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Students' Responses to Google Sites-Based Learning Media in High School Mathematics Education

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***Abstract*—This study aims to determine students' responses to Google Sites-based learning media. Technological advancements have significantly impacted education, particularly in learning media. However, in practice, the use of technology as a learning medium is still underutilized. Conventional methods, such as lectures and chalkboard usage, are more commonly employed. This study utilizes the R&D (Research and Development) methodology with the ADDIE model (Analysis, Design, Development, Implementation, Evaluation). However, the implementation stage could not be fully carried out due to limitations, such as restrictions on bringing gadgets and supporting facilities. The subjects of the study were several Grade X students. The results of the study in the analysis stage revealed that the use of technology-based learning media in mathematics instruction is still rare. In the design stage, we created a Google Sites learning media design by determining the background concept, creating a storyboard, designing the layout, and filling in the content. In the development stage, researchers conducted interviews with several students to understand their responses to Google Sites learning media. Overall, students' responses to Google Sites learning media were effective and enjoyable. Students experienced the benefits of easy access to information, an engaging interface, and the ability to revisit the material taught.**

Keywords— ***Google Sites; Learning Media; ADDIE Model***

I. INTRODUCTION

Education is one of the important pillars in the development of quality human resources [1] . In the context of education, mathematics plays a very important role, as it not only serves as a tool for solving everyday problems but also as a foundation for developing logical and critical thinking skills [2]. However, mathematics education in schools often faces challenges, particularly regarding the learning media used. Mathematics learning media is still dominated by traditional methods, such as lectures and the use of textbooks. According to previous research, it has been shown that at SDK Wignya Mandala, particularly in the fourth grade, teachers still tend to use traditional teaching methods such as lectures, this has resulted in students feeling bored in class and being less active during the learning process, as they only play the role of listeners [3].

With the rapid development of information and communication technology, opportunities have emerged to transform traditional learning into a more interactive and engaging experience. The rapid advancement of technology has a positive impact on learning [4]. Technology can be used as a means to develop learning media. In this regard, Google Sites has become one of the platforms that can be utilized to support the learning process. Google Sites is one of the products provided by Google as a tool for creating websites [5].

The use of Google Sites in learning has shown positive results. Previous research indicates that Google Sites is well-received and considered suitable as a medium for classical guidance [6]. Students can more easily understand mathematical concepts through a contextual and applicative approach [7]. Research shows that the use of technology-based learning media, such as Google Sites, can enhance students' learning motivation, improve concept comprehension, and assist students in overcoming difficulties they face in learning mathematics [8]. By utilizing the features available in Google Sites, this media not only serves to guide students in their learning but also provides services that facilitate students to learn anytime and anywhere, allowing for a more structured learning experience [9].

Based on this, the researcher is interested in conducting a study on the development of Google Sites-based learning media in mathematics education. This study aims to determine students' responses to Google Sites-based learning media.

II. METHOD

The methodology used in this study is R&D (Research and Development) with the ADDIE model (Analysis, Design, Development, Implementation, Evaluation). However, the implementation stage could not be fully carried out due to limitations such as restrictions on bringing gadgets and supporting facilities. The subjects of the study are several Grade X students. Each stage in the ADDIE model will be described in detail, referring to the steps of applying the learning media that have been observed and implemented.

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III. RESULTS AND DISCUSSION

The results and discussion in this study are based on findings during the ADDIE model research process in the development of Google Sites learning media.

Analysis

In the field, we found that the usual teaching methods employed by mathematics teachers involve lectures using PowerPoint, discussions, and question-and-answer sessions. In this case, it can be said that the use of technology-based learning media is still rare.

This stage is the initial step in the research, where the researcher conducted observations at a high school and interviewed one of the teachers. Based on the interview results, it was found that the mathematics learning process at the school uses lecture, discussion, and question-and-answer methods, with teaching materials sourced from mathematics textbooks, which serve as a guide for delivering content to students. This information is an important basis for analyzing needs and seeking alternative innovations to improve the quality of mathematics education at the school.

One of the alternatives is to use technology-based learning media, namely Google Sites. The use of Google Sites as a learning medium is still rarely utilized by teachers, especially mathematics teachers, in the classroom. Google Sites is an interactive learning medium that is easy for students to use because it can be accessed flexibly, not only during classroom learning but also anytime and anywhere. Therefore, this study aims to determine how students respond to web-based learning media using Google Sites, particularly in mathematics education.

Design

The design stage is the second phase. In this stage, the researcher creates the design of the Google Sites learning media by determining the background concept, creating a storyboard as a visual guide, and designing the layout and content. The process involves selecting colors and designs that support the learning theme. The layout concept is adjusted for each page, such as the main menu, learning objectives, content, example problems, and practice questions. Supporting images are selected or designed to enhance visual appeal. The storyboard serves as the main guide in developing this concept. Subsequently, the designed layout will be processed and uploaded to Google Sites.

