Development of E-Comic Media to Improve Elementary School Students' Understanding of Discipline

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Abstract: This study aims to develop e-comic media on the material of politeness norms to improve the understanding of discipline in elementary school students and to evaluate the feasibility and effectiveness of the e-comic media. This research uses the R&D (Research and Development) method with the ADDIE model and utilizes the Pre-Experimental Design One Group Pretest-Posttest Model. This study involved 24 fourth-grade students at SDN 1 Kaduagung Timur, Banten Province. Data collection was carried out in several ways, namely interviews, observations, questionnaires, and formative tests in the form of pre-test and post-test totaling 12 multiple-choice questions. The validation results obtained, such as media expert validation of 92.96%, material and question experts of 88.88% and 99.26%, and language experts of 91.39%. In addition, there are also the results of teacher response questionnaires, which get 97.14% and student response questionnaires reaching 92.34%, which shows that e-comic is well received as a learning medium. In terms of effectiveness, the Wilcoxon test revealed a significant difference between pretest and posttest results ($p < 0.0001$), also supported by the N-Gain value, which reached an average of 0.77 and was included in the high category. Therefore, the use of e-comic media for grade IV students has been proven effective and feasible to improve students' understanding of disciplinary values.

Introduction

Character education is a crucial aspect of the educational system. Licktona in Aminan et al. (2023) stated "character education is the deliberate effort to help people understand, care about and act upon core ethical values", meaning that character education is a deliberate effort to help someone understand, appreciate, and act based on ethical values. This statement is in line with what was stated by Wandari Purwa Nugraha (2021). Education is a moving process, meaning that education can change and develop if problems occur in society. Based on the two statements above, character education is the main foundation in the education system. The education system not only equips students with knowledge but also shapes students into individuals who are able to face changes and can lead a good social life in society.

One of the character values that must be taught from an early age is discipline because it is closely related to the norms of politeness in everyday life. According to Slamet et al. (2024), politeness norms are social rules that are formed from social interactions and become guidelines in behavior. In elementary schools, discipline is understood as one of the important values that can help in the development of positive student behavior. However, conditions in the field show that the implementation of disciplinary values of grade IV

students still faces a number of challenges. Based on initial signs, many students still lack understanding about discipline, such as students still speak using impolite words, do not pay attention to the teacher during the learning process, and lack of concern for environmental cleanliness. The causative factor of the problem is learning that is still conventional such as being dominated by the lecture method and the limitations of digital learning media to improve understanding of discipline in accordance with the times, besides that environmental factors also affect it, such as the use of a mixture of Indonesian and coarse Sundanese in daily communication.

Learning media affects the absorption of messages or information from the material being taught, so that if the learning media is monotonous and less interactive, it will cause students to get bored quickly and hinder students' ability to understand the message being conveyed Muthma'innah (2022). Therefore, innovation is needed in the presentation of learning materials in order to attract student interest and facilitate student understanding of character values. According to Nida et al. (2020), in the context of discipline character education, learning media have a very important role. Character can not only be taught through lectures, but also through visual and interactive experiences designed to actively engage students. Thus, the use of appropriate learning media can be an effective way to increase understanding of disciplinary values to students more interestingly, this is by the statement of Herliana & Anugraheni (2020) suggesting the use of effective learning media in the character education process, in addition to functioning to convey material, learning media also play a major role in creating an interesting learning atmosphere. In this context, e-comic media has potential as a solution because e-comic combines visual and narrative elements so that it can convey messages in an interesting way and facilitate student understanding. This can be shown by previous research Desandi et al. (2023) In contrast to previous studies that emphasized aspects of communication ethics and digital literacy, this study emphasizes increasing the understanding of the discipline of grade IV students by using Webtoon as a publication place, so that students can read e-comics containing characters and storylines about disciplinary attitudes that are relevant to everyday life. This study aims to develop e-comic media on the material of politeness norms to improve the understanding of discipline in elementary school students and to evaluate the feasibility and effectiveness of e-comic media.

