



INTEGRATING LOCAL WISDOM ASSISTED BY INTERACTIVE COMICS IN SOCIAL STUDIES LEARNING: ITS EFFECT ON ELEMENTARY SCHOOL STUDENTS' DIGITAL LITERACY AND CONCEPTUAL UNDERSTANDING

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Article History

Received : 26/04/2026

Revised : 18/06/2026

Accepted : 06/07/2026

Keywords:

Local wisdom, Interactive comics, Digital literacy, Conceptual understanding.

Abstract. Interactive comics based on local wisdom are seen as capable of providing a solution because they can deliver an enjoyable learning experience while simultaneously strengthening students' cultural identity. This study aims to analyze the effect of integrating local wisdom assisted by interactive comics in Social Studies (IPS) learning on the digital literacy and conceptual understanding of elementary school students. This study used a quantitative approach with a quasi-experimental design in the form of a non-equivalent control group design. The research population consisted of all fifth-grade elementary school students in Cluster III, Buleleng District, in the even semester of the 2025/2026 academic year. The research sample comprised two classes with a total of 68 students, specifically 35 students in the experimental class and 33 students in the control class. The research instruments consisted of a Social Studies conceptual understanding test, a digital literacy questionnaire, learning activity observation sheets, and documentation. Data analysis was conducted quantitatively using descriptive and inferential statistics. Descriptive statistics were used to determine the mean, percentage, standard deviation, and the improvement in students' conceptual understanding and digital literacy. Hypothesis testing was carried out using Manova analysis with the assistance of SPSS. The results of the study showed that: 1) there is a significant difference in digital literacy, with an obtained F-value of 83.339 and a significance of <0.001 ; 2) there is a significant difference in conceptual understanding, with an obtained F-value of 140.090 and a significance of <0.001 ; 3) simultaneously, there is a significant difference in both digital literacy and conceptual understanding, with an obtained F-value of 125.293 and a significance of <0.001 . Based on the results of the Manova analysis, it can be concluded that learning that integrates local wisdom assisted by interactive comics in Social Studies learning is proven to effectively improve students' digital literacy and conceptual understanding.

How to Cite: Wati, N. N. K., Handayani, N. N. L., & Mahartini, K. T. (2026). INTEGRATING LOCAL WISDOM ASSISTED BY INTERACTIVE COMICS IN SOCIAL STUDIES LEARNING: ITS EFFECT ON ELEMENTARY SCHOOL STUDENTS' DIGITAL LITERACY AND CONCEPTUAL UNDERSTANDING. *Prima Magistra: Jurnal Ilmiah Kependidikan*, 7(3), 589-603. <https://doi.org/10.37478/jpm.v7i3.5742>

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Publisher:

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INTRODUCTION

The development of digital technology in the 21st century has brought significant changes to education, including in the teaching of Social Studies (IPS) in elementary schools. Social studies learning is no longer solely focused on mastering material but also aims to develop students' critical thinking skills, social skills, and digital literacy. Digital literacy is a crucial competency because students live amidst a rapid and diverse flow of information. Therefore, social studies learning needs to be designed more innovatively to develop students' ability to comprehend digital information while simultaneously understanding social concepts contextually.

In the context of elementary education, the use of engaging and interactive learning media is essential to increase student engagement. One medium considered effective is interactive comics. Interactive comics combine visual elements, stories, simple animations, and digital activities to capture the attention of elementary school students. This medium can help students understand social studies material more concretely because social concepts are visualized through stories that relate to their daily lives (Amaliyah & Rande, 2024; Saqujuddin & Saputra, 2025).

Interactive comics also have a positive influence on student motivation and learning

outcomes. Several studies have shown that the use of digital comics can increase reading interest, thinking skills, and understanding of learning materials. In social studies learning, interactive comics help students understand social, cultural, and environmental relationships through communicative illustrations (Mulyanti et al., 2025; Rahmah et al., 2025). Furthermore, interactive digital media also provides students with opportunities to practice using technology wisely, thus supporting improved digital literacy (Inayah et al., 2024).

In addition to the use of innovative media, the integration of local wisdom is also an important aspect of elementary school social studies learning. Local wisdom encompasses the values, traditions, culture, and knowledge of a community that have been passed down from generation to generation. Integrating local wisdom into social studies learning can help students understand their surrounding sociocultural environment while also instilling character and cultural identity from an early age (Ibrahimi, 2025; Pambudi, 2025). Learning that links material to local culture has been shown to be more meaningful because students can connect learning concepts to real-life experiences.

