

Development of learning media based on the class safari website (microsite) on the material i love the environment around grade 1 elementary school students

Desi Hermawati*, Sumarmi, Mardhatillah, Radeni Sukma Indra Dewi, Slamet Arifin

*Universitas Negeri Malang, Jl. Semarang 5, Malang, East Java, 65145, Indonesia
desi.hermawati.24210381@students.um.ac.id**

Abstract: *This study aims to develop a microsite-based learning media on the topic "I Love the Environment" for 1st grade elementary school students. The research method used is the Richey and Klein Research and Development (R&D) model, which consists of three stages: design, product development, and evaluation. The developed microsite product was declared very feasible based on expert validation results, with the following percentages: material experts 91%, language experts 96%, and media experts 92%. The trial results showed that this media is effective in providing convenience for teachers and students with an interesting, innovative, and interactive presentation. In addition, this media has been proven to improve student learning outcomes, as indicated by an increase in the average score from 50.3 (pretest) to 85 (posttest).*

Keywords: *Development of learning media, Microsite, Pancasila Education*

Introduction

Information and communication technology in the industrial revolution 4.0 era has become the most important part of everyday life. The use of technology makes it easier for humans to find information quickly. The use of technology is not only in the industrial world, companies but also in the world of education (Cindya Alfi, Sumarmi, 2016). Technological developments affect the teaching and learning process (Mu'minah H. I. & Aripin I., 2019). This change requires students to have skills that can support global challenges. Teachers are expected to be able to improve and develop creativity and innovation in learning, especially in the use of digital technology and designing learning that is in line with technology (Saputra et al., 2023). Technology integration can improve the quality of education, support digital literacy and student creativity (Mardhatillah et al., 2024).

Teachers in the use of media are still not diverse and interactive. Digital learning media used for elementary school students generally still focus on general platforms such as Google Classroom, WhatsApp, Email, Youtube, Zoom, Moodle, Google for Education, Quipper School, Rumah Belajar, Ruang guru (Dera Sulastri et al., 2021). The use of learning media is expected to be used to support the success of learning objectives which include interesting, creative, innovative and challenging components equipped with images, graphics, videos, learning models, games (Yusuf Nungky Diandita, Ria Saputra, 2023). With the media, it is hoped that it can increase student involvement and critical and analytical thinking skills (Karmana, 2024).

Based on previous research (Diana Endah Handayani¹, Sunan Baedowi², 2025) by developing interactive learning media that can increase student motivation and activeness. Website development can increase interest and understanding in learning (Tri Agus

Setiawan¹, Rasiban², 2021). Other researchers develop websites that can improve learning outcomes (Yusuf Nungky Diandita, Ria Saputra, 2023). However, very few studies specifically develop microsite websites in learning.

Microsite is a simple form of website that focuses on a particular learning theme that focuses on learning media for grade 1 elementary school students. In addition, existing media often pay less attention to the characteristics of students, such as the need for friendly differentiation, practical for children (user-friendly), effective, strong visual use, attractive and intuitive interactions. This website can function as a media that suits students' needs and supports collaboration between teachers (Hayu & Suciptaningsih, 2024). A website designed to display certain content interactively (Adilah et al., 2025). The form is a mini website (Keumala et al., 2024). The scope of mini web content is limited but focused, providing advantages in presenting interactive, easily accessible materials that are in accordance with the learning characteristics of elementary school students who like visual images, kinesthetic, sound, animation and digital-native.

A very potential subject to be developed by researchers in the 1st grade curriculum is Pancasila Education, the material taken with the theme "I Love the Environment". This material aims to introduce students to the physical environment around them, but also has strong relevance to character building and strengthening Pancasila values that are integrated through habituation. The learning objective is that students are expected to be able to understand basic geography which includes the concept of cardinal directions. The cardinal directions are used as a guide in determining the direction or destination that is useful for everyday life, especially in travel, adventure and outdoor activities.

