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Integration of Google Sites in Merdeka Curriculum: Differentiated Learning Solutions in Elementary School

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ABSTRACT

Integrating technology into classrooms is essential in the digital transformation era to support diverse learning needs and foster inclusive education. Differentiated learning has emerged as a key pedagogical approach to address student diversity by tailoring instruction based on individual abilities, interests, and learning paces. This study examines the dominance of conventional teaching methods at SD 24 Dauh Puri Denpasar and explores the potential of Google Sites in supporting differentiated learning through a qualitative research approach. Data were collected using classroom observations, surveys, and focus group discussions (FGDs) to understand both teachers' instructional practices and students' learning preferences. However, there is a noticeable lack of studies that specifically examine the use of Google Sites within the context of the Merdeka Curriculum, highlighting the need for further research on how this platform supports differentiated instruction aligned with the curriculum's principle. Findings reveal that 65% of teachers predominantly use lecture-based instruction due to limited technological resources, despite 70% of students preferring technology-based learning for its interactive and engaging nature. Google Sites has proven effective in catering to diverse learning needs by offering customized instructional materials, interactive exercises, and self-paced learning opportunities. However, challenges such as limited access to digital devices, unstable internet connectivity, and teachers' lack of technological proficiency hinder its full implementation. The study highlights the need for schools to enhance digital infrastructure, provide continuous teacher training, and develop policies that support technology integration. These findings align with the Merdeka Curriculum, emphasizing flexible, student-centered learning approaches. While Google Sites presents a promising solution for differentiated instruction, further research is needed to address accessibility issues and evaluate its long-term impact on student learning outcomes. The findings offer guidance for schools implementing flexible, technology-supported instruction within the Merdeka Curriculum.

Keywords: *google sites, differentiated learning, merdeka curriculum.*

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INTRODUCTION

The rapid advancement of digital technology has significantly transformed the educational landscape, making the integration of Information and Communication Technology (ICT) essential for enhancing teaching and learning.[1] In this context, differentiated learning has become increasingly important to address the diverse needs of students. The urgency of adopting flexible and inclusive digital tools was further highlighted during the COVID-19 pandemic, which accelerated the shift toward online and hybrid learning models.[2] One tool, Google Sites, enables teachers to design customized, interactive, and self-paced learning experiences. This aligns closely with Indonesia's Merdeka Curriculum, which emphasizes student autonomy, personalized learning, and differentiated instruction. However, despite its potential, limited research has explored using Google Sites, specifically within the Merdeka Curriculum framework.[3]

The rapid advancement of digital technology has significantly impacted various sectors, including education. In the 21st century,[4] Integrating Information and Communication Technology (ICT) into education has become essential for improving teaching and learning processes. According to Nugroho, the Technological Pedagogical Content Knowledge (TPACK) framework emphasizes integrating technology with pedagogy and content knowledge to create compelling learning experiences.[5] The emergence of digital learning platforms, such as Google Sites, offers new opportunities for educators to implement innovative teaching strategies. Google Sites, a web-based tool developed by Google, allows teachers to create customized digital learning environments, facilitating student-centered learning, collaboration, and differentiated instruction.[6] In the context of the Merdeka Curriculum in Indonesia, which promotes student autonomy and personalized learning experiences, the integration of Google Sites presents a potential solution for implementing differentiated learning in elementary schools.

In the Global Stage, the shift towards digital learning has been accelerated by the COVID-19 pandemic, which forced educational institutions to transition to online and hybrid learning models. According to UNESCO, the pandemic highlighted the digital divide,

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[1] Stamatios Papadakis et al., "Advancing Lifelong Learning with AI-Enhanced ICT: A Review of 3L-Person 2024" (CEUR Workshop Proceedings, 2024).

[2] Firman Aulia Ramadhan et al., "Design of Electronic-Based Handout Teaching Materials with Problem-Based Learning Nuances in Learning Mathematics," *EDUHUMANIORA: Jurnal Pendidikan Dasar* 15, no. 2 (2023): 121–34.

[3] Joyce West and Makwalete Johanna Malatji, "Technology Integration in Higher Education: The Use of Website Design Pedagogy to Promote Quality Teaching and Learning," *Electronic Journal of E-Learning* 19, no. 6 (2021): 629–41, https://doi.org/10.34190/ejel.19.6.2557.

