

THE EFFECT OF AN INTERACTIVE LEARNING PLATFORM ON ENGLISH LEARNING ENGAGEMENT OF GRADE XI STUDENTS AT MAHA BODHI SCHOOL

Happy Betesda Meliala¹, Arsen Nahum Pasaribu², Sahlan Tampubolon³

^{1,2,3}Universitas HKBP Nommensen

Email: happymeliala85@guru.sma.belajar.id

ABSTRACT

This study investigates the effectiveness of an interactive learning platform in enhancing English learning engagement among Grade XI students at Maha Bodhi School. Although students demonstrate high digital familiarity, classroom practices remain largely teacher-centered, resulting in low behavioral, emotional, and cognitive engagement. Previous studies have highlighted the potential of digital platforms to improve engagement; however, limited research has focused on developing context-specific platforms aligned with students' needs and curriculum objectives. To address this gap, this study employed a Research and Development (R&D) approach involving needs analysis, product design, expert validation, limited trial, and revision. The participants included 36 students, one English teacher, and experts in digital pedagogy and instructional design. Data were collected through interviews, observations, questionnaires, and documentation, and analyzed using qualitative and quantitative techniques. The findings indicate that the developed platform, which integrates multimedia content, interactive tasks, and engagement-oriented features, effectively improves student engagement. Quantitative results show a shift in engagement levels from low-moderate to high across behavioral, emotional, and cognitive dimensions. Students also reported positive perceptions in terms of usability, attractiveness, and learning effectiveness. These findings suggest that a context-based interactive learning platform can serve as an effective tool to enhance student engagement in English learning. This study contributes to digital pedagogy by providing a practical and empirically supported model for technology-enhanced language learning in secondary education.

Keywords: *Digital Pedagogy; Student Engagement; Interactive Learning Platform; English Learning; R&D Research; Digital Literacy*

Introduction

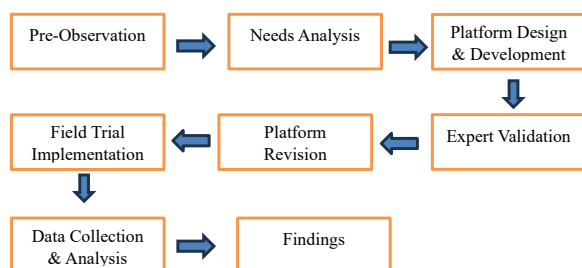
The integration of digital technology in education has significantly transformed how students access and interact with English learning materials. Despite this transformation, many classrooms still rely on teacher-centered instructional practices, which limit student participation and reduce meaningful engagement in the learning process. This situation contrasts with the characteristics of today's students as digital natives who are accustomed to interactive and technology-rich environments in their daily lives. Consequently, a mismatch emerges between students' digital experiences and classroom learning practices, which may hinder optimal learning engagement (Lie et al., 2023). Student engagement is widely recognized as a key determinant of successful learning outcomes, particularly in language learning contexts. According to engagement theory,

student engagement consists of three interrelated dimensions: behavioral (active participation), emotional (interest and motivation), and cognitive (investment in learning and critical thinking). High levels of engagement are associated with improved learning achievement, while low engagement often results in passive learning and limited skill development. However, empirical observations in English classrooms indicate that student engagement remains low, as instructional practices are still dominated by teacher explanations and lack interactive learning media (Rahmani, 2022).

Previous studies have demonstrated that digital pedagogy and interactive learning platforms can enhance student engagement by providing multimedia content, interactive tasks, and collaborative learning opportunities (Mahmud et al., 2025; Majid et al., 2025). Nevertheless, these studies tend to focus on the implementation or evaluation of existing

platforms rather than the systematic development of context-specific learning tools. Furthermore, many digital platforms are designed generically and are not aligned with students' actual learning needs, classroom conditions, or curriculum objectives. This indicates a critical gap between the potential of digital technology and its contextualized application in English language learning. In addition, prior research has not sufficiently addressed how interactive platforms can be developed based on a comprehensive needs analysis that integrates student characteristics, engagement theory, and instructional design principles. As a result, the effectiveness of such platforms in improving multidimensional student engagement (behavioral, emotional, and cognitive) remains underexplored, particularly in secondary school contexts. To address this gap, this study aims to develop and evaluate an interactive learning platform grounded in digital pedagogy and student engagement theory. Unlike previous studies, this research emphasizes a systematic development process based on students' actual needs and engagement profiles, ensuring that the platform is both pedagogically and contextually relevant.

