



The Implementation of Google Site-Based Media to Improve Biology Learning Motivation of Grade X-1 Students at SMA Negeri 7 Palu

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ABSTRACT

This study aimed to examine the effectiveness of Google Sites as a digital learning medium in enhancing students' learning motivation in Biology. The research was conducted through classroom action research in Grade X-1 at SMA Negeri 7 Palu during the 2024–2025 academic year with 32 students. The intervention was implemented over two cycles, integrating interactive features such as reading materials, instructional videos, quizzes, and educational games into the Google Sites platform. Data were collected using classroom observations, student interviews, and motivation questionnaires, while analysis was carried out descriptively by calculating percentages to measure the level of improvement. The findings showed a gradual increase in student motivation across the cycles. In Cycle I, 51.43% of students achieved the high motivation category, while in Cycle II, 20% reached very high and 37.14% remained in the high category. These improvements indicate that the integration of Google Sites successfully fostered a more engaging, interactive, and flexible learning environment. The study concludes that Google Sites is an effective instructional medium for improving students' motivation in Biology and can serve as an innovative strategy for teachers in adapting to the learning needs of the digital era.

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INTRODUCTION

Education is one of the fundamental aspects in the development of a nation, as it plays a crucial role in shaping the quality of human resources. According to Tilaar (2004), education functions not only as a means of transferring knowledge but also as a process of cultural formation and humanization, enabling individuals to adapt and contribute amidst social change. Therefore, education must continuously evolve in line with societal dynamics and technological advancements.

In today's era of globalization, educational systems face increasingly complex challenges. One of these is how to create learning processes that are effective, innovative, and responsive to students' needs. Vygotsky (1978), through his theory of social constructivism, emphasized that meaningful learning occurs when students actively interact with their



environment—through teachers, peers, and other learning resources. Thus, the role of the teacher extends beyond delivering information to becoming a facilitator who encourages students to construct their own understanding.

Sardiman (2011) defines learning motivation as both an internal and external driving force within students that generates enthusiasm for learning, maintains consistency, and directs their learning behavior. Motivation, therefore, plays a vital role in determining the success of the learning process.

However, observations in Grade X-1 at SMA Negeri 7 Palu reveal that students' motivation in Biology lessons remains relatively low. This is evident from their lack of enthusiasm during lessons, minimal active participation in discussions, and a tendency to passively receive information from the teacher. Such conditions result in suboptimal learning outcomes and a diminished curiosity about Biology, despite its relevance to everyday life.

To address this issue, teachers are required to innovate in selecting strategies, methods, and learning media. Vygotsky's (1978) constructivist theory highlights that learning becomes more meaningful when students actively engage with their learning environment, including through media and collaboration. In this context, the use of technology emerges as a relevant alternative aligned with the characteristics of today's learners.

Google Sites, as a web-based platform, can be utilized as an interactive, flexible, and accessible learning medium. According to Arsyad (2017), appropriate instructional media can stimulate students' attention, interest, and motivation. By presenting material in a more engaging format through Google Sites, students are expected not only to receive information passively but also to be encouraged to explore, understand, and construct knowledge independently.

Interactive media available on Google Sites falls under constructivist media, encompassing the learning process, students, and instructional tools. Such media integrates various elements including text, graphics, images, photos, audio, video, and animation. Interactive media can assist teachers in developing more engaging and dynamic teaching methods (Haryanto et al., 2015). Wordwall, another web-based digital application, supports teachers in designing lesson plans and providing students with appealing and interactive learning resources (Nenohai et al., 2021). This aligns with findings from Maghfiroh (2018), who noted that Wordwall enhances student interaction. The platform offers quiz-style games with visually engaging questions displayed on classroom monitors, encouraging student collaboration and making learning more lively. As a result, it not only improves students' understanding but also fosters scientific attitudes (Arimbawa, 2021).

Previous studies on the use of web-based digital media in senior high schools have been conducted by several researchers. Ramadhani (2021) concluded that the use of Google Sites as a learning medium enhances student engagement due to its structured and accessible presentation of materials. Furthermore, research by Pratiwi & Sari (2022) found that using Google Sites in Biology instruction positively influences students' learning motivation, as the platform allows for the integration of text, images, and videos that support conceptual understanding.