Development

The third stage of the ADDIE development model is the development stage. This stage involves the production of mathematics learning media based on Google Sites. The following is a description of the development stage.

Figure 1. Home Page of Google Sites

This page serves as the opening page of the Google Sites learning media. It features the title of the material, which is "Arithmetic Sequences and Series," along with the main menu.

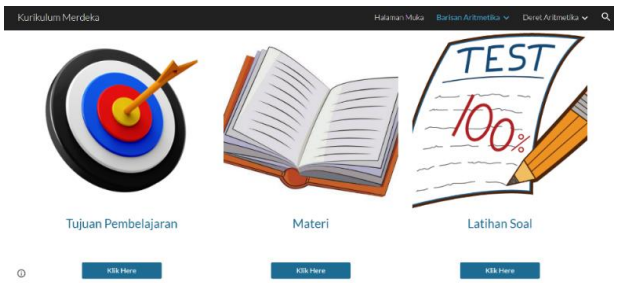

Figure 2. Display of Arithmetic Sequences

From the main page, if the user clicks on the "Arithmetic Sequences" menu, the learning media will change its display to show the learning objectives, content, and practice questions.

Share.

Figure 3. Display of Learning Objectives

This figure shows the content of the learning objectives for arithmetic sequences. The learning objectives have been aligned with the core competencies.

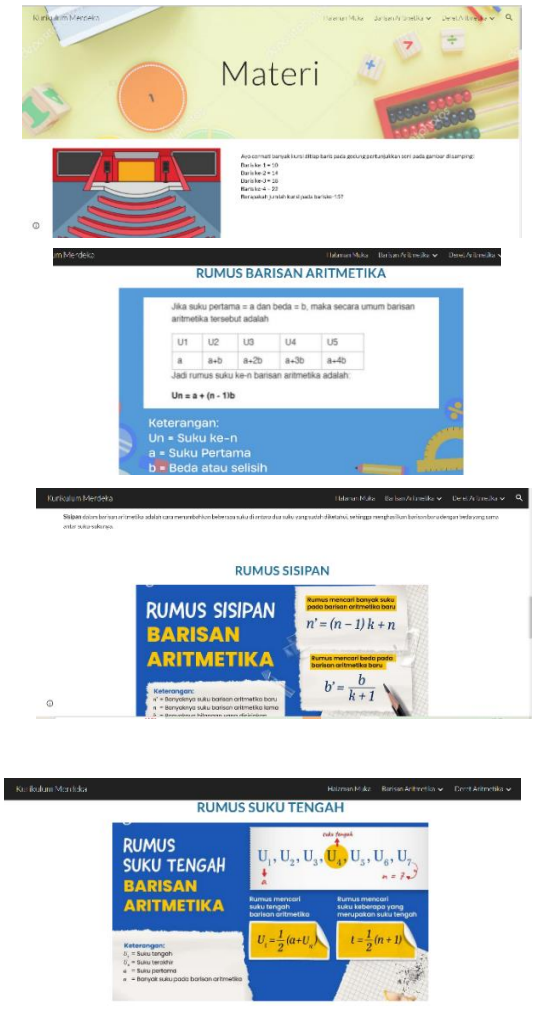

Figure 4. Display of Content

This figure presents the content of the material, which includes problem statements, the main content, example problems, and the formulas used in the material to assist students in solving the questions.

Figure 5. Display of Practice Questions

This figure shows the page containing practice questions that students will work on after understanding the previous material. The practice questions are written in a Word document, and students are expected to complete them in their notebooks.

This study includes interviews with several students following the implementation of web-based learning using Google Sites. Based on the interview results, all students expressed that they had never learned using web-based learning media before, making this their first experience with Google Sites. Most students felt that learning with Google Sites was very easy and enjoyable. One student stated, "Google Sites provides engaging learning for us," while another student added, "Learning with Google Sites is more interactive and helps me understand the material better." They assessed that the use of Google Sites could be effective if implemented in the classroom, as it could assist the learning process, particularly in mathematics. However, students also identified several challenges in using this learning media, such as internet connectivity issues and restrictions on mobile phone use at school due to regulations prohibiting students from bringing such devices. One student expressed, "I want to use Google Sites at school, but the internet signal often has problems," while another stated, "We cannot always access it because we are not allowed to bring our phones."

The use of Google Sites-based learning media in mathematics education has a positive impact, such as providing an engaging learning experience, facilitating access to materials, and aiding in concept understanding. One student stated, "Google Sites makes learning more interesting." This is consistent with previous research that indicates Google Sites can help make learning easier for students through the presentation of materials in a more engaging format, thereby fostering enthusiasm and motivation in learners [10]. Additionally, another student mentioned, "With Google Sites, I can learn anytime and anywhere," which aligns with research indicating that the attractive and interactive design of Google Sites motivates students to engage in self-directed learning and allows them to review materials anytime and anywhere [11]. In an interview, another student expressed, "The materials presented on Google Sites are easier to understand because they include illustrations and clear explanations." This is in accordance with previous research that shows that materials on Google Sites are presented clearly, engagingly, and in an easily understandable manner, as the content is supplemented with images [12].

