



Development of an Educational Website as an Interactive Learning Platform to Improve Students' Environmental

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Abstract

This research is motivated by the problem of low environmental literacy among students, and the general lack of interactive environmental literacy teaching materials in school resources. Therefore, research was conducted with the aim of developing an educational website as an interactive learning platform to improve students' environmental literacy, making it valid, practical, and effective. This research applies the research and development method by adapting the ADDIE model. The subjects of this study are students from public high schools in Gowa Regency and Makassar City, and cluster random sampling technique is used. The data collection techniques used include documentation as a literature review, expert validation sheets, tests, teacher response questionnaires, and student response questionnaires. The data analysis techniques used include Aiken's V validity analysis, descriptive statistics, and paired sample t-tests. The results of research and development yielded an educational website with the domain www.literacyenvironmentalclass.com that is valid, effective, and very practical to be applied as an interactive learning platform in improving students' environmental literacy. The implications of this study show that there has been success in developing an educational website that can encourage improvements in the quality of technology-based learning in schools, particularly in improving students' environmental literacy.

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INTRODUCTION

Strengthening and improving environmental literacy competencies for students is one of the important challenges in the modern education world, where environmental literacy is one of the 21st-century interdisciplinary themes (Sholahuddin et al., 2021). On the other hand, in the current era of the 4.0 revolution, it demands that every individual, including students in schools, possess various literacy skills, one of which is environmental literacy (Hilmawan et al., 2022; Santoso et al., 2021).

Someone with environmental literacy competence will understand the cause-and-effect relationships in human interaction with nature, enabling them to make decisions based on an understanding of future environmental projections, which is also relevant to one of the SDGs' goals (Ariyatun et al., 2024; Huang & Hsin, 2023).

Students' environmental literacy can be understood as an individual's understanding, awareness, and ability to identify, assess, and respond to environmental challenges and issues responsibly (Ginting et al., 2023; Wajdi et al., 2022). Various studies related to environmental literacy have produced conclusions that reinforce the importance of this competency and its significant benefits (Adams et al., 2021; Altun et al., 2022; Bigozzi et al., 2023). Improving students' environmental literacy in schools is one of the important efforts in shaping character and preparing environmentally conscious generations from an early age (Maesaroh et al., 2021).

The results of the literature search and observations identified issues related to students' environmental literacy. First, it was found that students' environmental literacy, particularly for public high school students in Gowa Regency, generally has low environmental literacy abilities (Dharma et al., 2024). Second, the environmental literacy material presented in schools is still conventional and lacks innovation, and there is limited access to interactive and up-to-date information sources related to environmental literacy, making it considered uninteresting and not aligned with the learning preferences of students as digital natives who prefer visual, dynamic, and interactive content. This includes the fact that school resources and teachers do not yet have interactive learning systems or teaching materials related to environmental literacy, which limits the improvement of students' environmental literacy.

Then, various previous studies related to students' environmental literacy also show that improving students' environmental literacy in

schools still faces various challenges and problems, including the fact that environmental education materials delivered in schools are still conventional, not innovative, and not interactive, making it difficult to attract students' interest. The learning materials used are still predominantly in printed text format and do not utilize digital technology, including limitations regarding interactive and up-to-date information sources (Andriana et al., 2024; Angreani et al., 2022; Maharani et al., 2021; Roshayanti et al., 2020).

Then, various other studies on students' environmental literacy generally only focus on surveying students' environmental literacy, implementing conventional teaching methods, and using print modules to improve students' environmental literacy (Berlian & Vebrianto, 2023; Mawardi et al., 2023; Miterianifa & Mawarni, 2024; Rasis et al., 2023; Sari et al., 2023; Siddiq et al., 2020; Zulfah et al., 2024). Although this method has benefits, it is less suitable for meeting the learning needs of current students, who are digital natives more familiar with digital media and information technology-based interactions. Generally, the weaknesses found in these studies are the minimal adaptation and use of digital information technology in learning to improve students' environmental literacy, and the limited access students have to digital information technology-based learning resources, which has not been widely discussed in other studies related to students' environmental literacy.

