Local Wisdom-Based E-Comic to Enhance Fifth Grade Elementary Students' Understanding of Regional Economic Concepts in Tulungagung Regency

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Abstract: This study was conducted to develop a local wisdom-based E-comic as a learning medium that aimed at improving the understanding of regional economic concepts among fifth-grade elementary school students that students are expected to recognize local economic potentials, engage actively with their surrounding environment, and experience life as social beings. The study was motivated by the low level of students' comprehension regarding regional economic material and the limited availability of engaging and contextual learning media. The ADDIE development model was employed in this research. The product was designed in the form of a digital comic that features interactive visual narratives, with content focused on regional economic themes integrated with the local wisdom of Tulungagung Regency such as economic activities, leading local products, and the potential of the creative economy. The research was carried out with fifth-grade students from State Elementary School Tulungagung as participants. Data were collected through observations, questionnaires, interviews, document analysis, and concept comprehension tests. The e-comic was validated by media and content experts, and it was found to be highly valid and appropriate for use. Positive responses were obtained from both teachers and students, indicating that the e-comic was considered feasible and practical for learning purposes. Small-scale and large-scale trials were conducted, and the results showed that students' conceptual understanding was significantly improved through the use of the local wisdom-based e-comic, as supported by the analysis of a paired sample t-test. To sum up, the developed e-comic was proven to be valid, practical, and effective in enhancing the understanding of regional economic concepts among fifth-grade elementary students.

Introduction

The "Merdeka" Curriculum has been introduced as an educational innovation within Indonesia's national education system, that developed as a new approach to improve the quality of education. This curriculum was designed to restore learning processes in the post-pandemic

era and to enhance educational quality by promoting learner autonomy and implementing culturally contextualized approaches (Zumrotun et al., 2024; Ministry of Education, Culture, Research, and Technology Decree No. 56 of 2022).

Science and Social Studies are included as one of the subjects in the *Merdeka* Curriculum, in which the integration of Science and Social Studies is carried out with the aim of raising students' awareness of the surrounding natural and social environment, as well as developing their curiosity and inquiry skills (Risnawati & Indriayu, 2024). One of the important topics in IPAS learning at the elementary school level is regional economy, through which local economic potential is introduced.

Based on the results of observations and interviews conducted at State Elementary School 2 Pucungkidul with fifth-grade teachers and students, it was revealed that the topic of regional economy is perceived as difficult and unengaging. The content of the lesson was not easily understood by students, as it was considered monotonous and lacked meaningful context. As a result, students' conceptual understanding of the regional economy is low. This limited understanding has been attributed to the way the teaching and learning process has been conducted in the classroom. The material was not organized in a way that could be easily comprehended by students. Instead, the learning relied primarily on the government-issued textbooks provided by the school, which not all students had access to. Moreover, only a few illustrative examples were included in the textbooks. Although PowerPoint presentations, images, YouTube videos, and the surrounding environment had been utilized as supplementary media, their implementation was not optimized to enhance conceptual comprehension.

Based on the analysis of students' learning outcome documents owned by the teacher, it was identified that the concept of regional economy had not been well understood, particularly by 28 students whose scores remained below the minimum competency standard. In other words, the low level of conceptual understanding of the regional economy has been found to significantly influence students' academic performance on this subject matter. Based on the results of the needs analysis questionnaire distributed by the researcher to both teachers and students, it was found that only 42% of students were able to understand the concept of regional economy about local wisdom within their surroundings. This indicates that 25 students had not yet acquired sufficient knowledge or understanding of the regional economy as it relates to local wisdom, particularly in the context of their living environment, such as in Tulungagung Regency.

Based on the explanation above, it can be concluded that the teacher who is expected to act as a facilitator and guide in the learning process has instead been identified as one of the contributing factors to students' low conceptual understanding, which subsequently affects learning outcomes that fall below the Minimum Competency Criteria. A learning process that is focused on providing understanding to students is considered very important, as it is aimed at ensuring that they truly understand what is being learned and know when, where, and how it should be applied (Suwoko et al., 2024)

According to the constructivist learning theory proposed by Vygotsky (as cited in Sayfullooh et al., 2023), which is based on the concept of scaffolding, it is emphasized that teachers should provide support tailored to students' cognitive abilities, especially during the initial stages of learning. This support is to be gradually withdrawn as students become capable

of learning independently and taking responsibility for their tasks. In the context of the *Kurikulum Merdeka* (Independent Curriculum), the role of the teacher is no longer confined to being the sole source of knowledge. Instead, teachers are positioned as key agents in fostering a conducive learning environment. They are expected to act as facilitators who promote active and participatory learning, while also cultivating students' independence, creativity, and initiative. In addition, teachers are encouraged to adapt the curriculum to local contexts and make effective use of technology as a learning support tool.