Research Method

This research uses the R&D (Research and Development) method, which is a process that aims to develop new products or improve existing products June et al. (2024). This approach was chosen because this research focuses on developing e-comics about norms of politeness to improve the understanding of the discipline of grade IV elementary school students. Mariam (2019) states that there are 5 stages in the ADDIE R&D model, including:

a) Analyze is the stage of analyzing product development and analyzing product feasibility. At this stage, information is collected through observations and interviews related to the behavior and factors that cause problems in understanding student discipline at school.

b) Design is the product design stage. At this stage, there are activities to design learning and e-comic concepts, such as making storyboards, characters, and making comic in the Medibang application.

Figure 1. Making Comics in Medibang

c) Development is the development stage of the product that has been designed. At this stage, developing e-comic media based on the results of the design using software or applications to make product improvements and improvements. At this stage, a questionnaire is distributed to media validators, language and question validators, and material validators using a Likert scale of 1-5.

d) Implementation is the application stage of the product. At this stage, it is filled with activities to implement e-comic media that has been developed in the learning process in class IV SDN 1 Kaduagung Timur through Webtoon and conduct limited

e) Evaluation is the final stage that focuses on the product. At this stage, the results of using e-comic media are evaluated through response questionnaires and post-test comprehension tests.

This research uses the Pre-Experimental Design Model One Group Pretest-Posttest, which compares conditions after and before treatment in one class Sugiyono (2013). This study used 24 fourth-grade students of SDN 1 Kaduagung Timur, Banten Province, as research subjects. Data collection is done through several ways, namely interviews, observations, questionnaires, and formative tests in the form of pre-test and post-test totaling 12 multiple-choice questions. The following is the formula used:

1) Analysis of expert validation and teacher and student responses
   According to Purwanto in Sumiati et al. (2023), the following formula is used to calculate the percentage of feasibility:

$$NP = \frac{R}{SM} \times 100\%$$

Description:
   NP = Presentation Value
   R   = Score
   SM = Maximum Score
Feasibility category

Table 1. Feasibility of Expert Validation, Teacher response and student response

Average Value (100%)	Assesment Criteria
81-100	High
61-80	Medium
41-60	Low
21-40	Very Low

2) Analysis of increased understanding
   Here is the N-gain formula according to Hake in Supriadi (2021):

$$Gain = \frac{Skor\ Posttest - Skor\ Pretest}{Skor\ Ideal - Skor\ Pretest}$$

Interpretation category

Tabel 2. N-Gain Interpretation

N-Gain range	Category
g > 0,7	High
0,3 < g ≤ 0,7	Medium
g ≤ 0,3	Low

Results and Discussion

Aziiz et al. (2023) stated that e-comic is a simple story presentation that is equipped with interesting pictures to be easily understood and favored by children and adults. This is in line with the opinion of Mikamahuly et al. (2023), that e-comic can attract students to learn because it is equipped with narration and pictures. E-comic provides advantages, such as being able to create a new learning experience for students because it is web or application-based so that it can increase motivation and the combination of stories with images in e-comic provides support in increasing student understanding related to the material taught Rahmasari et al. (2024). This is in line with the advantages of e-comic media put forward by Pratama et al. (2023), which can increase student motivation and interest in learning, encourage reading interest, become a bridge to develop reading habits and make students remember longer learning material. This e-comic was created using the Medibang application and published through the Webtoon application. The following is the comic display:

Figure 2. E-comic Cover

Figure 3. E-comic Display on Webtoon

The application of this e-comic is carried out after providing material about the discipline and its associated rules. To test their ability, students are required to complete a pre-test and post-test, both in the form of 12 multiple-choice questions.

The following are the results of the analysis:

1) Media expert assessment

Media validation is carried out by three validators by reviewing several aspects such as illustration design, appearance, and accessibility. The assessment of these three validators will be analyzed to determine the feasibility of teaching media in the form of e-comic as a whole. The results of the media validator e-comic discipline material, as follow:

Table 3. Recapitulation of Media Validator Questionnaire

No	Aspect	Number of Indicators	Total Score (R)	Maximum Score (SM)	Percentage
1	Illustration design	5	70	75	93,33%
2	Display	6	83	90	92,22%
3	Accessibility	3	42	45	93,33%
	Average				92,96%
	Criteria				Very Feasible

Based on Table 3, media validation was conducted by three experts. The assessment results show that the illustration aspect obtained a percentage of 93.33%, the display aspect obtained 92.22%, and the accessibility aspect reached 93.33%. Overall, these three aspects have an average percentage of 92.96% and are categorized in the feasibility level as very feasible.