Various previous studies have shown that local wisdom-based learning can improve students' social attitudes, character, and learning outcomes. Local wisdom can also be a means to foster a love of regional culture amidst the influence of digital globalization (Nugraha et al., 2025). In social studies learning, local wisdom values can be integrated through folklore, community traditions, traditional games, and local socio-cultural practices. This makes social studies learning more contextual and relevant to students' lives.

National survey data shows that more than 70% of elementary school students use digital devices such as smartphones or tablets in their daily learning activities (Miranty & Prasetya, 2025; Yulia et al., 2025). However, this use of technology has not been fully matched by strong digital literacy skills. Based on the results of an initial digital literacy assessment of elementary school students in Cluster III, Buleleng District, only around 45% of students were able to critically understand digital information and use digital media to support learning effectively. This situation indicates that the use of technology in learning has not been optimal in improving the quality of student understanding.

In elementary school social studies learning, learning evaluation results also indicate a low level of student conceptual understanding. The average social studies learning score for elementary school students remains below the Minimum Completion Criteria (KKM) of 75. Initial observations indicate that approximately 60% of students have difficulty understanding abstract concepts such as social interaction, cultural diversity, and social change because learning is still dominated by lecture methods and the use of textbooks. Memorization-based material is quickly forgotten by students. This low conceptual understanding indicates the need for innovative media and learning strategies that are more contextual and engaging for students.

On the other hand, the integration of local wisdom into social studies learning has not been optimally implemented. Based on interviews and observations in Cluster III, Buleleng District, only around 30% of teachers routinely integrate local culture, regional traditions, or local wisdom values into the social studies learning process. Most teachers stated that limited learning media is one of the reasons for the low implementation of local wisdom-based learning. Teachers also primarily utilize Ministry platforms to find learning resources for students, with little effort in developing them independently. As a result, social studies learning tends to be less connected to students' real lives and less able to deeply instill local cultural values. The use of interactive comics is also still relatively low in elementary school social studies learning. Observational data shows that more than 65% of teachers still use conventional media such as textbooks and whiteboards, while the use of interactive digital media is only limited. This is despite previous research showing that visual and interactive media can increase student attention and learning retention by more than 70% compared to traditional lecture methods. This indicates a gap between the potential use of interactive digital media and learning practices in schools. Previous research has shown that the use of interactive comics can improve student learning outcomes. Other studies have also shown that local culture-based learning can increase student engagement and positive social attitudes (Alaudin, 2024; Rismawati et al., 2025). However, research combining local

wisdom and interactive comics in social studies learning remains very limited, particularly those that quantitatively measure their impact on elementary school students' digital literacy and conceptual understanding. This research gap is evident in the lack of a social studies learning model that integrates digital technology while emphasizing local cultural values as the primary learning resource. Some studies emphasize technological aspects without considering students' cultural contexts, while local wisdom-based research often uses conventional approaches without the support of interactive digital media. Consequently, comprehensive empirical data on the effectiveness of integrating local wisdom with interactive comics on improving elementary school students' digital literacy and conceptual understanding is lacking.

Nevertheless, the gap analysis indicates that research on integrating local wisdom with interactive comics in social studies learning is relatively limited. Most studies focus solely on the use of digital media without integrating local cultural values, or conversely, only discuss local wisdom without utilizing interactive digital media. Furthermore, research specifically examining the impact of integrating the two on elementary school students' digital literacy and conceptual understanding is still rare. Yet, the combination of digital technology and local culture holds great potential for creating innovative and meaningful social studies learning. The rationale for this research stems from the need for social studies learning that adapts to technological developments without abandoning local cultural values. Elementary school students require learning media that is engaging, easy to understand, and appropriate to their developmental characteristics. Interactive comics based on local wisdom are seen as a solution because they can provide a fun learning experience while strengthening students' cultural identity (Diatmika, 2025). Through stories and visualizations that are close to their lives, students are expected to more easily grasp social studies concepts and become more skilled in using digital media positively.

This research is also based on constructivism theory, which emphasizes that knowledge is built through meaningful learning experiences. The integration of local wisdom in interactive comics allows students to construct their understanding of social studies concepts through a familiar cultural context. Furthermore, the use of interactive digital media supports multimedia learning theory, which states that the combination of text, images, and interaction can enhance students' understanding of learning materials. Therefore, the integration of these two aspects is expected to more effectively improve students' digital literacy and conceptual understanding.

Based on the description, this study aims to analyze the effect of integrating local wisdom with the help of interactive comics in social studies learning on digital literacy and conceptual understanding of elementary school students. The hypothesis of this study is that there is a positive and significant effect of the use of interactive comics based on local wisdom on improving digital literacy and understanding of social studies concepts in elementary school students compared to conventional learning. This study is expected to contribute to the development of innovative social studies learning that is contextual, interesting, and in accordance with the demands of science and technology development.