The use of technology in the era of Industrial Revolution 4.0 and Society 5.0 is recognized as an essential requirement in learning. Technology is regarded as a means to support learning processes that are efficient, effective, and aligned with the demands of the modern age (Subiyantoro et al., 2021; Rindrayani et al., 2024; Sakiinah et al., 2022). Among the various innovative learning media, *e-comics* have been identified as particularly relevant. This digital medium combines visual storytelling, technology, and the values of local wisdom. Digital comics are defined as a sequence of images and symbols arranged according to specific reading conventions, designed to convey information or provide an aesthetic experience to the reader. When accessed through digital devices, digital comics are believed to enhance students' understanding of abstract material, increase reading interest, and support the effectiveness of classroom learning. Moreover, e-comics are considered capable of fostering a more engaging and enjoyable learning atmosphere (Putri, 2024).

The use of digital comics has been shown to improve students' conceptual understanding. Through the integration of narrative and illustration, digital comics are utilized to support students in grasping abstract concepts. This approach aligns with Jean Piaget's theory of cognitive development, which emphasizes the importance of visual and narrative elements in facilitating students' comprehension of abstract ideas (Siswati & Prihandini, 2022). Learning media based on digital comics has been found to enhance student motivation, memory retention, and conceptual understanding.

In addition, the benefits are not only reflected in the enhancement of conceptual understanding, but also in the inculcation of local cultural values that are strengthened for national character building and supported for students' digital literacy. Innovation in the design of learning media is expected to improve students' achievement while, at the same time, local wisdom is preserved and appreciated (Yusra, 2024).

The integration of local wisdom has been considered essential for preserving cultural identity amid the forces of globalization. E-comics that incorporate local wisdom have been used to assist students in understanding economic concepts within the context of their own culture. In addition, such media have been found to foster scientific attitudes and increase students' interest in learning. Local wisdom, which reflects the values and traditions of the surrounding community, has been shown to provide learning contexts that are more relevant and relatable to students' everyday lives. As a result, the learning process can be made more meaningful and engaging (Anas, 2018; Priyangga et al., 2022; Rachmadani et al., 2021).

In this study, an e-comic based on local wisdom was developed to enhance students' conceptual understanding of regional economics. The use of a local wisdom-based e-comic has been considered a strategic option to improve the effectiveness of learning in elementary schools, particularly for topics related to regional economic systems. This tool is seen as having

significant potential to provide a learning experience that is not only enjoyable but also meaningful and contextual. The integration of local wisdom into e-comic learning media has been identified as a promising solution for improving students' comprehension of regional economic concepts.

Previous studies on the development of e-comics to enhance conceptual understanding have been widely conducted. However, no research has been found that specifically focuses on the development of e-comics integrating natural sciences and social sciences content—particularly on regional economic topics—based on local wisdom. A study conducted by Kusumadewi (2020) presented the development of digital comic media aimed at improving students' conceptual understanding. Similarly, research by Shahwa et al. (2024) described the development of e-comics using the Canva application for natural sciences and social sciences subjects in elementary schools to support students' comprehension. The e-comic media has been validated and considered feasible to be used in the learning process to enhance students' understanding of Indonesian cultural heritage (Salsabila et al., 2023)

The primary objective of this study is to develop a local wisdom-based e-comic aimed at improving fifth-grade students' conceptual understanding of the regional economy. The e-comic is designed to be visually engaging and rich in cultural elements specific to Tulungagung Regency, particularly those related to economic activities, local superior products, and the creative economy. Through the development of this e-comic, it is expected that students will be better supported in understanding regional economic concepts, which have traditionally been perceived as difficult and unappealing. Therefore, this research is considered important not only to facilitate learning but also to instill cultural values that strengthen national character and enhance students' digital literacy.