Considering the existing gap in learning related to improving students' environmental literacy, further research was conducted with the novelty of the study lying in an approach that adapts and integrates the application of information technology as an interactive learning platform in schools. This involved developing an educational website with the product specifications www.literacyenvironmentalclass.com, which contains content with a South Sulawesi local wisdom theme, interactive content, multimedia element visualization, and environmental literacy evaluation, which are still rarely found and discussed in research related to improving students' environmental literacy.

This research has advantages due to its more holistic and integrative approach, which is relevant to the characteristics of current students as digital natives who are more interested in dynamic, visual, interactive, and technology-based learning concepts with a local wisdom flavor from South Sulawesi. Therefore, this research is very important to conduct because no one has researched it before, so the results of this research

can provide practical and academic contributions, including contributing as one of the interactive learning materials that can be used by school resources and teachers to improve environmental literacy broadly and sustainably.

Therefore, the development and use of an educational website as an interactive learning platform in this study is a strategic step to address the existing problems. Previous research has highlighted that educational website can be an innovative and effective solution for delivering learning materials in an engaging and interactive way (Astuti et al., 2020; Karuku, 2023; Susanto et al., 2023). Then, the utilization of information technology in the education and learning system in schools has become both a necessity and a demand in the digital age (Issayev et al., 2022; Sun & Pan, 2021). where the changing learning patterns of students who are increasingly connected to digital devices necessitate innovation in the learning process to meet the needs of a generation growing up in an information technology-based environment (Chauca et al., 2021; Ferdiansyah & Irfan D, 2021; Sekarningsih et al., 2021).

Based on the various descriptions mentioned, development research was conducted with the aim of developing an educational website as an interactive learning platform to improve students' environmental literacy, making it valid, effective, and practical. In the context of this research, the development and use of an educational website as an interactive learning platform becomes a strategic step to address existing problems and gaps, and an innovative solution to provide more engaging and relevant environmental education to sustainably improve students' environmental literacy. This includes presenting innovative and interactive educational media in educational and learning technology by utilizing information technology relevant to students' current prevention as digital natives, thus promoting meaningful learning experiences and improving students' environmental literacy to support national research priorities in the field of digital learning and the government's eight aspirations, particularly in human resource development.

METHOD

In this study, the approach used was to conduct website-based educational development research (R&D). This research employed a research and development (R&D) design with the aim of producing an educational website as an interactive learning platform to improve students' environmental literacy, which is valid, effective,

and practical. The research procedure adapts the ADDIE development model, which consists of five stages: analysis, design, development, implementation, and evaluation. This development model procedure allows for a structured product development process from needs identification to final evaluation and can ensure that the developed product can be improved incrementally. As for the steps, include:

1. Analysis Phase

In this analysis phase, problems and need for strengthening and improving students' environmental literacy are identified, followed by a review of references and the development of content materials for interactive learning materials.

2. Design Phase

In the design phase, an initial prototype design and content components of the educational website are created, including designing the domain address of the educational website and ensuring the integration between the content, appearance, and functionality of the educational website, which is infused with local wisdom from South Sulawesi.

3. Development Phase

In this phase, the designs that have been created are realized into the form of an educational website, which is then followed by a validation stage by content experts and media experts. Revisions are made based on the feedback provided to make the product more suitable for use.

4. Implementation Phase

This evaluation phase is conducted to test the educational website product that has been developed and to collect field data from respondents. This implementation was carried out for students at state high schools located in Gowa Regency and Makassar City.

5. Evaluation Stage

The purpose of this evaluation stage is to measure and interpret the validity, effectiveness, and practicality of the educational website product developed based on the trials and data collection conducted, so that conclusions can be drawn based on the research and development that has been carried out.

