



STUDENTS' EXPERIENCES IN UTILIZING GEMINI FOR ENHANCING ENGLISH AT SMA TUNAS BANGSA: A CASE STUDY

Anisa Putri¹, Nuzulul Isna²

¹STKIP Muhammadiyah Aceh Barat Daya, Aceh, Indonesia

Email: anputriannisa@gmail.com

ABSTRACT

This qualitative case study examines the digital learning experiences and operational challenges encountered by secondary school students utilizing the generative Artificial Intelligence (AI) platform, Gemini, to enhance their English language proficiency at SMA Tunas Bangsa. Data were collected through semi-structured interviews involving 11 students who actively participated in the school's structured AI-integrated learning activities. The thematic analysis, assisted by NVivo 12 software, reveals that while students perceive Gemini as a highly adaptive and low-anxiety cognitive assistant that facilitates context-based translation and grammar explanations, their digital learning workflows are concurrently disrupted by multi-dimensional constraints. The empirical findings systematically categorize these challenges into three primary barriers: technological errors, structural barriers, and institutional. Among these, the mandatory collection of mobile devices during instructional hours stands out as the most formidable obstacle, creating a sharp spatial dichotomy that banishes AI adoption from the active classroom environment and restricts it to an isolated self-study aid at home. The study concludes that successful AI integration in secondary education requires a strategic pedagogical balance that reconciles administrative school discipline with the necessity of fostering learner autonomy in the digital era.

Keywords: *Artificial Intelligence, Gemini, EFL Learners, Case Study, Secondary Education*

1. Introduction

In this contemporary digital, mastering English has evolved into an indispensable catalyst for navigating global career pathways, scholarly migration, and higher education entry. Acquiring such complex competencies necessitates that secondary school students encompass not just foundational linguistics, but also analytical reasoning alongside strategic self-regulation. Within institutional frameworks



like SMA Tunas Bangsa, the imperative to fulfill these benchmarks has grown highly critical, particularly as younger demographics are increasingly demanded to actively participate within highly competitive international environments.

The technological dawn of generative Artificial Intelligence (AI), exemplified by platforms like Gemini, introduces a transformative instructional shift in foreign language acquisition. Although pedagogical bottlenecks in standard English classrooms have been extensively mapped by previous literature, empirical investigations capturing the lived digital experiences of high schoolers utilizing AI utilities remain noticeably scarce. Consequently, deploying Gemini at SMA Tunas Bangsa is projected to function as an interactive conduit, elevating students' linguistic capacity via deeply customized and self-directed digital engagement.

English proficiency in a modern context is not merely a passive skill but a strategic necessity that must be mastered through various innovative methods (Fitria, 2024). For high school students, this process often intersects with challenges as learners who must manage language anxiety and the need for instant feedback. In a similar vein, Alhuqbani (2014) posits that learners with access to technology tend to demonstrate a more pragmatic and focused learning approach, which can significantly contribute to the success of language enhancement programs.

Despite the great potential of the technology, formal school environments possess their own dynamics that can influence the effectiveness of AI usage. School structures, which are sometimes rigid and hierarchical, often prioritize operational compliance over the freedom of language exploration. This can become a barrier to the development of creative and critical thinking, which is essentially required for autonomous language mastery. Putri et al. (2022) suggest that language learning approaches involving technology must be adjusted to the unique cultural and institutional constraints within that environment to be truly effective.

Previous research on English language challenges has generally focused more on conventional classroom settings, resulting in a gap in understanding how English education unfolds in environments integrated with high technology and achievement pressure. Frequently, existing studies only highlight top-down initiatives or specific project interventions without exploring how students individually navigate challenges at the classroom level, such as demotivation or instructional barriers in using new tools.



Discussions regarding self-directed learning theory and differentiated instruction are still rarely applied to the context of Gemini usage for secondary school students. This study seeks to fill that gap by prioritizing the direct experiences of students at Senior High School Tunas Bangsa. The primary purpose of this research is to investigate the students' journey in adopting AI, focusing on their perceptions and the functional use of the tool in their learning process. Furthermore, this study aims to identify the specific challenges and barriers encountered by students when interacting with Gemini to improve their language skills. Based on issues regarding variations in student motivation and engagement, this research aims to investigate three main areas, (1) what are students' experiences when utilizing Gemini to enhance their language proficiency? (2) what challenges do the students encounter during their interaction with Gemini?