Besides, the benefits are not only reflected in the improvement of conceptual understanding, but also in the inculcation of local cultural values that are reinforced for strengthening national character and supporting students' digital literacy. Moreover, innovation in the design of learning media is expected to improve students' performance while, at the same time, local wisdom is preserved and appreciated (Yusra, 2024). Furthermore, this study is expected to offer pedagogical innovation by enabling teachers to create and utilize e-comics as contextual learning tools, thereby increasing the effectiveness of instruction and contributing meaningfully to the advancement of technology-integrated and culturally grounded education.

Research Method

This study employed a research and development (R&D) method. The product developed was an e-comic (electronic comic). The e-comic product was subjected to feasibility and effectiveness testing concerning fifth-grade elementary students' conceptual understanding of the regional economy. The trial subjects and respondents in this development research were carried out at a public elementary school in Tulungagung Regency, with a small group sample consisting of 2 teachers and 15 fifth-grade students, while the large group trial involved 2 fifth-grade teachers and 43 fifth-grade students.

The development model that was used in this research was the ADDIE model (Analysis, Design, Development, Implementation, Evaluation), which was introduced by Robert Maribe

Branch. In the Analysis phase, a needs analysis, curriculum analysis, and student development analysis were conducted to identify the requirements for instructional media that could support students in understanding regional economic concepts.

The Design stage refers to the formulation of specific instructional objectives, the development of material scenarios, the framework of the product, and the preparation of a draft of the local wisdom–based e-comic along with its evaluation, which is developed according to the results of the analysis. The Development stage is then conducted by producing and validating the product. The outcomes of this stage include the content, media or application plans and strategies, comprehensive guidelines, and an evaluation plan. In this research, several steps were carried out, namely assessment and revision by media experts and material experts to obtain feedback and suggestions concerning the feasibility and validity of the e-comic.

In the Implementation phase, the product was applied and tested in real classroom settings. Field testing was carried out with two groups: a small group and a large group of fifth-grade students. The purpose of this step was to determine the feasibility of the local wisdom-based e-comic in enhancing students' conceptual understanding of the regional economy. At this stage, students evaluated the practicality of the e-comic by completing a student response questionnaire containing statements about the e-comic. The results were used to improve the developed product. In the small-group trial, validity and reliability testing were also conducted.

The Evaluation phase was carried out to determine whether each stage and the final product met the established specifications. Evaluation was conducted to assess the quality of the product and the learning process, both before and after implementation. Final evaluation was performed through operational testing to determine the effectiveness of the e-comic.

Both quantitative and qualitative data were used in this study. Quantitative data were obtained from product assessments conducted by subject matter experts, media experts, classroom teachers, and trial participants. These assessments were collected through scoring on questionnaires. Meanwhile, qualitative data consisted of expert feedback regarding product development, including opinions, suggestions, recommendations, and critiques. Several research instruments were employed in this study, including interview guides, teacher and student needs analysis questionnaires, expert validation questionnaires (for both media and content), teacher and student response questionnaires, as well as evaluation test items. Instrument validity and reliability testing were also conducted on the questionnaires. The effectiveness level of the developed media was evaluated through the analysis of pre-test and post-test results. This analysis was carried out using prerequisite tests such as the normality test, homogeneity test, linearity test, and the paired t-test, all of which were processed using the SPSS statistical software.

Result and Discussion

The initial stage of this research was the analysis of product needs, in which in-depth interviews were conducted with fifth-grade teachers and questionnaires were distributed to students in order to identify the problems faced in learning regional economic material. Subsequently, at the product design and development stage, discussions and limited trials were carried out, through which a decision was made to incorporate local elements such as batik industry, agriculture, and traditional markets as parts of the narrative in the e-comic. Then, the

development stage was carried out, which included the content, media or application plans and strategies, comprehensive guidelines, and the evaluation plan.

The validation from media experts and material experts provided an overview of the quality of the content, design, and the alignment of the media with learning objectives. The validation results from the media expert showed that the product obtained a score of 95.2%, which was categorized as "Highly Valid/Feasible." This score indicated that, in terms of media design, the e-comic had met high-quality standards and could be used in the learning process. The assessment results from the material expert showed that the media obtained a total score of 72 with a percentage of 96%, which was classified as "Highly Valid/Feasible" based on the conversion table of quantitative descriptive statistical guidelines. These findings indicated that, in terms of learning substance, the e-comic had fulfilled the eligibility requirements very well and was feasible for use in the learning process.

