

The Effectiveness of a Collaborative Model Assisted by Serial Image Media on Expository Writing Skills in BIPA Among 11th Grade Science Class Student

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Abstract: This study aims to test the effectiveness of a learning model as an alternative to overcome BIPA expository writing learning problems. The learning model in question is a collaborative model assisted by series image media. The population of this study is all students of grade XI ESG São Pedro, Comoro for the 2024 school year consisting of seven classes and totaling 314 students. The sample of this study is only one class, namely class 11 CT/A which totals 43 students. The sampling technique used is purposive sampling. The research method used is quantitative with the type of Pre-Experimental research and the design is one group pretest-posttest. The data collection technique used in this study is a test technique, which is using learning test results. The learning test in question is an expository writing skills test before applying collaborative learning assisted by series image media (pretest) and an expository writing skills test after applying collaborative learning assisted by series image media (posttest). The data in this study uses descriptive and inferential statistical calculations by calculating student learning outcomes, improving student learning outcomes, data normality and hypothesis testing. From the results of data analysis and hypothesis testing using paired sample t tests, it can be concluded that the application of collaborative learning assisted by series image media is effective on expository writing skills.

Keywords: Bipa's expository; Collaborative model; Serial image media

Introduction

BIPA writing learning for high school students in Timor Leste which has been going on since 2002 follows the Indonesian curriculum that applies in Indonesia because there is no special BIPA curriculum in this country. Learning to write, like learning other language skills, namely listening, speaking, and reading, must also be taught in schools. Writing is a very complex activity because it involves an organized way of thinking and the ability to express it in the form of written language by paying attention to several conditions. Absolute requirements that must be mastered,

including: the unity of ideas that must be possessed by prospective writers first; the ability to compose sentences clearly and effectively (useful); the skill of composing paragraphs or paragraphs; mastering writing techniques such as punctuation (punctuation); and having the necessary number of words. These statements suggest that writing skills are the most complex and difficult activities compared to other language skills, namely listening, speaking, and reading skills.

Expository writing skills for high school students are essential, given their role in forming effective communication skills as well as critical thinking skills.

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Writing expository is not just about writing down ideas, but also requires mastery of logical structures and the ability to present information clearly and concisely (Halida et al., 2023). This ability helps students not only in academic contexts but also in everyday life, where they need to convey ideas or information coherently in a variety of situations (Prakoso et al., 2021).

In the context of learning, expository writing skills contribute to the development of students' language skills. The writing process encourages students to think analytically and critically, improving their ability to evaluate various sources of information and formulate opinions based on those analyses (Kusmiarti et al., 2023). In addition, the quality of their writing in the form of an exposition reflects their mastery of the material studied. Through writing skills, students are also taught how to present data and arguments systematically, which is very beneficial in both academic and professional settings (Shofa et al., 2021).

The use of the right learning methods also plays a big role in the development of these skills. Research shows that the application of methods such as Discovery Learning can significantly improve students' expository writing skills (Halida et al., 2023). Basically, students not only learn to write, but also learn to innovate and find the best way to convey their ideas (Al Amin, 2021). These skills ultimately support character and personality development, as students learn to express their views openly and logically.

In addition, success in expository writing also affects students' motivation to learn. When they feel they are able to convey their ideas well, their confidence increases, which in turn leads to increased motivation to continue learning and working (Karim & Muslim, 2022). It shows that expository writing skills break through academic boundaries and equip students with essential skills for living in an increasingly complex society.

Overall, expository writing skills are not only part of the educational curriculum, but they are also a fundamental foundation for quality education. This not only prepares students for academic exams but also for broader life challenges, where the ability to communicate effectively is crucial (Gustaman et al., 2021).

Because writing skills require complex activities, many BIPA students in Timor Leste experience various difficulties in developing their writing skills. According to Aminullah et al. (2021) this difficulty can stem from a lack of understanding of the structure and conventions of writing in Indonesian, limited vocabulary, and differences in students' culture and language origin that affect their learning process. Not to mention that it is coupled with the complicated and gradual process of writing your own writing, starting from finding ideas and developing them in well-organized paragraphs,

choosing the right words, and presenting the writing style to produce good and interesting writing. This complex writing process is the main reason why it is difficult for students to master writing skills. In fact, not only BIPA students have difficulties in writing skills, Indonesian students also have many difficulties in writing.

