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Emaze Application Based on ESD Through Animation Media to Enhance Literacy Movement

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Abstract: This research aims to create interactive learning media based on Emaze software appropriate for grade V elementary school civic subjects. This development research uses the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) development model. However, this research was stopped from being developed because of the limited time required to do the research. The subject of this research is nine grade V students and one public primary school teacher, Pabuaran Cilendek Timur Bogor Elementary School. The methods of collecting data are observation and questionnaires. The instruments used in this research are the observation sheet, interview guidance, and scale of validation sheet material and media expert. This research results in interactive learning media based on Emaze, which is appropriate for civic Subjects of phase C of grade 5 elementary school. From the media expert validation, this interactive learning media gets a score percentage of 89.85% in a very appropriate category, while from the material expert validation, it gets a score of 94.43 % in a very appropriate category. The result for the individual trial gets a score percentage of 96.30% in the very practical category, while the result of the small group trial gets a score percentage of 98% in the very practical category. Through increased motivation, reading comprehension, literacy skills, collaboration, and the provision of quality reading content, Emaze can be an effective tool for encouraging reading culture and improving literacy in elementary school settings.
Keywords: articulate storyline 3, ESD, animated media, reading literacy movement

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Introduction

Cultural trends are dynamic and can change society for the better. Education in Indonesia must positively impact achieving the future of Education for Sustainable Development (ESD) or educational equity (Vioreza et al., 2023). The application of ESS in the context of liberal education is essential to prepare new students with the understanding and skills needed to build successful careers (Marwa et al., 2024). Education for sustainable development is one of the individual investments to achieve sustainable development for society, nation, and the world (Kusanagi, 2020). Sustainable Development Goals (SDG) education system or educational opportunities through methods appropriate to the diversity of knowledge in all countries and regions towards sustainable education the impact of SDGs on Indonesia's realization of sustainable education (Velázquez & Rivas, 2020). Therefore, education can change mindsets and practices in the future (Iswahyudi et al., 2023). In addition, the community's quality of life, especially students, greatly affects the quality of life. Furthermore, education in Indonesia is a country that continues to develop educational innovations in the 21st century, known as literacy and numeracy, arithmetic, hidden literacy, literacy digital public accounting, and digital society studies, to survive in global competition. Through science learning, students will be able to live in a dynamic environment with the development of creativity, understanding, skills, and intelligence (Toding & Wibowo, 2024; Santoso et al., 2024; Halimah & Wibowo, 2024). Reading planning is a complex reading process called the reading-thinking-writing process, values, ethics and morals are connected to

education and therefor education is in a key position to change the way we think and act for a sustainable future (Masfufah & Wibowo, 2024; Resti & Wibowo, 2024). Both ESD and systems thinking are concepts connected to changes toward a sustainable future (Bergholm, 2018).

Education plays a crucial role in shaping children's lives, helping them become safe, prosperous, and happy (Wantu, 2024). In Indonesia, a developing country, educational innovations such as literacy, mathematics, digital technologies, and citizenship are being implemented to meet 21st-century challenges (Nudiati, 2020). Literacy is key to thriving in global competition, equipping students with the knowledge, skills, and values necessary to adapt to any environment. The literacy movement emphasizes reading, thinking, and writing (Azis, 2018), and literacy programs in schools enhance academic performance by promoting active engagement in reading and writing. Incorporating literacy into the Indonesian language curriculum strengthens students' abilities to face future educational challenges (Ramdhani & Fadly, 2024; Mustadi et al., 2024; Wibowo et al., 2022). The reading process involves self-planning through the Preview and Question stages, self-monitoring during the Reading, Reflecting, and Recitation stages, and self-assessment through reviewing reading progress. This metacognitive strategy, known as PQ4R, helps students refine their reading skills and broaden their thinking (Sarimanah, 2018). At Pabuaran Elementary School in East Cilendek, West Bogor, a character-building program encourages literacy through a habit-based strategy.

This research aims to create interactive learning media based on Emaze software appropriate for grade V elementary school civic subjects. Through increased motivation, reading comprehension, literacy skills, collaboration, and the provision of quality reading content, Emaze can be an effective tool for encouraging reading culture and improving literacy in elementary school settings.

Methods

This research uses the R&D research method with the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation). This research was conducted in grade VI at a public elementary school in West Bogor Regency, namely Pabuaran Cilendek Timur Bogor Elementary School, for the 2023/2024 school year. The target clients of this research product are grade VI students on the theme of humanity and the environment. The data obtained in this study are quantitative. Data collection techniques using instruments. The instruments used in this study are questionnaires used for data collection, namely expert validation instruments regarding the feasibility of Emaze animation media, questionnaires on knowledge and sustainability attitudes of students, and the distribution of questionnaires in the form of teacher and student responses regarding Emaze animation media.