The fourth stage, implementation, involved the application of the product in the field. A field trial was conducted with two groups. The small-group trial was carried out to assess the feasibility of the local wisdom-based e-comic in improving fifth-grade students' conceptual understanding of the regional economy. Finally, the evaluation stage was conducted. The general procedures in this stage included the selection of appropriate measurement tools, identification of the level of success, and the provision of recommendations for future implementation improvements**.** The integration of the developed e-comic has been realized in a digital format as a flipbook, which can be accessed through the following link: https://heyzine.com/flip-book/72484adaab.html. Alternatively, it can also be accessed by scanning the QR code shown below.

Picture 1. Picture *QR code e-comic* based on *local wisdom*
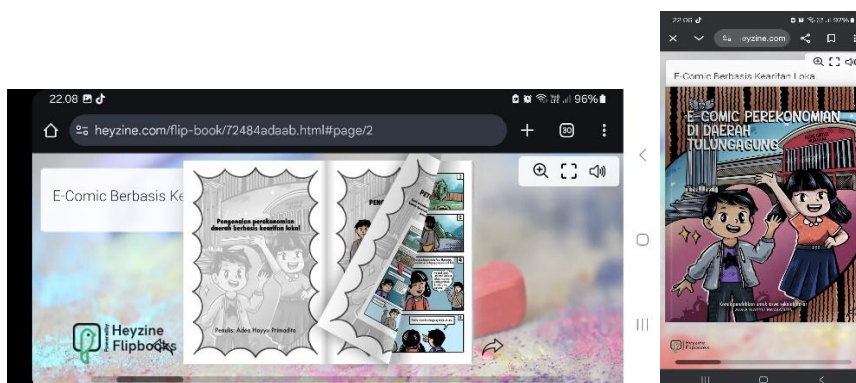
Picture 2. Display of the Local Wisdom–Based E-Comic

a) Results of Small Group Trial

In this small group trial, the feasibility and effectiveness of the e-comic media were tested by administering a pretest before using the e-comic and a posttest after using the e-comic to the students. The following is the recap of the evaluation scores from the pretest and posttest in the small group trial.

Table 1. Frequency Distribution of Evaluation Scores in the Pretest and Posttest.

No	Classification	Score Range	Frequency		Percentage (%)	
			Pretest	*Posttest*	*Pretest*	*Posttest*
1	Very High	90–100	1	6	6,67%	40,00%
2	High	80–89	2	2	13,33%	13,33%
3	Moderate	70–79	4	5	26,67%	33,33%
4	Low	60–69	4	1	26,67%	6,67%
5	Very Low	< 60	4	1	26,67%	6,67%
	Total		15	15	100%	100%

Subsequently, students and teachers were asked to complete a response questionnaire in order to obtain data or information used for product improvement/revision, with the results presented as follows.

Table 2. Frequency Distribution of Teachers' Response Questionnaire.

No	Aspect	Item Number(s)	Score	Frequency (%)	Category
1	Content Appropriateness	1	8	80	Feasible/Practical
2	Language	4, 5	16	80	Feasible/Practical
3	Usefulness	3, 7, 8, 10, 11, 12	47	78	Feasible/Practical
4	Ease of Use	6, 13	16	80	Feasible/Practical
5	Design	9, 14	15	75	Feasible/Practical

No	Aspect	Item Number(s)	Score	Frequency (%)	Category
6	Readability	15	8	80	Feasible/Practical
7	Student Motivation	2	8	80	Feasible/Practical

Based on the results of the questionnaire, it was found that all assessed aspects were classified into the category of 'Feasible/Practical,' with percentage scores ranging from 75% to 80%. The aspects that obtained the highest percentage of 80% included content appropriateness, language, ease of use, readability, and student motivation. These findings indicated that the developed media had met the feasibility standards for the learning process. The results of the student response questionnaire are presented as follows.

Table 3. Frequency Distribution of Students' Response Questionnaire

No	Aspect	Item Number(s)	Score	Frequency (%)	Category
1.	Attractiveness of E-Comic Presentation	1, 2, 3, 15	230	77	Feasible/Practical
2.	Systematics of Presentation	4, 5	116	77	Feasible/Practical
3.	Graphic Quality of E-Comic	6, 7, 8, 9, 10, 11, 12	406	77	Feasible/Practical
4.	Language Used	13, 14	133	89	Highly Feasible/Practical

Based on the results of the questionnaire, it was found that all assessed aspects were classified into the category of 'Feasible/Practical' to 'Highly Feasible/Practical,' with percentage scores ranging from 77% to 89%. This indicated that the language used in the e-comic was considered highly appropriate for the comprehension level of elementary school students.

