Development of Web Using Google Sites to Increase Learning Interest in Social Science Education

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A R T I C L E I N F O	A B S T R A C T

Purpose: This study aimed to produce a website using Google Sites to increase students' interest in social science studies. **Methodology** This research used a research and development method using the Analyze, Design, Development, Implement, and Evaluation (ADDIE) model. Then, the product was tested using a pre-experimental design in the form of a one-group pretest-posttest design. Product validation involves material and media experts as well as product feasibility validation. The research subject was the fifth grade of Jatimurni IV Elementary School. **Findings** The study results show that material expert validation includes material practicality of 59% with a suitable category and media expert validation with design quality of 83% with a good category—the effectiveness of learning media using questionnaires related to learning interest distributed to students. This research concludes that the web use with Google sites positively impacts elementary school student's interest in learning social science education. **Implications to Research and Practice** The findings of this research would help students learn social science in a funny way and one that is easy to understand.

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Introduction

Technology development is increasingly rapid and widespread, leading to many changes as well as challenges. It is therefore necessary to equip with superior human resources to compete globally. Quality education is one of the strategic steps to nurturing excellent human resources, where education functions as a means to develop knowledge and skills. Thus, education is one of the critical aspects of human life because, through instruction, a person can develop aspects of his competence, namely knowledge, skills, and attitudes. A process is needed to achieve these aspects of competence, which can be recognized as learning. The learning process is a system in which several components are interrelated with each other to achieve a predetermined goal. The features of the learning system are divided into five parts; one of these components is learning media. Media plays a vital role in educating students. The existence of learning media in delivering material in the classroom will arouse students' enthusiasm for learning.

Media in the current era is essential in the learning process. However, in reality, many teachers still need to start using learning media and tend to use conventional methods in delivering material so that learning seems monotonous and unidirectional because the teacher dominates education. If this continues, it will cause students to feel bored quickly, so their interest in learning activities becomes low. When learning activities take place, interest plays a crucial role. If a student does not have great interest and attention to the object being studied, it is not easy to expect that the student will be diligent and get good results from learning. Therefore, there must be a solution or effort to improve the learning process. One alternative to increasing interest in learning is using learning media to attract students' attention. With the use of exciting media, the subject matter will be easily absorbed by students.

Various researches related to using the Web to assist the learning process has been conducted in recent years. For example, the Web can be developed to provide fun learning content to help learners understand the material delivered (Wasir, Volgman, & Jolly, 2023). Furthermore, the web-based MoLearn application effectively improves higher-order thinking (HOT) based learning outcomes (Kulakaç & Çilingir, 2023). A similar research suggests that using Edmodo-based web media can develop students' critical thinking skills because students can express their opinions, search, and solve problems given so that they find new knowledge using forum and chat facilities (Tong, Uyen, & Ngan, 2022). Another study stated that web-based adaptive presentations positively impact and help improve student achievement and performance (Elmabaredy, Elkholy, & Tolba, 2020). In addition, several other studies have also noted that the use of web-based learning in medical colleges could make a significant contribution to improving the skills needed by medical students (Ercan, Bilen, & Bulut, 2014; Herr et al., 2021; Smith et al., 2022) Another study showed that implementing educational programs using web-based learning can help prevent sexual violence among adolescents and help them foster positive attitudes (Nagamatsu et al., 2021). A study even argued that implementing web-based authentic inquiry projects in ecology courses has significant potential for understanding critical science literacy and scientific process skills for all students (Wu et al., 2021). Finally, it is also premised that the mobile web application "MyFeedBack" can improve communication and dialogue about feedback between students and educators (Bikanga Ada, 2023).