Facts in the field based on observations and unstructured interviews, Pancasila Education learning still uses conventional methods, memorization, teacher-centered learning models, minimal use of physical and digital media, not optimal in using technology-based digital media, impacting students who are easily bored with monotonous learning, low motivation, media less interesting, innovative and interactive. Students have difficulty understanding the concept of right and left directions on the school environment plan as evidenced by low learning outcomes below KKTP 70 in the formative assessment. The applications used by teachers at SD Negeri Pengalaman 2 are PPT, Canva, Quizizz, Wordwall, Youtube, Tiktok, Google Forms, Google Class, Liveworksheet, Kahoot.

According to Piaget's (1954) cognitive development theory, first-grade students are at the concrete operational stage, aged 7-12 years. At this stage, children begin to develop logical and rational thinking skills, able to understand causal relationships between one event and another. They can perform basic mathematical operations such as addition, subtraction, multiplication, and division. Students at the concrete operational stage tend to have visual and kinesthetic learning styles. Students at this stage prefer learning through images, graphs, and diagrams, as well as carrying out direct actions. The novelty of this research addresses the gap between 21st-century learning needs and field practice, which is implemented in a microsite with unique characteristics: fully integrated with curriculum content, designed based on child developmental psychology, supporting differentiated learning, and can be implemented effectively in hybrid or distance learning contexts.

Based on the problems above, researchers developed a website-based learning media entitled Class Safari in the form of a microsite on the material "I Love the Environment" can bridge the gap between the demands of learning in the digital era and teachers' limitations in mastering technology. This microsite is designed in a structured manner to combine multimedia, interactivity, and gamification elements that are appropriate to the characteristics of grade 1 elementary school students, while providing integrated and easily accessible content for teachers. Thus, this research does not only focus on product development, but also on efforts to provide practical, relevant, and effective solutions to improve student motivation and learning outcomes. Therefore, to overcome the problems described above, researchers developed a website-based learning media product microsite entitled "Development of Website-Based Learning Media Class Safari (Microsite) on the Material I Love the Environment for Grade 1 Elementary School".

Method

The research method applied is R&D with a development model according to Richey and Klein (2009) which includes three stages, namely design, production, and evaluation. The stage of making product design this activity begins with planning a product that is tailored to the objectives starting with analyzing research needs, literature studies and student characteristics. The production stage is the process of testing and evaluating the quality of the product in accordance with the criteria set to ensure that the product developed has achieved the expected goals. The evaluation stage includes product validation by media, language and material experts, analyzing student data on development products. If validation has been carried out and revised, the product can be developed.

Respondents are a source of data about diversity in symptoms, relating to feelings, habits, attitudes, motives and perceptions Agusta, I. (2003). The research subjects involved in collecting development data are, 4 teachers of SD Negeri Percobaan 2 as validators and class 1B students with 28 students. The research time was conducted in February 2025 in class 1B of SD Negeri Percobaan 2. Data collection begins with giving a questionnaire to respondents. After obtaining the data, a Likert scale was carried out using several question items to measure behavior, individual attitudes by answering 5 choice points on each question item, strongly agree, agree, undecided, disagree, and strongly disagree (Likert 1932), but in the research validation consisted of 4 choice points on each question item. The easiest scale to use is the Likert scale (Budiaji et al., 2019). The Likert scale is used to measure the attitudes, opinions, perceptions and perceptions of a person or group related to social phenomena that are the object of research (Sugiyono, 2019). Based on the opinions of several researchers, researchers want to take samples using a Likert scale consisting of 4 answer choices, namely very good, good, sufficient, less. The research instruments developed were linguist validation instruments, media experts and material expert validation.