The subjects of this study were public high school students in Gowa Regency and Makassar City, specifically those in the 10th grade, and cluster random sampling technique was applied. Data in this study were collected thru various techniques aligned with the objectives and stages of this research, including documentation as a literature review, expert validation sheets used to obtain expert assessments or expert validation related to the educational website product developed, tests

used to measure students' environmental literacy improvement and the effectiveness of the educational website product, and questionnaires to measure student and teacher responses regarding the practicality of educational website product developed. Then, the data analysis techniques in this study include:

1. Validity Analysis Aiken's V

Validity Analysis using Aiken's V formula with 5 experts, with the criteria for valid or feasible if the V index value > 0.60 based on the assessment of experts regarding the educational website product developed.

2. Descriptive Statistics

Descriptive statistics are used to analyze and determine the practicality of the developed product based on the responses of teachers and students. As for the practicality criteria, they are presented in the following Table 1.

Table 1. Practicality Criteria

Range	Criteria	Explanation
>3.25 to 4.00	Very Practical	Very Good/ Very High
>2.50 to 3.25	Practical	Good/High
>1.75 to 2.50	Not Practical	Less/Low
1.00 to 1.75	Very Not Practical	Very Less/ Very Low

A learning product can be categorized as practical if the analysis shows results in the "very practical" or "practical" category. The results at this stage serve as a guide and measure that the developed learning product is suitable for widespread use in learning.

3. Descriptive Inferential Statistic, Specifically The Paired Sample T-Test

The paired sample t-test statistic is used to analyze and determine the improvement in environmental literacy and the average results of product implementation, in this case, students' environmental literacy before and after product implementation (educational website), which is then followed by a t-test. Furthermore, to determine the effectiveness of the developed educational website product, testing was conducted using the N-Gain score. The criteria used are presented in the Table 2.

Table 2. Criteria for Improving N-Gain Scores

N-gain Value	Category
$G \geq 0.7$	High
$0.3 \leq G < 0.7$	Medium
$G < 0.3$	Low

Table 3. N-Gain Percent Criteria

Percentage (%)	Category
$P \geq 75$	Effective
$56 \leq P < 75$	Fairly effective
$40 \leq P < 55$	Less effective
$P < 40$	Not effective

The ideal criteria for improving students' environmental literacy after implementing the developed educational website should show results in the "high" category, and the effectiveness criteria for the developed educational website product should be in the "moderately effective" or "effective" category. The interpretation at this stage shows evidence that the developed educational website product is effective in improving students' environmental literacy.

RESULT AND DISCUSSION

Analysis

The analysis phase in this study began with identifying learning problems related to high school students' environmental literacy, which involved two stages: 1) problem analysis, intended to investigate and understand the strengthening of students' environmental literacy thru initial observations, interviews with teachers and students, and measuring students' environmental literacy competencies, which showed that students generally had low environmental literacy competencies; 2) the next stage, instructional component analysis, was intended to understand and investigate the strengthening and teaching of environmental literacy by teachers and school authorities. The results of this investigation revealed that teachers generally only gave lectures to strengthen students' environmental literacy, and school and teacher resources did not yet have a learning system or interactive teaching materials related to students' environmental literacy, thus limiting their ability to improve students' environmental literacy. Based on this identification, the development and use of an educational website as an interactive learning platform to improve students' environmental literacy became a strategic step to address the existing problems.

Next, the researcher and teacher identified and reviewed various references related to environmental literacy, specifically for high school students. The review of references and development of content materials in the teaching materials were based on the middle school environmental literacy curriculum, which consists of 4 indicators: environmental knowledge, cognitive skills, attitudes toward the environment, and

behavior toward the environment (Hudha et al., 2021; Santiani et al., 2023; Sukri, 2023; Susanti & Hayatu, 2022).