A few websites aim to improve material understanding, learning outcomes, skills, and communication and prevent sexual violence. In this study, the use of the Website aims to increase interest in learning. The websites developed in previous studies were still relatively complicated and required login or sign-in to access the website. Meanwhile, this study developed a website that is simple and easy to access, and users do not need to log in or sign in to access it. In addition, the subjects studied in previous studies were at the junior high school, high school, and university levels. In contrast to this study, the research subject was the elementary school level. Based on the explanation of the research that has been done before, overall, this research has three novelties that have not been studied, namely the purpose of the Website used to increase learning interest in social studies subjects, website media developed with the help of Google Sites, and the research subjects taken are fifth-grade elementary school students.

Therefore, this study combined Google Sites websites and students' learning interest in social studies learning content. The central question in this research was framed as : "Is the development of Google Sites-assisted Web effective in increasing students' interest in learning social studies in grade five elementary school?" This research is an effort to answer the following problems:

1. How can a website be developed using Google Sites to increase students' interest in learning fifth-grade social studies?
2. Can Web use by Google Sites increase student interest in learning social studies in fifth-grade elementary school?

This research combines Websites using Google Sites and student learning interests. Next, we will describe the advantages of utilizing Google Sites in education, including its impact on student learning outcomes and other aspects.

Literature Review

In this literature review, the researcher conducts analysis, synthesis, and critical evaluation to get a clear picture of the theme of this research and must ensure that it reflects the latest current research.

- *Websites In Education*

Learning media is one of the essential components of the learning implementation process (Zhang, 2021). The rapid development of technology and the internet has created a variety of new learning media that are considered to be more supportive of the learning process, one of which is web technology, which is one way we interact and learn through the internet using various devices connected to the internet (Kuo, Tsai, & Wang, 2021). Web-based learning is software that manages learning that can support multiple environmental conditions such as home, classroom and public with various interaction facilities (Salas-Rueda, Alvarado-Zamorano, & Ramírez-Ortega, 2022). The Web can be an option because there are multiple multimedia and interactive components such as audio, animation, video, Etc. Web-based learning also has benefits with flexible use and allows students to learn anytime and anywhere (Elmabaredy et al., 2020).

One Website that can be used for educational purposes is Google Sites. Google Sites is a product from Google that is used to create websites. Google Sites has features to make content material fun, entertaining, and easy to learn (Salic-Hairulla et al., 2020). Google Sites is also an effective site to assist teachers in delivering abstract content material effectively. Images, videos or animations uploaded on Google Sites can help students visualize these concepts more accurately, thus preventing students from forming misconceptions. Google Sites allows users to combine various information in one site, such as videos, presentations, attachments, text, and others that can be shared according to user needs. One of the advantages of using Google Sites is that they are easy to understand when used, unlike other sites that require complex high-level programming languages. These advantages are expected to increase students' interest in learning.

- *Learning Interest*

Interest in learning is significant in the current era because the need to continue education and skill development is proliferating (Tatiana et al., 2022). Interest in learning is the attention, liking, and interest of a person (student) in knowledge, shown through enthusiasm, participation and activeness in education (Ilić et al., 2023). Learning interest is one of the internal factors of psychological aspects that is very influential and plays a vital role in learning activities and student learning development and success (Blinkoff et al., 2023). Interest in learning does not arise by itself, but many factors cause interest in learning in students. The emergence of interest can be caused by its compatibility with talent, the teacher's success in stimulating children, the influence of the environment around friends, the environment, etc.

Lack of student interest in learning will cause other problems in education because when students are interested in a particular field, it will make students have perseverance, special attention, observe, memorize, think carefully, and actively (Fryer et al., 2023). In fostering student interest in learning, a teacher needs to create personal meaning for each student with fun. One of these ways is the use of learning media. With interactive learning media, students will be interested in participating in the learning process. In line with previous research with experiments using technology to increase learning interest and conceptual understanding, the results show that the use of technology affects learning interest and is effective in increasing conceptual understanding (Koskinen et al., 2023). However, the existing literature has yet to be produced in detail about the application of media in the form of web-based Google Sites related to student interest in learning. This research adds to the existing literature by focusing on creating web-based learning using Google Sites for students in elementary school and increasing learning interest through web-based education.