[4] Diah Ayu Puspita Sari, Suraijiah Suraijiah, and Sari Hidayati, "Improving the Quality of Early Childhood Education with the Role of Parents in the Digital Era," *Journal of Educational Research and Practice* 2, no. 3 (November 13, 2024): 301–15, https://doi.org/10.70376/jerp.v2i3.158.

[5] Muhamad Khabib Cahyo Nugroho and Grendi Hendrastomo, "Pengembangan Media Pembelajaran Berbasis Google Sites Pada Mata Pelajasan Sosiologi Kelas X," *Jurnal Pendidikan Sosiologi Dan Humaniora* 12, no. 2 (2021): 59, https://doi.org/10.26418/j-psh.v12i2.48934; Papadakis et al., "Advancing Lifelong Learning with AI-Enhanced ICT: A Review of 3L-Person 2024."

[6] Ria Saputra, Yusuf Nungky Diandita, and Heri Maria Zulfiati, "Pengembangan Media Pembelajaran Berbasis Web Google Sites Pada Pembelajaran Ips Sekolah Dasar," *Didaktik : Jurnal Ilmiah PGSD STKIP Subang* 9, no. 2 (2023): 3327–38, https://doi.org/10.36989/didaktik.v9i2.962.

emphasizing the need for schools to adopt flexible and inclusive digital learning tools to accommodate diverse student needs.[7] Differentiated instruction, as proposed by Afifah, is a pedagogical approach that recognizes student diversity and tailors instruction to meet individual learning needs.[8] This approach aligns with the principles of the Merdeka Curriculum, which encourages teachers to adapt teaching methods based on students' abilities, interests, and learning paces. International studies have shown that integrating digital tools like Google Sites can enhance differentiated learning by providing personalized learning materials, interactive assessments, and collaborative projects.[9]

Despite the global recognition of digital learning, implementing technology-based differentiated instruction in Indonesian elementary schools remains challenging. In the context of SD 24 Dauh Puri Denpasar, preliminary observations indicate that traditional teaching methods still dominate classroom instruction, limiting opportunities for student-centered learning. Empirical data collected from SD 24 Dauh Puri Denpasar reveal that many students struggle with standardized instruction, leading to learning gaps.[10] A recent survey conducted by the school indicated that 65% of teachers rely on conventional lecture-based teaching methods, while only 35% utilize digital tools for instructional purposes. Additionally, 70% of students preferred interactive and technology-enhanced learning experiences. These findings highlight the need to effectively integrate digital platforms like Google Sites to support differentiated instruction and enhance student engagement.

Several studies have examined the role of technology in differentiated learning. For instance, a study by Saputra et al. explored the effectiveness of digital learning platforms in Indonesian elementary schools and found that students demonstrated higher engagement and academic achievement when technology was integrated into instruction.[11] Similarly, Sulistywati investigated the use of Google Classroom for differentiated learning and reported positive outcomes in student motivation and individualized learning experiences.[12] Although previous studies have examined general digital tools in education, limited research has investigated how Google Sites specifically supports differentiated instruction aligned with the Merdeka Curriculum. This study aims to fill that gap by exploring the implementation of Google Sites at SD 24 Dauh Puri Denpasar, focusing on its effectiveness in addressing diverse

[7] Hidayat Hidayat, Otib Satibi Hidayat, and Widiasih Widiasih, "Development of Google Sites-Based Learning Resources to Improve Mastery of Concepts and Process Skills in Electrical Circuit Materials," *Jurnal Penelitian Pendidikan IPA* 9, no. 6 (2023): 4624–31, https://doi.org/10.29303/jppipa.v9i6.3612.

[8] Afifah Afifah, Sabar Nurohman, and Allesius Maryanto, "The Development of Interactive Learning Media on Android Platform Assisted By Google Sites," *Journal of Science Education Research* 5, no. 2 (2021): 10–15, https://doi.org/10.21831/jser.v5i2.44288.

