Student Responses to the Implementation of Google Site-Based Learning Media in Vocational High Schools on the Material of Sequences and Series

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***Abstract*— This research aims to determine students' responses to the implementation of Google Sites-based learning media at a vocational school in Cirebon Regency on the topic of sequences and series. Based on interviews with teachers, there are still difficulties in delivering the learning material, indicating the need for learning media that can facilitate teachers in presenting the content. Google Sites was chosen as the learning medium due to its ease of access and its ability to present various types of interactive learning content. The methods and models used in this research are Research & Development (R&D) and the Analysis, Design, Development, Implementation, and Evaluation (ADDIE) model. The technique employed involves administering a response questionnaire to 21 respondents from the tenth grade. During the analysis phase, field observations were conducted to identify the needs for learning media, followed by determining the material and creating the media according to the planned design, which was then implemented to gather students' responses to the use of the learning media. The evaluation stage of this research utilized data from suggestions and feedback during the implementation. The results indicate that 76.2% of respondents found this learning media to be very beneficial, and 57.1% considered it very engaging. The features that were most helpful in the learning process were the materials and instructional videos. In conclusion, Google Sites has proven to facilitate both teachers and students in learning the topic of sequences and series; however, some students still experience difficulties in understanding the material, indicating the need for additional direct explanations from the teacher.**

Keywords— ***Google Sites; Response; Learning Media***

I. INTRODUCTION

The digital revolution has transformed various aspects of human life, including the ways we learn and teach. In recent years, the integration of technology in education has created a new paradigm known as digital learning [1]. In this era, teachers are required to be increasingly creative in delivering lessons. As facilitators of learning, a teacher's ability to select and utilize a variety of innovative media is one of the keys to success in the teaching and learning process [2]. In line with the opinion of [3], the learning process requires interactive media as a support, aimed at stimulating students' interest and desire to learn.

Interactive media in the teaching and learning process refers to digital products or services (multimedia) provided by teachers to students, presenting learning content such as text, moving images or animations, videos, audio, and even video games [3]. One suitable type of media for creating teaching materials is the Google Sites application [4].

Google Sites is one of the programs launched by Google, and its use can help teachers manipulate objects in delivering lessons [4]. According to [5], Google Sites is the easiest way to provide quick access to information for those who need it, and people can collaborate on the site to add attachments and information from other Google applications such as Google Docs, Sheets, Forms, and more. [6] also argue that Google Sites provides easy access, allowing students to simply have a gadget or laptop with internet connectivity. Thus, Google Sites becomes a very useful tool in facilitating online learning by combining various types of information in one easily accessible place for users. Through Google Sites, teachers can also include materials in the form of Word documents, PDFs, or PowerPoint presentations, as well as various video presentations from YouTube or videos stored in Google Drive, ensuring that the materials students receive are neatly organized in Google Sites [2].

Based on interviews conducted with a mathematics teacher at a vocational school in Cirebon, it was found that the teacher still faces difficulties in delivering mathematics material to students. The mathematics learning media commonly used are limited to PowerPoint, videos, and evaluation media such as Quizizz. This also makes it challenging for students to access the documents of the learning materials that have been presented by the teacher. Therefore, the aim of this research is to determine the responses or feedback regarding the implementation of Google Sites-based learning media at a vocational school in Cirebon.

This aligns with research conducted by [7], titled "Development of Google Sites-Based Mathematics Learning Media on the Topic of Systems of Three Variable Linear Equations," which found that the use of this web-based learning media is feasible and easy to use. The researcher aims to utilize the facilities provided by Google Sites as a learning medium for students, allowing them to access it anytime and anywhere. The material used in the design of Google Sites is the topic of sequences and series, in accordance with what the students are currently studying at the school.