According to Arsyad (2017), instructional media plays a key role in delivering messages and stimulating students' interest and attention, thereby enhancing learning



motivation. This perspective aligns with Vygotsky's (1978) view that student interaction with the learning environment—including digital media—contributes to active knowledge construction.

Based on previous research and theoretical foundations, this study focuses on the development of interactive digital learning media using Google Sites to present Grade X Biology material in an engaging and organized manner. The aim of this classroom action research is to determine whether the implementation of Google Sites has a significant impact on the learning motivation of Grade X-1 students at SMA Negeri 7 Palu. Therefore, the researcher is motivated to conduct this study as an effort to find innovative solutions for improving student motivation in learning.

METHOD

This study is a classroom action research aimed at enhancing students' motivation in learning Biology through the use of Google Sites as instructional media. The research employed a qualitative descriptive method. According to Rahayu (2020), qualitative descriptive research involves a series of activities that analyze events, phenomena, or conditions within a social context. The research was conducted at SMA Negeri 7 Palu during the second semester of the 2024–2025 academic year. The population consisted of 32 students from Grade X-1. Data collection techniques included student interviews, classroom observations during the learning process, and the administration of a motivation questionnaire completed by students after participating in Google Sites-based learning activities. The questionnaire was designed to gather students' perceptions regarding their learning motivation following the integration of Google Sites into the instructional process.

The data sources comprised both primary and secondary data. According to Hanafiah (2021), primary data refers to information collected directly from the individuals being studied, while secondary data is obtained from various literature sources. The data analysis method used was quantitative in nature. The results from motivation observations and the motivation questionnaire were analyzed using percentage formulas to determine the extent of improvement in students' learning motivation after the implementation of Google Sites as a learning medium.

$$\text{Motivation \%} = \frac{\text{Total Score Obtained}}{\text{Maximum Possible Score}} \times 100 \%$$

The results of the analysis were interpreted using the following Likert scale:

Table 1. Student Motivation Score (%) Categories

Motivation Score %	Kategori
81 - 100	Very High Motivation
61 - 80	High Motivation
41 - 60	Moderate Motivation
21 - 40	Low Motivation
00 - 20	Very Low Motivation

**Tabel 2.** Motivation Questionnare Criteria by Indicator

Persentation	Kategori
76% - 100%	Good
56% - 75%	Fair
41% - 55%	Poor
0% - 40%	Very Poor

$$\% \text{ per Indicator} = \frac{\text{Total Score Achieved}}{\text{Expected Total Score}} \times 100 \%$$

RESULTS AND DISCUSSIONS

The study was conducted over three cycles using motivation questionnaires and observation sheets to assess the development of students' learning motivation. The instruments were designed based on key indicators of learning motivation, including interest and attention, enthusiasm in completing tasks, sense of responsibility, and feelings of satisfaction after completing learning activities. During the pre-cycle phase, the majority of students fell into the moderate category, indicating low levels of learning motivation. This was influenced by conventional, teacher-centered learning methods that relied heavily on printed textbooks and PowerPoint presentations.

In Cycle I, after implementing interactive learning media based on Google Sites, an increase in motivation was observed. A total of 18 students (51.43%) were categorized as having high motivation, while 17 students (48.57%) remained in the moderate category. Although no students reached the very high category at this stage, the results suggest a positive impact of digital media on student motivation.

In Cycle II, the Google Sites content was enhanced by adding online educational games, instructional videos, and visual and textual materials tailored to various learning styles (visual, auditory, and kinesthetic). The results showed a more significant improvement: 7 students (20%) were categorized as having very high motivation, 13 students (37.14%) as high, and only 5 students (14.29%) remained in the moderate category. A detailed summary of the students' motivation questionnaire results is presented in Table 3.

Table 3. Motivation Questionnaire Results by Indicator

Indicator	Result					
	Pre-Cycle		Cycle 1		Cycle 2	
	Precentage	Category	Prcentage	Category	Precentage	Category
Interest in the learning material	60%	Fair	78%	Fair	85%	Good
Curiosity about the subject matter	50%	Fair	75%	Good	81%	Good



Enthusiasm in participating in learning activities	60%	Fair	74%	Good	87%	Good
Responsibility in completing assignments	52%	Poor	65%	Fair	84%	Good
Sense of enjoyment in completing assignments	50%	Poor	58%	Fair	77%	Good

Discussion

The research findings demonstrate that the use of Google Site-based media had a significant impact on improving students' learning motivation. As shown in Table 3, there was a consistent increase in motivation from the pre-cycle to Cycle I, followed by a further improvement in Cycle II. Based on the questionnaire results, 18 students (51.43%) were categorized as having high motivation, while 17 students (48.57%) remained in the moderate category. Although none had yet reached the very high category, these results indicate that the use of Google Sites began to positively influence students' motivation to learn.