2) Material and question expert assessment

Material validation was carried out by three validators by reviewing several aspects such as content feasibility, language, and presentation. In addition, it also assesses the suitability of the questions, which are reviewed with aspects of material, construction, and language. The assessment of these three validators will be analyzed to determine the feasibility of the materials and questions. The results of the material and question validators are as follows:

Table 4. Recapitulation of Material Validator Questionnaire

No	Aspect	Number of Indicators	Total Score (R)	Maximum Score (SM)	Percentage
1	Conten feasibility	5	74	75	98,67%
2	Language	1	15	15	75%
3	Presentation	3	43	45	95,56%
	Average				88,88%
	Criteria				Very Feasible

Based on table 4, material validation was carried out by three experts. The results showed that the content eligibility aspect received a percentage of 98.67%, the language aspect received 75% and the presentation aspect reached 95.96%. Overall, these three aspects have an average percentage of 88.88% and are a very feasible level of feasibility.

Table 5. Recapitulation of Question Validator Questionnaire

No	Aspect	Number of Indicators	Total Score (R)	Maximum Score (SM)	Percentage
1	Material	3	44	45	97,78%
2	Construction	2	30	30	100%
3	Language	2	30	30	100%
	Average				99,26%
	Criteria				Very Feasible

Based on table 5, material validation was carried out by three experts. The results showed that the material aspect obtained a percentage of 97.78%, the construction aspect obtained 100% and the linguistic aspect reached 100%. Overall, these three aspects have an average percentage of 99.26% and are at a very feasible level of feasibility.

3) Language expert assessment

Language validation was carried out by three validators by reviewing several aspects such as straightforwardness, the use of dialogical and interactive language, the suitability of the students' developmental level, and cohesiveness. The assessment of these three validators will be analyzed to determine the feasibility of language in e-comic. The results of the linguist validators are as follows:

Table 6. Recapitulation of Language Validator Questionnaire

No	Aspect	Number of Indicators	Total Score (R)	Maximum Score (SM)	Percentage
1	Straightforwardness	3	40	45	88,89%
2	Logical and interactive use of language	2	26	30	86,67%
3	Appropriateness of student development level	2	29	30	96,67%
4	Orderliness of integration	2	28	30	93,33%
	Average				91,39%
	Criteria				Very Feasible

Based on table 6, language validation was carried out by three experts. The results showed that the aspect of straightforwardness obtained a percentage of 88.89%, the aspect of logical and interactive use of language obtained 86.67%, the aspect of suitability for students' developmental level obtained a percentage of 96.67%, and the

aspect of coherence reached 93.33%. Overall, these four aspects have an average of 91.39% and are a very feasible level of feasibility.

4) Teacher and student response questionnaires

This questionnaire is given and must be filled in by teachers and students during the evaluation stage, this is done to test the feasibility of e-comic media in the discipline material of politeness norms.

Table 7. Recapitulation of Teacher Response Questionnaire

No	Aspect	Number of Indicators	Total Score (R)	Maximum Score (SM)	Percentage
1	Suitability of the material	2	9	10	90%
2	Language	2	10	10	100%
3	Usability	2	9	10	90%
4	Ease of use	3	15	15	100%
5	Design	2	10	10	100%
6	Readability	2	10	10	100%
7	Student motivation	2	10	10	100%
	Average				97,14%
	Criteria				Very Feasible

Based on table 7, the homeroom teacher filled in the teacher's response during the evaluation with the material suitability aspect getting a percentage of 90%, the language aspect getting 100%, the usefulness aspect reaching 90%, the ease of use aspect getting 100%, the design aspect getting 100%, the readability aspect getting 100% and the student motivation aspect reaching 100%. These seven aspects have an average of 97.14% and are in the very feasible category.