[9] Al Fiyatoen Sevtia, Muhammad Taufik, and Aris Doyan, "Pengembangan Media Pembelajaran Fisika Berbasis Google Sites Untuk Meningkatkan Kemampuan Penguasaan Konsep Dan Berpikir Kritis Peserta Didik SMA," *Jurnal Ilmiah Profesi Pendidikan* 7, no. 3 (2022): 1167–73, https://doi.org/10.29303/jipp.v7i3.743.

[10] Observation at SDN 24 Dauh Puri Denpasar

[11] Husin Saputra, Dina Octaria, and Asnurul Isroqmi, "Pengembangan Media Pembelajaran Berbasis Web Google Sites Pada Materi Turunan Fungsi," *Jurnal Derivat: Jurnal Matematika Dan Pendidikan Matematika* 9, no. 2 (2022): 123–35, https://doi.org/10.31316/jderivat.v9i2.4072.

[12] N. L. Gede Sulistyawati, I Md. Suarjana, and Citra I Md Wibawa, "Pengembangan Media Website Berbasis Google Sites Pada Materi Statistika Kelas IV Sekolah Dasar," *Jurnal Pendidikan Dan Konseling* 4, no. 4 (2022): 895–905.

student needs and enhancing learning engagement within the framework of the Merdeka Curriculum.[13]

This research aims to address the existing research gap by examining the integration of Google Sites as a differentiated learning solution in the Merdeka Curriculum at SD 24 Dauh Puri Denpasar. Unlike previous studies broadly discussing digital learning tools, this study will specifically analyze how Google Sites can create personalized learning experiences, support diverse learning needs, and enhance student engagement. By bridging this research gap, the study seeks to contribute to the body of knowledge on technology-enhanced learning in Indonesia and provide practical insights for educators on leveraging Google Sites to implement differentiated instruction effectively. The findings of this study will have significant implications for policymakers, educators, and curriculum developers in promoting digital innovation in elementary education, particularly within the framework of the Merdeka Curriculum. This research contributes to the international discourse on differentiated instruction by demonstrating how low-cost digital platforms such as Google Sites can support inclusive learning in under-resourced educational environments. As Carol Ann Tomlinson emphasizes, effective differentiation hinges on the teacher's ability to modify content, process, and product based on students' readiness, interests, and learning profiles.

METHOD

This study will employ a qualitative research approach with a case study design to explore the integration of Google Sites in differentiated learning at SD 24 Dauh Puri Denpasar. A qualitative approach is deemed appropriate as it allows for an in-depth exploration of the implementation process, teacher and student experiences, and the effectiveness of Google Sites as a digital learning tool.[14] The case study method will provide a comprehensive understanding of how this technology is utilized within the specific context of the Merdeka Curriculum. Participants included five teachers and 22 students selected through purposive sampling based on their involvement in the Google Sites-based instruction. This sampling method ensured that the selected participants had direct experience using the platform, allowing for rich and relevant data collection.

Data collection will involve multiple sources to ensure the validity and reliability of the findings. The primary data sources will include classroom observations, semi-structured teacher interviews, focus group discussions (FGDs) with students, and document analysis of instructional materials created using Google Sites. Classroom observations will be conducted to examine how teachers implement differentiated instruction using Google Sites, how students interact with the digital platform, and how it influences their engagement and learning outcomes.

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[13] Guido Lang and Wendy Ceccucci, "Clone Yourself: Using Screencasts in the Classroom to Work with Students One-on-One," *2013 Proceedings ISECON: Information Systems Educators Conference and CONISAR 2013, Conference on Information Systems Applied Research* 12, no. November (2013): 4–14.

[14] Eric Hartnett and Regina Koury, "Using Google Apps Through the Electronic Resource Life Cycle," *Collection Management* 37, no. 1 (2012): 47–54, https://doi.org/10.1080/01462679.2012.629600.

Semi-structured interviews with teachers will provide insights into their experiences, challenges, and perceptions regarding integrating Google Sites. Questions will focus on their familiarity with digital tools, the effectiveness of Google Sites in addressing diverse learning needs, and the support or barriers they encounter in utilizing this platform. FGDs with students will capture their perspectives on learning with Google Sites, their level of engagement, and their preferences for digital-based learning approaches. Document analysis will involve reviewing instructional content designed using Google Sites, including lesson plans, digital assignments, and student-generated work. This will help evaluate the extent to which the platform facilitates differentiated learning and supports student-centered instructional strategies.

