

DIGITAL-BASED COMIC: LEARNING TO DEVELOP CIVIC DISPOSITION

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Abstract

The purpose of this study was to develop students' Civic Disposition through digital-based comic learning. This study used the Design Based Research (DBR) method which involved the design, development, and trial of digital comic media in the classroom. Learning was carried out by providing a pre-test before using the comic and a post-test after students used it. The results of the study showed an increase in students' Civic Disposition after using digital comics compared to before use, which was indicated by the difference in pre-test and post-test results. This increase occurred because of the visual and interactive approach in digital comics that were able to convey civic disposition values more interestingly and effectively. As a result, using digital comics as a learning medium can be an effective alternative in strengthening students' attitudes and civic disposition in the digital era.

Keywords: Comics, Civic disposition, Digital, Learning, Local wisdom.

1. Introduction

In the digital era, learning materials are presented on sophisticated device screens supported by various learning media [1-5]. One of them is e-comic media as a learning tool. E-comics, with their interactive and visual formats, can attract students' interest while conveying educational messages effectively [6]. The effectiveness of media in learning is a beneficial aspect of Education Students understand better by using simple, concise, dense, and clear words [7]. Media provides better dissemination techniques [8].

E-comics can also increase student activity in learning using media [9-10]. E-comics are a form of visual communication that has the power to convey information in a popular and easy-to-understand way [11]. Images in comics, both background and foreground, have diverse characteristics and provide information about characters, locations, story developments, feelings, attitudes, and opinions [12]. Interesting and relevant learning media are needed to in still values [13]. In each learning media, the selection of learning models is also especially important [14].

Based on previous studies [15-16], here, digital comic learning is presented to be effective for increasing students' interest and understanding through a visual and interactive approach to character education. However, research is still more focused on cognitive and motivational aspects, with studies on the development of civic disposition through digital comics still limited. The novelty of this research lies in the design of digital comics that are specifically designed to develop students' civic disposition through a combination of attractive visuals and narratives rich in citizenship values. This study aims to bridge the literature gap and prove the effectiveness of digital comics as a tool for forming students' civic disposition. The novelties of this study are the innovative use of interactive digital comics specifically designed to enhance civic disposition values among the younger generation within modern education.

2. Literature Review

The images are interdependent and intended to be read in a certain order, combining two or more different visual elements [17-20]. Digital comics are designed to be accessed online via websites, blogs, or social media [21]. Animated comics combine printed comics with animation, music, and sound effects. Thus, digital comics are comics that combine print with animation using a technology platform [22-23]. Comics are an effective learning tool in developing character. Character education requires support from various communities, such as families, schools, and other institutions, to shape students' values [24]. Individual behaviour patterns are a person's moral state [25]. Education in values, character, and morals aims to develop students' abilities in distinguishing between good and bad, and implementing goodness in everyday life [26].

The goal is to prepare individuals to make ethical judgments and act accordingly, namely, to do what is considered right [27]. Civic Disposition is the attitude, character, and values that motivate individual or social behaviour. This disposition develops gradually through learning and experiences at home, school, community, and civil society organizations [28]. Although digital comic-based learning is increasingly popular, research that focuses on its development for Civic Disposition is still limited. Most studies focus more on improving literacy

and technical skills, while aspects of civic character formation have not been widely explored. Civic disposition includes attitudes, values, and civic character important for forming responsible social behaviour. Therefore, this study fills the existing gap by developing a digital comic specifically designed to strengthen students' Civic Disposition, providing a new contribution to civic education. The following is a flowchart of digital comic images containing local wisdom and civic disposition values.

Digital comics excel in developing civic disposition because they offer high interaction, wide access, and editing flexibility. The process combines local wisdom and civic disposition content in dynamic visuals that are more attractive than traditional comics. By combining animation, audio, and hyperlinks, digital comics enrich students' learning experiences. The flexibility of access and ease of content updates make them superior to printed comics. These digital comics allow students to learn anytime and anywhere (Fig. 1).

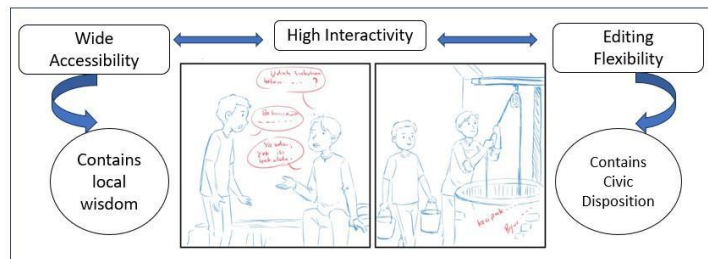


Fig. 1. Digital-based commissions contain civic disposition.

3. Methods

This study uses the design-based research (DBR) method, a research approach that combines design and research to develop and evaluate practical solutions in real-world contexts, with a focus on developing theory and practice through design and implementation iterations. The steps are through four stages; analysis, comic design, development, and reflection, carried out by evaluating learning through analysis of pre-test and post-test results and identifying improvements needed to optimize the development of civic disposition through digital comics.