The product developed in this research is interactive learning media based on Articulate Storyline 3 using the ADDIE model. However, this research was only carried out until the development stage due to limited research time. The reason for choosing this model is because the ADDIE model is very simple, easy to understand, and more systematic for its implementation.

Product trials resulting from the development of interactive learning media based on Emaze in this research are individual trials and small group trials. The subjects for this research trial are one teacher and nine students. The instrument of collecting data in this research is to collect data to determine the product's suitability. The instruments used are as follows: (1) questionnaire consisting of (a) product feasibility assessment questionnaire for material experts, (b) product feasibility assessment questionnaire for media experts, (c) user response questionnaire; and (2) observations, e.g. made during the learning process when testing was limited to obtain data about the impact of using interactive learning media based on Emaze in learning.

This research analyses data to obtain learning media, which is used to gain appropriate media. The first step is to collect data in the form of scores from experts obtained through product feasibility assessment sheets. Then, the actual total score obtained is converted into five-scale quantitative data. According to (Arikunto S., 2019), the scores obtained are converted into scores on a scale of 5, according to Table 1.

Table 1. Conversion of actual scores into five scale scores

Score in percentage	Feasibility Category
< 21%	Very inappropriate
21 – 40%	Inappropriate
41 – 60%	Quite Appropriate
61 – 80%	Appropriate
81 -100%	Very Appropriate

The technical data analysis used is as follows:

1. The feasibility analysis of Emaze-based animation media was obtained from the assessment of media experts using questionnaires (Arikunto, 2013) the validity data of teaching materials were analyzed using the following formula:

$$P = \frac{\sum x}{\sum xi} x\ 100\%$$

2. Analysis of assessment of the reading literacy movement of student sustainability. The data obtained is quantitative data from post-test scores obtained from students. Using the Emaze application as an animation media supplement effectively increases the reading literacy movement of student sustainability by calculating the scores and criteria below. The calculation of the score uses the following equation:

$$Score = \frac{total\ score}{ideal\ total\ score}\ x\ 100\%$$

Results and Discussion

Results

The final result of this development product is human animation media and Indonesian environment, natural sciences, and social sciences, which was validated for feasibility before being tested by two media, language, and material experts. This validation resulted in an average of 97.3% broken down as follows: In addition, the results of media, language, and material expert validation of the products developed are detailed in Table 2 as follows.

Table 2. Recapitulation of Expert Validation Results

No	Experts	Sum
1	Animated Media Members	91%
2	Members of the Plan Design Media	88%
2	Linguists	98%
3	Material Expert	92%
	Average	97.3%
	Arriving at the	Very Worth It

Based on this, it can be concluded that animation media using Emaze on humans and the environment in grade VI Pabuaran Cilendek Timur Elementary School is feasible for limited reading learning trials. Furthermore, after the trial, limited responses were carried out by students and teachers with a total of ten statements, with the results of student and teacher response data presented in Figure 2 as follows:

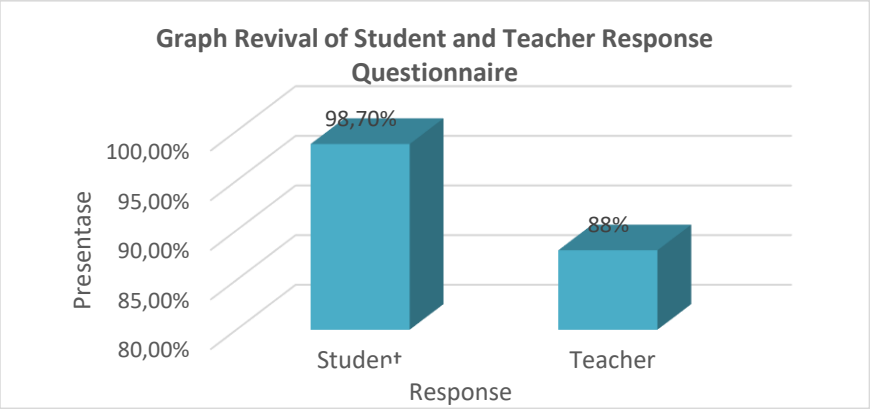


Figure 1. Student and Teacher Response Questionnaire Results Graph

Based on these data, this animation media provides practicality in aspects of convenience. 2D and 3D animation is limited to images in the Emaze, attractiveness, and usefulness for each user, especially students and grade V teachers at public primary school Pabuaran Cilendek Timur.