II. METHOD

This research employs the Research and Development (R&D) method using the ADDIE model. The ADDIE model consists of five stages: Analysis, Design, Development, Implementation, and Evaluation. The stages in this research begin with analyzing the needs for learning media in mathematics, specifically on the topic of sequences and series. After the analysis stage is completed, the process moves on to the design stage, where the concept of Google Sites is developed. This stage includes designing the layout, selecting themes, and organizing the sequence of materials to be studied by the students. Next, the third stage is development, where the content is inputted in various forms (such as videos, websites, etc.), along with practice questions and assessments that will be used. After the media is developed, the fourth stage involves the implementation of the Google Sites learning media during mathematics lessons in the tenth grade. The final stage is evaluation. This evaluation stage is conducted at the end of the lesson by providing a response questionnaire and feedback to 21 tenth-grade students. The responses and feedback collected will be used as a basis for evaluating and improving the Google Sites learning media to better align with the actual needs of the tenth-grade students. In the response and feedback questionnaire provided, there are four questions with a four-point Likert scale, one checkbox question, and one open-ended question. The instrument used for the questions can be seen in Table I.

TABLE I. RESPONSE AND FEEDBACK QUESTIONNAIRE

Likert Scale Questions	
No.	***Questions***
1.	How beneficial is this Google Sites learning media in helping you understand the topic of sequences and series? • Not Beneficial at All • Not Beneficial • Beneficial • Very Beneficial
2.	Do you find this learning media interesting and interactive? • Not Interesting at All • Not Interesting • Interesting • Very Interesting
3.	Do you find it easier to understand the topic of sequences and series after using this media? • Not Easier at All • Not Easier • Easier • Much Easier
4.	Is the appearance of this Google Site attractive and easy to use? • Not Attractive at All • Not Attractive • Attractive • Very Attractive
Checkbox Question	
No.	***Question***
1.	Which features in Google Sites were most helpful for your learning? (Check all that apply) ☐ Instructional Videos ☐ Learning Materials ☐ Practice Questions ☐ Online Quizzes ☐ Summary of Materials ☐ Other (please specify):_____
Open-Ended Question	
No.	***Question***
1.	What suggestions do you have for improving this learning media?

III. RESULTS AND DISCUSSION

The results of the questionnaire filled out by 21 respondents indicate that the Google Sites-based learning media has a positive impact on the learning process of sequences and series material. From the first question, 76.2% of respondents rated this media as very beneficial, and no respondents felt that it was very unhelpful. This shows that the majority of students experienced a significant benefit from using Google Sites in understanding the material being taught. In the second question, regarding the attractiveness and interactivity of the media, 57.1% of respondents found the media to be very interesting, and 28.6% found it interesting. Only 9.5% responded that it was very uninteresting. This indicates that Google Sites successfully captured students' attention and created an interactive learning atmosphere.

In terms of material comprehension, 38.1% of respondents felt that it was easier to understand the material after using this media, and another 38.1% felt it was much easier. Only 4.8%

felt that it was not easier at all. This suggests that this learning media is effective in enhancing students' understanding of sequences and series material. From the analysis of the most helpful features, 85.7% of respondents chose the learning material as the most beneficial feature, followed by instructional videos (61.9%) and material summaries (52.4%). This indicates that clear and structured presentation of the material is crucial in supporting the learning process.

Based on the data obtained and interpreted, the findings of this research can be discussed and presented in more detail as follows:

1. Benefits of Learning Media

A total of 76.2% of respondents rated this learning media as very beneficial, and no respondents felt that it was very unhelpful. This indicates that the majority of students experienced significant benefits from using Google Sites in understanding the material being taught. This positive assessment aligns with previous research that states the use of technology in learning can enhance students' understanding better than traditional methods [8].

Google Sites serves as a platform that supports the teaching and learning process in a more interactive and engaging way. The use of technology-based learning media like Google Sites allows students to access materials more flexibly and independently. This not only increases student engagement in the learning process but also provides them with the opportunity to learn at their own pace and according to their individual learning styles.

2. Attractiveness and Interactivity

Regarding the attractiveness and interactivity of the media, 57.1% of respondents found it very interesting, while 28.6% found it interesting. Only 9.5% considered it very uninteresting. This indicates that Google Sites successfully captured students' attention and created an interactive learning atmosphere. Student engagement in the learning process is a crucial factor in improving their learning outcomes.

