The Effectiveness of Local Wisdom-Based Interactive E-Comics on Learning Outcomes and Motivation in Elementary Students

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Abstract: This study examines the effects of locally wisdom-based interactive e-comics on fifth-grade students' learning outcomes and motivation in fable learning, addressing low achievement and motivation stemming from the dominance of less engaging conventional media. A quasi-experimental method with a non-equivalent control group design was employed. The sample consisted of 37 fifth-grade students from SDN 18 Kampung Dalam (experimental class) and SDN 30 Kampung Dalam (control class). Research instruments included learning outcome tests (pretest and posttest) and a learning motivation questionnaire. Data were analyzed using normality and homogeneity tests and an ANOVA. The findings revealed that the use of interactive e-comics based on local wisdom had a significant effect ($p < 0.05$) on both learning outcomes and motivation. The experimental class achieved an average posttest score of 93, compared with 83.79 for the control group. The findings revealed a significant difference between the groups ($p < 0.05$). The experimental class achieved higher posttest scores (93) than the control class (83.79) and showed greater motivation gains (32.78 and 16.06). These results indicate that locally wisdom-based interactive e-comics effectively enhance learning outcomes and motivation, highlighting their potential as an engaging, culturally relevant learning medium in elementary fable instruction.

Abstrak: Penelitian ini mengkaji pengaruh e-komik interaktif berbasis kearifan lokal terhadap hasil belajar dan motivasi siswa kelas lima dalam pembelajaran fabel, dengan mengatasi rendahnya prestasi dan motivasi yang disebabkan oleh dominasi media konvensional yang kurang menarik. Metode kuasi-eksperimental dengan desain kelompok kontrol non-ekuivalen digunakan. Sampel terdiri dari 37 siswa kelas lima dari SDN 18 Kampung Dalam (kelas eksperimen) dan SDN 30 Kampung Dalam (kelas kontrol). Instrumen penelitian meliputi tes hasil belajar (pretest dan posttest) dan kuesioner motivasi belajar. Data dianalisis menggunakan uji normalitas, homogenitas, dan ANOVA. Hasil penelitian menunjukkan bahwa penggunaan e-komik interaktif berbasis kearifan lokal berpengaruh signifikan ($p < 0,05$) terhadap hasil belajar dan motivasi. Kelas eksperimen mencapai skor posttest rata-rata 93 vs. 83,79. Hasil penelitian menunjukkan perbedaan signifikan ($p < 0,05$) antar kelompok. Kelas eksperimen mencapai skor posttest yang lebih tinggi (93) dibandingkan kelas kontrol (83,79) dan menunjukkan peningkatan motivasi yang lebih besar (+32,78 vs. +16,06). Hasil ini menunjukkan bahwa e-komik interaktif berbasis kearifan lokal secara efektif meningkatkan hasil belajar dan motivasi, menyoroti potensinya sebagai media pembelajaran yang menarik dan relevan secara budaya dalam pengajaran fabel di sekolah dasar.

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A. Introduction

Elementary education constitutes a fundamental stage in shaping students' basic literacy skills, character development, and cognitive abilities that will Influence their academic trajectories in later educational levels (Guo et al., 2019; Howard et al., 2021). At this stage, students are not only expected to master basic reading skills but also to develop deeper comprehension, critical thinking, and moral reasoning abilities through engagement with various types of texts, including literary works (Ryan & Deci, 2020). Literary learning in elementary school plays a strategic role in cultivating language proficiency while simultaneously fostering students' values, attitudes, and emotional intelligence (Chen et al., 2020). One literary genre that holds particular importance in elementary education is the fable, which presents moral messages through animal characters and simple narrative structures. Through fables, students are encouraged to understand narrative elements, infer implicit meanings, and internalize moral values conveyed in an accessible and imaginative manner (Dewi et al., 2023).

Despite its pedagogical potential, learning outcomes related to fable materials in elementary schools often fall short of expected standards. Many students struggle to understand storylines, identify characters' traits, and interpret the moral messages embedded in texts. These challenges indicate that fable learning has not been optimally implemented to support students' comprehension skills and higher-order thinking processes (Dewi et al., 2023; Musyaffa et al., 2023). When students fail to grasp the narrative structure and moral essence of fables, the instructional goals of literary learning—namely, literacy development and character formation—are not fully achieved. This condition suggests a need for more effective instructional approaches that can support students' cognitive engagement and comprehension in fable learning (Putra et al., 2024).