Table 8. Recapitulation of Studen Response Questionnaire

No	Aspect	Number of Indicators	Total Score (R)	Maximum Score (SM)	Percentage
1	Attractiveness of e-comic presentation	4	444	480	92,5%
2	Systematic presentation	2	224	240	93,33%
3	E-comic graphics	4	439	480	91,46%
4	Language	2	221	240	92,08%
	Average				92,34%
	Criteria				Very Feasible

Based on table 8, as many as 24 fourth grade students filled in student responses during the evaluation with the aspect of the attractiveness of the e-comic presentation obtained a percentage of 92.5%, the systematic aspect of the presentation obtained a percentage of 93.33%, the graphic aspect of e-comic obtained a percentage of 91.46% and the linguistic aspect obtained 92.08%. These four aspects have an average of 92.34% and are in the very
feasible category.

The Wilcoxon test acts as another option for the Paired sample T-test. The Wilcoxon test aims to detect the difference between the median (average) of two populations based on the median of two paired samples. The Wilcoxon test is considered superior to the T-test, this is because the Wilcoxon test considers the direction of the difference and the relative direction of the difference Trimawartinah (2020).

Table 9. Wilcoxon Test Results
Test Statistics[a]

	Discipline Posttest – Discipline Pretest
Z	-4.294[b]
Asymp. Sig. (2-tailed)	<.001

Based on table 9, Asymp. Sig. (2-tailed) is <0.001 or smaller than 0.05. Then the null hypothesis (Ho) is rejected, which means that there is a significant inequality between the pre-test and post-test results.

N-Gain is an approach to measure the change in students' level of understanding before and after learning. The n-gain test is a method of assessing the effectiveness of learning when improving student learning outcomes Irma et al. (2024).

Table 10. Hasil Uji N-Gain Skor
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Ngain_Score	24	.33	1.00	.7780	.18232
Ngain_Percentage	24	33.32	100.00	77.7997	18.23240
Valid N (listwise)	24				

Based on table 10, the N-gain score obtained an average of 0.77 or 77.80% and was in the N-gain rage high category. So there is a change in the form of a significant increase in the use of e-comic media on discipline material in the norms of politeness.

This study found that the use of e-comics on discipline material in the norms of politeness significantly improved the understanding of grade IV students. This finding is in line with the results of Khotimah & Ratnawuri (2021) research that found that e-comic media is feasible to apply to monetary policy and fiscal policy materials. Afriana et al. (2022) found that e-comics can optimize learning from the COVID-19 period and Desandi et al. (2023) found that e-comics are valid, practical, and effective for improving student literacy.

This research provides conceptual and practical implications. Conceptually, this study provides knowledge about e-comic media to improve students' understanding of discipline in politeness norms. This finding is in line with research by Solihah et al. (2022), which shows that e-comics can build unity and integrity among elementary school students. Similarly, research by Ananda et al. (2024), shows that digital comics can improve understanding of

communication ethics and research by Putri et al. (2024) shows e-comics are effective in improving the understanding of science materials in elementary schools. With this, this research contributes to the development of the theory and practice of digital teaching media in improving students' abilities. Practically, teachers can utilize e-comics as an interesting digital teaching media and can increase student learning motivation and understanding. This finding is in line with Retno Wulan et al. (2024), which shows that e-comics can increase student learning motivation and research by Bianca et al. (2024), showing that e-comic are feasible and can increase understanding in students. For schools, it is expected that the use of e-comics can improve the learning process. As for researchers, e-comic can add insight in improving the success of the learning process through learning media innovations that are relevant to the times, and for future researchers, e-comic can be a reference and can be developed for the better.

Conclusion

The e-comic media from this development research has a very feasible category in learning politeness norms, especially in the class IV Elementary School discipline material. This is supported by the validation results obtained, such as media expert validation of 92.96%, material and question experts of 88.88% and 99.26%, and language experts of 91.39%. In addition, there are also the results of teacher response questionnaires, which get 97.14% and student response questionnaires reaching 92.34%, which shows that e-comics are well received as learning media. In terms of effectiveness, the Wilcoxon test revealed a significant inequality between pretest and posttest results ($p < 0.0001$), also supported by the N-Gain value, which reached an average of 0.77 and was included in the high category. Therefore, the use of e-comic media for grade IV students has been proven effective and feasible to improve students' understanding of disciplinary values.

Recommendation

Based on the results of this development research, teachers are expected to use e-comic media as learning media, especially in helping to improve students' understanding of the discipline. As for future researchers, it is recommended to further develop e-comic media related to character education with different material selection and grade levels, as well as more interesting interactive features.

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