developed using the ADDIE model..

The resulting E-Comic has the following characteristics:

- 1) Interactive digital format, accessible via the flipbook platform (AnyFlip).
- 2) The story has a simple structure, consisting of approximately 12 panels tailored to the cognitive development level of elementary school students.
- 3) Incorporating elements of North

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Sumatra's local culture to make learning more context-based.

- 4) An attractive visual design featuring bright colors, cartoon characters, and short dialogues.
- 5) Small file size (<5 MB), making it easy to access on mobile devices.

The E-Comic can be accessed via the following link:

<https://anyflip.com/todlf/tagq/>





Figure 1. Results of the E-Comic Development

1. Cover

The cover features the large title “Lika’s Adventures in Karo Land” in bright, playful typography, reflecting the target audience of elementary school children. At the top is the institution’s logo, indicating that this comic is educational. The main illustration depicts Lika and her friends engaging in activities in a natural setting, such as watering plants, against a backdrop of traditional Karo houses and green trees. The dominant color scheme of yellow, green, and orange conveys a warm, cheerful, and child-friendly vibe. Design-wise, this cover serves as a visual hook that immediately communicates the main themes: adventure, the environment, and local culture.

2. Slide 2–3 (Introduction to the Characters)

This slide introduces the main characters through speech bubbles and name tags created in a handwritten style, giving them a relaxed and approachable feel for children. The character Nek Beru is depicted as a wise elderly woman with a friendly expression and a pointing gesture (symbolizing knowledge), while Lika is portrayed as a cheerful child who actively asks questions. Ms. Rini, as the teacher

is depicted with professional attributes such as books and neat attire. The rural landscape in the background reinforces the Karo cultural context. In terms of design, the use of bright colors, simple characters, and clear facial expressions helps students quickly understand each character’s role.

3. Slide 3–4 (Teacher’s Visit to Lika’s Home)

This slide illustrates the social interaction between the teacher and Lika’s family. The panels are arranged sequentially against the backdrop of a traditional house, creating a clear narrative flow. Dialogue is presented in speech bubbles of different colors to distinguish the characters. The design features polite gestures such as greeting and responding courteously, which implicitly teach character values. The visuals of the traditional house and green yard provide a strong local context. The design’s function in this section is to build emotional connection and social ethical values.

4. Slide 4–5 (The Trip to the Fields)

In this section, the setting shifts to a field on a mountainside, featuring rich visual details such as plants, small animals, and natural scenery. The perspective widens

to depict the environment as a whole, so that students can observe many objects at once. The dominant green color emphasizes fertility and life. Simple dialogue conveys Lika's admiration for nature. This design is effective in introducing basic concepts about the environment and natural resources through concrete visuals.

5. Slide 5–6 (Ecosystems in Farmland)

This slide displays various living organisms in a single frame: plants, chickens, worms, and insects. The objects are arranged in a scattered yet organized manner so that students can observe the relationships between living organisms. The teacher explains the concept of an ecosystem through simple dialogue. The visual design employs a “learning by seeing” approach, in which scientific concepts are conveyed through realistic illustrations. This helps students understand that an ecosystem consists of the relationships between living organisms and their environment..

6. Slide 6 (Problem: Rivers Drying Up)

This slide presents the main conflict: a river that has dried up. Visually, the blue of the water fades and is replaced by the color of dry earth, creating a stark contrast with the previous slide. Lika's confused expression is emphasized by a question bubble. This design is intended to spark students' curiosity (inquiry-based learning). Its primary purpose is to prompt the question: Why is this happening?

7. Slide 6–7 (Explanation of the Water Cycle)

This slide is the core of the science curriculum. The design stands out with an eye-catching “torn paper” effect, as if unveiling new knowledge. The water cycle diagram is presented with simple icons and labels: evaporation, condensation, precipitation, and

infiltration. A QR code serves as an interactive element that enhances digital learning. The use of blue and arrows helps visualize the recurring process. This design is highly effective in conveying abstract concepts into visuals that are easy for elementary school students to understand.

8. Slide 7 (Introduction to Karo Culture)

This slide introduces local culture through traditional activities. The visuals feature traditional clothing, musical instruments, and festival scenes. The red and gold colors of the traditional attire evoke the distinctive character of Karo culture. An elderly woman explains the significance of the event. This design integrates cultural learning into a narrative context, helping students understand that culture is an integral part of community life.

