



Development of Google Sites Web-Based Learning Media in the Water Cycle of Grade V Elementary School

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ABSTRACT This study aims to develop Google Sites web-based learning media for the Water Cycle material for grade V SD with the ADDIE R&D model method. This media contains text, images, videos, 3D models and interactive quizzes that can be accessed online, making it easier for students to understand the material more interestingly and interactively. The results of the initial implementation show that this media can function well and make it easier for students to understand the water cycle material. This study recommends in-depth evaluation and expert validation for further development to improve the quality and effectiveness of the media. Keywords: <i>Learning media, Google sites, Water cycle</i>			

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INTRODUCTION

Advances in information technology have provided various opportunities in the world of education, especially in providing interactive and easily accessible learning media. The use of digital media is now not just a style, but has become a necessity to support a more interesting, flexible, and efficient learning process for students. One of the uses of technology in the world of education is by using a web-based platform. The presence of digital technology also enables the implementation of distance learning or e-learning. With the existence of an online learning platform, students can access materials or follow learning programs from any location without having to come directly to the classroom. (Abdul Sakti, 2023). Google sites is one of the free platforms, provided by Google and its users can create websites easily without requiring programming skills. In it, educators/teachers can enter text, images, videos, and interactive quizzes to support various learning styles of students. The use of Google Sites in learning provides space for educators to present materials in a creative and enjoyable way. Students can also learn independently by exploring the pages that have been prepared, so that their involvement in the learning process can increase. Another advantage of Google Sites is

the ease of the creation and management process. Educators/Teachers only need a Google account to start creating a site, and there is no additional cost. Compared to platforms such as 3D simulations or Learning Management Systems (LMS) which tend to require large bandwidth and sophisticated devices. Google Sites offers a practical, lightweight, and interactive solution. (Students & Vehicles, 2025). In addition, the site created can also be updated and developed continuously according to learning needs. Several previous studies have stated that the use of Google sites contributes to improving the quality of learning. Research conducted by Kukuh Setiawan, et al. revealed that online learning media developed through Google sites can be accessed by students easily and practically and can be accessed anytime and anywhere (Setiawan et al., 2022). Research conducted by Islanda and Darmawan showed that the test given to 30 grade XI MIPA students showed that 27 students (86%) achieved scores above the Learning Objective Achievement Criteria (KKTP), so that the media was declared effective for use in learning (Islanda & Darmawan, 2023). Another study conducted by Yasmin Putri Maharani, Mutia Sari, revealed that digital learning media (google sites) received very good responses from students (92%) and educators (90%). This shows that the media is suitable for use in science learning on the material of changes in the state of objects in grade III of elementary school (Putri Maharani & Mutia Sari, 2023). Based on this description, the development of digital media is very much needed as an effort to provide innovation to support the teaching and learning process, especially on the water cycle material in grade V of elementary school. For this reason, the development of media based on Google Sites is an effective alternative because it is easy to access, does not require additional installations, and allows the integration of various types of content in one platform. In this media, researchers added an introductory learning video to attract students' attention and provide an overview of the material to be studied. In addition, a 3D model of the water cycle is also inserted so that students can see the process of the water cycle visually and in depth. The combination of video and 3D models is expected to improve students' understanding and make learning activities more enjoyable and meaningful. The development of this digital media also takes into account the limitations of the devices owned by students. By using Google Sites, students do not need to download additional materials or applications that can burden the device's memory. The material can be accessed directly via the link, and educators can monitor student involvement through the available interactive features. Therefore, this learning media not only makes it easier for educators to deliver material, but also supports independent learning for students. This learning media not only makes it easier for educators to deliver material, but also supports independent learning for students. This learning media not only makes it easier for educators to deliver material, but also supports independent learning for students.

THEORETICAL BASIS

1. Learning Media

Learning media is one of the media for providing learning materials. In this context, educators act as conveyors of information, so they are required to utilize various appropriate and effective media to support the teaching and learning process. (Kholidah, Hidayat, Jamaludin, Leksono & ISSN, 2023). Visual and interactive media are highly recommended in learning at the elementary school level, because children of that age tend to understand concepts more easily through attractive displays and direct learning experiences.

2. Science learning in elementary school

Natural Science is a subject taught at the elementary school level. This subject includes an understanding of various natural phenomena, objects in the surrounding environment, and natural processes that occur. Science learning aims to equip students with basic scientific knowledge and help them understand various natural events rationally and deeply. Through science, students are invited to recognize and reason about their surroundings with a more logical and in-depth approach (Rajwa et al., 2023).