IV. CONCLUSIONS

Thus, students assess that the implementation of web-based learning with Google Sites is effective and enjoyable. They experience the benefits of easy access to information, an attractive interface, and the ability to revisit the material. However, the success of this media heavily relies on the stability of internet access. The use of Google Sites-based learning media in mathematics education has a positive impact, such as increasing student engagement, accessibility of materials, and understanding of concepts. With its interactive display, students are motivated to learn independently and can review the material at any time. To optimize web-based learning, the government and schools need to pay attention to accessibility aspects, especially in providing solutions for students who have limitations in using technology and accessing the internet. Therefore, it is hoped that future research can proceed to the implementation stage of Google Sites learning media to test, evaluate, and improve Google Sites directly, resulting in more effective and efficient learning media.

REFERENCES

[1] Syakdia Apria Ningsih, "Pentingnya Profesionalisme Guru dalam Meningkatkan Kualitas Pendidikan," JUPENDIS, vol. 2, no. 3, pp. 288–293, Jun. 2024, doi: 10.54066/jupendis.v2i3.2056.

[2] Miftahul Jannah and Miftahul Hayati, "Pentingnya kemampuan literasi matematika dalam pembelajaran matematika," GJMEA, vol. 4, no. 1, pp. 40–54, Mar. 2024, doi: 10.29303/griya.v4i1.416.

[3] A. Y. Prameswara and I. Pius X, "Upaya Meningkatkan Keaktifan dan hasil Belajar Siswa Kelas 4 SDK Wignya Mandala Melalui Pembelajaran Kooperatif: Indonesia," sapa, vol. 8, no. 1, pp. 1–9, May 2023, doi: 10.53544/sapa.v8i1.327.

[4] F. A. Zahwa and I. Syafi'i, "PEMILIHAN PENGEMBANGAN MEDIA PEMBELAJARAN BERBASIS TEKNOLOGI INFORMASI," EQ, vol. 19, no. 01, pp. 61–78, Jan. 2022, doi: 10.25134/equi.v19i01.3963.

[5] S. Jubaidah and M. R. Zulkarnain, "Penggunaan google sites pada pembelajaran matematika materi pola bilangan smp kelas viii smpn 1 Astambul," Lentera: Jurnal Ilmiah Kependidikan, vol. 15, no. 2, pp. 68–73, 2020.

[6] B. Setyawan, "Pengembangan Media Google Site dalam Bimbingan Klasikal di SMAN 1 Sampung," Nusantara of Research : Jurnal Hasil-hasil Penelitian Universitas Nusantara PGRI Kediri, vol. 6, no. 2, pp. 78–87, 2019, doi: 10.29407/nor.v6i2.13797.

[7] N. W. Nugraha and N. Novaliyosi, "Media Pembelajaran Berbasis Etnomatematika: Systematic Literature Review," SCI TECH ED MATH, vol. 4, no. 1, pp. 477–490, Apr. 2023, doi: 10.46306/lb.v4i1.286.

[8] L. M. Devya, T. Y. E. Siswono, and W. Wiryanto, "Penggunaan Google Sites Materi Pecahan untuk Meningkatkan Aktivitas dan Kemampuan Numerasi Siswa Sekolah Dasar," basicedu, vol. 6, no. 4, pp. 7518–7525, Jun. 2022, doi: 10.31004/basicedu.v6i4.3550.

[9] M. V. Ciung, I. Istiqomah, and I. Taufiq, "Pengembangan Media Pembelajaran Matematika Berbasis Google Sites pada Materi Deret Aritmatika," CIRCLE : Jurnal Pendidikan Matematika, vol. 2, no. 01, pp. 41–50, 2022, doi: 10.28918/circle.v2i01.5100.

[10] F. Salsabila and A. Aslam, "Pengembangan Media Pembelajaran Berbasis Web Google Sites pada Pembelajaran IPA Sekolah Dasar," basicedu, vol. 6, no. 4, pp. 6088–6096, May 2022, doi: 10.31004/basicedu.v6i4.3155.

[11] M. Rijal, "Pengembangan Buku Saku Elektronik Berbasis Google Sites Pada Materi Gelombang Bunyi Dan Cahaya Tingkat SMA/MA," 2023.

[12] E. Kristiana, U. Mulyanti, and F. Wahyu, "E-LEARNING DEKONTAMINASI PERALATAN UNTUK PERAWAT IPCLN DENGAN MENGGUNAKAN PENGEMBANGAN GOOGLE SITES DI RS ST. ELISABETH SEMARANG," Jurnal Ilmu Keperawatan dan Kebidanan, 2024..