When students feel involved and interested in the material being taught, they are more likely to actively participate and understand the concepts presented. The interactivity offered by Google Sites can be seen through various features, such as the integration of videos, images, and interactive quizzes. These features not only make the material more engaging but also help students better understand complex information. Previous research has shown that interactive learning media can enhance students' motivation and understanding of the learning material [9]. Thus, the use of Google Sites not only presents information but also encourages students to actively interact with the content. Additionally, Google Sites' ability to accommodate various types of content, such as documents, spreadsheets, and presentations, provides educators with the flexibility to organize teaching materials in a more creative way.

3. Understanding of Material

In terms of material comprehension, 38.1% of respondents felt that it was easier to understand the material after using this media, and another 38.1% felt it was much easier. Only 4.8% felt that it was not easier at all. This indicates that this learning media is effective in enhancing students' understanding of sequences and series material. This success reflects the media's ability to present information in a clearer and more structured manner, allowing students to easily digest and internalize the concepts being taught. Previous research has shown that interactive media can help students understand difficult concepts by providing visual and practical contexts that support their understanding [10].

4. Most Helpful Features

From the analysis of the most helpful features, 85.7% of respondents chose the learning material as the most beneficial feature, followed by instructional videos (61.9%) and material summaries (52.4%). This emphasizes the importance of clear and structured presentation of the material in supporting the learning process.

A good presentation of the material not only helps students understand the concepts being taught but also facilitates a more comprehensive and in-depth learning process. The structured learning material feature provides students with easy access to relevant and important information. With a clear structure, students can follow the learning flow better, preventing them from feeling overwhelmed by excessive information. This is particularly important in the context of mathematics learning, where concepts are often interconnected and require deep understanding to be applied correctly. The features available on Google Sites allow students to learn in a more flexible and engaging manner.

5. Suggestions for Improvement

Although the results are positive, there are several constructive suggestions from respondents indicating a need for improvement, including:

a. Theme Variation

Some students expressed a desire for more interesting theme variations in the presentation of materials. This request reflects the importance of diversity in learning content to maintain student interest and motivation. By offering diverse and relevant themes, educators can create a more engaging learning experience that aligns with students' interests, thereby increasing their involvement in the learning process.

b. Direct Explanations from Teachers

Although Google Sites-based learning media offers many advantages, students still consider direct interaction with teachers important. Direct explanations allow students to gain clarification and delve deeper into concepts that may be difficult to understand through written materials or videos alone. This interaction also provides opportunities for students to ask questions and engage in real-time discussions, enriching their learning experience. Therefore, incorporating face-to-face sessions or online discussions alongside the use of digital media could be an effective solution to meet this need.

c. Addition of Other Interactive Features

Students also suggested adding interactive features such as educational games and more engaging quizzes. These features can not only enhance student engagement but also make the

learning process more enjoyable. Educational games can help students understand difficult concepts in a more practical and enjoyable way, while interactive quizzes can serve as engaging evaluation tools. Thus, integrating gamification elements into learning media could be a strategic step to enhance the effectiveness of learning.

The results of this study overall indicate that Google Sites-based learning media can be an effective tool in enhancing students' understanding of sequences and series material. However, there is a need for improvements and developments to optimize the learning experience further. The findings of this research also emphasize the importance of collaboration between educational technology and pedagogical approaches that are responsive to students' needs.

TABLE II. TABLE TITLE

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IV. CONCLUSIONS

Based on the discussion above, Google Sites has proven effective in facilitating the learning process of sequences and series for both teachers and students. Students generally feel satisfied and enthusiastic about the Google Sites learning media and consider it beneficial in enhancing their understanding. This medium is attractive because it provides varied learning, such as text, images, videos, and games, which can be used in online and offline learning. Nevertheless, it is important to acknowledge that not all students immediately experience the same benefits. Some students still face challenges in understanding the concepts of sequences and series, which underscores the important role of teachers in providing additional explanations directly. This indicates that Google Sites should be used as a learning support, not a replacement for face-to-face teaching.

In evaluating these findings, we also need to consider the limitations of the research. The results of implementing Google Sites may vary depending on the subject matter and the specific characteristics of the students. In addition, the sample size used may be limited. Therefore, further research can be directed to address these limitations and develop the existing potential of Google Sites. Some suggestions for further research include: (1) Investigating the effectiveness of Google Sites on other subject matter or different educational levels; (2) Exploring more interactive and engaging Google Sites designs to increase student involvement; (3) Comparing the effectiveness of Google Sites with other learning media; (4) Conducting research with larger and more diverse samples.