The novelty of this research lies in its student-centered focus within a structured Gemini usage program at the high school level. This provides new insights into pedagogical adaptation, motivational barriers, and the importance of autonomy in the era of digital transformation in English education. Through a deep understanding of the students' "habitus" or learning habits at school, it is hoped that AI integration will no longer be viewed as a bureaucratic burden, but rather as a tool for cognitive autonomy empowerment necessary for future academic success.

2. Method

This study employed a qualitative approach, specifically the utilization of a case study design, to investigate the students' experiences and functional interactions in utilizing Gemini for enhancing English skills at SMA Tunas Bangsa. The qualitative approach was selected as it allows for a holistic understanding of the complex social interactions and specific institutional dynamics that influence language learning when integrated with Artificial Intelligence (AI). By prioritizing direct student experiences, this design seeks to capture the nuances of the students' "habitus" and their individual journey in adopting new digital tools within a secondary school environment.

The research was conducted at Senior High School Tunas Bangsa. The participants for this study were selected through a purposive sampling strategy to ensure the depth and reliability of the data. This technique was chosen because it allows the researcher to select information-rich cases that are most relevant to the phenomenon under investigation, ensuring that the participants possess the necessary experience to



provide valid insights. Such deliberate selection is essential in qualitative research to support a rigorous thematic analysis that captures patterns of meaning across a dataset (Braun and Clarke, 2006).

The selection of research subjects in this study was carried out by applying specific inclusion criteria, which is a fundamental prerequisite for obtaining research subjects that align with the study objectives. The participants of this study were tenth-grade students (Class 10) enrolled during the 2025/2026 academic year. The use of inclusion criteria is essential to ensure that participants possess the necessary experience to provide valid and credible insights (Creswell 2014). The criteria included in this study first, the participants were required to actively engaged in the structured Gemini usage program at the school. Second, the students have utilized Gemini specifically to enhance core language skills. Third, the students were willing and able to share their experiences. Based on these criteria, a total of 11 students who provided their informed consent were selected to participate in in-depth semi-structured interviews to provide a comprehensive understanding of their learning journey.

The data collection process was conducted through a systematic and ethical procedure to ensure the validity and reliability of the findings. Initially, the researcher formally contacted the school principal, acting as the primary gatekeeper at SMA Tunas Bangsa, to obtain institutional permission for the study. Following this institutional approval, coordination was established with the English language teachers to identify suitable participants and align the research activities with the school's academic schedule.

To collect the data, this study utilized in-depth semi-structured interviews. semi-structured interviews were conducted with the selected students. This method was chosen to probe deeper into the students' internal perceptions and the functional use of the tool in their learning process. The interview guideline was adapted from the self-directed learning theory and differentiated instruction principles, focusing on three main areas: the perceived utility of Gemini, the specific experiences during interaction, and the challenges encountered, such as language anxiety or technical barriers.

The data collected was analyzed by using a rigorous thematic analysis approach as proposed by Braun and Clarke (2006), identifying and reporting patterns within the dataset. To assist in the systematic coding and identifying patterns within the dataset, the researcher utilized qualitative data analysis software (NVivo 12). The use of NVivo



complete their school tasks (assignment) through easily accessible grammar explanations.

The qualitative data revealed that the participants encountered multiple constraints when using Gemini for their English learning tasks. The breakdown of these operational challenges is illustrated in Table 1.

Table 1

Challenges encountered by students in using Gemini

No	Challenge Category	Specific Indicators	Frequency
1.	Technological Errors	System lagging/freezing High response latency Photo upload server failures	8
2.	Structural Barriers	High AI data consumption Limited mobile data quotas Restricted exploration due to quota fear	20
3.	Institutional Regulations	Strict school gadget restrictions Mandatory smartphone collection Inability to access AI during lessons	28

Adapted from the pedagogical framework by Fitria (2024) regarding institutional and structural constraints in digital-integrated language learning environments.

The challenges identified in this study, particularly regarding rigid institutional policies and quota limitations, align with the pedagogical framework proposed by Fitria (2024) regarding digital integration barriers in modern language classrooms. This indicates that these obstacles are not merely technical issues, but rather represent a dichotomy between institutional administrative discipline and the necessity for flexible technology integration. Although technological errors like system lagging occurred less frequently, they still disrupted the students' learning flows during multimodal tasks. Consequently, these combined challenges shifted the utilization of Gemini from an interactive classroom assistant into an isolated self-study tool at home.