In addition to low learning outcomes, students' motivation to learn in the field lessons is also reported to be relatively low. Many students display limited interest, passive participation, and minimal engagement during classroom activities. Such low motivation negatively affects students' willingness to read texts attentively, analyze story elements, and reflect on the moral values conveyed through fables. Motivation is a crucial affective factor in learning, as it influences students' persistence, engagement, and overall academic achievement (Ryan & Deci, 2020). When students lack motivation, even well-designed learning content may fail to produce meaningful learning outcomes (Pratiwi et al., 2023; Kusmaryono & Maharani, 2025). Therefore, addressing motivational issues is as important as improving cognitive learning outcomes in elementary school instruction.

One key factor contributing to low learning outcomes and motivation in formal learning is the continued reliance on conventional learning media. In many classrooms, teachers predominantly use textbooks and teacher-centred instructional methods, with limited opportunities for students to interact actively with learning materials. Such approaches often position students as passive recipients of information rather than active constructors of knowledge (Howard et al., 2021). As a result, learning activities may become monotonous, reducing students' attention span and engagement. Conventional media

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frequently fail to accommodate students' diverse learning styles and do not sufficiently stimulate curiosity or imagination, which are essential elements in literary learning (Putri et al., 2023).

This instructional condition contrasts sharply with the demands of the Merdeka Curriculum, which emphasizes student-centered, contextual, and meaningful learning experiences. The Merdeka Curriculum encourages learning activities that actively involve students, connect learning content with real-life contexts, and foster higher-order thinking skills. Teachers are expected to design learning environments that promote autonomy, creativity, and critical engagement, supported by innovative and interactive learning media (Maliha et al., 2023). Consequently, the successful implementation of the Merdeka Curriculum requires teachers to move beyond conventional teaching practices and adopt learning media that align with its principles (Astuti et al., 2023).

One potential instructional solution to address these challenges is the use of interactive e-comics as learning media. Interactive e-comics integrate text, illustrations, and digital features such as animations, hyperlinks, and interactive navigation, creating a more engaging and enjoyable learning experience. By presenting fable stories in a visually appealing, interactive digital format, e-comics can help students better understand story structure, character development, and moral messages (Janah & Aeni, 2025). The multimodal nature of e-comics allows students to process information through multiple sensory channels, thereby enhancing comprehension and retention, particularly for young learners (Mayer, 2020).

From a theoretical perspective, the use of interactive e-comics is supported by multimedia and constructivist learning theories. Multimedia learning theory posits that students learn more effectively when information is presented through a combination of verbal and visual elements, as this reduces cognitive load and facilitates deeper processing of information (Mayer, 2020). Meanwhile, constructivist learning theory emphasizes that learners actively construct knowledge through interaction, exploration, and meaningful learning experiences. Interactive digital media, such as e-comics, provide opportunities for learners to engage actively with content, make connections between concepts, and construct understanding through guided interaction (Chen et al., 2020).

The effectiveness of e-comics as learning media can be further enhanced by integrating local wisdom into the learning content. Local wisdom encompasses cultural values, traditions, norms, and social practices that are deeply rooted in students' daily lives and community contexts. Incorporating local wisdom into learning materials allows students to connect new knowledge with familiar cultural experiences, thereby increasing relevance and meaningfulness (Sakti et al., 2024). In the context of fable learning, local wisdom-based stories enable students to relate more easily to narrative settings, characters, and moral values, while simultaneously fostering cultural awareness and character development alongside literacy skills (Ni'mah & Utsman, 2024).

Empirical evidence supports the positive impact of both digital comics and local wisdom-based learning materials. Several previous studies have demonstrated that digital

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comics can improve students' comprehension, learning outcomes, and engagement in language learning (Putra et al., 2024; Wulandari, 2024). Other studies indicate that learning materials grounded in local wisdom contribute positively to character education and the formation of cultural identity (Putri et al., 2023; Rahmawati & Purwati, 2022; Teresiya et al., 2023; Usri et al., 2023). These findings suggest that digital media and cultural relevance are critical components of effective learning, particularly in elementary education, where students' cognitive and affective development occurs simultaneously.

Nevertheless, despite the growing body of Research on digital comics and local wisdom-based learning, most existing studies tend to focus either on the technological aspects of digital comics or on their general effectiveness in improving learning outcomes. Few studies explicitly integrate local wisdom as the core narrative element within interactive e-comics designed specifically for fable learning. Moreover, empirical Research that simultaneously examines the effects of such media on both learning outcomes and learning motivation at the elementary school level remains limited (Pratiwi et al., 2023; Ni'mah & Utsman, 2024). This gap indicates a lack of comprehensive understanding regarding how culturally grounded interactive digital media Influence both cognitive and affective learning domains in elementary literary instruction.