The evaluation stage is the last step carried out through pre-test and post-test trials, this is useful to determine the effectiveness of a product more accurately, following the statement of (Wicaksana et al., 2020) that this evaluation activity aims to determine the success and effectiveness of a product developed. N-Gain calculations were carried out to determine the effectiveness of this animation media in significantly improving students' cognitive abilities between pre-test and post-test results. The recapitulation of students' pre-test and post-test scores is presented in the following Table 3:

Table 3. Pre-Test and Post-Test N-Gain Calculation Results

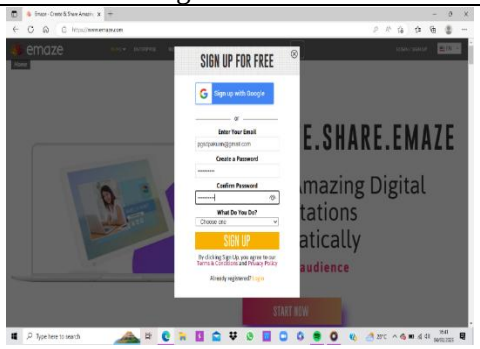
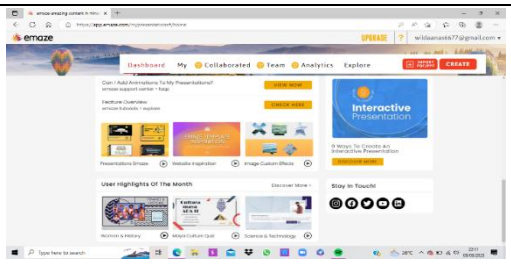
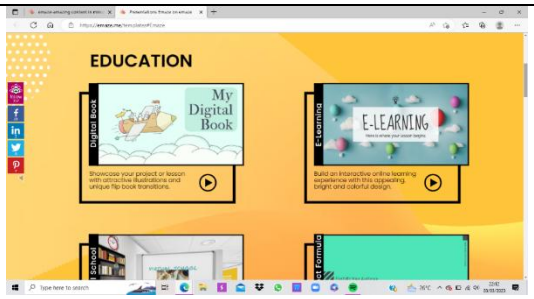
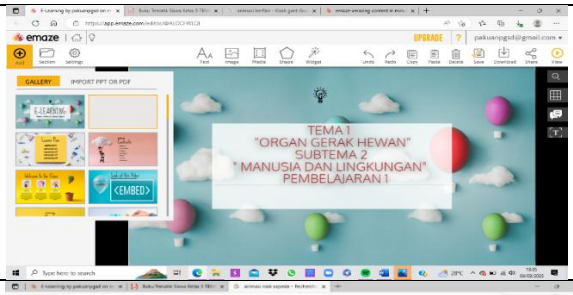
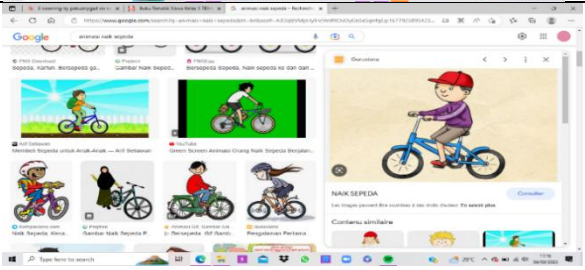
Criterion	**Test Instrument Test Test Questions**	
	Pre-Test	**Post-Test**
Number of Students	30	30
Top Rated	80	100
Lowest Value	5	70
Average rating	54,87	88,33
N-Gain	0,70	
N-Gain Score (%)	70.28%	
Criterion	Tall	