Design

As for the description of the design stage in this study, an initial design (prototype I) was created based on the results of the needs analysis and development goals, integrated with the use of information technology, in this case, an educational website prototype. At this stage, the designed environmental literacy education website consists of a homepage as the website title, learning topics with content development referring to the middle school environmental literacy curriculum, animated images and videos as interactive features, additional information, and evaluation. As the foundation for developing this educational website, the platform used is WordPress, considering that WordPress has various themes, plugins, and is relatively easy to use, while still using its own domain and hosting, and adhering to pedagogical and educational technology principles. The domain address for the designed educational website is www.literacyenvironmentalclass.com, with various main menus including introduction, topics, videos, additional information, evaluation, navigation, and developer contact, as well as the website's theme and layout.

Development Stage

This stage involves implementing the design concept that has been developed for the educational website to improve students' environmental literacy. The following is the educational website www.literacyenvironmentalclass.com that has been developed.

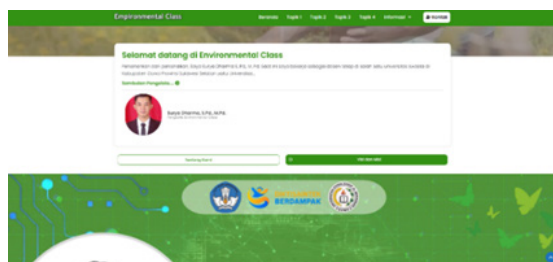


Figure 1. Home Screen

Figure. 1 The above is the initial view when students access the educational website www.literacyenvironmentalclass.com. This initial page contains an introduction and a guide to using this educational website. The development results for the subsequent slides are presented in the following figure.

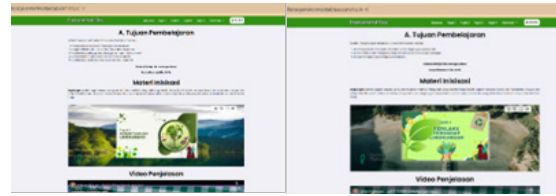


Figure 2. Material Display



Figure 3. Additional References View

Furthermore, after the website was developed, the prototype I was validated by validators regarding the feasibility of the environmental literacy education website developed using Aiken's V formula. A summary of the expert assessment results based on the developed prototype I is presented in the Table 4.

Table 4. Summary of Expert Assessment

Dimension	Indicator	Index V	Criteria
Learning Materials	Content relevance	0.87	Worthy
	Scope of Learning	0.91	Worthy
	Visualization	0.88	Worthy
	Language	0.90	Worthy
	Learning evaluation	0.88	Worthy
Learning Media	Website appearance	0.87	Worthy
	Material presentation	0.88	Worthy
	Interface	0.88	Worthy
	Accessibility and responsiveness	0.88	Worthy
	Navigation	0.87	Worthy
	Additional information	0.90	Worthy

Considering the results of the validator's assessment of the prototype developed, in this case, the educational website www.literacyenvironmentalclass.com, which has been designed and developed, has met content validity or feasibility by experts. There were also several suggestions for improvement from the experts, so revi-

sions were made based on input from the experts to improve the website's quality. The following presents the suggestions and input from experts.

Table 5. Summary of Validator Suggestions

Advice	Improvement Results
It's best to keep the font selection consistent across the website.	Improvements were made by standardizing the font on the learning website.
It would be best to add an introductory video by the developer on the website's homepage.	Improvements were made by adding an introductory video to the initial display of the educational website.
It would be better if the website usage guide was presented thru interactive images.	Improvements were made to the presentation of the educational website user guide to make it more interactive.

Implementation Phase

The stage after the prototype is declared feasible based on expert validation, the implementation stage is carried out to test the developed environmental literacy education website product. Implementation began with introducing the educational website developed and the learning objectives of utilizing information technology in learning and improving environmental literacy to students and teachers. This educational website trial was specifically for 10th-grade students from 3 state high schools in Gowa Regency and Makassar City, and data was collected on the results of implementing developed educational website.

Evaluation Stage

The evaluation stage is carried out to measure the effectiveness and practicality of the educational website product developed based on data obtained from the implementation results on the test subjects. Data analysis at this stage uses the assistance of the SPSS and Microsoft Excel.