The validity test obtained an r-count value of 0.694 > r-table 0.514 and a Sig (2-tailed) value of 0.004 < 0.05. Therefore, it was concluded that all items were declared valid. Based on these data, with the number of respondents from the small group and 15 items in the questionnaire (P1–P15), the small group obtained a Cronbach's Alpha value of 0.900 > 0.600, which indicated that the questionnaire was 'reliable' and could be trusted to measure a larger sample size. The results of the reliability test are presented in the following table.

Table 4. Results of Cronbach's Alpha Reliability Test

Group	N	Number of Items	Cronbach's Alpha	Requirement	Remark
Small Group	15	15	0.900	0.600	Reliable

Source: Processed by the researcher, 2025

Based on these data, it can be concluded that the questionnaire is a valid and reliable instrument to assess the feasibility of the local wisdom-based e-comic as a learning medium aimed at

improving fifth-grade elementary school students' understanding of regional economic concepts. Furthermore, the results of the Shapiro-Wilk normality test indicated that the distribution of both pretest and posttest scores in the experimental group was statistically normal, as presented below:

Table 5. Results of Normality Test

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Pretest	.149	15	.200[*]	.979	15	.963
Posttest	.148	15	.200[*]	.952	15	.555

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Source: Processed by the researcher, 2025

The results of the Shapiro-Wilk normality test indicated significance values greater than 0.05, with the pretest at 0.963 > 0.05 and the posttest at 0.555 > 0.05. These findings suggest that the gain score data between the pretest and posttest were normally distributed. The homogeneity test showed a significance value of 1.000 (Based on Mean), which is greater than 0.05. Therefore, it can be concluded that the data used in this study originated from a homogeneous population. Furthermore, the linearity test produced the following results.

Table 6. Linearity Test Results (Small Group)

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Posttest * Pretest	Between Groups	(Combined)	2701.667	10	270.167	25.936	.003
		Linearity	2181.019	1	2181.019	209.378	.000
		Deviation from Linearity	520.648	9	57.850	5.554	.057
	Within Groups		41.667	4	10.417		
	Total		2743.333	14			

Source: Processed by the researcher, 2025

Based on the data presented in the table, the significance value for Linearity was found to be 0.000 < 0.050, while the Deviation from Linearity was recorded at 0.057 > 0.050. From these results, it was concluded that a linear relationship existed between the pretest and posttest scores, and the assumption of linearity was considered to have been fulfilled.

Table 7. Results of the Paired Sample T-Test (SPSS) on the Small Group

Paired Samples Test

		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	95% Confidence Interval of the Difference Upper	t	df	Sig. (2-tailed)	Ket.
					Paired Differences					
Pair 1	Pretest - Posttest	-15.00000	6.81385	1.75933	-18.77339	-11.22661	-8.526	14	.000	Signifikan

Source: Processed by the researcher, 2025

Table 8. Results of the Paired Sample T-Test Coefficients on the Small Group

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	T	Sig.
1	(Constant)	25.968	7.888		3.292	.006
	Pretest	.833	.117	.892	7.101	.000

a. Dependent Variable: Posttest

Source: Processed by the researcher, 2025

Based on the table above, the results of the paired sample t-test indicated a significance value of 0.000, which was lower than 0.05. This result implied that H_0 was rejected and H_1 was accepted. Furthermore, the calculated t-value of 7.101 was greater than the critical t-table value of 2.16037, confirming a statistically significant difference. This finding demonstrated that there was a significant improvement in the understanding of regional economic concepts among fifth-grade elementary school students before and after the use of the local wisdom-based e-comic. Therefore, the local wisdom-based e-comic was considered feasible for further application at the next stage, namely the large-group or experimental class trial.

b) Results of the Large-Group Trial

The large-group product trial was conducted following the use of the e-comic media or after the posttest was administered. The results of student and teacher response questionnaires were collected to evaluate the feasibility of the local wisdom-based e-comic product in enhancing fifth-grade elementary students' understanding of regional economic concepts, thereby determining its practicality and appropriateness for classroom implementation. The Shapiro-Wilk normality test showed that the significance values for both the pretest and posttest scores in the experimental class exceeded 0.05. The pretest yielded a value of 0.346 > 0.05, and the posttest yielded 0.456 > 0.05. Based on these findings, it was concluded that the gain score data between the pretest and posttest were normally distributed.