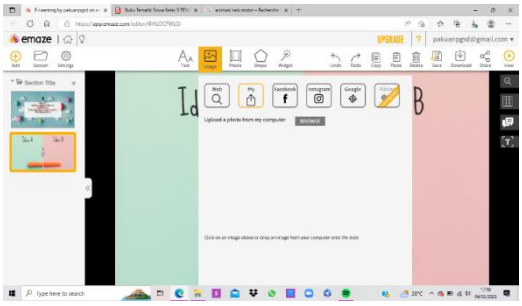
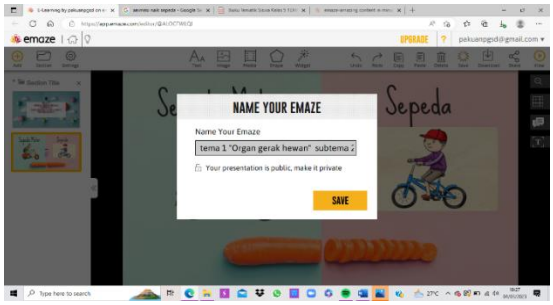
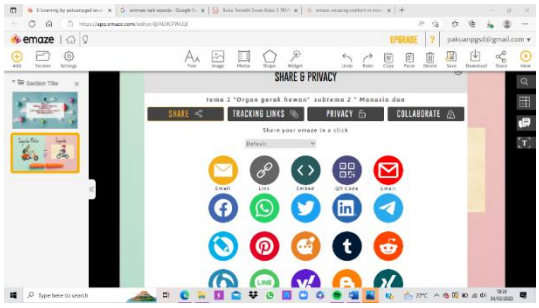
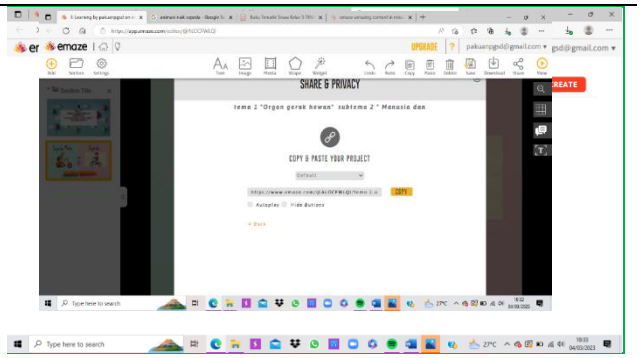
The data shows that the N-Gain in class V is 0.70, which is included in the "High" criterion. A total of 60 students were divided into pre-test 30 students with the highest score of 80 with an average of 54.87 and post-test 30 students with the highest score of 100 with an average of 88.33. Thus, it can be concluded that there is an increase in students' good reading literacy skills before and after using Emaze animation media in humans and the learning environment to the 1st content of Indonesian language, science, and social studies (Awaliyah et al., 2024; Efendi et al., 2024).

Product Revision

Product revision aims to make the product developed more feasible and practical. Before the product is used and disseminated, researchers carry out revisions based on assessments from media and material experts and suggestions from students and teachers when testing the product. The following results of the revision of Emaze-based animation media from the validation of media experts, Indonesian language experts and material experts can be observed in Table 4, as follows:

Table 4. Results of Emaze Product on the Reading Literacy Movement

Instruction	Emaze Product
We click the link to	amaze-amazing content in minutes
After opening the login first (Emaze login display)	
After logging in, select the temple " Presentations Emaze "	
Template "Presentations Emaze" Click the "Presentations Emaze" templet various temples	
Then, select one of the temples to use using the "E-Learning" template. Add some slides that the Emaze application has presented	
Open Google and look for images adapted to the material from various references. Start writing text, search Google web images	
Add images to Emaze by clicking "Image", then click "My" Then click "Browse"	

	
Choice of images to use, and then when finished, click "Save" at the bottom of the yellow corner	
Then copy and paste the link and name your Emaze	
Open Emaze link on googel web https://www.Emaze.com/@ALOCFWLQI/tema-1-organ-gerak-hewan-subtema-2--manusia-dan	

Discussion

The discussion is focused on linking the data and the results of their Analysis to the problem or research objective and the wider theoretical context. It can also be discussed as an answer to why facts are found in the data. The implementation of this research was carried out at Julang Bogor City Elementary School. This research site was chosen based on problems found during the pre-research activity held on Tuesday, July 25, 2023, with interviews by grade VI teachers and classroom observations. This pre-study produced problem findings regarding students who were not active enough during learning, and there were still 3 participants who were fluent in reading thoroughly. One of the factors that influence this is the use of learning media that still relies on printed books and other concrete media (Windiyani et al., 2023; Istiqomah & Wibowo, 2024; Elindasari et al., 2024), especially in the subtheme of my best friend's plants so that students look less enthusiastic during learning and are slow to understand the purpose of learning, especially Indonesian which is to find the main ideas of the theme. This activity aligns with (Magdalena et al., 2024) observations that were solved through a needs analysis in the evaluation stage. As the problem conveyed (Fauziah et al., 2024), the involvement of students in the learning process is not appropriate, and the teaching materials conveyed in textbooks as an intermediary medium are unclear.

This development plan is adjusted to the ADDIE model, where researchers want to develop animation media using the Emaze application on the subtheme of my best friend plants with the hope that this animation media can be an alternative use of technology-based media that applies innovative

learning and can be one of the solutions to solve problems based on previous needs analysis. Using the Emaze application as an interactive learning medium in this study was based on previous research that has successfully piloted this media and helped students improve reading literacy. There is an attractive, interactive display that is easily accessible online and offline.