RESEARCH METHODS

This study used a quantitative approach with a quasi-experimental design in the form of a non-equivalent control group design. This design involved two groups: the experimental class was given treatment in the form of social studies learning with the integration of local wisdom assisted by interactive comics and the control class using conventional learning. Both groups were given a pretest and posttest to measure the improvement of digital literacy and understanding of social studies concepts of students. The study population was all fifth-grade students of elementary schools in Cluster III, Buleleng District in the even semester of the 2025/2026 academic year. The sampling technique used cluster random sampling because the sampling was done based on existing class groups. The study sample consisted of two classes with a total of 68 students, namely 35 students in the experimental class and 33 students in the control class.

The research instruments consisted of a social studies concept comprehension test, a digital literacy questionnaire, a learning activity observation sheet, and documentation. The 30-item multiple-choice conceptual comprehension test was structured based on elementary school social



studies learning competency indicators. The digital literacy questionnaire consisted of 25 items using a Likert scale covering the ability to access, understand, evaluate, and use digital information wisely. The instrument's validity was tested through content validity by social studies education and learning technology experts, while its reliability was tested using the Cronbach Alpha coefficient to ensure the consistency of the research data.

The research procedure was carried out in several stages: preparation, implementation, and evaluation. In the preparation stage, researchers developed learning materials, interactive comic media based on local wisdom, and research instruments. The implementation stage began with a pretest for both groups, followed by six meetings of learning implementation. The experimental class used interactive comics containing local cultural values and digital activities, while the control class used conventional learning methods. After the treatment was completed, both groups were given a posttest and a questionnaire to determine changes in digital literacy and students' conceptual understanding. The research was planned to last for three months, covering the preparation stage, data collection, data analysis, and preparation of the research report.

Data analysis was conducted quantitatively using descriptive and inferential statistics. Descriptive statistics were used to determine the average value, percentage, standard deviation, and improvement in students' understanding of concepts and digital literacy. Furthermore, prerequisite tests in the form of a normality test for data distribution, a homogeneity test for variance, and a correlation test between dependent variables were conducted before hypothesis testing. Hypothesis testing used MANOVA analysis with the help of SPSS to measure the effect of the use of interactive comics based on local wisdom on digital literacy, the effect of the use of interactive comics based on local wisdom on students' understanding of social studies concepts, and their joint effect on digital literacy and understanding of social studies concepts.

The scope of this study was limited to fifth-grade elementary school social studies learning with material related to social and cultural life. The study focused solely on the effect of integrating local wisdom with the aid of interactive comics on students' digital literacy and understanding of social studies concepts, thus other variables outside the study were not analyzed in depth. Methodological limitations of the study lie in the use of a quasi-experimental design that does not allow for full subject randomization and the relatively short research time constraints. Furthermore, the use of interactive comics media was only implemented in one school, so the results cannot be generalized.

RESULTS AND DISCUSSION

Research on the integration of local wisdom assisted by interactive comics in social studies learning was conducted to analyze its influence on digital literacy and concept understanding of elementary school students. The results of the research were obtained through the analysis of pretest and posttest data, digital literacy questionnaires, and understanding of social studies concepts. The data analyzed used descriptive and inferential statistics to find out the difference in results between the two groups. The analysis was carried out to provide an overview of the effectiveness of the use of interactive comics based on local wisdom in improving the digital literacy skills and understanding of social studies concepts of elementary school students. (Agung, 2014; Sugiyono, 2019).

Based on the descriptive analysis of the research data that has been conducted, the results obtained are as in Table 1. Based on Table 1, it is known that in the experimental group, the students' digital literacy variables got a score with an average of 115.63, a middle score of 116, the most frequently appearing score of 118, the standard deviation of 3.614, the variance of 13.064, the score range of 17, the minimum score of 106, and a maximum score of 123. Meanwhile, the variables of understanding the concept of students got a score with an average of 23.66, a middle score of 24, the most frequently appearing score of 24, a standard deviation of 2.496, variance of 6.232, a score range of 10, a minimum score of 18, and a maximum score of 28.



Table 1. Results of Descriptive Analysis of Research Results

Source	Eksperimen		Controls	
	Digital Literacy	Concept Understanding	Digital Literacy	Concept Understanding
Average	115.63	23.66	105.73	16.24
Middle Value	116	24	106	17
Most Frequently Appearing Values	118	24	107	18
Baku Junction	3.614	2.496	5.228	2.670
Varians	13.064	6.232	27.330	7.127
Stretch	17	10	21	11
Score Minimum	106	18	95	11
Maximum Score	123	28	116	22
Sum	4047	828	3489	536

Furthermore, in the control group, the digital literacy variable of students received a score with an average of 105.73, a middle score of 106, the most frequently occurring score of 107, the standard deviation of 5.228, variance of 27.330, the score range of 21, the minimum score of 95, and the maximum score of 116. Meanwhile, the variable of understanding the concept of students got a score with an average of 16.24, a middle score of 17, the most frequently appearing score of 18, a standard deviation of 2.670, variance of 7.127, a score range of 11, a minimum score of 11, and a maximum score of 22. The distribution of data in this study can be seen in [Figure 1](#).