4. Results and Discussion

This digital comic was developed to overcome the limitations of conventional comics, by providing easy access, interactivity, flexibility, and greater appeal to students. Digital comics containing civic disposition were created to overcome the boredom, drowsiness, and fatigue of students due to the lecture method in civic education learning which resulted in below-average achievements. The characteristics of students tested on Students Like to use pictorial media. After going through the observation stage, students like to use Comic media. Based on the literature, one of the media that can improve student learning outcomes is comics. Most of the comics developed are still conventional. We created digital-based comics, which are liked by children. This digital comic is a student need, especially in learning that contains civic disposition. The concept design and theme

of digital comics contain local wisdom that conveys the strengthening of civic disposition values. The following is a digital-based comic design.

In the design of the flow chart above, planning is the creation of digital comics, such as identifying what needs to be prepared and the concept of digital comics. Furthermore, the storyboard is a sketch or illustration of the image and story. Visuals involve designing elements of form, image, colour, and space. The panel functions to display parts of the story in the comic. Revision is a correction of deficiencies that need to be fixed and the process of refinement before the comic is ready to use. The following is a digital-based comic product that is produced.(Fig. 2).

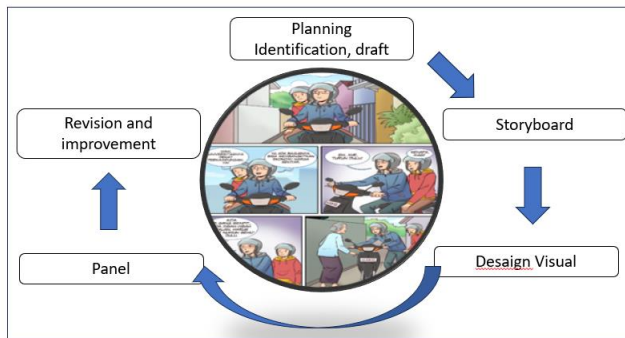


Fig. 2. Digital comic design.

The image above is a digital comic product, with several developed images, explaining in detail each visual element to clarify the narrative and support the understanding of civic disposition. Integrating civic disposition values and loading local wisdom stories into interactive stories and interesting visuals. With animation features and hyperlinks, this comic enriches the learning experience and encourages the application of civic disposition in everyday life. The following are the validation results from comic media experts (Fig. 3).



Fig. 3. Digital-based comic product.

The validation results from three media experts showed a positive assessment of digital comics. Visual design scored 4.8 out of 5, assessing clear and detailed images. Interactive and narrative features scored 4.7 out of 5, indicating effective integration. Flexibility and ease of access were rated 4.9 out of 5, highlighting excellence in accessibility and updates. Overall, this digital comic is considered innovative and effective in developing students' civic disposition.

This research was conducted at SMP N 7 Kota Magelang Class VII involving 90 students who were divided into three groups to test the effectiveness of digital-based comic media in developing civic disposition. Students were given a pre-test before using digital comics and a post-test afterward. Table 1 illustrates the results of the study on the effectiveness of digital-based comic media in developing civic disposition in students. Table 1 shows the effectiveness of digital comic media in developing students' civic disposition.

The use of digital comics significantly improved students' understanding of civic disposition. The average post-test score increased by 20 points compared to the pre-test, with statistical test results showing a significant increase. During use, students showed high engagement by actively interacting and discussing the content. Statistical tests, such as paired t-tests with $p < 0.05$, confirmed that the increase in students' understanding after using digital comics was significant and effective. Digital comics, designed to develop civic disposition values, include interactive scenarios about moral responsibility, independence, discipline, politeness, and tolerance. Digital comics strengthen civic disposition by presenting dynamic and interactive visuals that are more attractive to students than traditional comics. The impact evaluation includes analysis of results and feedback to assess the increase in student engagement and understanding, as well as identifying improvements and steps for further development or implementation.

Table. 1. Pre-test and post-test results.

Group	Number of Students	Average value	Value Range	Description
Pre-Test	90	65	50-70	Students' understanding of civic disposition is still classified as low to moderate.
Post-Test	90	85	80-95	There was a significant increase in understanding of civic disposition after using digital comics
Improvement	-	20	-	Significant increase in students' understanding ($p < 0.05$) after intervention with digital comics.

The discussion in this study also highlights the challenges faced in implementing comics, such as limited access to technology in some areas and the need for training for teachers in the effective use of digital media. However, overall,

this study underlines the great potential of digital technology in supporting character education. The character values are then adapted according to local needs and culture, namely including moral responsibility, participation, politeness, caring, and patience. The context of digital-based comics in developing civic disposition is relevant to the theory of Functionalism by Parsons. First, interdependence between other parts, components, and processes that include visible regularities. Second, interdependence with other components and the environments that surround it [29]. The results of the study showed that the use of digital-based comics has a positive impact on students' learning interests and motivation. Digital comics, with interesting narratives and strong visuals, can connect local cultural values with the context of students' daily lives, making them easier to understand and internalize. In addition, students showed an increase in understanding and application of civic disposition values, such as moral responsibility, independence, politeness, discipline, and tolerance, after using comics in learning. Finally, this study adds new ideas for improving the teaching and learning process, especially in civic education, as reported elsewhere [30].

5. Conclusion

This study demonstrates students' civic disposition through the use of digital comics in learning. The design-based research (DBR) method is applied, involving the design process, development, and trial of digital comic media in the classroom. By implementing a pre-test before and post-test after the use of comics, this study found an increase in students' civic disposition, which is indicated by the difference in pre-test and post-test results. This increase is due to the visual and interactive approach of digital comics that convey civic disposition values more interestingly and effectively. Therefore, digital comics can be an effective alternative learning media to strengthen students' attitudes and civic disposition in the digital era.

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