9. Slide 8–9 (The Meaning of Tradition and the Environment)

This section explains the relationship between tradition and environmental conservation. The text bubbles contain more detailed explanations, indicating a greater level of complexity in the information. The visuals retain the character and setting of the traditional event. This design reinforces the concept that local culture plays a role in protecting the environment.

10. Slide 9–10 (Student Action)

This slide illustrates the transition from theory to practice. Lika and her friends are taking concrete actions, such as planting trees and making posters. The bright colors and happy expressions reflect these positive activities. The design highlights project-based learning, which encourages students to take direct action to protect the environment.

11. Slide 11–12 (Partner Work)

This section depicts the interaction between friends (Mella and Jogi) as they plan an activity. The characters

are positioned close together to convey a sense of camaraderie. The lighthearted dialogue illustrates the discussion process. This design instills the values of collaboration, communication, and creativity in learning.

12. Final Slide (Conclusion)

The final shows the joyful atmosphere after the activity is completed. The visuals return to a refresh green palette, symbolizing the success of environmental conservation. There isn't much text, but the moral message is conveyed implicitly through the images. This closing design leaves a positive impression and reinforces the core message that protecting nature is a shared responsibility.

Discussion

The use of E-Comic media in microteaching activities shows significant potential for optimizing the learning process of elementary school students. This is evident in the media's design, which integrates visual, narrative, and interactive elements in a cohesive manner. Based on the development results, E-Comics serve not only as a medium for conveying information but also as a tool for creating meaningful learning experiences for students. (Sari et al., 2024).

From an instructional design perspective, the systematically structured E-Comic covering character introduction, problem presentation, concept explanation, and solutions with real-world actions reflects a constructivist learning approach. Students not only receive information passively, but are invited to understand concepts through contextual storylines. For example, in the emergence of the problem of a drying up river, students are encouraged to think critically about the causes and solutions, resulting in the process of inquiry learning.

This is in line with the principle that effective learning should be able to activate students' thought processes through relevant experiences. (Tahir, 2024) In addition, the main strength of E - Comic lies in the use of attractive and communicative visuals. Bright colors, cartoon characters, and detailed environmental illustrations are able to increase students' attraction to learning materials. The visualization of abstract concepts such as the water cycle becomes more concrete through simple and understandable diagrams. (Dika & Bektiningsih, 2023). Thus, this media supports the theory of multimedia learning which states that the combination of text and images can improve understanding of concepts than just text alone. In terms of content, this E-Comic also shows excellence in integrating science material with the local cultural context, namely Karo culture. This integration makes learning more contextual and close to student life. When students understand that local traditions are related to preserving the environment, then learning is not only cognitive, but also touches on affective and value aspects. This is important in primary education, where character formation is one of the main goals. (Icahayati et al., 2023) In the context of microteaching, the use of E-Comic provides significant benefits for prospective teacher students. This Media helps them to: (Arsyad, 2020:15-16).

1. Develop creativity in presenting learning materials
2. Reduce dependence on lecture method
3. Improve skills using digital media

4. Creating more interactive and engaging learning

With E-Comic, the microteaching process becomes more varied and approaches real learning conditions in the classroom. Students not only practice delivering material, but also learn how to manage effective learning media. (Pratiwi et al., 2024) The use of E-Comic media in microteaching is proven to be able to create learning that is more interesting, interactive, contextual, and meaningful. This medium not only favors the achievement of cognitive objectives, but also contributes to the formation of character and digital literacy of students, so it is very relevant to apply it in learning in elementary school.

CONCLUSION

Based on the results of research and discussion, it can be concluded that the use of e-Comic media in microteaching activities has an effective role in optimizing the learning of elementary school students (SD). The main advantage of this media lies in its ability to integrate visual, narrative, and interactive elements in an interesting Unity, making it easier for students to understand learning concepts, especially abstract science materials. In addition, the integration of Karo's local culture in E-Comic makes learning more contextual and meaningful, not only in cognitive but also affective aspects and student character. In the context of microteaching, this media also helps prospective teacher students in developing creativity, technology use skills, and the ability to design innovative learning.

Thus, E-Comic can be an alternative digital learning media that is relevant and effective in improving the quality of teaching and learning in elementary school. It is recommended that E-Comic media be used as an innovative learning alternative in microteaching and in the classroom. Teachers and students need to develop E-Comic according to learning materials, and subsequent research needs to test its effectiveness directly on students. In addition, the development of interactive features and technological support also needs to be improved so that the use of this media is more optimal.

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