Tabel 1. Classification of Assessment Criteria for Validation Instruments

Kriteria Penilaian	Skor
very good/strongly agree	4
Good/agree	3
Good enough/agree enough	2
Less favorable/less agreeable	1

Source : (Sugiyono, 2019)

Evaluation instruments by material experts are used to collect data or assess the quality of material content in microsite material content. Material validation is implemented by teacher practitioners of class 1C and class 1A. Language validation 1 teacher practitioner grade IV. The data analysis method is quantitative descriptive analysis which is the result of the microsite validation test (Hayu & Suciptaningsih, 2024). The percentage results are then interpreted based on the validity criteria that have been determined in the form of a table as follows:

Tabel 2. Criteria Validitas

No	Range (%)	Qualitative Criteria
1.	0-40	Very unfit for use
2.	41-60	Not worth using
3.	61-80	Worth using
4.	81-100	Very feasible to use

course : (Rahmi et al., 2019)

Results and Discussion

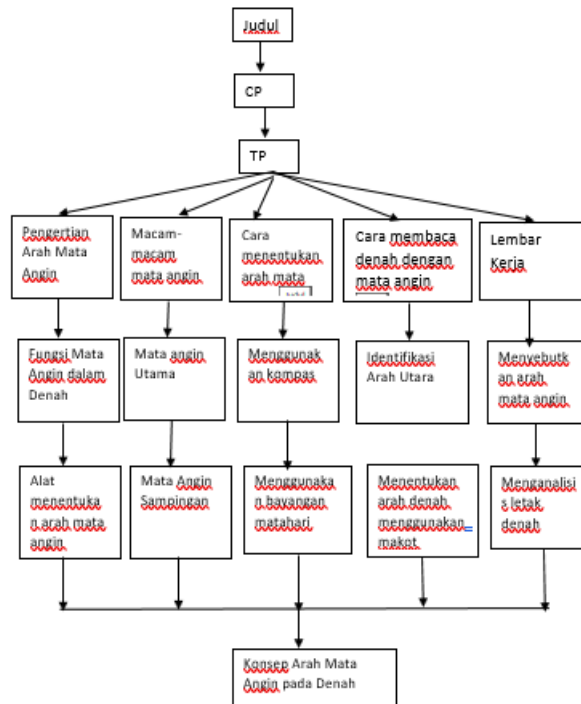
The design phase of this research aims to identify and formulate the various essential components required in developing microsite-based learning media. This process includes establishing a microsite needs analysis, material analysis, and designing the structural elements that will form the framework and content (flowchart) of the microsite (Hayu, R., & Sucipta

The research began with a comprehensive needs analysis, divided into two main aspects: functional and non-functional. The functional needs analysis focused on the various features and content that must be provided on the microsite to meet learning objectives. This included designing intuitive navigation through menus and buttons, compiling content aligned with literacy outcomes in the "I Love the Environment" material, and developing learning videos, student worksheets (LKS), and integrated links for assessment purposes. On the other hand, the non-functional needs analysis identified supporting facilities and infrastructure required in the production process, such as the availability of hardware (laptops) and mastery of various supporting software such as Canva, Hyzine, gamification platforms, YouTube, and artificial intelligence (AI) technology.

Next, a material analysis was conducted to determine the scope and depth of the content to be presented. The material was specifically designed to accommodate the topic "I Love the Environment" and covered several main subtopics, namely an introduction to the concept of cardinal directions, an explanation of the various cardinal directions, steps in determining cardinal directions, practice reading simple floor plans using the cardinal directions, a video explaining the concept, student worksheets, assessment instruments, and a guide to creating three-dimensional floor plans.

To ensure a systematic and structured development process, this study also developed a flowchart. This flowchart illustrates the logical and procedural stages in microsite creation, from preparation and content creation to integration and testing, through to final production. The flowchart serves as a roadmap that guides the entire development process to ensure efficiency and achievement of predetermined targets.