Figure 1
Conceptual Framework



Method

This study employed a Research and Development (R&D) method adapted from the Borg and Gall model, which was modified into five main stages: (1) needs analysis, (2) product design, (3) expert validation, (4) limited field testing, and (5) product revision. This adaptation was considered appropriate to develop a context-based interactive learning platform within a manageable scope. The participants of this study consisted of 36 Grade XI students, one English teacher, and three experts in digital pedagogy and instructional design. The sample size was determined using a purposive sampling technique, focusing on a class that demonstrated low engagement in English learning based on preliminary observations. Although relatively

small, the sample is considered adequate for R&D studies emphasizing product development and initial field testing rather than generalization.

Data were collected using multiple instruments, including interviews, observations, questionnaires, and documentation. Interviews and observations were conducted during the needs analysis phase to identify students' digital learning characteristics and engagement levels. The questionnaire was developed based on student engagement theory, covering behavioral, emotional, and cognitive dimensions. To ensure the quality of the instrument, validity and reliability testing were conducted. Content validity was evaluated by experts in English education and digital pedagogy, while construct validity was assessed using item correlation analysis. The reliability of the questionnaire was measured using Cronbach's Alpha coefficient, with a minimum acceptable value of 0.70, indicating that the instrument was reliable for data collection.

Data analysis was conducted using both qualitative and quantitative approaches. Qualitative data from interviews and observations were analyzed through data reduction, data display, and conclusion drawing. Quantitative data were analyzed using both descriptive and inferential statistics. A paired sample t-test was employed to examine the differences in students' engagement scores before and after the implementation of the interactive learning platform. In addition, effect size (Cohen's *d*) was calculated to determine the magnitude of the improvement. Ethical considerations were carefully addressed in this study. All participants provided informed consent prior to data collection. Students' identities were kept confidential, and the data were used solely for research purposes. Permission to conduct the study was obtained from the school, ensuring that the research complied with institutional and ethical standards.

Findings and Discussion

Students' Digital Learning Needs

The findings showed that students have high digital familiarity because they use smartphones and digital technology in their daily lives. However, digital technology is rarely used in English learning activities in the classroom. Learning activities are still dominated by teacher explanations and textbook-based learning, which makes students less active in the learning process. As a result, students' engagement in English learning is still low.

Table 1
Students' Digital Learning Needs

No	Aspect	Result
1	Students use smartphones daily	High
2	Students use digital media for learning	Moderate
3	Digital technology used in classroom	Low
4	Students need interactive learning media	High

The table shows that students are familiar with digital technology, but digital technology is not optimally used in English learning. Therefore, interactive digital learning media is needed to support student engagement. This finding is in line with Lie et al. (2023), who state that digital pedagogy can improve student engagement through interactive learning media.

Development of Interactive Digital Learning Platform

Based on the needs analysis, an interactive digital learning platform was developed. The platform was designed based on digital pedagogy principles and student engagement theory, which includes behavioral engagement, emotional engagement, and cognitive engagement. The platform integrated multimedia materials such as videos, audio, images, interactive quizzes, and collaborative tasks. The platform was designed to support student-centered learning where students actively participate in learning activities. Interactive features such as quizzes, discussion forums, and multimedia materials help students understand the learning materials more easily and make learning more interesting.

According to Mahmud et al. (2025), digital learning platforms that integrate multimedia and interactive features can improve student engagement and motivation in learning.