The research was conducted between March and April 2024 at SD 24 Dauh Puri, Denpasar, Indonesia. The study site was chosen due to its active implementation of the Merdeka Curriculum and initial efforts to integrate digital tools into instruction. Regarding ethical considerations, informed consent was obtained from all participants before data collection. Participants were assured of their anonymity, and all data were handled with confidentiality. Student involvement was facilitated through school approval and parental consent. To ensure trustworthiness, several validation techniques were applied:

Member-checking was conducted by sharing preliminary findings with participants to confirm the accuracy of the interpretations. Peer debriefing involved discussions with fellow researchers to minimize bias and strengthen the credibility of data analysis. An audit trail was maintained throughout the study to document the research process, decision-making, and analytical procedures transparently and traceably.

Data collection techniques included classroom observations, semi-structured teacher interviews, focus group discussions (FGDs) with students, and document analysis of instructional content created using Google Sites. Data were analyzed using thematic analysis to identify recurring patterns and themes related to the effectiveness, implementation challenges, and pedagogical implications of Google Sites in differentiated learning.

The collected data will be analyzed using thematic analysis to identify key themes and patterns related to the effectiveness, challenges, and implementation strategies of Google Sites for differentiated learning. Thematic coding will be applied to categorize findings and draw meaningful interpretations. Data triangulation will be employed by comparing findings from different sources to enhance the study's credibility. The results of this study will contribute valuable insights into the practical application of Google Sites in differentiated learning within the framework of the Merdeka Curriculum. The findings will inform educational stakeholders, including teachers, school administrators, and policymakers, about best practices for integrating digital platforms to improve learning outcomes and foster inclusive education in elementary schools.

DISCUSSION

Result

This study aims to explore the integration of Google Sites as a differentiated learning solution in implementing the Merdeka Curriculum at SD 24 Dauh Puri Denpasar. The use of technology in education has rapidly developed in the 21st century, particularly in the context of digitalized learning, which the COVID-19 pandemic has further reinforced. This study collected data through classroom observations, semi-structured teacher interviews, focus group discussions (FGDs) with students, and document analysis, including lesson plans and materials created using Google Sites.

Dominance of Conventional Teaching Methods

Observations at SD 24 Dauh Puri Denpasar revealed that conventional teaching methods still dominate teaching and learning. 65% of teachers prefer the lecture method as their primary teaching strategy, as it allows them to deliver lessons in a structured and time-efficient manner.[15] However, this heavy reliance on lecturing significantly limits opportunities for interactive and personalized learning experiences for students. Students often become passive recipients of information rather than active participants in the learning process, which can hinder their engagement and comprehension.

Teachers who primarily use the lecture method argue that it is easier to implement, especially given the limited technological infrastructure available at the school. With a shortage of digital learning tools and insufficient multimedia resources, educators often find incorporating innovative teaching strategies such as project-based learning, collaborative activities, or digital-based instruction challenging.[16] Consequently, classroom interactions are often one-sided, with teachers delivering content while students listen and take notes without much opportunity for discussion, inquiry, or hands-on application of concepts.

As a result of this traditional approach, many students struggle to grasp the material presented fully. The lack of variation in instructional delivery means that students with different learning styles, such as visual, kinesthetic, or collaborative learners, do not receive the diverse teaching approaches they need to thrive. This can lead to decreased motivation, lower retention of knowledge, and overall disengagement in the classroom. If these challenges persist, they impact students' academic performance and long-term enthusiasm for learning. Therefore, exploring alternative teaching methods, such as active learning strategies and the integration of available technology, could be beneficial in enhancing students' understanding and engagement in the learning process.

Students' Preference for Technology-Based Learning

During focus group discussions (FGDs), students expressed that interactive media through Google Sites significantly improved their understanding of the subject. Features such as educational videos, online quizzes, and interactive exercises enabled them to engage with

[15] Observatioan at SDN 4 Dauh Puri Denpasar on 2025 April 09

[16] Interview with Teacher SDN 4 Dauh Puri Denpasar on 2025 April 09

the content more meaningfully. Instead of merely memorizing facts, they could visualize concepts, apply their knowledge through practical exercises, and receive immediate feedback on their progress. This interactive approach reinforced their learning and made the educational experience more enjoyable and stimulating.