Tabel 3 .Flow Chart



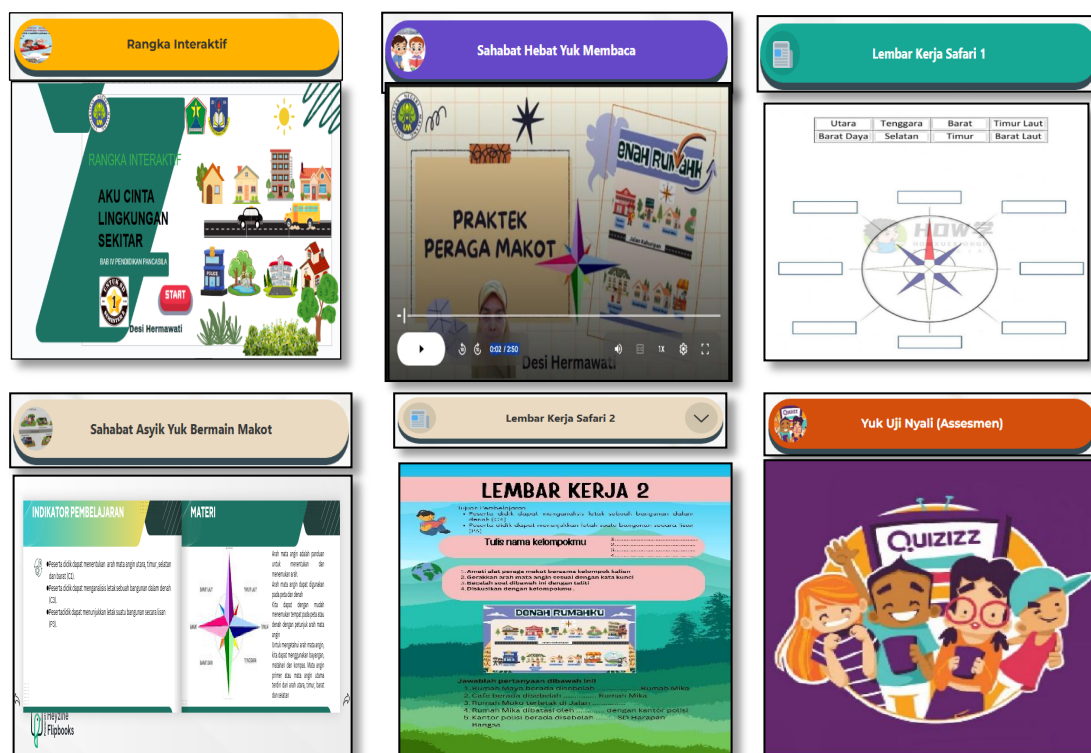
This stage aims to identify the various elements needed in the development of learning media using microsites. The design of the microsite material I love the surrounding environment that was developed includes:

Picture 1. Cover microsite



Around includes introductory words of learning, how much do you know (diagnostic), let's sing and move your body, interactive framework, great friends let's read, fun friends let's play *MAKOT*, safari worksheet 1, safari worksheet 2, let's test our courage (assessment), reflection and reinforcement, financial literacy, and teaching modules.

Picture 2. Menu microsite



Microsite includes an introduction to learning containing greetings, prayers, student readiness, motivation to learn so that students. How much do you know (diagnostic) contains students' initial abilities about the material I love the environment using word wall gamification. Let's sing and move your body contains songs about the cardinal directions and trigger questions related to the contents of the cardinal direction song based on Hendra AI. The interactive framework includes CP, TP, Indicators, YouTube, learning steps and learning materials based on the Canva application. Great friends, let's read, contains student teaching materials based on heyzone, which aims to increase students' reading literacy. Fun friends, let's play *MAKOT* according to the learning objective indicator, showing the cardinal directions, the video contains steps and how to determine the cardinal directions according to the Canva-based plan. Student worksheet 1 and student worksheet 2 are related to the learning objective indicators, namely stating the cardinal directions and analyzing the cardinal directions using the liveworksheet and Canva applications. Let's test our courage (assessment) contains pretest questions related to the material I love the environment around us, quiz-based gamification, reflection and reinforcement contains feedback from students about the learning that day, financial literacy contains group assignments made by students in groups on how to make a simple floor plan, and hyzine-based teaching modules contain the process and steps during learning and assessment rubric.

This stage is the process of testing the feasibility of the microsite material. I love the environment which aims to evaluate the suitability between the material and the media used. The microsite suitability test is carried out through validation by material experts, language experts and media experts. Validation is defined as a measure of how accurately a test performs its measuring function. A test can only perform its function accurately if there is "something" that it measures (Mukhlisa, 2023). This process is carried out by distributing instruments in the form of questionnaires to language media and material experts.