The various obstacles experienced by BIPA students in developing writing skills plus the complicated writing process are often the reason for the unsatisfactory writing of BIPA students. This has been stated in several research reports. First, research from Artha et al. (Fahyuni, 2023) that the writing skills of BIPA students at the Bali State Polytechnic are still inadequate, so appropriate teaching methods are needed. Second, research also showed that BIPA B1 level students making many mistakes in spelling and the use of standard words (Amin, 2021). Third, research from Pramana et al. (2023) also shows that BIPA students from China tend to have better reading and speaking skills than writing skills.

The same is the case for BIPA ESG São Pedro Municipality Dili students who also have difficulties in writing, especially expository texts (Alam et al., 2017). From the author's own experience as a BIPA teacher and from the results of interviews with other BIPA teachers at the school, it is informed that the value of students' writing skills is still low. It is not known exactly what causes students' ability to write due to the lack of research reports on the condition of BIPA students' writing ability in Timor Leste. There are several possible causes of students' low ability in writing. First, the lack of writing practice due to the limited hours of BIPA lessons, which is only 2 hours (90 minutes) per week. Second, there is no BIPA (Malay language in Timor Leste) curriculum. And, third, conventional learning makes students quickly bored and not motivated to learn. This can be seen from the number of students who are lazy when explained by the teacher, do not do homework (homework) writing or even copying friends' work to be collected as individual assignments.

With the condition of students' low ability to write BIPA in Timor Leste, one of the alternatives is to find innovative learning methods to improve students' writing skills. Therefore, the author wants to test the effectiveness of one of the innovative learning methods, namely the collaborative model assisted by series image media in learning to write BIPA, with the hope that this method will significantly improve the ability of essayist writing in BIPA students in Timor Leste. What inspired the author to conduct this research is the existence of previous research reports conducted by Bhanu (2021) which show that collaborative learning is very appropriate to be used in the teaching and learning process in the classroom because this learning can

improve students' or students' understanding, convey ideas, and ideas in front of many people, and increase responsibility Individual.

The collaborative learning model is a process in which students at the ability or performance level work together in small groups to achieve a common goal. The collaborative method is a group learning process where each member contributes information, ideas, attitudes, opinions, to jointly improve each other's attitudes to understand all parts of the discussion so that students will have an equal understanding of a discussion. Through this method, students of different capacities can share knowledge and skills with each other, thus enriching their learning experience.

The basic principles of collaborative learning according to Dwi (2023) are: Interaction and cooperation between students to build a common understanding of a concept or learning material; Students are actively involved in the learning process by asking questions, sharing ideas, and making decisions; Teachers act more as guides, guides, and creators of conducive learning conditions for students; and Heterogeneous grouping of students so that they help each other, interact with each other.

Research shows that collaborative learning can significantly improve students' learning outcomes and social skills. For example, Jaya emphasizes the importance of the role of instructors in creating a positive learning environment as well as facilitating collaboration through a clear task structure and appropriate instruction (Basquerote, 2023). This is in line with the findings of Butar et al., who reported an increase in student participation as well as collaborative skills after the implementation of collaborative strategies in the classroom (Butar et al., 2024).

Furthermore, Zamhari et al. (2025) made a thorough analysis of the effectiveness of collaborative learning in improving students' social abilities in elementary school, which showed that this method not only supports academic mastery, but also helps in the development of students' social character. This research adds to the evidence that collaborative learning can contribute to better academic achievement and strengthen interaction between students.

Research on collaborative models with writing skills that through collaborative learning, students learn to write information that has already been shared to produce a new piece of writing. This type of learning becomes more effective when students exchange ideas, experiences, and perceptions with their peers. The effectiveness of collaborative in developing students' ability to write texts in groups compared to students who wrote independently. Collaborative writing creates opportunities for students to interact and share ideas with their peers in working on assignments. Peer

support is more effective than teachers who teach writing knowledge. In addition, quick conversations between peers will gradually lead them to feedback.