Furthermore, integrating technology into the classroom prepares students for the digital era, equipping them with essential skills such as critical thinking, problem-solving, and digital literacy. As the world becomes increasingly reliant on technology, fostering these skills from an early age becomes crucial for students' academic and professional success. Therefore, adopting technology-based learning methods can effectively enhance student engagement, improve comprehension, and create a more inclusive and dynamic educational environment.

Utilization of Google Sites for Differentiated Learning

The study found that Google Sites has significant potential to support differentiated learning at SD 24 Dauh Puri Denpasar. This platform allows teachers to customize learning materials according to the diverse needs of their students, making the teaching and learning process more inclusive and effective.[17] In a typical classroom, students exhibit different levels of comprehension and learning paces, which often poses a challenge for teachers using conventional methods. However, Google Sites provides a flexible digital space where educators can structure their lessons to cater to these varying abilities, ensuring no student is left behind.

Teachers who have integrated Google Sites into their teaching practices reported that the platform enables them to provide instructional materials tailored to different levels of understanding. For instance, some students struggle with grasping basic concepts, while others quickly master the material and seek more advanced challenges. With Google Sites, educators can upload various learning resources, including simplified readings and visual aids for students who need extra support and more complex and in-depth materials for higher-achieving students. This approach helps create a more personalized learning experience, allowing students to progress at their own pace without feeling overwhelmed or under-challenged.

Additionally, Google Sites facilitates differentiated task assignments, allowing teachers to address the specific needs of individual students. Those who require additional practice can access remedial exercises, step-by-step tutorials, and guided activities designed to reinforce foundational knowledge. Meanwhile, students who fully grasp the material can be given more complex problems, research-based assignments, or creative projects that challenge their critical thinking skills. This method ensures that all students remain engaged and continue to develop their abilities in a way that suits their learning styles.

Beyond academic differentiation, Google Sites also enhances student autonomy and independence in learning. By providing access to structured digital resources, students can

[17] Observation at SDN 24 Dauh Puri Denpasar

revisit materials at their convenience, reinforcing their understanding outside the classroom. This flexibility is particularly beneficial for students needing extra time to process information or those who wish to explore topics in greater depth. Moreover, interactive features such as embedded quizzes, discussion forums, and multimedia content further enrich the learning experience, fostering a more dynamic and student-centered educational environment.

Implementing Google Sites in SD 24 Dauh Puri Denpasar classrooms aligns with modern pedagogical approaches emphasizing technology integration and individualized instruction.[18] As digital literacy becomes increasingly essential in the 21st-century education landscape, leveraging platforms like Google Sites enhances student engagement and equips them with essential skills for future learning. By embracing technology-driven differentiated instruction, educators can create more inclusive and adaptive learning environments that cater to the unique needs of every student, ultimately improving overall academic outcomes.

Challenges in Implementing Google Sites

Despite its many benefits, implementing Google Sites in differentiated learning has several challenges that must be addressed to ensure its effectiveness. One of the most significant obstacles identified in this study is the school's limited access to technological devices. While Google Sites provides a flexible and engaging platform for learning, not all students have personal devices such as laptops, tablets, or even smartphones to access the platform independently. In classrooms with scarce digital resources, students may have to share devices, which can hinder their ability to engage with the materials at their own pace fully. Disparities in students' home environments further exacerbate this issue, as those from lower-income backgrounds may not have access to the necessary technology or a stable internet connection outside of school.

In addition to device accessibility, internet connectivity remains a pressing challenge. A reliable internet connection is crucial for students to access the interactive features of Google Sites, such as embedded videos, online quizzes, and discussion forums. However, many students, particularly those from disadvantaged backgrounds, struggle with inconsistent or slow internet access. This digital divide creates an uneven playing field, where students with better technological resources have an advantage over their peers who face connectivity issues. Without adequate internet infrastructure, the full potential of Google Sites as a tool for differentiated learning cannot be realized.