Therefore, the novelty of this study lies in the development and implementation of interactive e-comics that integrate local wisdom as the main narrative framework in fable learning. Unlike previous studies that examined digital comics primarily as technological tools or treated local wisdom as a supplementary component, this study positions local wisdom as the core narrative foundation of the interactive e-comics. By combining interactive digital features with culturally relevant content, this study offers a contextual, meaningful, and character-oriented learning medium that aligns with the principles of the Merdeka Curriculum (Maliha et al., 2023). Furthermore, this Research examines the simultaneous effects of the media on both learning outcomes and learning motivation, providing a more holistic understanding of its educational impact.

Based on the Research background, this study is guided by the following Research questions: (1) Does the use of local wisdom-based interactive e-comics significantly improve fifth-grade elementary students' learning outcomes in fable learning? Moreover, (2) Does the use of local wisdom-based interactive e-comics significantly enhance students' learning motivation? Accordingly, the objective of this study is to examine the effects of locally wisdom-based interactive e-comics on fifth-grade students' learning outcomes and learning motivation in fable learning. Scientifically, this study provides empirical evidence for the development of culture-based digital learning media and supports the implementation of the Merdeka Curriculum in Indonesian language learning by demonstrating how interactive, culturally responsive media can enhance both cognitive and affective learning dimensions.

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B. Method

This study employed a quasi-experimental Research approach using a non-equivalent control group design to examine the effect of local wisdom-based interactive e-comics on students' learning outcomes and learning motivation in fable learning. This design was chosen because random assignment of students was not possible due to existing classroom conditions; however, it still allowed for valid comparisons between the experimental and control groups through pretest and posttest measurements.

The Research was conducted through a systematic sequence of stages, starting with the selection of Research subjects, the administration of pretests, the implementation of the learning treatment, the administration of posttests, and data analysis. The overall Research flow is presented in Figure 1, which illustrates the procedural steps undertaken in both the experimental and control groups.

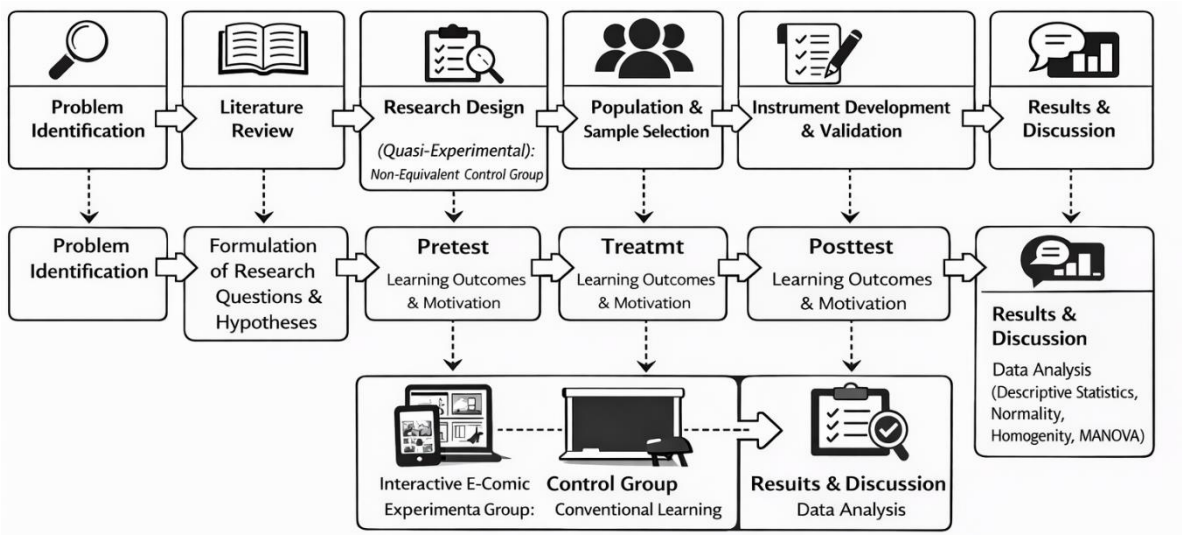

Figure 1. Research Flow Diagram

The Research subjects were 37 fifth-grade students from Cluster II Kampung Dalam, Padang Pariaman Regency. The experimental group consisted of 19 students from SDN 18 Kampung Dalam, while the control group consisted of 18 students from SDN 30 Kampung Dalam. The Research locations were purposively selected based on relatively homogeneous student characteristics, similar learning environments, and comparable problems related to low learning outcomes and learning motivation in the field learning.