3. Web-Based Learning Media

Web-based learning media is an educational method that utilizes networks and websites as a means of delivering learning materials and information to students. The main concept of this media is the use of the internet as an effective tool to support and strengthen teaching and learning activities (LMS-spada, 2025). Google sites is a service from Google that is designed to make it easier to create a website, both individually and in groups. This platform is a structured wiki application that can be used for personal and organizational purposes. As a free web hosting service, Google sites allows its users to create and manage websites that can be used to convey various information or needs online (Setiawan et al., 2022).

4. Water Cycle

The water cycle is a hydrological cycle process that occurs continuously from the atmosphere to the earth's surface and back to the atmosphere. This process involves stages, such as condensation, precipitation, evaporation, and transpiration that occur repeatedly without stopping (Setiawan et al., 2022). Understanding the water cycle is important to introduce students to the concept of natural balance and the importance of preserving water resources.

RESEARCH METHOD

This research is a type of development research (Research and Development). Development research is a series of stages carried out to create new products or to improve and enhance existing products to make them better and according to needs (Setiawan et al., 2022). Development research aims to produce web-based digital learning media using Google sites on the water cycle material for grade V elementary school students. The development model used is the ADDIE model, which consists of five stages, namely: analysis, design, development, implementation and evaluation.

RESULT AND DISCUSSION

This study aims to develop web-based learning media through the Google Sites platform, by adapting the ADDIE development model which includes five main stages, namely; analysis, design, development, implementation and evaluation. Analysis, at this stage, researchers examine and identify the learning needs of grade V elementary school students, especially on the water cycle material. It was found that the material was quite abstract for students and required visual media to help understanding. In addition, educators need learning media that can be easily accessed, does not burden students' devices, and can present interactive content. Therefore, the development of web-based media is the solution chosen to support more interesting and effective learning.

Design stage, researchers design learning media using the Google Sites platform. The site structure is designed to present material sequentially, starting from the introduction, material presentation, to evaluation. The page design considers aspects of visual appeal and ease of navigation. At this stage, the content to be added is also designed, such as an introductory learning video, a 3D model of the water cycle, illustrative images, and online quiz questions as an evaluation. At the development stage, the content that has been designed is developed in the form of a website using Google Sites. Each page of the site is equipped with easy-to-understand text material, an introductory video as an opener to build student interest in the topic to be studied, and a 3D model of the water cycle that can be played by students to see each stage of the process. The media also inserts quiz elements as student self-evaluation. This site is designed to be easily accessed via various devices and does not require the installation of additional applications. The following are the results of the development of digital learning media (Google Sites)



Gambar 1. Halaman Utama



Gambar 2. Tujuan Pembelajaran



Gambar 3. Bahan Bacaan



Gambar 4. Video Pembelajaran



Gambar 5. 3D Siklus Air



Gambar 6. Kuis

The media that has been developed is then implemented (implementation) on a limited basis to grade V elementary school students in one meeting. Students access Google sites through the shared link and follow the learning flow independently. Based on observations, students appear enthusiastic and interested in the appearance of the site and the content in it. The introductory video helps students understand the context of the material, and the 3D model provides a more concrete and enjoyable learning experience. Students can also work on the quizzes available at the end of the learning directly. The final stage is evaluation carried out through quiz results and direct responses from students. Of the total 17 students, 15 students scored above the Learning Objective Achievement Criteria (KKTP), this shows that digital media helps students understand the material optimally. In addition, student responses show that they find it easier to understand the water cycle through this media compared to the previous method. Although expert validation tests have not been carried out, the implementation results show that this learning media is suitable for use in science learning in grade V elementary school.

CONCLUSION

This study shows that web-based digital media using Google Sites can be an alternative in delivering water cycle material to fifth grade elementary school students. The media developed combines text, introductory videos, and 3D models, so that it can increase interest in learning and help understand abstract concepts. The results of limited implementation show that this media is easy to access, does not burden students' devices and improves students' understanding of the material being taught. Most students showed good learning outcomes, with more than 80% of students scoring above the Learning Objective Achievement Criteria (KKTP), and gave a positive response to the learning experience using this media. Although the media has not gone through a formal validation stage by experts, based on observations and quiz results, it can be concluded that this learning media is effective, practical, and suitable for use in the science learning process in elementary schools, especially on the topic of the water cycle. This media can also be an innovative solution in delivering material in a more visual, interactive way, and in accordance with current developments in educational technology.

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