Beyond infrastructural challenges, teacher readiness to adopt technology is also a significant issue. While some educators have embraced digital tools, many still lack confidence in using Google Sites due to their limited technological skills. Interviews with teachers revealed that many require further training and ongoing support to integrate Google Sites into their teaching strategies effectively. Many teachers accustomed to traditional methods express concerns about the additional time and effort required to design, upload, and manage differentiated learning materials on the platform. Without proper training, they

[18] Observation at SDN 24 Dauh Puri Denpasar

may struggle to utilize Google Sites to their fullest capacity, leading to inconsistent or ineffective implementation in the classroom.

Furthermore, resistance to change can also hinder the adoption of Google Sites. Some educators may hesitate to shift from conventional teaching methods to technology-based instruction, particularly if they perceive digital tools as overly complex or time-consuming. Ensuring teachers understand how to align Google Sites with the curriculum and learning objectives is also challenging. Without clear guidance and structured training programs, teachers may underutilize the platform or revert to traditional methods that feel more familiar and manageable.

Schools must invest in technological infrastructure and professional development programs to address these challenges. Providing access to shared digital devices, improving internet connectivity, and implementing teacher training workshops can help bridge the gap between the potential of Google Sites and its practical application in the classroom. Additionally, fostering a supportive environment where teachers can collaborate, share best practices, and receive ongoing technical assistance will be crucial in ensuring the successful integration of technology into differentiated learning. By overcoming these obstacles, schools can fully harness the benefits of Google Sites and create a more inclusive and practical learning experience for all students.

Relevance of Google Sites in the Context of the Merdeka Curriculum

The Merdeka Curriculum strongly emphasizes learning flexibility, granting students the autonomy to explore subjects based on their unique needs, interests, and learning paces. Unlike traditional approaches that enforce a one-size-fits-all model, the Merdeka Curriculum encourages educators to implement differentiated instruction, ensuring students can maximize their potential. In this context, Google Sites becomes a highly relevant tool, allowing teachers to design and deliver diverse instructional materials that align with flexible, student-centered learning principles.

One of the key advantages of Google Sites is its ability to facilitate content differentiation, which is crucial in classrooms with students of varying abilities and learning styles. Teachers can upload a wide range of resources, from basic explanations for students who need additional support to advanced readings and challenging exercises for those who grasp concepts quickly. Multimedia elements such as videos, infographics, animations, and interactive simulations can enhance understanding by catering to visual, auditory, and kinesthetic learners. This variety ensures that students engage with the material in ways that suit their preferences and abilities.

Beyond content, Google Sites supports process differentiation by allowing teachers to design varied instructional activities. Instead of relying solely on direct instruction, educators can incorporate self-paced learning modules, project-based assignments, discussion forums, and gamified quizzes to keep students actively involved. For example, students who prefer independent exploration can work through online modules at their own speed. At the same time, those who thrive in collaborative environments can engage in group discussions and

peer-based learning. This adaptability aligns with the Merdeka Curriculum's goal of fostering student agency and autonomy in learning.

Furthermore, Google Sites enhances product differentiation, enabling students to demonstrate their understanding in multiple ways. Instead of traditional written assignments, students can be free to showcase their learning through digital presentations, video projects, mind maps, infographics, or even blog posts. This approach nurtures creativity and accommodates different strengths, ensuring that all students can express their knowledge in a way that best represents their skills and interests.

Educators can create a more inclusive, engaging, and student-driven learning environment by integrating Google Sites into the Merdeka Curriculum framework. The platform's versatility supports differentiated instruction, making learning more accessible, personalized, and meaningful. As schools embrace digital transformation, leveraging tools like Google Sites will enhance educational quality and prepare students for the future.

Discussion

The dominance of conventional teaching methods at SD 24 Dauh Puri Denpasar presents a challenge in fostering a more interactive and student-centered learning environment. Constructivist learning theories developed by Piaget and Vygotsky emphasize that learning should be an active process in which students construct their understanding through direct experience and social interaction.[19] However, the prevalent use of lecture-based instruction contradicts this principle, as it positions students as passive recipients of information, limiting their opportunities to develop critical thinking and collaborative skills. Previous research has shown that lecture-based learning reduces students' retention rates, particularly when more participatory methods do not complement it.