This microsite of I love the environment can be accessed by teachers during offline learning and accessed by students at home using an Android smartphone, computer, or laptop. The microsite is titled "Class Safari" with the material I love the environment developed using the Canva, YouTube, Hyzine, Life Worksheet, Hendra AI and Gamification applications. The main function of this microsite is as a means of providing convenience in the learning process as well as information media. The Class Safari microsite acts as a learning tool that aims to improve the learning outcomes of grade I elementary school students and also as a source of information about I Love the Environment.

Tabel 4. Results of Validator Assessment of Validated Language Experts

No	Assessment indicators	Skor
1.	Straightforward (clarity in conveying ideas and information))	4
2.	Communicative (The ability of the material to convey messages easily))	4
3.	Appropriateness to Student Development (The language used is appropriate to the age and development level of the students)	4
4.	Compliance with Language Rules (Use of correct grammar and according to the rules)	3
5.	Dialogic (Materials support the creation of interactions between teachers and students)	4
6.	Interactive (Material encourages students to actively participate)	4
	Amount =	23

Tabel 5. Results of Validator 1 Assessment of Material Experts

No	Assessment indicators	Skor
1.	Compliance of materials with CP and TP	4
2.	Accuracy of material (The material presented is accurate, factual, and free from errors.)	3
3.	Encourage Curiosity (Materials can motivate students to ask questions and explore further.)	3
4.	Presentation Techniques (Effective presentation techniques for material in attracting attention and facilitating student understanding)	4
5.	Presentation Support (Use of media or presentation aids that support the teaching and learning process.)	4
6.	Learning Presentation (The way the material is delivered is smooth, clear, and well-structured.)	3
7.	Syntax components of the learning model (Materials are in accordance with the syntax steps of the learning model used.)	4
	Amount	25

Tabel 6. Results of Validator Assessment of Media Experts

No	Assessment indicators	Skor
1.	Cover Design (Cover design is attractive, aesthetic, and in accordance with the theme of the learning material)	3
2.	Content Design (Content design is easy to read, neat, attractive, and uses colors and fonts that are appropriate for learning.)	4
3.	Management of Student Worksheets (worksheets are well structured, clear, easy to follow, and support the learning process.	4
	Amount	11

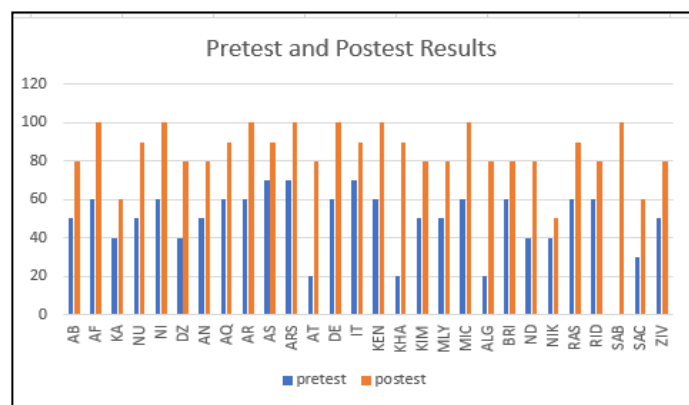
Source : (Halifah et al., 2021)

Tabel 7. Results of Validator Assessment of Material Experts, Language Experts and Media Experts

Validator Materi	Penilaian (%)	Validator Bahasa	Penilaian (%)	Validator Media	Penilaian (%)
1	93%	1	96%	1	92%
1	89%				

Based on the assessment results obtained from the validation of material experts, the assessment results by validator 1 with a percentage value of 93% are categorized as "very valid" to be used as a learning medium. Validator 2 material experts with a percentage value of 89% are categorized as "very valid" to be used as a learning medium. Validator 3 language experts with a percentage value of 96% are categorized as "very valid" to be used as a learning medium. Validator 4 media experts 92% are categorized as "very valid" to be used as a learning medium.

Based on the results of the pretest and posttest, it is known that the use of the microsite material I Love the Environment can improve learning outcomes in grade 1 students as shown in picture 3.