Method

- *Research Design*

This research used the R&D research techniques adopting the ADDIE model. This ADDIE model has five phases: Analysis, Design, Development, Implementation, and Evaluation. The research design used is a Pre-Experimental Design with One group pretest-posttest Design model. This design was used because tests were done twice before and after the experimental treatment. Table 1 presents a group pretest-posttest research design:

Table 1.

One Group Pretest-Posttest Design

Pretest	Treatment	Posttest
O_1	X	O_2

Note:
O1 = Prettest (initial test)
O2 = Posttest (final test)
X = Website

- *Population and Sample*

The population in this study comprised all elementary school students in Pondok Melati District, Bekasi, Indonesia. Researchers also adopted the purposive sampling technique, wherein the sample was obtained from Jatimurni IV Elementary School. However, to make the research focused, the model in this study focused on Grade-V students of Jatimurni IV Elementary School.

- *Research Instrument*

This study used two instruments to collect data. The first instrument was to use pretest and posttest instruments to determine students' interest in learning. Pretest measurements were taken before the treatment was given, before the researcher provided treatment through the Website. After giving treatment in the experiment, a posttest was given to the group. Comparison between pretest and posttest groups showed the effect of using Google Sites on students' interest in learning. The second research instrument was a questionnaire. The items of the questionnaires were validated by material and media experts to test the practicality of all items at the experimental stage.

- *Data Analysis*

The normality test of data distribution was carried out by statistical analysis using the N-Gain Score. This study used inferential statistics for hypothesis testing using a t-test: paired two sample for calculating means. The conclusion of the hypothesis was made using criteria with a significance level of 0.05. This study also used a Likert Scale with a questionnaire score category; this technique of data measurement analysis was used to determine the responses of media and material experts. The types of media and material expert validation scores are shown in Table 2. The feasibility test of Web media was analyzed with a percentage Likert scale assessment. Table 3 presents the validation criteria used in this study.

Table 2.

Media and Material Experts' Validation Scores

Scale score	Description
5	Very good
4	Good
3	Pretty good
2	Not good
1	Not Very good

Table 3.

Media Eligibility Criteria Based on Rating Scale

Percentage of scoring result	Eligibility criteria
86%-100%	Very worthy
51%-85%	Worthy
26%-50%	Less worthy
0%-25%	Not feasible

Results and Discussion

- *Analyze*

The first step in developing a website assisted by Google Sites was to analyze. At this stage, researchers conducted two analyses, namely needs analysis and material analysis, to find the website media that would be made in detail. Needs analysis was divided into teacher needs analysis and student needs analysis. Researchers analyzed the needs of teachers through interviews and observations during the social studies learning process. This needs to be done to find information related to learning media used by teachers and media required by students. The results of this need analysis stage are the need for teaching media that fifth-grade elementary school students will use to increase interest in learning. Furthermore, student needs are analyzed by conducting observations and providing a student needs analysis questionnaire to determine student characteristics and interest in learning social studies.

Based on the results of observations and tests carried out in social studies learning activities, some students still need to gain more interest in learning. In addition, the problem also comes from the media used, which needs to be more varied; the media used is still conventional, and knowledge is still teacher-centred. Hence, media must be available to increase student interest in education and student needs. Therefore, researchers developed media as a website using Google Sites to increase students' interest in learning social studies. In the material analysis, the research determined the core competencies, essential competencies, and indicators that were developed in the Website that refered to BSNP and adapted to the needs of students.

- *Design*

After obtaining the results of the Analysis phase, the next step was the media design stage. This Website was created using Google Sites. This website created media with visuals, such as animated displays that were attractive and easy for students to understand. Each page on this Website had a different appearance to make students more interested in participating in the learning process. Furthermore, the material's content related to human interaction with the natural environment was made light and simple so that students can easily understand and not feel bored when reading the material. Students can also easily access this Website using their gadgets.