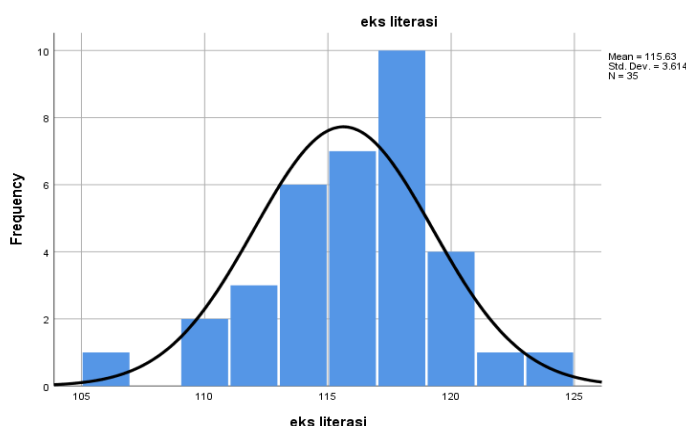


Figure 1. Distribution of Digital Literacy Data in Experimental Groups

Based on [Figure 1](#), an average score (mean) of 115.63 with a standard deviation of 3.614 and the number of samples (N) was 35 students. The relatively small standard deviation value showed that the data spread was not too far from the average, so that the digital literacy ability of students in the experimental group was relatively homogeneous. The distribution of digital literacy data in the experimental group showed that the data from the research results tended to be distributed normally. This can be seen from the shape of the histogram which resembles a bell curve and is supported by a normal curve line that follows the data distribution pattern in the range of values 114–119. This shows that the digital literacy ability of students in the experimental group is in the high and relatively equal category.

Based on [Figure 2](#), the average score (mean) of 23.66 with a standard deviation of 2.496 and the number of samples (N) was 35 students. The average score shows that the student's ability to understand concepts is in the good category. Meanwhile, the relatively small standard deviation showed that the data had a spread rate that was not too far from the average score, so that the ability of students in the experimental group was quite homogeneous. The distribution graph of concept understanding data in the experimental group shows that the data distribution tends to follow a normal distribution pattern. This can be seen from the shape of the histogram that resembles a bell curve and the normal curve line that follows the data spread is in the range of values 22–25. This shows that the majority of students have a fairly good level of concept

understanding after participating in learning using the integration of local wisdom assisted by interactive comics.

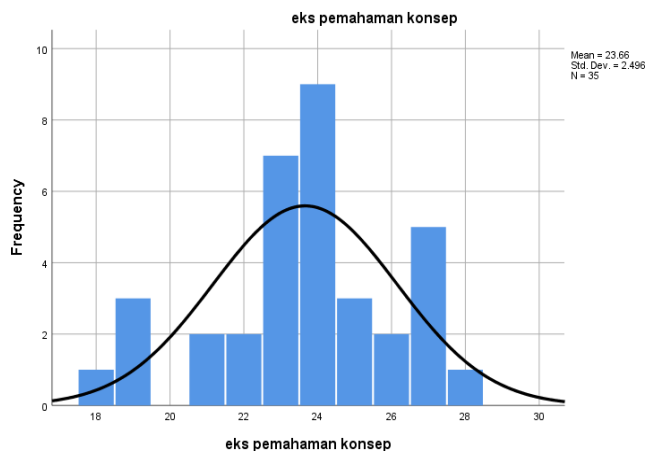


Figure 2. Distribution of Concept Understanding Data in the Experimental Group

Based on [Figure 3](#), an average score (mean) of 105.73 with a standard deviation of 5.228 and a sample number (N) of 33 students was obtained. The standard deviation value that is not too large indicates that the data spread is still around the average value so that the data is quite homogeneous. The graph of the distribution of digital literacy data in the control group showed that the data tended to be distributed normally. This can be seen from the shape of the histogram that follows the bell curve pattern and the distribution of data which is in the range of values 102–108. This shows that the digital literacy ability of students in the control group is in the medium and relatively equal category.