The experimental group received instruction using interactive e-comics integrated with local wisdom, while the control group was taught using conventional learning methods based on textbooks and teacher explanations. The treatment was carried out over several learning sessions. In the experimental class, students engaged with fable stories presented in interactive e-comics, followed by guided discussions, identification of the fable's intrinsic elements, and reflection on moral values rooted in local wisdom. In contrast,

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the control class learned the same Material through reading activities and teacher-led explanations, without using interactive digital media.

Data were collected using learning outcome tests, learning motivation questionnaires, and observation sheets. The learning outcome tests were administered as pretests and posttests and consisted of multiple-choice and short-answer items designed to measure students' comprehension of fable texts. The learning motivation questionnaire employed a Likert scale to assess students' interest, persistence, and learning independence. Observation sheets were used to record students' participation, enthusiasm, and interaction during the learning process.

The validity of the instruments was examined through content validity and item analysis. Item validity testing indicated that most test and questionnaire items met the required validity criteria, while a small number of invalid items were removed from the instruments. The results of the item validity analysis are summarised in Tables 1 and 2, showing that the majority of items had correlation coefficients exceeding the minimum threshold.

Instrument reliability was tested using Cronbach's Alpha. The learning motivation questionnaire and learning outcome tests demonstrated satisfactory reliability, with Cronbach's Alpha values above 0.70.

Table 1. Questionnaire Reliability Test

Cronbach's Alpha	N of Items
,762	16

Based on the results presented in Table 1, the reliability analysis of the learning motivation questionnaire shows a Cronbach's Alpha value of 0.762 across 16 items. This value exceeds the minimum reliability threshold of 0.70, indicating that the questionnaire items demonstrate good internal consistency and are appropriate for measuring students' learning motivation. The consistency among items suggests that the instrument reliably captures the intended motivational constructs.

Following the reliability testing of the learning motivation questionnaire, a similar analysis was conducted for the learning outcome test instrument. As shown in Table 2, the reliability test of the learning outcome questions yielded a Cronbach's Alpha value of 0.770 with 16 items. This result indicates a slightly higher level of internal consistency compared to the questionnaire instrument. The Cronbach's Alpha value exceeding 0.70 confirms that the learning outcome test is reliable and suitable for assessing students' comprehension and achievement in fable learning.

Table 2. Question Reliability Test

Cronbach's Alpha	N of Items
,770	16

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The reliability analysis shows that both instruments demonstrate good internal consistency. Table 1 indicates that the questionnaire has a Cronbach's Alpha value of 0.762 across 16 items, which suggests that the items are sufficiently consistent in measuring the same construct. Similarly, Table 2 shows a slightly higher Cronbach's Alpha of 0.770 for the question reliability test with the same number of items, further confirming the reliability of the instrument. Overall, since both Cronbach's Alpha values exceed the commonly accepted threshold of 0.70, the questionnaire and questions can be considered reliable for use in the study.

Data analysis was conducted using descriptive and inferential statistical techniques. Descriptive analysis was used to describe students' learning outcomes and learning motivation through mean scores, minimum and maximum values, and gain scores. Prior to hypothesis testing, prerequisite tests were performed, including a normality test using the Kolmogorov–Smirnov test and a homogeneity test using Levene's test. The data were considered normally distributed and homogeneous, as the significance values exceeded 0.05.

To test the Research hypotheses, a MANOVA was employed to simultaneously examine differences in posttest scores for learning outcomes and learning motivation between the experimental and control groups. In addition, a gain score analysis was conducted to examine differences in learning motivation improvement between the two groups. All statistical analyses were performed using SPSS, with a significance level of 0.05.

C. Result

To determine differences in student learning outcomes before and after treatment, pre- and posttests were administered in the experimental and control classes. The average scores for both groups are shown in the following diagram:

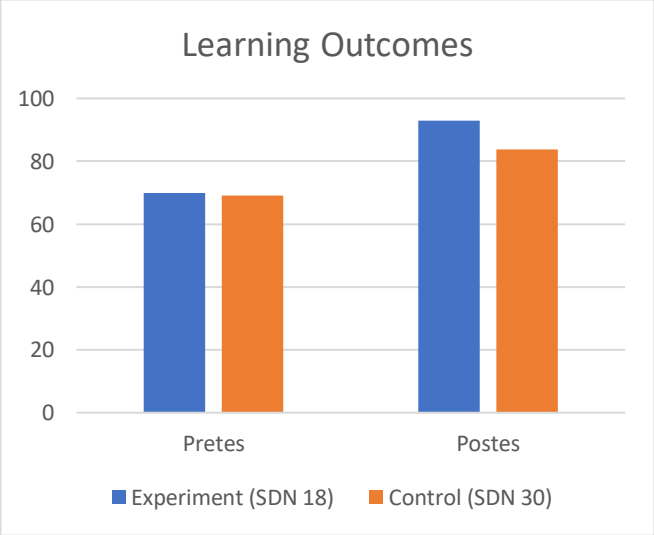

Figure 2. The Results of the Initial Test (Pretest) and Final Test (Posttest) in the Experimental Class and Control Class

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Table 3. Analysis of Pretest Results of Learning Outcomes

Sample Class	N	$\bar{X}$	S	X Max	X Min
Experiment class	18	63,44	15,61	87	33
Control class	19	62,37	17,19	87	27

Based on the results presented in Table 3, the pretest analysis describes students' initial learning outcomes in both the experimental and control groups before the treatment was implemented. To determine the effect of the learning intervention, a posttest analysis was subsequently conducted. The posttest results of students' learning outcomes for both groups are presented in Table 4.

Table 4. Posttest Analysis of Learning Outcomes

Sample Class	N	$\bar{X}$	S	Xmaks	Xmin
Experiment class	18	92,56	10,38	100	69
Control Class	19	86	12,65	100	54

The pretest results show that the experimental and control classes had relatively similar initial learning outcomes, with mean scores of 63.44 and 62.37, respectively, indicating comparable starting abilities before the treatment. The standard deviations (15.61 for the experimental class and 17.19 for the control class) suggest moderate score variability in both groups. After the treatment, the posttest results reveal a clear improvement in both classes, with the experimental class achieving a higher mean score (92.56) than the control class (86.00) and a lower standard deviation (10.38 versus 12.65), indicating more consistent performance. These findings suggest that while both groups experienced learning gains, the experimental class showed greater improvement and more stable learning outcomes than the control class.

In addition to cognitive learning outcomes, this study also measured students' learning motivation using a Likert-scale questionnaire. Motivation scores were obtained during the pretest and posttest to assess student motivational improvement. The average student learning motivation scores are presented in the following diagram :

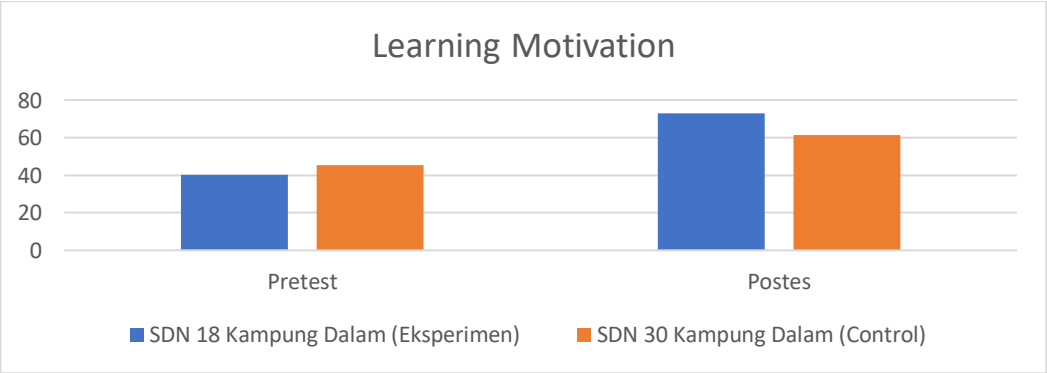

Figure 3. Average Learning Motivation Score

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Table 5. Analysis of Learning Motivation Pretest

Sample Class	N	$\bar{X}$	S	Xmaks	Xmin
Experiment class	18	40,39	4	46	34
Control class	19	46,84	10,65	65	32

Based on the results presented in Table 5, the pretest analysis shows the initial level of students' learning motivation in both the experimental and control groups before the treatment was implemented. To examine the effect of the instructional intervention on students' learning motivation, a posttest analysis was subsequently conducted. The posttest motivation scores for both groups are presented in Table 6.