- *Development*

There are six menus on the main page of the Google Sites-assisted website: home, objectives, materials, evaluation, bibliography, and author profile. The content of each

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menu is divided into several different pages. In addition, the addition of several animations on the page increase students' interest in using this Website.

- *Implementation*

This stage is the stage that becomes the benchmark for the results of the previous steps. Web media assisted by Google Sites was tested by two media and material experts. Media validation was done by distributing questionnaires. After getting a valid value from the expert, the Website was tested on fifth-grade elementary school students who were identified using a purposive sampling technique as an experimental group. Before the trial, students were given a pretest questionnaire regarding learning interests. After the media experiment, students were given a posttest questionnaire on learning interests. This study used data analysis techniques for pretest and posttest using a group Pretest-Posttest Design. The normality test used in this study was the N-Gain Score test and t-test: Paired Two Sample for Means.

The N-Gain test formula is as follows:

$$N - Gain = \frac{Posttest\ Score - Pretest\ Score}{Ideal\ Score - Pretest\ Score}$$

Table 4.

N-Gain Test of Website Media using Google Sites

Pretest Score	Posttest Score	Posttest - Pretest	Ideal – Pretest Score	N-Gain Score	% N-Gain Score
63,30	82,64	19,33	36,70	0,52	52,01

Table 4 shows that the average value of the N-Gain Score is 0.52, included in the medium category. Furthermore, the significance of the data was tested using the t-test: Paired Two Sample for Means.

Hypothesis testing criteria t-Test: Paired Two Sample for Means:

- If the probability is <0.05, Ho is rejected, and Ha is accepted, meaning there is a difference.
- If the probability> 0.05, Ho is accepted, and Ha is rejected, meaning there is no difference.

Table 5.

t-Test: Paired Two Sample for Means

	Pretest Score	Posttest Score
Mean	63.30	82.64
Variance	17.39	22.34
Observations	32.00	32.00
Pearson Correlation	-0.07	
df	31.00	
t Stat	16.74	
P(T<=t) one-tail	0.00	
t Critical one-tail	1.70	
P(T<=t) two-tail	0.00	
t Critical two-tail	2.04	

Table 5 shows that the probability of 0.00 is smaller than 0.05, which indicates that Ho is rejected. This means that the learning interest of grade five elementary school students in learning social studies is different after using website media such as Google Sites.

- *Evaluation*

The final stage in this development process is to evaluate the product. At this stage, a formative evaluation will be carried out, the results of which will be used as feedback to make improvements. Formative evaluation in this study includes evaluation by expert review and one-to-one student assessment.

- *Media Experts*

The media expert in this study was a lecturer at the Faculty of Science at the State University of Jakarta. The media expert validated the presentation and displayed aspects of the Website. The results of media expert validation are shown in Table 6.

Table 6.

Media Expert Validation Results

No.	Aspect	Indicator	Score	Table Score	Maximum score	Percentage	Validation criteria
1.	Visual communication	1	4				
		2	5				
		3	5				
		4	4				
		5	4				
		6	5				
		7	3	30	35	85%	Worth
		8	5				
2.	Media format	9	4				
		10	4				
		11	4	17	20	85%	Worth
		12	4				
3.	Supporting accessories	13	4				
		14	4				
		15	4	16	20	80%	Worth
	Percentage of all aspects					83%	
	Validation criteria from all aspects						Worth

Based on the media expert validation assessment results shown in Table 6, the average achievement percentage obtained from three aspects containing 15 statements was 83% with a decent validation category.

- *Material Experts*

A fifth-grade teacher from Jatimurni IV Elementary School validated the materials in this study. The material expert assessed the aspects of the material developed. The results of the material expert validation are shown in Table 7.

Table 7.