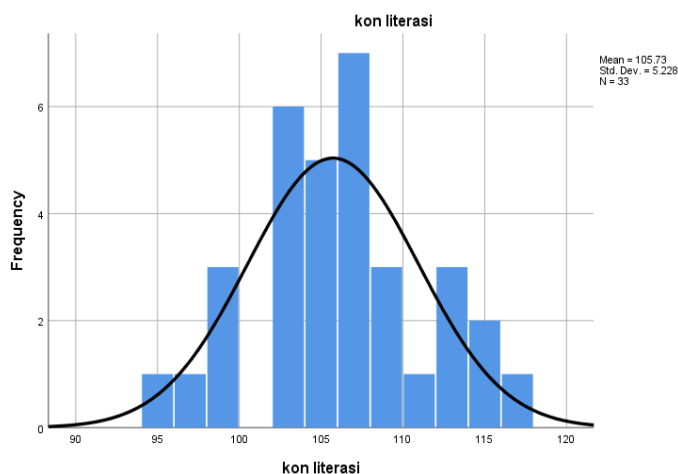


Figure 3. Distribution of Digital Literacy Data in Kotrol Groups

Based on [Figure 4](#), an average score (mean) of 16.24 with a standard deviation of 2.67 and a sample number (N) of 33 students was obtained. The standard deviation value that is not too large indicates that the data spread is still around the average value so that the data is quite homogeneous. The graph of the distribution of digital literacy data in the control group showed that the data tended to be normally distributed. This can be seen from the shape of the histogram that follows the bell curve pattern and the distribution of data, which is in the range of values 102–108. This shows that students' understanding of social studies concepts in the control group is in the moderate and relatively equal category.

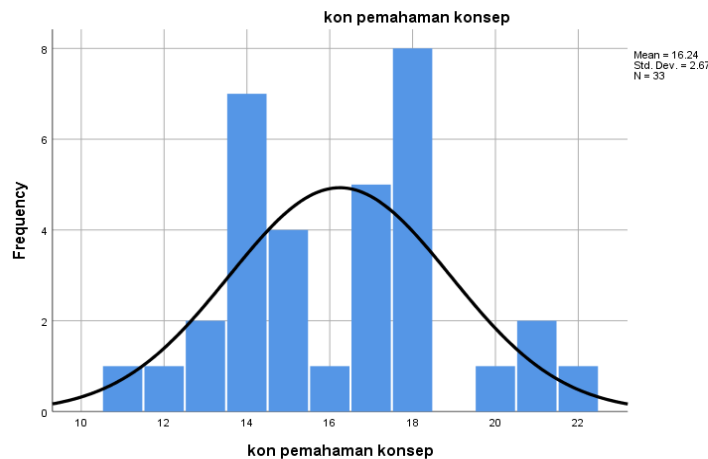


Figure 4. Distribution of Concept Understanding Data in the Control Group

After the descriptive analysis is carried out, then the analysis continues to the hypothesis test prerequisite analysis. The results of the analysis are as follows.

1) Test the Normality of Data Distribution

The normality of data distribution testing in this study used the Shapiro-Wilk technique calculated with the help of SPSS. The results of the tests that have been carried out are as shown in [Table 2](#).

Table 2. Results of Data Distribution Normality Testing

Variabel	Groups	Shapiro-Wilk		
		Statistic	df	Sig.
Student Digital Literacy	Eksperimen	0.972	35	0.502
	Control	0.976	33	0.663
Concept Understanding	Eksperimen	0.940	35	0.057
	Control	0.955	33	0.187

Based on the normality test of the data distribution, it is known that the significance value between the data groups in this study is greater than 0.05. Referring to these tests, it can be concluded that all data groups in this study are normally distributed.

2) Variance Homogeneity Test

The homogeneity test was carried out on the data group of students' digital literacy ability done with Levene's test. Based on Levene's test calculated with the help of SPSS, the results were obtained as shown in [Table 3](#).

Table 3. Levene's Test

Source		Levene Statistic	df1	df2	Sig.
Students' digital literacy	Based on Mean	3.296	1	66	0.074
Understanding of student concepts	Based on Mean	0.945	1	66	0.335

Based on Levene's Test, it is known that the digital literacy variable of students has a significance of 0.074, while the students' understanding of concepts is 0.335. These results indicate that the significance obtained is greater than 0.05 so that it can be concluded that the data on digital literacy and students' concept understanding in this study are homogeneous.

3) Correlation Test between Bound Variables

The correlation test between bound variables was carried out on digital literacy data and concept understanding of students who were taught with learning that integrated Local Wisdom

assisted by interactive comics in social studies learning, as well as digital literacy data and concept understanding of students learned with non-learning that integrated Local Wisdom assisted by interactive comics in social studies learning. The correlation test was carried out using product moment correlation with the help of SPSS at a significance level of 5%. The results of the correlation test using product moments with the help of SPSS can be seen in [Table 4](#).