Table 6. Posttest Analysis of Learning Motivation

Sample Class	N	$\bar{X}$	S	Xmaks	Xmin
Experiment class	18	72,83	1,83	75	69
Control class	19	61,89	2,35	65	57

The pretest analysis of learning motivation indicates differences between the two groups: the experimental class obtained a lower mean score (40.39) than the control class (46.84), and the control class also showed greater variability, as reflected in a higher standard deviation (10.65). After the intervention, the posttest results demonstrate a substantial increase in learning motivation in both groups; however, the experimental class achieved a markedly higher mean score (72.83) than the control class (61.89) and showed lower score dispersion (standard deviation of 1.83 versus 2.35). These results suggest that the treatment positively affected learning motivation in the experimental class compared to the control class.

A normality test was conducted to ensure that the student learning outcomes and motivation data were normally distributed, allowing for further parametric testing. The Kolmogorov-Smirnov test was used to test for normality. A summary of the normality test results is presented in Table 4.

Table 7. Data Normality Test Results

Variables	Group	Sig. (p)	Information
Learning outcomes	Experiment	0.2	Normal (p > 0.05)
	Control	0.172	Normal (p > 0.05)
Motivation to learn	Experiment	0.144	Normal (p > 0.05)
	Control	0.189	Normal (p > 0.05)

Based on the results presented in Table 1, the normality test shows that the learning outcome data for both the experimental and control groups are normally distributed. The significance values obtained for the experimental group (p = 0.200) and the control group (p = 0.172) are greater than the significance level of 0.05. These findings indicate that the

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distribution of students' learning outcome scores in both groups meets the assumption of normality required for further parametric statistical analysis.

Similarly, the learning motivation data for both groups also demonstrate a normal distribution. The experimental group obtained a significance value of p = 0.144, while the control group achieved p = 0.189, both of which exceed the 0.05 threshold. These results indicate that students' motivation scores are normally distributed across groups. Consequently, the assumption of multivariate normality required for MANOVA is considered to be met, allowing the analysis to proceed reliably.

After the normality assumption was met, a homogeneity-of-variance test was conducted to examine whether the variances of the dependent variables were equal across groups. This test was performed using Levene's Test. The results show that the significance values for both learning motivation and learning outcomes are greater than 0.05, indicating that the assumption of homogeneity of variance is fulfilled. Therefore, the data meet the key assumptions required for conducting MANOVA, enabling the use of multivariate analysis to examine group differences simultaneously across learning outcomes and learning motivation.

Table 8. Data Homogeneity Test Results

Variables	**Levene Statistics**	**Sig. (p)**	**Information**
Learning outcomes	1,247	0.271	Homogeneous (p > 0.05)
Motivation to learn	0.984	0.329	Homogeneous (p > 0.05)

Based on the table above, the homogeneity test p-value is greater than 0.05, indicating that the variances of student learning outcomes and motivation are homogeneous across groups.

Table 9. Data Homogeneity Test Results

	Levene Statistic	df1	df2	Sig.
Learning_Motivation	,707	1	35	,406
Learning_Outcomes	,339	1	35	,564

The homogeneity test results indicate that the assumption of equal variances is met for both variables. For learning motivation, the Levene Statistic is 0.707 with a significance value of 0.406, while for learning outcomes, the Levene Statistic is 0.339 with a significance value of 0.564. Since both significance values are greater than 0.05, it can be concluded that there is no significant difference in variance between the groups, meaning the data on learning motivation and learning outcomes are homogeneous and suitable for further parametric analysis.

After the data were confirmed to be normally distributed and homogeneous, the next step was to conduct a Multivariate Analysis of Variance (MANOVA). This analysis was used to determine whether the use of local wisdom–based interactive e-comics had a significant

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effect on students' learning outcomes and learning motivation simultaneously. The results of the MANOVA test are presented in Table 6 below.

Table 10. MANOVA Test Results

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	,925	209,986[b]	2,000	34,000	,000
	Wilks' Lambda	,075	209,986[b]	2,000	34,000	,000
	Hotelling's Trace	12,352	209,986[b]	2,000	34,000	,000
	Roy's Largest Root	12,352	209,986[b]	2,000	34,000	,000
Kelas	Pillai's Trace	,583	23,799[b]	2,000	34,000	,000
	Wilks' Lambda	,417	23,799[b]	2,000	34,000	,000
	Hotelling's Trace	1,400	23,799[b]	2,000	34,000	,000
	Roy's Largest Root	1,400	23,799[b]	2,000	34,000	,000

The MANOVA results from the multivariate tests indicate a statistically significant multivariate effect of class (experimental and control) on the combined dependent variables of learning outcomes and learning motivation. This is evidenced by all four multivariate statistics—Pillai's Trace (0.583), Wilks' Lambda (0.417), Hotelling's Trace (1.400), and Roy's Largest Root (1.400)—which yield the same F value of 23.799 with a significance level of 0.000, indicating $p < 0.05$. These findings demonstrate a significant overall difference between the experimental and control groups when learning outcomes and learning motivation are considered simultaneously, supporting the Research hypothesis that the treatment had a significant multivariate effect.