On the other hand, students' preference for technology-based learning highlights a gap between teaching strategies employed by teachers and students' learning needs. Technology-enhanced learning aligns with Mayer's cognitive theory of multimedia learning, suggesting that combining text, images, and audio can improve comprehension and memory retention.[20] Research conducted by Salahuddin et al. supports this finding,[21] This indicates that integrating technology into learning increases student engagement and accelerates understanding of complex concepts. In the SD 24 Dauh Puri Denpasar context, Google Sites has proven to be an effective platform for promoting interactive learning that aligns with students' preferences. Features such as educational videos, interactive quizzes, and project-based assignments provide a richer learning experience than traditional methods.

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[19] Yong Hai Yu, Yan Ni Hu, and Jin Song Zhang, "Vygotsky's Zone of Proximal Development: Instructional Implications and Teachers' Professional Development," *Applied Mechanics and Materials* 411–414, no. 4 (2013): 2952–56, https://doi.org/10.4028/www.scientific.net/AMM.411-414.2952.

[20] Harold L. Friedman, "The Singularities of the Integrals in Mayer's Ionic Solution Theory," *Molecular Physics* 2, no. 2 (1959): 190–205, https://doi.org/10.1080/00268975900100171.

[21] Amar Salahuddin, M. Anggrayni, and Kenny Puspita Dewi, "Pengembangan Media Pembelajaran Berbasis Web Google Sites Pada Pembelajaran Bahasa Indonesia Kelas Iv Sdn 07 Sitiung," *Didaktik : Jurnal Ilmiah PGSD STKIP Subang* 9, no. 3 (2023): 60–72, https://doi.org/10.36989/didaktik.v9i3.1533.

The implementation of Google Sites also supports differentiated learning strategies grounded in Tomlinson's differentiation theory explained by Adzkiyya et al. According to this theory, instruction should be tailored to students' needs, learning styles, and levels of understanding to ensure optimal learning experiences.[22] Sutiah et al. found that differentiated learning improves academic performance and student motivation, particularly in heterogeneous classrooms. Through Google Sites, teachers can provide diverse learning resources that cater to different difficulty levels, enabling students to learn at their own pace without feeling overwhelmed or left behind.[23]

However, integrating technology into education has challenges, particularly regarding infrastructure and teacher readiness. Davis's Technology Acceptance Model (TAM) suggests that technology adoption in education depends largely on users' perceived ease of use and usefulness.[24] At SD 24 Dauh Puri Denpasar, limited access to digital devices and internet connectivity are significant barriers to using Google Sites as a learning tool. This aligns with the findings of Prayudi, who identified that key challenges in technology integration include infrastructure constraints, teacher training, and a school culture that does not fully support digital transformation.[25]

Teacher readiness also plays a crucial role in the successful adoption of technology. According to Rogers' Diffusion of Innovations Theory, individuals within an organization adopt new technology at different rates, ranging from early adopters to those resistant to change.[26] In the case of SD 24 Dauh Puri Denpasar, many teachers are still accustomed to traditional methods and lack confidence in using digital tools for instruction. This issue is exacerbated by inadequate training and technical support, as highlighted by Joyce et al., who found that continuous professional development and a supportive environment are key factors in increasing teachers' preparedness for educational technology.[27]

Within the Merdeka Curriculum context, using Google Sites is highly relevant in supporting flexible learning and student-centered instruction. The Merdeka Curriculum adopts a more adaptive approach to students' individual needs, in line with competency-based learning theories.[28] Guido argues that this model allows students to progress based on

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[22] Dilla Safira Adzkiya and Maman Suryaman, "Penggunaan Media Pembelajaran Google Site Dalam Pembelajaran Bahasa Inggris Kelas V SD," *Educate : Jurnal Teknologi Pendidikan* 6, no. 2 (2021): 20, https://doi.org/10.32832/educate.v6i2.4891.

[23] Sutiah Sutiah et al., "Implementation of Distance Learning during the Covid-19 Pandemic in Faculty of Education and Teacher Training," *Cypriot Journal of Educational Sciences* 15, no. 5 (2020): 1204–14, https://doi.org/10.18844/CJES.V15I5.5151.

[24] Kabilan Shanmugampillai Jeyarajaguru, "Effective Creation and Usage of Simplified Virtual Curation Lab Using Google Sites: Implementation for Principles of Biochemistry Laboratory Course," *Journal of Educators Online* 20, no. 1 (2023), https://doi.org/10.9743/JEO.2023.20.1.6.