This improvement is consistent with the study by Handayani & Putra (2022), which found that integrating web-based digital learning media can gradually enhance student engagement, as such media provide more flexible and engaging access to learning materials. In Cycle II, the Google Site platform was optimized by incorporating multiple learning styles: reading materials for students with visual-verbal tendencies, instructional videos for those with audiovisual preferences, and interactive games accessible via mobile devices for kinesthetic learners. The results showed a more substantial increase, with 7 students (20%) categorized as having very high motivation, 13 students (37.14%) as high, and only 5 students (14.29%) remaining in the moderate category.

This improvement suggests that the varied media formats within Google Sites were effective in creating a more personalized, adaptive, and enjoyable learning experience for each student. These findings are supported by Pratama et al. (2023), who emphasized that web-based digital platforms equipped with multimedia features can enhance students' intrinsic motivation by addressing diverse learning needs.

This improvement occurred gradually: in Cycle I, most students transitioned into the high motivation category, and by Cycle II, a portion had reached the very high category. This trend aligns with Nugraha (2022), who argued that digital-based media is more engaging than printed books alone, as it offers interactive and flexible content. In this study, Google Sites provided various features such as reading materials, instructional videos, interactive quizzes, and educational games that could be accessed anytime and anywhere, making the learning process more enjoyable and less monotonous.

The integration of diverse learning styles through Google Sites proved to be effective. Students with visual tendencies were able to comprehend the material through text and images; auditory learners benefited from videos and audio explanations; and kinesthetic learners actively engaged through online educational games. These findings are consistent with Pratama



et al. (2023) and Wijaya et al. (2025), who emphasized that multimodal digital media can enhance intrinsic motivation by accommodating a wide range of learning needs.

From an educational psychology perspective, the increase in motivation can be explained through Deci & Ryan's (2000) theory of basic psychological needs. The Google Site platform provided opportunities for students to feel competent through interactive challenges, to experience autonomy by choosing their own learning pathways, and to feel connected through discussion forums and interactions with teachers and peers. These conditions fostered a learning environment that supports the development of intrinsic motivation.

Moreover, the gamification elements introduced in Cycle II—such as online educational games—enhanced students' active engagement and boosted their self-confidence. These findings are consistent with studies by Mustofiyah et al. (2018) and Safi'una & Muhsinin (2019), which demonstrated that game-based digital learning media can effectively improve students' cognitive and numeracy skills in an enjoyable and engaging manner.

Thus, the successful enhancement of students' learning motivation in this study was influenced by three key factors:

1. Accessibility – learning materials could be accessed anytime and anywhere via mobile devices.
2. Interactivity – the presence of quizzes, games, and discussion forums actively engaged students in the learning process.
3. Learning Style Flexibility – content was presented in various formats (text, video, visuals, and games) to accommodate individual learning preferences.

Table 4. Students' Motivation Results

Student	Hasil Presentasi Motivasi Belajar Peserta didik (%)					
	Pre-Cycle (%)		Cycle 1		Cycle 2	
	Motivation	Category	Motivation	Category	Motivation	Category
1	41	Moderate	62	High	80	High
2	50	Moderate	68	High	82	Very High
3	60	Moderate	75	High	86	Very High
4	60	Moderate	79	High	90	Very High
5	58	Moderate	70	High	83	Very High
6	53	Moderate	65	High	81	Very High
7	40	Low	55	Moderate	67	High
8	42	Moderate	64	High	84	Very High
9	60	Moderate	78	High	87	Very High
10	65	High	80	High	93	Very High
11	60	Moderate	75	High	88	Very High
12	46	Moderate	63	High	85	Very High
13	67	High	80	High	92	Very High
14	57	Moderate	71	High	83	Very High