Table 3. Test Results Between Bound Variables

Sample Group	r_{xy}	N	Sig.	Conclusion
Digital literacy and understanding of students who learn with learning that integrates Local Wisdom assisted by interactive comics in social studies learning	0,012	35	0,948	Uncorrelated
Digital literacy and understanding of the concept of students who learn with those who are not learning that integrate Local Wisdom with the help of interactive comics in social studies learning	-0,221	33	0,216	Uncorrelated

Based on [Table 4](#), it is shown that the significance of the two groups of research samples is greater than 0.05. From these results, it can be concluded that digital literacy data and concept understanding of students who participate in learning by integrating Local Wisdom assisted by interactive comics in social studies learning and students who participate in learning that do not integrate Local Wisdom assisted by interactive comics in social studies learning are not correlated. Since the two data were declared uncorrelated, hypothesis testing could be continued using Manova analysis.

Based on Manova's analysis with the help of SPSS, the following results were obtained.

- 1) There is a significant difference in digital literacy between students who participate in learning by integrating Local Wisdom assisted by interactive comics in social studies learning and students who participate in learning who do not integrate Local Wisdom assisted by interactive comics in social studies learning, with an F calculation obtained of 83.339 with a significance of <0.001.
- 2) There is a significant difference in concept understanding between students who take part in learning by integrating Local Wisdom assisted by interactive comics in social studies learning and students who do not participate in learning who do not integrate Local Wisdom assisted by interactive comics in social studies learning, with an F calculation obtained of 140.090 with a significance of <0.001.
- 3) Together, there is a significant difference in digital literacy and concept understanding between students who take part in learning by integrating Local Wisdom assisted by interactive comics in social studies learning and students who do not participate in learning who do not integrate Local Wisdom assisted by interactive comics in social studies learning, with an F count obtained of 125.293 with a significance of <0.001.

Based on the results of the test with Manova's analysis above, it can be concluded that learning that integrates Local Wisdom assisted by interactive comics in social studies learning has been proven to effectively improve digital literacy and students' understanding of concepts. The integration of local wisdom in social studies learning helps students understand the material through experiences that are close to daily life. The local cultural values included in the comic storyline make it easier for students to connect social studies concepts with the social realities in their environment. Meanwhile, the use of digital-based interactive comics encourages students to be more active in reading, exploring information, discussing, and utilizing technology positively. This condition shows that social studies learning does not only function as a knowledge transfer, but also as a means of strengthening cultural identity and developing skills in the 21st century.

21st century skills development requires transforming the learning process from a teacher-centered approach to student-centered learning. Teachers act as facilitators who provide an authentic learning experience through project-based learning, problem-solving, inquiry, collaboration, use of digital technology, and authentic assessment. Learning experiences like this

allow learners to actively build knowledge while developing the high-level thinking competencies and social skills needed in 21st century life (Darling-Hammond et al., 2019). The development of science, digital technology, globalization, and the industrial revolution has changed the paradigm of education from one oriented towards the mastery of knowledge to the development of competencies that can be applied in various life situations. Therefore, 21st century education emphasizes the importance of developing high-level thinking skills, the ability to collaborate, communicate, creativity, and digital literacy as a provision to face future challenges. The OECD defines 21st century skills as a set of competencies that enable individuals to adapt to social, economic, and technological changes through the ability to process information, communicate, and act ethically in a global society (Atabey & Topcu, 2021).

The research was carried out in 6 meetings which began with the pretest before and after the posttest. In the first meeting, the activity focused on the introduction of interactive comics, how to use digital devices, and the introduction of social studies materials based on local wisdom. At this stage, students still look confused in operating learning media because most of them are not used to using digital media as a means of learning. Some students are more interested in trying out the features of animation than understanding the content of the material. Students already show curiosity about the characters, environment, and culture featured in the comics. At this early stage, students' digital literacy is still in the basic category, namely the ability to open media, read instructions, and access comic pages. In terms of understanding concepts, students still tend to understand the material simply and are not able to relate it to the broader social context. This happens because students are still in the stage of adapting to the new learning model.

At the second meeting, students began to show improvement in skills in using digital media. Students are able to open interactive comics independently, follow the storyline, and answer simple questions contained in the media. Active involvement began to be seen through group discussion activities. Students begin to relate the content of the story to real experiences. Learning becomes more lively because students feel that the material they learn is not something foreign. An increase in conceptual understanding begins to be seen when students are able to explain the relationship between local culture and the social life of the community. This shows that the use of contextual media helps the process of constructing students' knowledge according to constructivist theory.