Implementation of Interactive Learning Platform

The interactive learning platform was implemented in English learning activities. During the implementation, students showed significant changes in their learning behavior. Students became more active in participating in learning activities, more enthusiastic in completing tasks, and more confident in expressing their opinions during discussions. The use of multimedia materials such as videos and interactive quizzes helped students understand the learning materials better. Students were also more motivated to participate in learning because the learning activities were more interesting and interactive. This finding is supported by Majid et al. (2025), who found that multimedia learning can increase students' motivation and participation in English learning.

Students' Engagement Before and After Implementation

Table 2
Students' Engagement Before and After Implementation

Engagement Aspect	Before Implementation	After Implementation
Behavioral Engagement	Low	High
Emotional Engagement	Low	High
Cognitive Engagement	Moderate	High

The table shows that students' engagement improved after the implementation of the interactive digital learning platform. Behavioral engagement increased because students became more active in participating in learning activities. Emotional engagement increased because students felt more interested and motivated in learning English. Cognitive engagement also increased because students were more involved in thinking, understanding, and completing learning tasks. This finding is in line with Rahmani (2022), who states that digital learning media can improve students' behavioral, emotional, and cognitive engagement in learning.

Students' Responses to the Platform

Table 3
Students' Responses to the Interactive Learning Platform

No	Indicator	Student Response
1	Platform is interesting	Agree
2	Platform is easy to use	Agree
3	Platform helps learning	Agree
4	Platform increases motivation	Agree

Based on the table above, students gave positive responses to the interactive digital learning platform. Students stated that the platform was interesting, easy to use, and helped them understand the learning materials. Students also felt more motivated to learn English using the interactive platform. This finding is in line with previous studies which state that interactive digital learning platforms can improve student motivation and engagement in learning (Lie et al., 2023; Mahmud et al., 2025). Therefore, the use of interactive digital learning platforms can be an effective solution to improve student engagement in English learning.

Conclusion

This study demonstrates that the development and implementation of a context-based interactive learning platform can significantly enhance students' engagement in English learning. The findings confirm that integrating multimedia content, interactive tasks, and collaborative features within a structured digital pedagogy framework leads to measurable improvements in behavioral, emotional, and cognitive engagement. Rather than merely confirming previous studies, this research highlights that student engagement is not only influenced by the presence of technology but by

how well the technology is pedagogically designed and aligned with learners' needs. This indicates that effective digital learning requires a combination of instructional design, engagement theory, and contextual adaptation.

Theoretical Contribution

This study contributes to the field of Digital Pedagogy and English Language Teaching (ELT) by: Extending student engagement theory into a technology-enhanced learning context, demonstrating how behavioral, emotional, and cognitive engagement can be systematically facilitated through platform design, Providing an integrated framework that combines digital pedagogy principles with needs-based instructional design, Offering empirical evidence that contextualized platform development is more effective than generic digital tool implementation Practical Implications (ELT Practice & Policy) For Teachers: Teachers should move beyond using technology as a supplementary tool and adopt it as a core component of student-centered learning design, Interactive platforms should incorporate multimedia, real-time interaction, and collaborative tasks to sustain engagement, Teachers need to develop digital pedagogical competence, not only technical skills

For Schools and Policymakers

Schools should support the integration of context-specific digital learning platforms aligned with curriculum objectives, Professional development programs should emphasize digital pedagogy and engagement-based instruction, Policy should encourage the use of validated and research-based digital learning tools, rather than generic applications

References

- Abubakar, R.** (2021). Pengantar Metodologi Penelitian. In *SUKA-Press UIN Sunan Kalijaga* (Vol. 1).
- Abubakari, M. S., Nurkhamid, N., & Priyanto, P.** (2022). Factors Influencing Online Learning Engagement: International Students' Perspective and the Role of Institutional Support. *Turkish Online Journal of Distance Education*, 23(3), 118–136. <https://doi.org/10.17718/tojde.1137253>
- Ade Rahayu.** (2025). Metode Penelitian dan Pengembangan (R&D): Pengertian, Jenis dan Tahapan. *DIAJAR: Jurnal Pendidikan Dan Pembelajaran*, 4(3), 459–470. <https://doi.org/10.54259/diajar.v4i3.5092>
- Alief, M., Ramadhan, R., Kusuma, P., & Pratama, R. S.** (2025). *Integrating Pedagogical Principles into Digital Language Learning : A Conceptual Review of E-Books and Educational Applications in EFL Contexts*. November, 317–326.