15	60	Moderate	74	High	85	Very High
16	56	Moderate	70	High	84	Very High
17	59	Moderate	77	High	90	Very High
18	43	Moderate	60	Moderate	79	High
19	41	Moderate	62	High	81	Very High
20	58	Moderate	70	High	83	Very High
21	61	High	80	High	94	Very High
22	59	Moderate	68	High	83	Very High
23	57	Moderate	66	High	82	Very High
24	52	Moderate	65	High	80	High
25	60	Moderate	73	High	85	Very High
26	53	Moderate	61	High	78	High
27	44	Moderate	62	High	80	High
28	41	Moderate	60	Moderate	71	High
29	50	Moderate	65	Tinggi	83	Very High
30	62	High	70	High	97	Very High
31	57	Moderate	61	High	84	Very High
32	50	Moderate	63	High	86	Very High

Table 4 shows that the highest percentage of student motivation occurred in Cycle II, with 25 students categorized as having very high motivation and 7 students categorized as high. The second-highest motivation level was observed in Cycle I, where 29 students were classified as having high motivation and 3 students as moderate. The lowest motivation levels were recorded in the pre-cycle phase, with only 4 students in the high category, 28 in the moderate category, and 1 student in the low category.

Table 4 also indicates that every student experienced an increase in motivation. Notably, one student progressed from low motivation in the pre-cycle to moderate motivation in Cycle I. Overall, these results suggest that the use of Wordwall media in the learning process effectively enhanced students' motivation. The average classical motivation scores per cycle are illustrated in Figure 1.

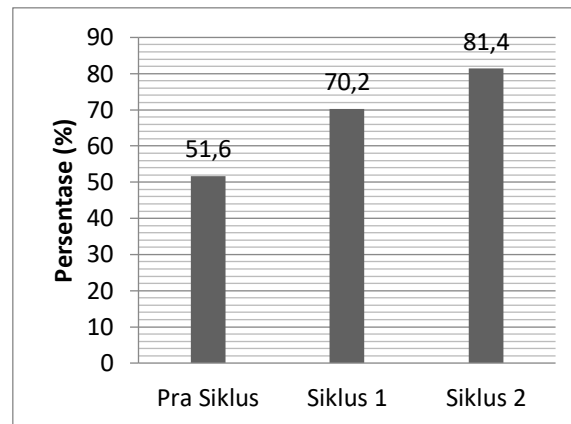


Figure 1. Classical Improvement in Students' Learning Motivation

Based on the research findings, it can be concluded that the use of Wordwall as a learning medium effectively enhances students' motivation. The classical average scores presented in Figure 1 show a progressive increase in motivation across cycles: the pre-cycle recorded 51.6% in the moderate category, Cycle 1 reached 70.2% in the high category, and Cycle 2 achieved 81.4% in the very high category. This improvement was not only evident from the questionnaire results completed by students, but also from classroom observations, which revealed that students became more active and confident in expressing their opinions, making the learning process more enjoyable.

This increase in learning motivation is closely linked to the instructional design implemented through Google Sites, which emphasized accessibility, interactivity, and flexibility. Students were able to access learning materials anytime and anywhere, rewatch videos to deepen their understanding, and practice through interactive games that were both challenging and enjoyable. This aligns with the theory of basic psychological needs proposed by Deci & Ryan (2000), which posits that intrinsic motivation increases when learners' needs for competence, autonomy, and relatedness are fulfilled. Through Google Sites, students felt more competent by mastering content in ways that matched their individual learning styles, more autonomous by selecting materials and activities according to their needs, and more connected through interactive activities with peers and teachers.

Furthermore, the study by Lestari & Nugroho (2024) reinforces these findings, stating that multimedia integration within digital platforms can create a more engaging learning atmosphere, foster motivation, and facilitate active student participation. In other words, the diversity of content offered through Google Sites made the learning process less monotonous, more varied, healthily competitive, and meaningful for students.

CONCLUSION

The findings of this study indicate that the use of Google Site, enriched with instructional materials, videos, and interactive games, effectively enhances students' learning motivation. The increase in motivation was evident from the shift in the number of students moving from the moderate category to the high and very high categories following the implementation of the digital learning media. The integration of multiple learning styles within



Google Site successfully created an active, enjoyable, and flexible learning environment tailored to the individual needs of students. Therefore, Google Site can be considered a relevant and promising digital learning strategy to improve student motivation at the senior high school level.

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