Table 6. Paired Sample T Test Results

Statistics	Value		Sig P
	Pretest	Posttest	
Average	34.46	94.64	0.00

Referring to Table 6 above, the average pretest score for students' environmental literacy was 34.46, while the average posttest score after implementing the environmental literacy education website was 94.64. Based on this analysis,

it can be stated that there is a difference in the average environmental literacy scores of students before and after the implementation of the environmental literacy educational website. Then, a sig (2-tailed) value of 0.00 was obtained, which is smaller than α (0.05). This test result indicates that there is a significant difference in the average student learning outcomes before and after the implementation of the environmental literacy educational website. It can also be interpreted that there is generally an increase in students' environmental literacy after the implementation and use of the educational website www.literacyenvironmentalclass.com.

Further analysis to determine the normalized gain or N-Gain in assessing the effectiveness of the learning website application on the test subjects is presented in the Table 7.

Table 7. Effectiveness Analysis Results

Descriptive	Average	Category
N-Gain score	0.91	High
N-Gain percent	91.80	Effective

Referring to Table 7 above, where an N-Gain score of 0.91 was obtained, which falls into the high category, and an N-Gain percentage of 91.80 was obtained, which falls into the effective category. Therefore, it can be concluded that there was an increase in students' environmental literacy after the implementation of the learning website, and it was effective.

Based on the analysis conducted, it can be stated that the educational website www.literacyenvironmentalclass.com, which was developed, is effectively used in improving students' environmental literacy. This is also evident in the average test scores of students, which increased after the implementation of the learning website. Therefore, it can be concluded that the developed product is effective in improving students' health literacy. Further analysis was conducted to determine the practicality of the environmental literacy educational website product developed based on teacher responses, and the analysis results are presented in the Table 8.

Table 8. Results of Teacher Response Analysis

Range	Freq.	Percent	Criteria
>3.25 to 4.00	15	93.75	Very Practical
>2.50 to 3.25	1	6.25	Practical
>1.75 to 2.50	0	0	Not Practical
1.00 to 1.75	0	0	Very Not Practical

Observing Table 8 above, it can be noted that the analysis results show that teachers' responses to the environmental literacy educational website developed and used to improve students' environmental literacy are very practical. This can be seen from the fact that 15 out of 16 teachers who were respondents stated that the application of the educational website www.literacyenvironmentalclass.com is very practical to implement in improving students' environmental literacy. Then, the practicality of the environmental literacy education website product developed based on student responses, the analysis results of which are presented in the Table 9.

Table 9. Results of Student Response Analysis

Range	Freq.	Percent	Criteria
>3.25 to 4.00	80	82.47	Very Practical
>2.50 to 3.25	17	17.52	Practical
>1.75 to 2.50	0	0	Not Practical
1.00 to 1.75	0	0	Very Not Practical

Referring to Table 9 above, it can be observed that the analysis results indicate that students' responses to the environmental literacy learning website developed and used to improve students' environmental literacy are practical. This can be seen from the 97 students who were respondents, with 80 students stating that using the educational website www.literacyenvironmentalclass.com is very practical for learning and improving environmental literacy.

The development of the educational website www.literacyenvironmentalclass.com for high school students, which adapts the ADDIE model, was carried out in 5 stages: analysis, design, development, implementation, and evaluation. This development model procedure allows for structured product development from needs identification to final evaluation and can ensure that the developed product can be improved incrementally.

At the analysis stage, it was found that students' environmental literacy was generally in the low category. Additionally, interviews with teachers at the school revealed that school and teacher resources generally lacked a learning system or interactive teaching materials related to students' environmental literacy, thus limiting their ability to improve students' environmental literacy. This reality is relevant to research by (Amin et al., 2022; Yahaya et al., 2022) which revealed that one of the challenges in improving students' environmental literacy in schools is the limited

availability of facilities and interactive teaching materials that can provide environmental education to students, who are also known as today's digital natives.