3.1. Students' Experiences in Utilizing Gemini to Enhance Language Proficiency



This sub-section explores the actual behavioral experiences and operational practices of students utilizing Gemini's features to improve their English language skills. In their daily learning experience, the multimodal capabilities of Gemini specifically the integration of text prompts and photo-scanning serve as the most prominent tools for language acquisition. Students leverage these features to simplify complex language tasks, such as understanding abstract idioms, translating contextual sentences, and breaking down tenses. This phenomenon indicates a shift in learning styles from a conventional, linear focus on printed materials toward interactive digital exploration. Regarding this practical experience, Participant 2 expressed, *"The teacher often assigns tasks from the textbook, so if I'm too lazy to type it out, I just take a photo. Usually, for school assignments like looking for references or answers, using photos captures the image instantly, so it's not a hassle compared to typing everything one by one."* (Personal communication, June 16, 2026).

This practical student experience aligns with a study by Fitria (2021) titled "Using Artificial Intelligence in Alternative Assessments for EFL Learners" in the Journal of English Language Teaching. Fitria found that AI-based features, including image scanning, are highly effective in helping students seamlessly bridge physical tasks with instantaneous digital assistance to facilitate independent assignment completion. In this context, Gemini acts as a technological bridge that transforms static text from printed textbooks into dynamic data ready to be processed by artificial intelligence.

Furthermore, students' perceptions of Gemini's efficiency in facilitating learning are consistent with the Cognitive Load Theory developed by Sweller (2025). As AI handles mechanical tasks, students are able to reallocate their cognitive capacity toward more profound language processing, which is the essence of adaptive, autonomous learning. As a result, students' remaining cognitive capacity can be fully allocated to deeper language processing (high-level cognitive processing), such as analyzing semantic meanings, evaluating correct sentence structures, and synthesizing new ideas into the target language.

This adaptive experience triggers strong learner autonomy, where students no longer rely entirely on the teacher's presence in the classroom to validate their language comprehension. According to Isna (2018), modern digital media and interactive platforms are crucial in providing reliable English learning references independently,



especially when students are beyond the reach of teacher guidance. This adaptive experience is also reinforced by the statement of Participant 3, *"It's highly helpful. This is because Gemini's explanations use language that is easy to understand and not rigid. So, we can easily comprehend what is provided by the AI."* (Personal communication, June 16, 2026).

Through this flexible interaction, students undergo a process of cognitive scaffolding, where the complexity level of the language provided by the AI can be tailored to each individual's baseline proficiency. The non-rigid and communicative characteristics of Gemini make students feel more comfortable exploring complex grammar materials without the fear of being judged for making mistakes a valuable experience they rarely obtain in conventional, one-way classroom interactions.

3.2. Challenges Faced by Students' During Interaction with Gemini

Despite the prominent pedagogical benefits offered by Gemini, the empirical findings demonstrate that students concurrently faced multi-dimensional challenges during their interaction with the AI platform. As illustrated in Table 1, these operational barriers are systematically categorized into technological, structural, and institutional constraints, each affecting the student's learning workflow in distinct ways.

3.3. Technological Errors

The first category of constraint involves internal technological errors, primarily characterized by application freezing (lagging) and high response latency. The data reveals that while Gemini is highly responsive during simple text-based inquiries, its system performance deteriorates significantly when handling multimodal inputs, such as photo uploads of printed worksheets. This technological vulnerability creates cognitive friction, as the sudden server delays or application crashes disrupt the students' concentration and critical thinking flow during assignment completion. One informant, Participant 2, explicitly highlighted this technological limitation during the interview, *"Usually, for school assignments like looking for references or answers, using photos captures the image instantly but sometimes the application lags or freezes completely when the image file is too large, forcing me to restart the app."* (Participant 2, personal communication, June 16, 2026).



In line with this finding, a study by Fitria (2021) confirms that although AI-based image scanning features significantly assist learning efficiency, technical instability and system errors remain primary obstacles that frequently disrupt user convenience in completing tasks. Therefore, a fully consistent technological performance remains a critical requirement for the seamless adoption of AI tools within secondary education ecosystems.