The homogeneity test indicated a significance value of 0.090 under "Based on Mean," which was greater than 0.05. Therefore, it was concluded that the data used in the study originated from a homogeneous or equivalent population. The linearity test revealed a significance value of 0.000 < 0.050 for linearity and a value of 0.111 > 0.050 for deviation from linearity. These results confirmed the existence of a linear relationship between the pretest and posttest scores, fulfilling the assumption of linearity.

Table 9. Result of Paired Sample T Test SPSS for a large group

					95% Confidence Interval of the Difference		t	Df	Sig. (2-tailed)	
			Mean	Std. Deviation	Std. Error Mean	Lower	Upper			Ket
Pair 1	Pretest Posttest	-18.60465		9.21474	1.40523	-21.44053	-15.76877	-13.240	42	.000	Signifikan

Source: Proceed by Researcher, 2025

Table 10. Result of the T-Table Paired Sample T Test for a large group

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	42.196	3.107		13.579	.000
	Pretest	.616	.048	.893	12.702	.000

a. Dependent Variable: Posttest

Source: Proceed by Researcher, 2025

      The results of the paired t-test showed a significance value of 0.000, which was less than 0.05. This indicated that the null hypothesis (H_0) was rejected and the alternative hypothesis (H_1) was accepted. The calculated t-value ($t_{calculated} = 12.702$) was greater than the critical t-value ($t_{table} = 2.01954$), indicating a statistically significant difference (H_0 was rejected). These findings demonstrated that a significant improvement occurred in fifth-grade elementary students' understanding of regional economic concepts before and after the use of the local wisdom-based e-comic. This suggested that the local wisdom-based e-comic product maintained its appeal and effectiveness, even when implemented on a larger scale.

      Overall, the results of both small- and large-group trials indicated that the local wisdom-based e-comic media were highly practical and effective for instructional use. Teacher evaluations revealed that the media was easy to use, aligned with the curriculum content, and capable of motivating students. Meanwhile, student assessments highlighted that the media was engaging, easy to understand, and aligned with their learning characteristics. These findings were consistent with the theory proposed by Ivashkevych et al. (2020), which stated that visual storytelling techniques in comics could capture readers' attention and convey information effectively. This result also aligned with instructional design principles that emphasize the importance of using contextual, engaging, and easily implementable media in classroom instruction. The local wisdom-based e-comic not only fulfilled aesthetic dimensions but also supported the achievement of learning objectives effectively within the real-world context of elementary education. This theoretical alignment was further supported by Raaijmakers & Van Berlo (2023), who argued that

comics can simplify complex concepts by utilizing character development, narrative structure, detail levels, color usage, visual style, and elements of humor, thereby enhancing students' comprehension. Furthermore, the study by Afifah & Arisca (2022) showed that e-comics were validated as effective through expert assessments, demonstrated effectiveness based on learning mastery percentages, and were considered practical based on implementation observations. This e-comic media supported students' comprehension through three levels: translation, interpolation, and extrapolation. The primary aim of employing e-comics in the learning process was to build and reinforce students' understanding of the instructional content.

Conclusion

This study develops a local wisdom-based e-comic instructional media product to improve fifth-grade elementary students' understanding of regional economic concepts. The ADDIE development model is employed and is proven to be valid, practical, and effective in enhancing students' comprehension. The media is designed to meet the needs of teachers and students for contextual, enjoyable, and easily understandable learning, particularly for abstract topics such as regional economics. The local wisdom-based e-comic serves as a pedagogically relevant alternative instructional medium that creates engaging, contextual, and meaningful learning experiences for students.

The feasibility or practicality level of the local wisdom-based e-comic in improving fifth-grade elementary students' understanding of regional economic concepts is confirmed through expert validation. Both media and content experts categorize the product as "highly valid/feasible." Additionally, the media receives positive responses from both teachers and students. Based on the results of the small-group trial, the average score across all aspects falls under the "feasible/practical" category. Furthermore, the large-group trial results indicate that the e-comic media, based on the average score across all aspects, is classified as "highly feasible/practical."