In the context of technology, the application of collaborative learning methods can be combined with educational technology, as shown by Damayanti & Nuzuli (2023), who found that the use of technology in traditional education can increase students' interest and motivation, while enriching the collaborative learning process. This shows that technology not only acts as a tool, but also as a catalyst to increase the effectiveness of interactions among students. In conclusion, effective collaborative learning involves careful planning, the active role of the instructor, and the integration of technology to achieve educational goals. The use of this method not only improves students' academic learning outcomes, but also builds social capacity and interpersonal skills that are crucial for their future development.

The improvement of students' ability in expository writing, especially assisted by image media, has been the focus of various studies. Collaborative learning is a process where students at the ability or performance level work together in small groups to achieve a common goal. When combined with visual media, the results can be more engaging and effective.

For example, research by Shofa et al. (2021) revealed that the application of the Picture and Picture model supported by rotary wheel media significantly improved the ability to write expository narrative essays of grade IV students. This study shows that the use of image media can stimulate students' interest in learning that was previously lacking, so that they are more active in writing activities (Shofa et al., 2021). Similar findings are also supported by Fatimah & Syamsudin (2021), who explain that the Numbered Heads Together (NHT) learning model equipped with image media can improve students' mastery of competencies in Social Sciences (IPS) subjects. This shows that the integration of visual media in the learning process can encourage students to remember and understand the material better.

Research by Handayani & Abadi (2020) also shows that the use of image media in the direct learning model has a significant influence on the mathematical knowledge competence of grade IV students. Improvement in learning outcomes occurs when learning materials are presented in the form of attractive images, making it easier for students to understand the concepts being taught.

Meanwhile, research by Sudirman et al. (2024) emphasizes that collaborative actions in education, including the use of supportive media, can strengthen students' learning experiences. In this context, image media functions not only as a visual aid but also as a

bridge to build active interaction between students and teaching materials. The results of Research on the use of image media in improving writing skills. Who reported that image media is really effective in improving the writing skills of elementary and junior high school students in several schools. This is shown by the average score of the writing test after receiving treatment with image media (posttest) higher than the average score of the writing test before receiving treatment (pretest).

Likewise, the results of research from Ajmain et al. (2020) prove that image media has a very close relationship with the writing process because image media can function as: Stimulus, which is an initial trigger for a person to start writing; References to writing descriptions or narratives; Visual aids to visualize their ideas and structure their writing more effectively; and reinforce the message that wants to be conveyed in writing.

The image media used in this study is a series image media. Azhar Arsyad (Nugraha & Khosiyono, 2023) said that a series of pictures is an image that forms a series of activities or stories that are presented sequentially. Students are trained to tell each picture, later the story results of each picture when compiled will become a complete essay (Nugraha & Khosiyono, 2023).

Research on the use of serial picture media in improving students' writing skills has also been conducted by Windari (2024) which shows that the use of serial image media assisted by montage techniques not only improves the learning outcomes of Class V students of SDN Salamae, Palopo City in narrative writing skills but also increases student motivation and involvement in learning.

Overall, the research shows that the application of collaborative learning models assisted by image media is effective in improving students' abilities in various aspects, be it writing skills, mastery of competencies, and understanding concepts. It is important for educators to pay attention to the selection of the right methods and media to maximize the effectiveness of learning in the classroom. Thus, the combination of collaborative learning and the use of series image media is expected to create a more effective and enjoyable learning environment, as well as improve student.

Method

This study uses a quantitative approach with a Pre-Experimental design, precisely namely one-group pretest-posttest design. One group pretest-posttest is a research design that involves only one class without a control class.

The location of this study is at São Pedro General Secondary School, Comoro, Dom Aleixo District, Dili Municipality, Timor Leste. The population in this study

is all students of Class XI ESG São Pedro Academic Year 2024 consisting of 3 science classes, and 4 social studies classes. The sample in this study was Grade 11 A/Science students, consisting of 14 male students and 29 female students. Samples were taken using purposive sampling techniques.