The theory of constructivism views that learning is an active process in which students build knowledge through experience, interaction with the environment, and reflection on the information obtained. In this paradigm, teachers no longer play the role of the only source of information, but rather as facilitators who provide a learning environment that allows students to construct their own knowledge. Therefore, the use of contextual learning media is one of the important strategies to create authentic and meaningful learning experiences so that the concepts learned are easier to understand and apply in daily life (Hwang et al., 2023). Contextual media presents learning materials by connecting them to real situations that are close to students' lives, such as phenomena in the surrounding environment, local culture, and daily problems. The presentation of contextual material allows students to relate prior knowledge with new experiences so that the process of knowledge construction occurs gradually. This process is in line with the principles of constructivism which emphasizes that understanding will be formed when learners actively explore, observe, discuss, and reflect on the learning experiences gained (Azis et al., 2025).

At the third meeting, students seemed to be more confident in using learning media. Students are starting to be able to take advantage of interactive features such as audio, animations, and digital quizzes without much help from teachers. In the aspect of digital literacy, students begin to show the ability to understand digital information and use media in a more targeted way. Interaction between students also increased. Group discussions became more active because students exchanged opinions about the content of the story and the cultural values that appeared in the comics. The teacher acts as a facilitator who helps students connect stories with the social studies concepts being studied. The understanding of social studies concepts has improved because students not only read information, but also interpret social events contained in stories.



Students begin to be able to deduce the social and cultural values contained in the learning materials.

At the fourth meeting, students showed better independence in the learning process. They can use interactive comics without overly detailed instructions from teachers. Learning activities become more student-centered. Students begin to be able to evaluate the information obtained from digital media and discuss it critically with their group friends. In social studies learning, this ability is important because students learn to understand social phenomena more deeply. In addition, students seem to remember the material more easily because the concepts are presented in the form of interesting visual stories. The use of illustrations and simple conversations in comics helps students understand abstract concepts more concretely.

In the fifth meeting, students were more active in expressing their opinions and answering questions related to social studies materials. They are able to reinterpret the content of learning using their own language. This shows that the learning process is no longer memorizing, but has reached the stage of understanding and interpreting concepts. Collaboration between students is also well developed. Students who have higher digital skills help friends who are still having difficulties. This situation creates cooperative learning that supports the development of students' social skills. Students' digital literacy has developed in the ability to understand media content, choose important information, and use digital devices responsibly. The use of interactive comics also increases learning motivation because students find learning more fun than conventional methods.

At the sixth meeting, students showed significant improvements in both digital literacy and understanding of social studies concepts. Most students are able to use learning media independently, understand the content of the story, and explain the relationship of the material with the life of the surrounding community. In the reflection activity, students said that learning to use interactive comics makes it easier for them to understand the material because there are interesting pictures, stories, and animations. In addition, students feel more familiar with the local culture which was previously rarely discussed in daily learning. These results show that the integration of local wisdom assisted by interactive comics is able to create social studies learning that is meaningful, contextual, and in accordance with the needs of the digital generation.

The obstacles faced in the study include 1) Limited digital devices, 2) Unstable internet connection, 3) Differences in students' digital literacy skills, and 4) Limited learning time. The solution is gradual, slow, and repetitive mentoring so that students can more easily understand how to use interactive comics. 2) Students are divided into small groups so that students who understand technology better can help other friends. This strategy also increases students' cooperation and social interaction. 3) To overcome internet constraints, interactive comics are prepared in offline form so that they can still be used without a network connection. 4) The teacher explains the rules for using the device before the learning starts so that students stay focused on the learning objectives and not just play with media features. 5) Teachers divide learning activities into several stages, namely perception, media exploration, discussion, presentation, and reflection so that learning is more directed.

This research provides the implication that social studies learning in primary schools needs to be developed in a more innovative and contextual way through the integration of local culture and digital technology. Teachers can use interactive comics as an alternative learning medium to increase student involvement in the learning process. It is also important to integrate local wisdom so that students continue to have an understanding of culture and social character in the midst of the development of the digital era. In addition, the results of this study show that the use of digital media in accordance with the characteristics of students is able to improve the quality of social studies learning more effectively.

Theoretical and practical contributions to the development of elementary school social studies learning can also be provided through this research. Theoretically, this research reinforces the concepts of constructivistic learning and contextual learning that emphasize the importance of real experiences and local culture in the student learning process. Practically, this research produces learning media innovations in the form of interactive comics based on local wisdom that



can be used by teachers to improve digital literacy and students' understanding of concepts. This research can also be a reference for the development of social studies learning media based on local culture and digital technology in elementary schools.

The limitations in this study can be explained as follows. 1) The research was only carried out in one group involving one experimental class and one control class. This causes the results of the study to not be generalized widely. 2) The research implementation time is relatively short so that the influence of long-term interactive comic use cannot be measured. 3) The variables measured are new to digital literacy and concept understanding without examining their influence on other aspects. 4) The use of digital devices in learning is still influenced by the availability of technology facilities in schools.