3.4. Structural Barriers

Beyond internal software glitches, students faced severe structural and financial barriers related to network infrastructure and internet data package maintenance. Because cloud-based generative AI systems require a continuous, high-bandwidth internet connection to transmit multimodal prompts and generate responses, Gemini's data consumption is relatively high. For high school students with finite financial resources, this high consumption imposes defensive learning strategies. Students frequently restricted their independent exploration, intentionally avoiding advanced voice features or frequent image scans solely to prevent their cellular data packages from depleting prematurely.

This structural barrier strongly aligns with the Digital Divide theory discussed by Warschauer (2003), who emphasizes that the educational efficacy of cutting-edge technology is frequently hindered in developing contexts due to users' economic constraints in accessing basic digital infrastructure on a sustainable basis. Consequently, a technology originally designed to equalize learning opportunities risks creating a new academic gap due to varying financial capacities to maintain robust internet connections.

3.5. Institutional Regulations

The most formidable and counterproductive obstacle identified in this study stems from rigid institutional policies enforced within the school ecosystem. Although modern educational frameworks increasingly advocate for the integration of 21st-century digital literacy, SMA Tunas Bangsa enforces a strict smartphone ban during formal instructional hours. The institutional requirement to collect all mobile devices at the front of the classroom each morning completely eliminates the possibility of utilizing Gemini as a real-time, collaborative cognitive assistant during classroom tasks.



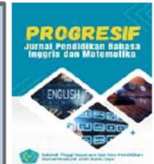
As articulated by Participant 8, *"The main issue is just time because at this high school, if we bring smartphones, they must be collected at the front of the class in the morning, so we can't freely use our phones or access Gemini during lessons. Consequently, we end up learning at home rather than at school."* (Participant 8, personal communication, April 14, 2026).

The interview excerpt above heavily echoes the findings of Thomas, O'Bannon, and Bolton (2013), who highlight an institutional contradiction where schools are heavily pressured to integrate 21st-century technologies, yet draconian mobile phone restriction policies precisely strip students of opportunities to engage in contextualized mobile learning. When the process of AI adoption is banished from the classroom due to rigid administrative discipline, the function of this technology shifts from a dynamic instructional assistant into an isolated self-study aid used exclusively at home.

4. Conclusion

This study demonstrates that integrating Gemini into English language learning at SMA Tunas Bangsa offers considerable educational benefits while simultaneously presenting several institutional and practical challenges. Although students viewed Gemini as a valuable learning companion, its effective implementation remained dependent on technological readiness, school regulations, and access to digital resources. The empirical findings demonstrate that while students strongly perceive Gemini as an adaptive, responsive, and low anxiety cognitive assistant that empowers their learner autonomy, their actual digital workflows are significantly hindered by multi dimensional operational barriers. As systematically mapped in this research, these constraints encompass internal technological errors, structural barriers such as economic quota limitations, and rigid institutional regulations. Ultimately, the strict enforcement of administrative device policies creates a sharp spatial dichotomy. By forcing the collection of mobile phones during formal instructional hours, the institution inadvertently banishes AI adoption from the active classroom environment. Consequently, the primary function of Gemini shifts from a dynamic, real-time classroom assistant into an isolated, self-directed study aid used exclusively by students at home.

Based on these conclusions, several integrated recommendations are proposed for stakeholders to optimize the deployment of generative AI in secondary education.



First, the school administration at SMA Tunas Bangsa is strongly advised to re-evaluate its rigid smartphone restriction policies during formal instructional hours. Rather than enforcing a blanket ban that completely eliminates digital tools from the classroom, the school should implement a contextualized smartphone usage framework that allows students to access Gemini under strict teacher supervision during specific language learning tasks. To mitigate the structural digital divide caused by cellular quota constraints, the school should also consider providing stable, institutional Wi-Fi access dedicated to supporting digital learning activities.

Furthermore, English teachers are encouraged to actively guide students in the practice of scaffolded prompt engineering to minimize the risk of AI information hallucinations. Teachers should intentionally design blended learning tasks that seamlessly connect physical textbook exercises with Gemini's multimodal features, thereby optimizing students' cognitive load during language tasks. Finally, future researchers are encouraged to employ quantitative or mixed-method designs to statistically correlate specific AI prompting habits with students' actual English proficiency scores, moving beyond perceived helpfulness to measured academic impact. Longitudinal studies could also track secondary school students to observe how early exposure to generative AI tools shapes their autonomous learning habits as they transition into higher education environments.

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