Picture 4. Pretest and posttest results

From picture 14, it can be explained that during the field trial, on the first day the researcher distributed pretest questions to 27 students, 1 was absent. The pretest questionnaire was given to students before the implementation of the Class Safari microsite learning media in the classroom. The pretest questions consisted of 10 multiple choice questions. The pretest questions were less than the KKTP, which was 70, students who had not completed the concept of cardinal directions on the floor plan were 26 students with an average of 50.3% while the results were complete were 3 students. Furthermore, on the

second day the researcher introduced and explained the use of microsite-based media entitled "class safari" in the classroom using LCD and laptops. Learning begins with the steps in the microsite menu which contains starter questions, movements and songs, teaching materials, interactive PPT, gamification, presentations, discussion, learning videos, use of *MAKOT*, reinforcement and reflection. At the end of the learning process, students work on an assessment that aims to measure students' understanding of the material I love about the environment. The results of the student assessment increased by an average of 85% with a total of 10 multiple-choice questions

Based on the validator's assessment results and student pretest and posttest data, it can be concluded that the development of a microsite for the "I Love the Environment" topic in Pancasila Education demonstrated significant effectiveness. This success was primarily evident in the increased motivation and learning outcomes of students, supported by the interactive multimedia features within the microsite. These findings are consistent with several previous studies confirming the role of technology-based media in improving learning quality.

First, the advantage of microsites lies in their ability to present material in an engaging and interactive manner, as demonstrated in research by Astuti et al. (2024) which states that microsite-based interactive multimedia can increase student learning motivation. In this context, microsites not only present text but also combine visual elements, audio, and interactive simulations that suit students' learning styles at the concrete operational level (Piaget, 1954). This allows students to be actively involved in the learning process, so that abstract material such as the values of Pancasila can be understood more concretely.

Second, the integration of artificial intelligence (AI) technology into microsites plays a role in stimulating student independence and motivation to learn. Consistent with research by Naila et al. (2023), AI can provide a personalized and adaptive learning experience, allowing students to learn at their own pace and style. This feature also allows microsites to provide immediate feedback, ultimately encouraging students to be more independent in exploring the material.

Third, the improvement in student learning outcomes, as reflected in the average daily test scores, aligns with the findings of Keumala et al. (2024) and Ibrahim et al. (2025). Microsites not only present material in an engaging manner but also facilitate students' ability to test their understanding through integrated assessment features. The ease of access to microsites also allows students to review the material outside of school, thus strengthening their understanding.

Fourth, the presence of game features on the microsite provides an element of challenge and motivation, as expressed by Eldiana et al. (2025). Educational games not only make learning more enjoyable but also stimulate students to think creatively and solve problems. This is highly relevant to the "I Love the Environment" topic, which requires conceptual understanding and application of Pancasila values in real-world contexts.

From a theoretical perspective, the effectiveness of this microsite can be explained through cognitive theory, which emphasizes the importance of mental processes in learning.

The interactive features within the microsite encourage students to actively process information, thereby making the knowledge gain more meaningful. Furthermore, the microsite aligns with the principles of multimodal learning, which states that the combination of various media (text, audio, visuals, interactivity) can enhance comprehension and retention of information.

Overall, these findings strengthen the evidence that integrating technology into learning, particularly through microsites, can be an innovative solution to address challenges in conventional learning. Microsites not only improve motivation and learning outcomes, but also prepare students to develop digital literacy that meets the demands of the modern era.

Conclusion

The development of technology leads teachers to hone their skills in using technology in accordance with the times. Innovation or various methods are carried out by teachers so that learning is meaningful, improves learning outcomes and motivation. One of the developments of learning media that is easily accessible anywhere, anytime and flexible when having an internet network is a website. Microsite-based websites have many benefits where this mini web is responsive, attractive, interactive, and innovative and can be accessed using laptops, tablets, smartphones or can be used offline during classroom learning. The development chosen in this study is R&D using the Richey and Klein model. The development of this media has been validated and can be implemented at the elementary school level. This media is expected to be an alternative learning media that is active, innovative, creative and makes it easier for students in the learning process.

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