Then, in this stage, a literature review was conducted to develop the content material that will be presented on the educational website developed to improve students' environmental literacy by adopting environmental literacy indicators based on the middle school environmental literacy curriculum, which consists of 4 indicators including environmental knowledge, cognitive skills, attitudes toward the environment, and behavior toward the environment (National Science Teachers Association, 2008).

Furthermore, at the design stage, and referring to various studies that reveal that digitalization has become an inseparable part of the development in the field of education, where there is currently a strong emphasis on utilizing information technology to enhance students' learning experiences in schools (Dziubaniuk et al., 2023; Persada & Sobandi, 2023). Therefore, at the design stage, a learning design was created by developing an interactive learning concept integrated with information technology. In this case, an educational website was designed to improve students' environmental literacy.

At this design stage, the initial prototype and format of the environmental literacy education website were designed, consisting of an introduction, topics, videos, additional information, evaluation, navigation, and developer contact. These components are relevant to various studies showing that they should be included in an educational website with learning objectives (Abdullah & Hussin, 2021; Astuti et al., 2023; Ramadana, 2023; Taylor et al., 2022). Educational videos and evaluations were also designed at this stage. This is important because an interactive teaching material should have something visual like images and sounds so that students can be more motivated to learn (Anggaira et al., 2022; Wahyuni et al., 2020). It was also stated in another study that educational website development should include interactive videos and evaluations (Asmianto et al., 2022; Syahfitri, 2024).

Then, in the development stage, implementation is carried out based on the design from the design stage, resulting in a prototype with the domain www.literacyenvironmentalclass.com. Next, the educational website prototype www.literacyenvironmentalclass.com is tested by validators to assess its feasibility, where this expert evaluation is an important step (Habiburrochman & Purwanto, 2025; Putri et al., 2024). The

assessment results by 5 experts using the Aiken V formula indicate that it is suitable for field testing and implementation on the test subjects, in this case, high school students, with some suggestions for improvements that should be added to the educational website. It was proposed by (Rifanka et al., 2025) that when conducting validity checks or assessing a developed product, it should be reviewed by at least 3 experts, and the V index score based on the dimensions or indicators reviewed by the experts should be at least 0.40 to be considered feasible or relevant by the experts (Aini & Mufti, 2022; Sari et al., 2022).

Next, in the implementation phase, the educational website product for environmental literacy was tested on students from state high schools in Gowa Regency and Makassar City. In its implementation, the educational website www.literacyenvironmentalclass.com, which was developed, was introduced to the school authorities, specifically the teachers, and a learning process was conducted with the students using the developed educational website. This step aligns with what was stated by (Kusnadi et al., 2023; Priando et al., 2021) that during the implementation stage, a learning process should be conducted using the developed product so that students can recognize and use the development product, and feedback and data can be obtained to evaluate the educational website development product based on field trials (Purbasari et al., 2023).

Then, in the evaluation stage, the analysis results revealed that there was effectiveness in using the educational website www.literacyenvironmentalclass.com. This was evident from the analysis results showing a significant difference in students' environmental literacy before and after implementing the educational website, as well as an increase in students' average learning outcomes after implementing this educational website. This indicates that this educational website product is effective in improving students' environmental literacy. Further analysis based on teacher and student responses to the educational website developed and implemented on the trial subjects showed that this educational website product is very practical to implement for improving high school students' environmental literacy. This analysis interpretation is relevant to what was stated by (Hambali et al., 2022; Ningrum et al., 2024; Rizaldy et al., 2022) that the feasibility of developing learning products in their implementation and long-term use should be tested to show that the product is effective and practical in its application and relevant to the product development goals.

This development research has advantages with a more holistic and integrative approach and is relevant to the characteristics of current students as digital natives who are more interested in dynamic, visual, and interactive information technology-based learning concepts. Therefore, this research provides practical and academic contributions, including contributing as one of the interactive learning materials that can be used by school resources and teachers to improve environmental literacy broadly and sustainably.