D. Discussion

This study aimed to examine whether the use of local wisdom–based interactive e-comics significantly improves fifth-grade students' learning outcomes and learning motivation in fable learning. The findings clearly demonstrate that both Research questions were answered affirmatively. Students who learned through interactive e-comics integrated with local wisdom achieved significantly higher learning outcomes and motivation than those who learned through conventional instructional media.

Regarding the first Research question, the results indicate that local wisdom–based interactive e-comics significantly improve students' learning outcomes in fable learning. This conclusion is supported by the higher posttest mean score of the experimental group ($M = 92.56$) compared to the control group ($M = 86.00$), as well as the greater reduction in score variability observed in the experimental class. The MANOVA results further confirm a statistically significant effect of the instructional treatment on learning outcomes (Wilks' Lambda = 0.417, $p < .001$), indicating that the improvement was not incidental but attributable to the learning intervention.

The improvement in learning outcomes can be explained by the instructional characteristics of interactive e-comics. The integration of text, illustrations, and interactive navigation supports dual-channel information processing, enabling students to construct

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meaning more efficiently from fable texts. Visual representations help clarify abstract narrative elements, such as character traits, plot sequences, and moral conflicts. At the same time, interactive features encourage students to engage with storylines rather than passively read text. This learning process aligns with multimedia learning theory, which posits that learning is more effective when verbal and visual information are presented in an integrated manner (Mayer, 2020).

In addition, the interactive nature of e-comics promotes active learning, a central feature of constructivist learning theory. Students are not merely recipients of information but actively engage with the learning content through exploration, interpretation, and discussion. This active engagement enhances comprehension and supports deeper cognitive processing, leading to higher learning outcomes. Similar findings have been reported in previous studies, which found that interactive digital comics significantly improve students' comprehension and academic achievement in language learning (Putra et al., 2024; Janah & Aeni, 2025; Wulandari, 2024).

In relation to the second Research question, the findings demonstrate that local wisdom–based interactive e-comics significantly enhance students' learning motivation. The experimental group showed a substantial increase in motivation scores (M = 72.83) compared to the control group (M = 61.89), with a markedly higher gain score. The MANOVA results confirm that the instructional treatment had a significant multivariate effect on motivation alongside learning outcomes, indicating that the media influenced both cognitive and affective domains simultaneously.

The increase in learning motivation can be attributed to several interrelated factors. First, the interactive e-comics provided a more engaging learning experience through colourful illustrations, digital interactivity, and story-based presentation, reducing boredom and increasing students' interest. According to self-determination theory, motivation is enhanced when learning activities are perceived as interesting, enjoyable, and relevant (Ryan & Deci, 2020). The interactive format of e-comics fulfilled these conditions by allowing students to actively participate in learning rather than passively listening to teacher explanations.

Second, integrating local wisdom played a crucial role in strengthening students' intrinsic motivation. Cultural values embedded in familiar settings, characters, and moral dilemmas made the learning content more meaningful and relatable to students' daily lives. When students recognize their own cultural context in learning materials, they are more likely to feel emotionally connected and motivated to engage with the content. This finding is consistent with studies showing that local wisdom–based learning materials enhance motivation, engagement, and character development among elementary students (Ni'mah & Utsman, 2024; Sakti et al., 2024; Rahmawati & Purwati, 2022).

An important contribution of this study lies in its demonstration of the combined effect of interactive digital media and cultural relevance. While previous studies often examined the impact of digital comics and local wisdom separately, this Research shows that integrating both elements produces a stronger, more comprehensive learning effect. The

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interactive e-comics not only facilitated cognitive understanding of fable texts but also fostered affective engagement through culturally meaningful narratives.

The quantitative findings reinforce this interpretation. Although both groups started with relatively similar pretest scores, the experimental group showed greater posttest improvement with lower variability, suggesting more consistent learning outcomes. Similarly, the sharp increase in motivation scores in the experimental group indicates that the learning intervention sustained students' engagement beyond novelty or surface-level interest. These results support prior Research indicating that culturally responsive digital media can enhance both learning effectiveness and student motivation (Putri et al., 2023; Usri et al., 2023).