The data collection technique used in this study uses the results of a learning test. The learning outcome test in question is an expository writing skills test before applying the collaborative method assisted by series image media (pretest) and an expository writing skill test after applying the collaborative method assisted by series image media (posttest). The data analysis technique used in this study uses descriptive statistical analysis techniques to determine student learning outcomes. Furthermore, inferential statistical analysis was used to determine the normality test of data and hypothesis testing.

Result and Discussion

The results of the research conducted with the design One Group Pretest Posttest This results in expository writing skills learning outcomes. Each of them was a data normality test initial test of expository writing before treatment (Pre-Test) and final test of writing expository after treatment (Post-Test).

Table 1. Data normality test

	Descriptive Statistics				
	N	Mean	Std. Deviation	Minimum	Maximum
Value	43	61.65	18.502	25	100
Prates					
Posttest	43	81.37	13.922	40	100
Value					

Table 2. One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
		N
		43
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	9.04137480
Most Extreme Differences	Absolute	.122
	Positive	.071
	Negative	-.122
Test Statistic		.122
Asymp. Sig. (2-tailed)		.111c

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
Source: SPSS V Test Results.

Based on Table 1 and 2, it can be seen that the significance value (sig) of pretests and the posttest and Kolmogorov Smirnov test value is more than 0.05 which proves that the data is distributed normally. This

questionnaire was distributed to 43 students of Class 11 A/CT after the implementation of the Collaborative Model assisted by sequential picture media in BIPA expository writing lessons. The main purpose of this questionnaire is to gather their opinions regarding the

application of the Collaborative Model assisted by sequential picture media in the expository writing skills they have learned. The following are the results of the questionnaire.

Table 3. The results of the questionnaire

		Paired Samples Test				Paired Differences		t	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference	Lower	Upper			
Pair 1	Pretest - Posttest	-12.67442	9.13254	1.39270	-15.48500		-9.86384	-9.101	42	.000

In this section, the data and research findings are related to theories related to the research problem.

This study was carried out to prove the effectiveness of the application of collaborative methods assisted by series image media on the expository writing skills of grade XI ESG students in São Pedro, Comoro. The population of this study is class XI, with a total of 314 students. The sample in this study amounted to 43 students who were taken using Purposive Sampling, which is the determination of the sample based on certain considerations.

The results of the sampling technique were then obtained in class XI A/IPA. The purpose of this study is to determine the learning outcomes of students before and after using collaborative methods assisted by series image media. This study also aims to determine the effectiveness of the use of collaborative methods assisted by series image media on students' expository writing skills. There are two types of variables in this study, namely independent variables and bound variables. Independent variables are collaborative models assisted by serial image media. The bound variable in this study was the expository writing skills of BIPA students in grade XI ESG São Pedro, Comoro. From the results of the test on the effectiveness of the collaborative method assisted by series image media on the expository writing skills of BIPA students of grade XI ESG São Pedro.

Writing Skills Test Results: Comparative analysis of pre-test and post-test scores. The results of the T test analysis are as follows:

Table 4. The results of the T test analysis

		Paired Samples Correlations		
		N	Correlation	Sig.
Pair 1	Pretest & Posttest	43	.645	.000

Data analysis showed that there was a difference between the results of the pretest and posttest shown with a sig result of < 0.05, which means that there was an increase in the provision of collaborative methods assisted by serial media in writing expository documents. Collaborative learning aided by series

image media has been shown to be effective in improving students' expository writing skills. The collaborative nature of this learning allows students to learn from each other, stimulate the exchange of ideas, and build shared knowledge in the context of writing. Research by Adawiyah & Jennah (2023) shows that through collaborative learning, students are able to deepen their oral and written knowledge, as well as improve their writing skills significantly. In addition, Rati & Astawan (2022) note that project-based learning, which often contains collaborative elements, also has a positive impact on students' collaboration skills. Approaches that integrate visual media such as series drawings in expository learning specifically enhance students' learning appeal, thus helping them to express ideas in a more structured way, although direct research on this has not yet been available.