The results of this study indicate that the development of this educational website can improve students' environmental literacy and have a positive impact, as the website serves as teaching material that provides interactive features, accessibility, and locally relevant content that meets students' needs. The results of this development research are in line with other studies, including those by (Alegre, 2023; Fathayatih et al., 2022) which revealed that learning using information technology can increase students' motivation, understanding, and learning outcomes. Additionally, research by (Gani et al., 2023) revealed that information technology-based environmental education is effective in increasing students' awareness of basic environmental knowledge. Further research by (Kucukaydin & Ulum, 2023) revealed that using learning websites allows students to obtain valid and reliable environmental information, thus reducing the risk of misinformation from unreliable sources.

Various studies show that website-based learning can be highly interactive because it includes visualization in the learning process and provides flexibility in accessing learning materials (Ferdiansyah & Irfan D, 2021; Karuku, 2023). It can even be meaningful learning because students interact with learning resources and media (Mering & Astuti, 2022; Sekarningsih et al., 2021).

Learning websites can serve as a learning medium, functioning as a means and tool to convey learning messages and enhance efficiency and effectiveness in achieving learning objectives (Arifin & Nugroho, 2023). Then, with interactive content, it can increase learning appeal and help students understand the material's context more deeply (Sartono et al., 2022; Wijanarko & Sujarwo, 2024).

Various studies have also shown that the advantages of implementing educational websites in learning as a student learning environment can help improve their learning outcomes. Students have high learning motivation, and with learning websites, students can access the material anytime, anywhere, enabling self-directed learning.

Additionally, it allows for more dynamic and engaging information delivery thru the integration of various multimedia elements (Bashori et al., 2022; Bintaleb & Al Saeed, 2020; Sapinatul et al., 2023).

The findings of this study are consistent with the current research, which shows that the educational website developed here is capable of improving students' environmental literacy and is effective and practical for use in schools. Then, compared to those relevant studies, this research adds interactive features and new elements by incorporating interactive video, local wisdom-based content materials, and evaluation.

Furthermore, the results of this research are relevant to various public policies in the field of education that are oriented toward digitalization and information technology in school learning, strengthening student literacy, and improving the quality of learning (Belva et al., 2024; Nasrullah & Rahman, 2023). This research also serves as a concrete action and effective medium to accelerate the adoption of educational digitalization in schools, which is relevant to the digital literacy movement policy in schools.

Therefore, the results of this environmental literacy learning website development research not only support public policy in the field of education but also strengthen cross-sectoral efforts such as information technology and environmental protection. This educational website, developed as one of the solutions to support the national policy of building an environmentally and technologically literate young generation. With proper integration, this development research contributes to the government's efforts in creating a more relevant, inclusive, and sustainable education system.

The results of this study have important implications for environmental education in schools. Environmental literacy is considered an essential 21st-century skill, as emphasized by (Unesco, 2017). Therefore, this research on the development of an educational website as an interactive learning platform makes a significant contribution to education policy in Indonesia, particularly in supporting the achievement of the Pancasila Student Profile. Environmental literacy, as part of character education and 21st-century competencies, not only involves knowledge but also encompasses awareness and skills in maintaining a sustainable environment (Baran et al., 2021; Erol, 2021; Martinez et al., 2022). Therefore, this educational website plays a strategic role in sustainably improving students' environmental literacy.

CONCLUSION

The research and development conducted concluded that the educational website www.literacyenvironmentalclass.com is valid, effective, and highly practical to implement as an interactive learning platform for improving high school students' environmental literacy. This is demonstrated by the results of expert assessments thru prototype validation, which showed a value > 0.60 , the results of effectiveness tests thru the N-Gain value, which showed 91.80, falling into the effective criteria, as well as teacher response results with a percentage of 93.75 and student responses with a percentage of 82.47, which indicated very practical criteria. Thus, this educational website can be implemented as one of the teaching materials in schools, particularly in improving the environmental literacy of high school students.

Suggestions for future consideration include improving technology infrastructure, regularly developing website content related to current environmental issues, enhancing features, aligning with the curriculum, and developing learning models focused on improving students' environmental literacy.

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