[25] Andi Prayudi and Aan Ayu Anggriani, "Pengembangan Media Pembelajaran Interaktif Berbasis Web Menggunakan Google Sites Untuk Meningkatkan Prestasi Belajar Siswa," *Jurnal Pendidikan Dan Media Pembelajaran* 1, no. 1 (2022): 9–18, https://doi.org/10.59584/jundikma.v1i1.2.

[26] Eman Abdel-Reheem Amin, "A Review of Research into Google Apps in the Process of English Language Learning and Teaching," *Arab World English Journal* 11, no. 1 (2020): 399–418, https://doi.org/10.24093/awej/vol11no1.27.

[27] West and Malatji, "Technology Integration in Higher Education: The Use of Website Design Pedagogy to Promote Quality Teaching and Learning."

[28] Zahrah Zahrah and Adi Ansari, "Integrated Quality Management as the Focus of Attention and Target of Teaching Supervision at SDTQ-T Irsyadul Aulad," *Journal of Educational Research and Practice* 2, no. 3 (November 13, 2024): 288–300, https://doi.org/10.70376/jerp.v2i3.153.

their level of understanding rather than being restricted by rigid instructional structures.[29] Through Google Sites, teachers can provide materials that students can access anytime, enabling them to learn independently at their own pace.

Furthermore, Google Sites enables differentiation in how students demonstrate their understanding, aligning with multimodal learning theories developed by Mustafa Ali et al. In this model, students can showcase their knowledge through various media formats, such as videos, digital presentations, or research-based projects.[30] This approach is supported by research conducted by Tambunan et al., which found that project-based learning supported by technology enhances students' critical thinking and creativity.[31] Therefore, integrating Google Sites into the Merdeka Curriculum can serve as a solution for creating a more inclusive, engaging, and future-oriented learning experience.

Considering various theories and previous studies, the dominance of conventional teaching methods at SD 24 Dauh Puri Denpasar needs to be reduced by introducing more interactive and technology-based strategies. Students' preference for digital learning indicates the urgency of adapting instructional methods that align with their needs. Although the implementation of Google Sites faces several challenges, strategic efforts such as improving technological infrastructure, providing continuous teacher training, and strengthening policy support can optimize the benefits of this platform for enhancing learning quality. In the long run, leveraging Google Sites as a flexible and differentiated learning tool can be an innovative model for transforming education toward a more inclusive and effective digital era.

CONCLUSION

The dominance of conventional teaching methods at SD 24 Dauh Puri Denpasar has limited students' engagement and interactive learning opportunities. Research findings indicate that 65% of teachers rely on lectures due to infrastructure limitations, and 70% of students prefer technology-based learning for its interactive and engaging nature. The integration of Google Sites has proven beneficial for differentiated learning, allowing teachers to customize instructional materials to accommodate various learning paces and styles. However, limited device access, unstable internet connectivity, and teacher readiness hinder its full implementation.

The implications of this study suggest that schools must invest in technological infrastructure and professional development to enhance digital learning adoption. Aligning with the Merdeka Curriculum, Google Sites presents an opportunity to foster student-centered and flexible learning environments that support individual progress. Nevertheless, limitations persist, including the digital divide among students and resistance from educators

[29] Lang and Ceccucci, "Clone Yourself: Using Screencasts in the Classroom to Work with Students One-on-One."

[30] Ali Mustofa et al., "Discovery Learning and Google Sites : Its Application in Learning the Process of Urine Formation" 4, no. 2 (2024): 132–50, https://doi.org/10.30862/inornatus.v4i2.711.

[31] Melissa Ananda Tambunan and Pargaulan Siagian, "Pengembangan Media Pembelajaran Interaktif Berbasis Website (Google Sites) Pada Materi Fungsi Di SMA Negeri 15 Medan," *Humantech: Jurnal Ilmiah Multidisiplin Indonesia* 1, no. 10 (2022): 1520–33.

unfamiliar with technology. Future research should explore strategies for bridging these gaps, ensuring equitable access, and assessing the long-term impact of digital learning tools on student outcomes.

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