The effectiveness level of the local wisdom-based e-comic in enhancing fifth-grade elementary students' understanding of regional economic concepts is classified as "effective." This conclusion is based on the calculation of pretest and posttest scores, which show a significant improvement in both the small-group and large-group trials. The t-test results in both trials indicate that the use of this media produces a substantial impact on students' ability to comprehend the material. The success of the e-comic media is supported not only by its theoretical and design feasibility but also by its proven positive influence in actual classroom settings. The improvement in students' scores and understanding after using the e-comic demonstrates its effectiveness in helping students absorb the material in a more enjoyable and accessible way.

Recommendation

This study successfully develops a digital instructional media in the form of a local wisdom-based e-comic, which is validated and proven practical for improving elementary students' understanding of regional economic concepts. However, the study remains limited to the aspects of validity, practicality, and effectiveness within a single school setting. Therefore,

future researchers are encouraged to extend this study by conducting trials on a broader scale or employing experimental designs to examine the media's impact on student learning outcomes. Given the strong positive responses from both teachers and students, further development should be directed toward integrating the e-comic into digital learning platforms, such as Learning Management Systems (LMS), and expanding the scope of local wisdom content to cover other subject areas. Schools are also expected to leverage existing digital infrastructure, such as internet access and students' ownership of gadgets, to support the integration of the e-comic in classroom learning. Collaboration among various stakeholders, including local governments and education authorities, is essential to provide training and infrastructure support for broader and more effective implementation.

Acknowledgement

References

Afifah, A., & Arisca Dewi, P. (2022). Pengembangan Media E-Komik Untuk Meningkatkan Pemahaman Konsep Matematika Siswa. *Jurnal Axioma : Jurnal Matematika Dan Pembelajaran*, *7*(1), 24–34. https://doi.org/10.56013/axi.v7i1.1194

Anas, M. (2018). Prosiding. *Pembelajaran Ekonomi Berbasis Kearifan Lokal*, 615–621. https://repository.unpkediri.ac.id/4077/

Ariyani, O. B., Renata, R., Wardoyo, R. P., Marini, A., & Yunus, M. (2024). Efektivitas Penggunaan Media Pembelajaran Interaktif dalam Pembelajaran Matematika di Sekolah Dasar. *Jurnal Penelitian Multidisiplin Terpadu*, *8*(12), 200–205. https://sejurnal.com/pub/index.php/jpmt/article/view/5466

Basiran, B. (2024). *Penggunaan Media Pembelajaran Audio Visual Pada Materi Ilmu Pengetahuan Sosial Di MI Nurul Amin Al-Hidayah Kecamatan Sidareja Kabupaten Cilacap*.

Ivashkevych, E., Komarnitska, L., & Educational, P. S. (2020). Psychological Aspects of Comics as the Paraliterary Genres. *Problems of Modern Psychology Collection of Research Papers of Kamianets-Podilskyi National Ivan Ohiienko University G S Kostiuk Institute of Psychology of the National Academy of Educational Sciences of Ukraine*, *49*, 106–130. https://doi.org/10.32626/2227-6246.2020-49.106-130

Kusumadewi, R. F. (2020). *Pengembangan Bahan Ajar Matematika Berbasis Media Komik Digital Untuk Meningkatkan Kemampuan Pemahaman Konsep Matematika Pada Siswa Sekolah Dasar*. (Disertasi). Program Pascasarjana Pendidikan Dasar : Universitas Negeri Jakarta

Priyangga, B., Sarwi, S., Widiyatmoko, A., Herlina, E., Marwoto, P., & Sumarni, W. (2022). Development of E-Comic Based on Local Wisdom to Improve Scientific Literacy. *Ta'dib Journal*, *25*(2), 140–149. https://doi.org/10.31958/jt.v25i2.5902

Putri, I. P. (2024). Pengembangan Komik Digital Interaktif Dalam Meningkatkan Kecintaan

Budaya Lokal Anak Usia Dini Di Tk Mekar Sari Lampung.(Tesis). Fakultas Ilmu Tarbiyah dan Keguruan. Program Studi Pendidikan Anak Usia Dini : UIN Sunan Kalijaga

Raaijmakers, E. A. L., & van Berlo, Z. M. C. (2023). Billions of blue blistering barnacles! What we can learn from comics about the visualization of complex ideas: Educational methods and innovations in engineering education. In EAEEIE 2023: Proceedings of the 2023 32nd annual conference of the European Association for Education in Electrical and Information Engineering (EAEEIE) : Eindhoven, The Netherlands, 14-16 June, 2023 (pp. 98-103). IEEE. https://doi.org/10.23919/EAEEIE55804.2023.10182035

