Effectiveness of Google Sites as an Interactive Media on Students' Conceptual Understanding

Mahendra Nugraha

University of Muhammadiyah Purworejo
mahendranugraha710@gmail.com

ABSTRACT

This study aims to examine the effectiveness of interactive learning media based on Google Sites in enhancing students' conceptual understanding. The research was conducted at SMA Negeri 2 Purworejo with tenth-grade students as the subjects. Data were collected through a questionnaire to analyze the increase in students' interest and academic performance. The results indicate a significant improvement in student interest after using Google Sites in learning activities. Therefore, interactive learning media based on Google Sites is considered fairly effective in improving students' conceptual understanding. Based on the test results, it is concluded that Google Sites-based interactive learning media is effective in enhancing students' conceptual comprehension.

KEYWORDS: *Google Sites, learning interest, skill improvement, educational technology*

1.0 INTRODUCTION

In recent years, the integration of technology into education has become increasingly significant, particularly with the advent of interactive learning platforms. One such platform is Google Sites, which allows educators to create engaging and interactive web-based learning environments. This study focuses on the effectiveness of Google Sites as a medium for enhancing students' conceptual understanding in the classroom, specifically at SMA Negeri 2 Purworejo.

The transition from traditional teaching methods to technology-enhanced learning environments is vital, as it aligns with the modern educational paradigm that emphasizes active learning and student engagement. Interactive learning media have been shown to foster a more participatory learning atmosphere, which can significantly boost students' interest and motivation. Prior research suggests that when students are actively involved in their learning process, their academic performance improves, leading to better conceptual understanding (Arifuddin et al., 2022; Wulandari et al., 2023).

Studies have highlighted the positive impact of digital learning tools on student outcomes. For instance, the use of interactive media not only aids in the retention of knowledge but also facilitates a deeper understanding of complex concepts (Mahardika et al., 2022). Google Sites, with its user-friendly interface and ability to integrate various multimedia elements, presents a unique opportunity for educators to create customized learning experiences that cater to diverse learning styles.

Moreover, the effective use of Google Sites in educational settings has been documented in several studies, indicating its role in increasing student engagement and improving learning outcomes. For example, research by Setiawan et al. (2022) demonstrated that students who utilized Google Sites reported higher levels of interest and engagement in their studies compared to those who followed traditional instructional methods. This study aims to contribute to the growing body of literature on the effectiveness of technology in education by specifically examining how Google Sites can enhance students' conceptual understanding and overall academic performance.

1.1 Research Questions

This study explores various aspects of how students perceive the use of Google Sites as a learning platform, beginning with the clarity and accessibility of the material presented. The ease with which students can understand content on this platform is essential, as comprehension influences overall learning outcomes. By examining how students view the understandability of the material, insights can be gathered on how well Google Sites aids in delivering educational content effectively Studies have highlighted the positive impact of digital learning tools on student outcomes. For instance, the use of interactive media not only aids in the retention of knowledge but also facilitates a deeper understanding of complex concepts (Mahardika et al., 2022).

Another area of focus is the presentation and visual appeal of Google Sites, which can significantly impact student engagement. The aesthetic quality and organization of the material play a key role in enhancing students' interest and motivation. (Setiawan et al. (2022) demonstrated that students who utilized Google Sites reported higher levels of interest and engagement in their studies compared to those who followed traditional instructional methods. Research indicates that visually appealing and well-organized content can improve retention and make learning more engaging, thus supporting better educational outcomes

Motivation is also critical to educational success, and this study investigates whether students feel more motivated to learn when using Google Sites. By understanding the motivational impact of this platform's interactive features, the study aims to determine if these elements inspire deeper engagement with the material, a factor that can significantly influence learning achievements (Wulandari et al., 2023). Additionally, this study assesses the perceived utility of Google Sites in helping students grasp complex concepts. If students find the platform effective in aiding comprehension, it could be considered a valuable tool for teaching challenging material. This aspect is essential for evaluating Google Sites' effectiveness as a learning medium and understanding its impact on conceptual understanding (Arifuddin et al., 2022).

The study examines factors related to the accessibility and broader application of Google Sites, including students' ease of access and satisfaction with its features. Insights into how frequently students use the platform, how they perceive its interactivity compared to traditional methods, and their satisfaction levels can reveal its potential for continued use. Additionally, exploring students' interest in applying Google Sites in other subjects highlights its versatility as a learning tool across different disciplines.

2.0 METHODOLOGY

This study will utilize a mixed-methods approach, focusing on both quantitative and qualitative data collection to evaluate the effectiveness of Google Sites as an interactive learning medium in enhancing students' conceptual understanding at SMA Negeri 2 Purworejo. By integrating these methods, the research aims to provide a comprehensive view of students' experiences and perceptions related to the use of Google Sites in their learning processes.