The effectiveness of this learning can be seen from the impact it has on student learning outcomes. Students who engage in collaborative learning tend to show greater improvements in their writing skills compared to traditional methods. Research by Shofa et al. (2021) confirms that the use of serial picture models in expository narrative learning improves the writing skills of grade IV students, suggesting that visual media can have a positive impact in learning contexts that require creativity and collaboration (Shofa et al., 2021). On a more in-depth level, Nugraha & Khosiyono (2023) emphasized that the right media in the context of expository teaching, such as series drawings, can improve students' ability to develop main ideas and formulate arguments in writing (Nugraha & Khosiyono, 2023).

Furthermore, active involvement in collaborative learning not only improves students' technical writing abilities, but also develops social and emotional aspects. This is accomplished through interaction between students that encourages them to share responsibilities and overcome shared challenges, which is an important aspect of collaborative learning. Research by Qomaria & Wulandari (2022) also shows that learning approaches that involve collaborative skills contribute to students'

cognitive development, thereby motivating them to be more active in learning.

Overall, collaborative learning aided by series image media has been proven to not only improve expository writing skills but also build collaborative skills that are essential in the modern educational process. The application of this model allows students to achieve better learning outcomes through in-depth interactions, exchange of ideas, and creative use of media, thus encouraging students to become more confident in pouring their ideas into writing.

The data gathered from 43 student respondents provides insightful information regarding their perceptions of expository writing lessons and the implementation of a collaborative model supported by sequential picture media. First, the majority of students (39 out of 43) expressed a liking for writing lessons, indicating a strong interest in the subject. Only 5 students stated they did not enjoy writing. Regarding the perceived difficulty of expository writing, 27 students reported that it was not difficult, while 16 found it challenging. This suggests that most students are relatively comfortable with this type of writing, possibly due to previous exposure or effective instructional methods.

In terms of theoretical instruction, 25 students acknowledged that they had been taught the theory behind expository writing, while 18 said they had not. This points to a gap in instructional consistency that could be addressed to ensure all students receive a solid foundational understanding. When asked about the use of collaborative methods in class, 31 students confirmed that their teacher had used such an approach, whereas 12 had not experienced it. This indicates that while the collaborative method is being implemented, there remains room for expansion to ensure broader coverage. Interestingly, 29 students reported that they enjoyed the collaborative model for writing classes, and 32 believed it significantly helped them write better compositions. These figures highlight both the appeal and effectiveness of the method for a large portion of students. Despite the overall positive feedback, some variation in learning preferences was observed. For instance, 25 students preferred activities like discussion and teamwork during writing, but a slightly higher number (28) did not. This reveals that not all students are equally receptive to collaborative formats, underscoring the need for differentiated instructional strategies.

Regarding the use of visual media, particularly sequential picture series, 29 students liked the use of images in writing lessons, and an equal number felt that picture series specifically helped them write better. Notably, 35 students believed that the picture series assisted them in generating and developing ideas for expository writing, suggesting a strong impact on the

creative process. Overall, the results indicate a high level of student interest in expository writing and a generally favorable response to the collaborative model supported by sequential picture media. Nonetheless, the findings also reveal differing learning preferences among students, emphasizing the importance of flexible and inclusive teaching methods to optimize the learning experience for all participants.

Conclusion

Collaborative learning assisted by series image media proved effective in improving the expository writing skills of grade 11 students at ESG São Pedro, Dili, Timor Leste. The results of the analysis showed a significant increase between the pre-test and post-test scores of writing skills after the application of this method. Collaborative learning allows students to share knowledge with each other, stimulates active interaction, and helps them express ideas in a more structured way. Thus, the integration of image media in expository learning not only improves technical writing skills, but also supports students' social and emotional development. Collaborative learning methods assisted by series picture media should be applied in other schools to improve students' writing skills. It is necessary to provide training for teachers in the use of image media to support learning, so that they can be more effective in applying this method. Further research should be conducted on other innovative learning methods that can improve students' writing skills and collaboration in various educational contexts.

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Author Contributions

Conceptualization, methodology, software, validation, formal analysis, investigation, resources, data curation, writing—original draft preparation, writing—review and editing, visualization, supervision, project administration, funding acquisition, Y.D.S., S.S., and M.W.R.

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Conflicts of Interest

The authors declare no conflict of interest.

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