Rachmadani, R., Sutarno, S., & Umayaroh, S. (2021). Pengembangan Media E-Comic Berbasis Budaya Lokal Kota Malang dalam Pembelajaran Keunikan Daerah Tempat Tinggalku untuk Muatan PPKn Kelas 4 SD. *Jurnal Pembelajaran, Bimbingan, Dan Pengelolaan Pendidikan*, *1*(8), 676–681. https://doi.org/10.17977/um065v1i82021p676-681

Rindrayani, S. R., Hairunisya, N. H., Sudarmiani, S., & Trisnantari, H. E. (2024). The Influence of Entrepreneurial Literacy and Entrepreneurial Practice on Entrepreneurial Readiness In The Industrial Era 4.0. *IJE : Interdisciplinary Journal of Education*, *2*(2), 101–119. https://doi.org/10.61277/ije.v2i2.89

Risnawati, R. A., & Indriayu, M. (2024). Analisis pembelajaran ipas materi kondisi perekonomian di daerahku dengan menggunakan pendekatan inkuiri. *SAP (Susunan Artikel Pendidikan)*, *9*(1), 68–75. https://doi.org/http://dx.doi.org/10.30998/sap.v9i1.22032

Sakiinah, A. N., Mahya, A. F. P., & Santoso, G. (2022). Revolusi Pendidikan di Era Society 5.0; Pembelajaran, Tantangan, Peluang, Akses, Dan Keterampilan Teknologi. *Jurnal Pendidikan Transformatif (Jupetra)*, *Vol. 01*(02), 18–28.

Salsabila, R., Sundari, F. S., & Wijaya, A. (2023). Pengembangan Media Pembelajaran E Comic Pada Materi Kekayaan Budaya Indonesia. *Pendas : Jurnal Ilmiah Pendidikan Dasar*, *08*(02), 2548–6950. https://doi.org/https://doi.org/10.23969/jp.v8i2.10458

Sayfullooh, I. A., Desyandri, D., Irdamurni, I., & Latifah, N. (2023). Relevansi Teori Konstruktivistik Vygotsky Dengan Kurikulum Merdeka: Studi Kepustakaan. *Jurnal Tinta*,*5*(2),73–82 https://ejournal.alqolam.ac.id/index.php/jurnaltinta/article/view/1011

Shahwa, D. N., Mustamiro, M., & Iksam, I. (2024). Pengembangan Bahan Ajar E-Comic melalui Aplikasi Canva pada Mata Pelajaran IPAS di Sekolah Dasar. *SITTAH: Journal of Primary Education*, *5*(2), 225–242.

Siswati, B. H., & Prihandini, R. M. (2022). Development of Thematic E-Comic Based on Augmented Reality. *Journal of Digital Educational Technology*, *2*(2), ep2205. https://doi.org/10.30935/jdet/12359

Subiyantoro, H., Suja'i, I. S., & Nurohmah, M. (2021). Peran Modal Sosial dalam Pendidikan Pesantren di Era Society 5.0. *EQUILIBRIUM : Jurnal Ilmiah Ekonomi Dan Pembelajarannya*, *9*(2), 133. https://doi.org/10.25273/equilibrium.v9i2.10010

Suja'i, I. S., Afifah, D. S. N. A., Nurhadi, I., & Lestari, D. C. (2019). European Journal of Education Studies Student Learning Interaction In Constructing The Understanding. *European Journal of Education Studies*, *6*(8), 255–265. https://doi.org/10.5281/zenodo.3555387

Susanti, Yanik Dwi , Muyanto, Manggarani Raras Eko, Suwoko, Z. K. I. (2024). *Buku Pendamping Kurikulum Merdeka Cerdas Tangkas Kelas 5 Semester 2* (Rohmiati (ed.)). Alim's Publishing Jakarta.

Yusra, I. (2024). Development of Anti-Radical Comics Electronic Media Based on Local Wisdom (Mekar-Bekal). *Jurnal Penelitian Pendidikan Ipa*, *10*(2), 557–571. https://doi.org/10.29303/jppipa.v10i2.6785

Zumrotun, E., Widyastuti, E., Sutama, S., Sutopo, A., & Murtiyasa, B. (2024). Pera *urnal Karya Ilmiah Guru*, *9*(2), 1003–1009. https://doi.org/10.51169/ideguru.v9i2.907