Material Expert Validation Results

No.	Aspect	Indicator	Score	Table Score	Maximum score	Percentage	Validation criteria
1.	Website content standards	1	3				
		2	3				
		3	3				
		4	3				
		5	3	15	25	60%	Worth
2.	Content coverage	6	3				
		7	3				
		8	3				
		9	3				
		10	3	15	25	60%	Worth
3.	Systematization n	11	3				
		12	3				
		13	3				
		14	3				
		15	4				
		16	3	19	30	63%	Worth
4.	Linguistics	17	4				
		18	3				
		19	3				
		20	3				
		21	3	16	30	53%	Worth
	Percentage of all aspects					59%	
	Validation criteria from all aspects						Worth

The material expert validation assessment results in Table 8 show that the average percentage of achievement obtained from the four aspects containing 21 statements is 59% with a decent validation category.

The study makes it evident that developing a website using Google Sites can be feasible based on the results obtained. This can be seen from the average evaluation of the Google Sites-assisted website learning media is 83%, which is categorized as "worth", and the average material evaluation is 59% with the category "worth". However, the media classified as "worth" needs improvement according to the suggestions and input from experts so that it can be better and feasible later. Therefore, expert input is required to be used as a reference in developing media for this Website. As for some aspects of the media that need to be considered again, there is the need for illustrations aligned with each explanation of the material, making it easier for students to understand. Furthermore, compiling the material does not need to be extended because this website media aims to make the material on human interaction with the natural environment more concise and easily understood by students.

These findings align with a study by Yaw Obeng and Coleman (2020), which suggested that web technology can influence learning effectiveness. It is also in line with another

study Kulakaç and Çilingir (2023), which revealed that implementing web-based learning can enhance students' learning interests, measured by attention, happiness, and involvement in learning activities. Students' interest in learning is due to this technology being suitable for the student's requirements and creating enjoyable learning with flexible accessibility. Another study found that web-based learning environments can influence students' intrinsic, extrinsic, and interest levels, leading to higher encouragement towards teaching and learning activities (Mehrolia, Alagarsamy, & Sabari, 2021).

Using web-based learning can encourage student collaboration (Ishimura & Fitzgibbons, 2023). This collaborative learning can foster student learning outcomes in literacy. This study found that technology utilization can stimulate student interaction, developing the student's learning interests. Learning Management Systems based on the Web can deliver material in a blended environment to improve student engagement in the learning process (Mehrolia et al., 2021). Web supplementing classroom courses can raise the quality of information and education through high academic involvement by providing tools for monitoring and feedback. Web-based learning can make the students self-directed (Jittitaworn & Wisanskoonwong, 2023). This study found that using the Web in learning can enhance students' confidence and positive attitudes by allowing them to access their lessons anywhere and anytime.

Conclusion and Recommendations

This research concludes that based on the needs analysis of fifth-grade students of Jatimurni IV Elementary School to increase interest; media is needed to stimulate students to be motivated and able to follow the learning process as a whole and meaningful. Interactive media, such as websites assisted by Google Sites, can be an exciting and easy-to-use option for students. The Google Sites-assisted website was developed because it can help students learn independently, help improve students' cognitive learning outcomes, and be accessed anytime and anywhere.

The results of validating the effectiveness of website media assisted by Google Sites meet the excellent criteria. Then, the development of the N-Gain test is 0.52, which is in the medium category. In addition, the t-test Paired Two Sample for Means. This shows that the significance value is 0.00, so Ho is rejected, and Ha is accepted, which offers a difference in learning interest's average pre and posttest. The posttest results show that using websites assisted by Google Sites has a good effect on increasing the learning interest of grade V students in learning social studies at Jatimurni IV Elementary School. Therefore, for future research, websites can be used as learning media to increase students' interest in learning. However, this study has limitations in that it only covers elementary school students at Jatimurni IV Elementary School. Therefore, future research should cover a broader area in one and several other elementary schools to increase students' interest in social studies through interactive website learning media.

Acknowledgement

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