Furthermore, entering the design stage, researchers design product development through storyboards and flowcharts according to (Gani et al., 2023), according to student needs and their suitability with the material used. The product validation tests are conducted on media, linguists, and material experts. This validation test aims to ensure that when the product is used during the trial, it is feasible to implement.

Product validation was carried out by three people, including one lecturer, namely Mr. Muhammad Ginanjar, M.Pd. as an expert in Interactive learning media design, and a lecturer in digital literacy animation design at Pakuan University, one lecturer, Mrs. Rina Rosdiana, M.Pd. Head of Bahasa Indonesia study program as an expert Indonesian University Pakuan and material expert, namely Mr. Suhendra, M.Pd. vice for academy and student affairs, University Pakuan. The media validation assessment covers four aspects, namely, 2D and 3D animation, display design, audio, video, and media suitability, with the material obtaining 91% and 88% final results. Language validation includes communicative, dialogical, and interactive aspects, readability, suitability for student development, and conformity with language rules, with a percentage result of 98%. Furthermore, the validation of the material with aspects of learning assessment and suitability of the material content obtained 92%. Based on product validation tests conducted by media experts, linguists, and material experts produced an average of 93.7% with the "very feasible" criteria.

After being declared eligible for field trials, research was conducted on July 29, 2023, by entering the implementation stage. However, before that, a pre-test was first carried out on 30 students with as many as 24 questions to determine the effectiveness of this product in learning. After that, an animation media trial was conducted using the Emaze application on the subtheme of my best friend plants to 30 students VI. From this trial, students will be given questionnaires for student responses, including teachers' responses. This is done to determine the usefulness and perception of a media used before. Student and teacher response questionnaires included aspects of ease, attractiveness, and usefulness, and the overall average was 98.7% for student VI responses and 88% for grade VI teacher responses. According to Hardani (2020), an interval of 80%-100% is included in the "very good" criteria. Thus, the response of students and teachers to the development of animation media using Emaze on the subtheme of my best friend plants resulted in a very good response and feasibility.

The last stage of this research is evaluation, which is carried out to determine the effectiveness of animation media during learning. This activity begins with a pre-test to determine students' ability before being given product development and a post-test after being tested for products to students. In the previous trial, pre-test data from 30 students obtained the highest score of 80, while the lowest was 5, with an average of 54.87%. Then, the data obtained at the time of the post-test, namely from 30 students obtained the highest score of 100 and the lowest of 70, with an average of 88.33%. Furthermore, with the calculation of N-Gain yields 0.70. According to Arikunto (2019), criteria of 0.70 are included in the high criteria.

Thus, based on these data, it can be known that significant value changes between pre-test and post-test activities. After using animation media, the Emaze application effectively improves reading literacy skills and makes it easier for participants to read and understand the material, especially in humans and the environment, especially in grade VI students at Pabuaran Cilendek Timur Elementary School. This is in line with previous research conducted by (Oktaviani et al., 2025; Brilatin & Wibowo, 2024; Viantorus et al., 2024), who said that a teacher must also pay attention to student needs and the suitability of learning materials provided by teachers to students, such as the design and development of light media animated videos as a medium for da'wah in learning in grade 3 elementary schools. It was also revealed by (Febriani et al., 2022) that this animated video media, in fact, still positively influences improving students' learning outcomes.

Conclusion

Based on the management of results and data analysis regarding the development of animation media using the Emaze application to improve reading literacy in humans and the environment, it can be concluded that the development of animation media using Emaze to improve reading literacy in the subtheme of my friend's plants resulted in the criteria of "very feasible" applied to the learning process, this was supported by the assessment of two animation media experts and the design of learning media interactive, language and material with an average of 93.7%. Then, the students' responses also showed the feasibility of using animation media in improving reading literacy by obtaining an average of 98.7% with the criteria "very good". Similarly, teacher responses resulted in an average of 88% with the "very good" criteria. After that, the pre-test and post-test activities found a significant increase before and after using interactive learning media with an N-Gain score of 0.70 with the criteria "High". Based on the results of these data, it can be concluded that the development of animation media using Emaze in humans and the environment can be applied and effectively used during learning. It was revealed that the suggestion for teachers is that animation media using the Emaze application can be used as an alternative to improve reading literacy in human and environmental materials by paying attention to time-consuming media creation and a stable internet network. For other researchers, this interactive learning animation media can be developed with subthemes, other materials, and elementary school levels.

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