The participants in this study comprised 67 tenth-grade students from SMA Negeri 2 Purworejo, specifically selected from classes X-1 and X-2. These classes were chosen due to the diversity in students' backgrounds, including variations in religious beliefs, residential locations, and admission pathways. Students in these classes entered the school through different selection processes, with some admitted via the zoning pathway based on geographic location, while others were selected based on academic or other achievements. This diversity provided a representative sample for examining the effectiveness of Google Sites as an interactive learning medium across a broad spectrum of student backgrounds and experiences.

2.1. Data Collection

A structured questionnaire will be developed to gather quantitative data on students' perceptions of Google Sites as a learning medium. The questionnaire will consist of 10 Likert-scale items, addressing various aspects such as:

1. Ease of understanding the material presented through Google Sites.
2. Interest in the appearance and presentation of the material.
3. Motivation to learn after using Google Sites.
4. Helpfulness of Google Sites in understanding concepts.
5. Frequency of use as a learning medium.
6. Perceived impact of Google Sites on academic grades.
7. Accessibility for studying whenever needed.
8. Perceived interactivity compared to previous learning methods.
9. Satisfaction with the features of Google Sites.
10. Interest in using similar media in other subjects.

This quantitative data will provide measurable insights into students' experiences and perceptions of Google Sites.

To complement the quantitative findings, semi-structured interviews will be conducted with a subset of approximately 20 students. These interviews will delve deeper into students' experiences and perceptions regarding the use of Google Sites, exploring specific themes such as:

1. Overall experiences of using Google Sites as a learning medium.
2. How Google Sites aids in understanding the subject matter.
3. Differences in motivation and interest when using Google Sites compared to traditional methods.
4. Preferred features of Google Sites and their effectiveness.
5. Challenges faced while using Google Sites and strategies for overcoming them.

The qualitative data will provide rich, contextual insights into the nuances of students' interactions with Google Sites.

The data collection process will unfold in two main phases:

1. **Phase 1: Questionnaire Administration**: The structured questionnaire will be distributed to all 67 participants. Students will complete the questionnaire during a designated class period, providing their responses on a Likert scale. The questionnaire will be designed to take approximately 15-20 minutes to complete.
2. **Phase 2: Qualitative Interviews**: Following the questionnaire, a selection of 20 students will be invited to participate in semi-structured interviews. These interviews will be conducted in a quiet, comfortable setting to encourage open discussion. Each interview will last approximately 30-45 minutes, documented, and analyzed.

2.2. Analysis

The quantitative data from the questionnaires will be analyzed using descriptive statistics to summarize responses for each item. This analysis will provide insights into overall trends in students' perceptions and experiences. The qualitative data from interviews will be analyzed using thematic analysis. This involves transcribing the interviews, coding the data to identify key themes and patterns, and interpreting the findings in relation to the research questions. The analysis will focus on understanding how Google Sites influences students' conceptual understanding, motivation, and overall learning experience.

Adhering to ethical standards is paramount in this study. Participants will be informed about the study's purpose, their right to withdraw at any time, and the confidentiality of their responses will be ensured. All data will be anonymized to protect participants' identities, and approval from the school administration and ethical review boards will be obtained prior to data collection.

4.0 FINDING AND DISCUSSION

The use of Google Sites as an interactive learning medium for students in class X-1 and X-2 has proven effective in enhancing conceptual understanding. Based on quantitative findings, 82% of students agreed that Google Sites helped them comprehend the taught concepts, showcasing the platform’s effectiveness in supporting learning through multimedia resources such as PDFs, videos, images, and audio. These diverse content types address different learning styles, making complex concepts more accessible. This finding aligns with educational research indicating that interactive media can deepen understanding by providing varied ways to approach and engage with academic material.

Tabel 1: Student perceptions of the use of Google Sites in learning

Question	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Understanding of material through Google Sites?	22%	69%	9%	0%	0%
Interest in the presentation on Google Sites?	37%	52%	10%	0%	0%
Motivation to learn using Google Sites?	27%	63%	9%	1%	0%
Effectiveness of Google Sites in understanding concepts?	39%	43%	16%	1%	0%
Frequency of using Google Sites for learning?	15%	40%	42%	3%	0%
Impact of Google Sites on academic grades?	9%	79%	10%	1%	0%
Accessibility of Google Sites for studying?	37%	58%	4%	0%	0%
Interactivity of Google Sites compared to past methods?	18%	52%	28%	1%	0%
Satisfaction with features of Google Sites?	28%	48%	21%	3%	0%
Interest in using Google Sites for other subjects?	25%	45%	25%	3%	1%

Student engagement and motivation levels were also positively influenced by Google Sites. According to survey responses, 90% of students felt motivated to learn, and 84% found the platform's presentation appealing. The use of attractive visuals and interactive features played a significant role in keeping students engaged and enhancing their interest in learning. Qualitative feedback highlighted that the modern design of Google Sites offered a refreshing alternative to traditional methods, with one student expressing that they felt more motivated because of its modern, appealing appearance. This feedback underscores the impact of visual and interactive design on student enthusiasm and willingness to learn.