REFERENCES

[1] S. P. S. Widowati and M. Suryaman, “Revolusi Pembelajaran Digtal: Mengoptimalkan Potensi Game Edukasi dalam Pendidikan Modern,” J. Pendidik. dan Pengajaran, vol. 2, no. 11, pp. 697–708, 2024.

[2] M. V. Ciung, I. Istiqomah, and I. Taufiq, “Pengembangan Media Pembelajaran Matematika Berbasis Google Sites pada Materi Deret Aritmatika,” Circ. J. Pendidik. Mat., vol. 2, no. 01, pp. 41–50, 2022, doi: 10.28918/circle.v2i01.5100.

[3] N. Nuryati, T. Subadi, A. Muhibbin, B. Murtiyasa, and S. Sumardi, “Pembelajaran Statistik Matematika Berbantuan Website Google Sites (Quizizz) di Sekolah Dasar,” J. Basicedu, vol. 6, no. 2, pp. 2486–2494, 2022, doi: 10.31004/basicedu.v6i2.2377.

[4] N. Aminah, S. Amami, I. Wahyuni, C. D. Rosita, and A. Maharani, “Pemanfaatan Teknologi melalui Pelatihan Penggunaan Aplikasi Google Site bagi Guru MGMP Matematika SMP Kabupaten Cirebon,” jurnal.bimaberilmu.com, vol. 1, no. 1, pp. 23–29, 2021, Accessed: Nov. 20, 2024. [Online]. Available: http://www.jurnal.bimaberilmu.com/index.php/ba-jpm/article/view/35

[5] A. D. Nasikhah and S. Karimah, “Pengembangan Multimedia Pembelajaran Matematika Interaktif Berbasis Google Sites Dengan Pendekatan Kontekstual Materi Transformasi Geometri,” Pros. Konf. Ilm. Pendidik., vol. 3, no. 2022, pp. 43–56, 2022, [Online]. Available: https://sites.google.com/view/transformationgeometriii

[6] D. S. Adzkiya and M. Suryaman, “Penggunaan Media Pembelajaran Google Site dalam Pembelajaran Bahasa Inggris Kelas V SD,” Educ. J. Teknol. Pendidik., vol. 6, no. 2, p. 20, 2021, doi: 10.32832/educate.v6i2.4891.

[7] R. Rikani, I. Istiqomah, and I. Taufiq, “Pengembangan media pembelajaran matematika berbasis google sites pada materi sistem persamaan lnier tiga variabel (SPLTV),” Semin. Nas. Mat. DAN Pendidik. Mat., pp. 54–61, 2021, [Online]. Available: https://sites.google.com/view/spltvsma.

[8] Y. S. Bitu, A. P. Setiawi, F. G. Bili, S. A. Iriyani, and E. N. S. Patty, “Pembelajaran Interaktif: Meningkatkan Keterlibatan dan Pemahaman Siswa,” J-KIP (Jurnal Kegur. dan Ilmu Pendidikan), vol. 5, no. 2, pp. 193–198, 2024, Accessed: Jan. 15, 2025. [Online]. Available: https://jurnal.unigal.ac.id/J-KIP/article/view/14697

[9] A. P. Febrianti, N. R. Sesanti, and A. Gutama, “Pengembangan Media Pembelajaran Berbasis Multimedia Interaktif Articulate Storyline untuk Meningkatkan Motivasi Belajar Siswa pada Materi Bangun Datar Kelas IV SD Universitas PGRI Kanjuruhan Malang,” Semin. Nas. PGSD UNIKAMA, vol. 5, pp. 588–597, 2021, [Online]. Available: https://conference.unikama.ac.id/artikel/

[10] R. Rahmadi, E. T. Djatmika, and H. Praherdhiono, “Belajar Matematika Lebih Menyenangkan: Pengembangan Multimedia Interaktif berbasis Gamifikasi untuk Operasi Bilangan Bulat,” Didakt. J. Kependidikan, vol. 13, no. 4, pp. 5045–5060, 2024, Accessed: Jan. 15, 2025. [Online]. Available: https://jurnaldidaktika.org/contents/article/view/1185