Despite these positive findings, alternative explanations should be considered. The observed improvement may partially reflect a novelty effect, as students often show increased enthusiasm when first exposed to new digital learning media. Additionally, the relatively short duration of the intervention limits conclusions regarding long-term retention of learning outcomes and sustained motivation. External factors, such as teacher facilitation styles and students' prior familiarity with digital devices, may also have influenced the results.

Nevertheless, the consistency of the findings across multiple statistical analyses and their alignment with previous Research suggest that the observed effects are robust. Future studies should address these limitations by extending the implementation period, involving larger, more diverse samples, and incorporating qualitative data to gain deeper insights into students' learning experiences.

Overall, this study strengthens existing evidence on the effectiveness of interactive e-comics in elementary education and extends it by emphasizing the critical role of local wisdom as a core narrative element. By examining learning outcomes and motivation simultaneously through multivariate analysis, this Research provides a more holistic understanding of how culturally grounded interactive media support meaningful learning. The findings highlight the potential of local wisdom–based interactive e-comics as an innovative instructional approach that aligns with the goals of the Merdeka Curriculum and promotes both academic achievement and character development in elementary education.

E. Implications

The implications of this Research demonstrate its contribution to the fields of basic education and digital learning media. The Research findings confirm that interactive e-comics grounded in local wisdom significantly improve student learning outcomes and motivation, thereby supporting constructivist and multimedia theories that emphasize the importance of multimodal and contextual learning. This Research expands the study of digital comics by demonstrating that integrating local cultural values not only preserves cultural identity but also enhances learning effectiveness. Thus, this Research strengthens the scientific discourse on the urgency of culture-based pedagogy in the digital era and provides a practical model for future innovation in learning media.

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The implications of this study highlight its relevance at multiple levels of educational practice. Teachers can integrate locally rooted, interactive e-comics into lesson plans (RPPs), Pancasila Student Profile Projects (P5), and school literacy programs to support engaging, contextual, and student-centred learning. At the school level, institutions are encouraged to develop and utilize digital learning content rooted in local culture to enhance digital literacy while preserving cultural values. From a policy perspective, this study underscores the importance of prioritisingprioritising locally relevant learning media in implementing the Merdeka Curriculum, ensuring that curriculum practices promote both educational effectiveness and cultural identity.

F. Limitation and Suggestion for Further Research

This study has several limitations. First, the Research employed a quasi-experimental design, which limits the level of control over extraneous variables compared to true experimental designs, as random assignment of participants was not fully possible. Second, the sample size was relatively small, comprising only 37 fifth-grade students from two schools within a single cluster, limiting the generalizability of the findings to a broader population. Third, the study focused exclusively on fable Material in Indonesian language learning; therefore, the effectiveness of local wisdom-based interactive e-comics may differ when applied to other subjects or grade levels.

In addition, the intervention was relatively short, which may not fully capture the long-term effects of interactive e-comics on students' learning outcomes, motivation, and character development. The Research instruments were also limited to learning achievement tests, motivation questionnaires, and classroom observations, without explicitly analyzing higher-order thinking skills (HOTS) or long-term retention. Based on these limitations, future Research is recommended to involve larger and more diverse samples from different regions to enhance external validity, extend the duration of the intervention, explore the use of interactive e-comics across various subjects, and incorporate qualitative approaches such as interviews or focus group discussions to gain deeper insights into students' learning experiences and cultural engagement.

G. Conclusion

This study concludes that the use of locally wisdom–based interactive e-comics is effective in improving fifth-grade students' learning outcomes and motivation in fable learning. The findings demonstrate that students who learned through interactive e-comics achieved significantly higher posttest scores and showed greater motivation gains than those taught with conventional learning media. The significant multivariate results indicate that the instructional intervention had a simultaneous impact on both cognitive and affective learning domains.

The effectiveness of locally wisdom–based interactive e-comics stems from the integration of interactive digital features and culturally relevant content, which enhances students' comprehension, engagement, and intrinsic motivation. By presenting fable

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materials in a visually appealing, culturally contextualisedcontextualised format, the learning media facilitated meaningful learning experiences aligned with the principles of student-centred learning promoted by the Merdeka Curriculum.

Based on these findings, local wisdom–based interactive e-comics can be recommended as an effective alternative learning medium in elementary education, particularly for literary learning that emphasizes moral values and character development. Future Research is encouraged to involve larger, more diverse samples, extend the duration of implementation, and examine long-term learning retention, as well as the impact of interactive e-comics across different subjects and grade levels.

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