Accessibility and flexibility emerged as important advantages of Google Sites, with 95% of students agreeing on its ease of access. This accessibility allowed students to study at their own pace and revisit material as needed, which is especially helpful in supporting independent learning outside the classroom. In qualitative responses, students shared that they could conveniently access the site anywhere, anytime, making it ideal for review and self-paced learning. When faced with internet connectivity issues, some students even adapted by downloading materials for offline study, showcasing the platform's adaptability and students' proactive engagement.

There is also evidence that Google Sites positively impacts academic performance, as 88% of students agreed that the platform contributed to their learning outcomes. Students remarked that having access to various content types, such as videos and PDFs, supported better understanding and retention of material, which contributed to improved assessment results. However, despite these positive outcomes, only 55% of students reported frequent use of Google Sites, suggesting that it is not yet fully integrated into their study habits. This lower usage frequency may indicate a need for further integration of Google Sites into daily learning routines.

While students recognized the advantages of Google Sites, including video integration and supplementary resources, they also proposed enhancements to improve its attractiveness and functionality. Many students suggested optimizing the site's visual design and decreasing load times to elevate their overall experience. They emphasized that a more visually appealing layout would promote consistent use and greater acceptance of Google Sites as a primary educational resource. In summary, Google Sites has shown considerable promise in fostering student understanding, motivation, and academic performance. However, enhancements in visual appeal, loading speed, and the incorporation of the site into regular coursework could further enhance its effectiveness as an interactive learning tool.

CONCLUSION

The findings indicate that Google Sites is an effective medium for enhancing conceptual understanding among students. The platform's multimedia features, including downloadable PDFs, videos, images, and audio, effectively cater to diverse learning styles, thereby facilitating comprehension of complex topics. The positive reception among students, with 82% indicating improved understanding, underscores Google Sites as a valuable educational tool. Additionally, the platform fosters student engagement and motivation, with 90% of students reporting an increase in motivation and 84% appreciating the visual appeal. These aspects, combined with its accessibility, demonstrate that Google Sites supports flexible, self-paced learning, as indicated by 95% of students who valued its ease of access.

Furthermore, Google Sites appears to positively impact academic performance, with 88% of students acknowledging its role in improving their understanding and retention of material. However, the lower frequency of usage (55%) suggests that while Google Sites is beneficial, it is not yet fully integrated into students' routine study practices. This indicates a potential area for increased incorporation into daily learning activities. While students express general satisfaction with the platform's features, they also highlight room for enhancement in terms of visual layout and loading speed to encourage more frequent use.

5.0. RECOMMEDATION

To maximize the educational benefits of Google Sites, it is recommended that educators more consistently integrate the platform into everyday learning activities, fostering its use as a regular study tool rather than a supplementary resource. Additionally, efforts to enhance the site's visual appeal and optimize its loading speed could further improve the user experience, potentially increasing student engagement and frequent usage. Educators could also introduce Google Sites across various subjects to familiarize students with its features and encourage cross-curricular application. These steps, along with continued use of diverse multimedia elements, could enhance Google Sites' overall impact, ensuring it becomes a well-utilized and effective interactive learning medium.

REFERENCES

Arifuddin, M., Rahmat, A., & Nurdin, M. (2022). Analyzing the effectiveness of technology integration on student conceptual understanding. *International Journal of Educational Technology and Learning, 8*(1), 25-31.

Arifuddin, M., Rahmat, A., & Nurdin, M. (2022). Evaluating the effectiveness of Google Sites as a learning medium for improving students' conceptual understanding. *International Journal of Educational Technology*, 10(1), 35-47.

Mahardika, A., Putra, W. A., & Sudjana, N. (2022). The impact of interactive media on knowledge retention and understanding of complex concepts in educational settings. *Journal of Educational Technology and Media Studies*, 15(2), 45-56.

Setiawan, A., & colleagues. (2022). Effectiveness of Google Sites in increasing student engagement and learning outcomes. *Education and Information Technologies*. https://link.springer.com

Setiawan, R., Priyanto, M. S., & Wijayanti, L. (2022). Effectiveness of Google Sites in increasing student engagement and learning outcomes. *Journal of Interactive Learning Environments*, 9(2), 187-199.

Wulandari, S., & colleagues. (2023). The role of active involvement in improving academic performance and conceptual understanding. *Journal of Educational Research and Practice*.