The results of the latest research show that the integration of local wisdom assisted by interactive comics is an effective learning innovation to create meaningful, contextual, and social studies learning that is in accordance with the characteristics of the digital generation. Integrating local cultural values into digital media not only strengthens conceptual understanding, but also increases cultural literacy, learning motivation, and active involvement of students in the learning process. This is in line with the characteristics of social studies learning which emphasizes the relationship between the subject matter and the reality of the social and cultural life of the community.

Research by [Damayanti et al. \(2024\)](#) develops interactive e-comics based on local wisdom with a scientific approach. The study used the ADDIE model and involved 108 junior high school students. The results of the study show that interactive comics based on local wisdom are declared valid, practical, and effective in learning. The integration of local cultural stories with interactive digital features is able to increase learning motivation, material understanding, and student involvement because the media used is in accordance with the characteristics of the digital generation students. Although the research was conducted on English subjects, the findings show that interactive comics based on local culture have great potential to be applied to social studies subjects loaded with social and cultural material.

Another relevant research was conducted by [Arini et al. \(2024\)](#) regarding the use of comic media based on Sasak local wisdom in elementary school social studies learning. The results of the study show that comics based on local culture make it easier for students to understand social studies material because the examples presented come from their own living environment. The use of visual illustrations, interesting storylines, and local cultural content can increase learning interest, student participation, and create more contextual and meaningful learning. These findings strengthen that the integration of local wisdom in comic media is able to bridge abstract social studies concepts into more concrete and easy to understand by students.

Furthermore, [Mahartini & Tristananda \(2024\)](#) developed a contextual e-comic for social studies learning in elementary schools. The research shows that the e-comic media developed meets the criteria of valid, practical, and effective in improving students' social attitudes. The presentation of social studies materials through stories that are close to daily life makes the learning process more meaningful because students are able to connect social concepts with real experiences. In addition to improving affective learning outcomes, this media also increases student engagement during the learning process through attractive and interactive visual presentations.

Research by [Wulandari et al. \(2024\)](#) also shows that comic media based on local wisdom has a very high level of validity as a social science learning medium. The integration of local culture in comic media is able to increase students' interest in learning because the material is presented visually, communicatively, and relevant to students' lives. This research confirms that digital media based on local culture can be an innovative learning alternative to develop more contextual and student-centered learning.

Based on these various studies, it can be concluded that the integration of local wisdom assisted by interactive comics has a positive contribution in creating meaningful, contextual, and social studies learning in accordance with the characteristics of the digital generation. Interactive comics not only function as a medium for delivering material, but also as a means of preserving

local culture, strengthening cultural identity, improving cultural literacy, and developing 21st-century skills through an interesting, interactive, and close learning experience for students. Thus, the development of interactive comics based on local wisdom is a relevant innovation to support the transformation of social studies learning in elementary schools.

Based on the results of the research, it is suggested that elementary school teachers be more active in developing social studies learning media that is creative, interactive, and based on local culture. Schools also need to support the use of learning technology by providing adequate digital facilities so that the learning process can run optimally. Researchers are further advised to develop similar studies with a wider school scope and longer research time in order to obtain more comprehensive results. In addition, the next study can examine the effect of the integration of local wisdom assisted by interactive comics on other variables and other subjects in elementary school students.

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CONCLUSIONS AND SUGGESTIONS

Based on the results of research conducted over six sessions, it can be concluded that the integration of local wisdom through interactive comics in social studies learning has a positive impact on digital literacy and conceptual understanding of elementary school students. The use of interactive comics creates a more engaging, contextual, and life-like learning environment, enabling students to be more actively engaged in the learning process. In terms of digital literacy, students demonstrated improved skills in using digital media appropriately, understanding information presented through digital devices, and interacting with learning materials more independently and responsibly. Interactive comics serve not only as entertainment but also as an educational tool, helping students recognize, access, and process digital information more effectively. Meanwhile, in terms of understanding social studies concepts, the integration of local wisdom helps students grasp the material more concretely because it is linked to the culture, traditions, and environment they are already familiar with in their daily lives. Presenting material through storylines, visual illustrations, and dialogue in interactive comics facilitates students' understanding of relationships between concepts, improves memory, and helps them connect new knowledge to real-life experiences. Although several obstacles were encountered during its implementation, such as limited digital devices, differences in student technology skills, and learning time management, various solutions were implemented to support the learning process. Therefore, the integration of local wisdom with the help of interactive comics can be used as an effective social studies learning innovation, relevant to 21st-century learning needs, and optimally supporting the development of digital literacy skills and conceptual understanding in elementary school students.



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