- Arifuddin Fathoni, Leo Agung S, & Sri Sumaryati.** (2024). The Utilization of Interactive Multimedia in Improving Vocabulary Knowledge of High School Students. *JTP - Jurnal Teknologi Pendidikan*, 26(2), 476–491. <https://doi.org/10.21009/jtp.v26i2.46279>
- Arriyani, N., Hartono, R., Fitriati, S. W., & Pratama, H.** (2025). *Journal on English as a Foreign Language Investigating EFL lecturers' perceived and demonstrated TPACK competence in online and blended language teaching*. 15(2), 650–678.
- Dewi, D. S., Waloyo, E., & Ria, T. N.** (2023). The Impact of Technology-Based Learning on Students' Affective, Behavioral, and Cognitive Engagement in Efl Higher Education. *UNNES-TEFLIN National ...*, 177.
- Farikah.** (2023). *DIGITAL PEDAGOGY IN LANGUAGE TEACHING*. 2(4), 31–41.
- Lie, A., Gozali, I., & Wardhono, A.** (2023). Language Learning and Teaching in Digital Environment. *Journal of NELTA*, 28(1), 213–220. <https://doi.org/10.3126/nelta.v28i1.61813>
- Mahmud, A. F., Mahmud, M., Weda, S., & Munir.** (2025a). Digital Literacy in Action: An Ethnographic Study of EFL Classrooms in Indonesian Senior High School. *Eduvelop: Journal of English Education and Development*, 9(1), 9–35. <https://doi.org/10.31605/eduvelop.v9i1.5341>
- Mahmud, A. F., Mahmud, M., Weda, S., & Munir, M.** (2025b). Digital Literacy and Learning Interaction: An Ethnographic Study of Indonesian EFL Classrooms. *FOSTER: Journal of English Language Teaching*, 6(3), 192–210.
- Majid, F. F. D. N., Rahman, A., & Anwar, S.** (2025). EFL Student's Perception on Digital Learning Media Technology: The Case of Secondary School in Indonesia. *English Language Teaching Methodology*, 5(2), 139–151. <https://doi.org/10.56983/eltm.v5i2.1862>
- Pertiwi, I.** (2022). Original research article digital literacy in EFL learning: University students' perspectives. *JEES (Journal of English Educators Society)*, 7(2), 197–204. <https://doi.org/10.21070/jees.v7i2.1670>
- Rahmani, K. A.** (2022). *EFL Students' Engagement in The Use of Digital Storytelling in Speaking Classroom*. 05(01), 53–64.
- Sahir, S. H.** (2022). *METODOLOGI PENELITIAN*.
- Sandu Siyoto dan M. Ali Sodik.** (2015). *Dasar Metodologi Penelitian*. Literasi Media Publishing.
- Sanjaya, W.** (2015). *Metode penelitian pendidikan*. (Kencana Pr).
- Sari, M. R., & Mahendra, Y.** (2025). *The Use of Digital Media to Improve Reading Skills in Indonesian Language Learning in Elementary Schools : A Literature Review*. 8(2), 232–242.
- Sugiyono.** (2020). *Metodologi Penelitian Kuantitatif, Kualitatif dan R & D*.
- Suhirman.** (2021). *Metodologi penelitian pendidikan: Konsep, prosedur, dan praktik*. Prenadamedia Group.
- Sulaiman Saat dan Sitti Mania.** (2020). *Pengantar Metodologi Penelitian: Panduan bagi Peneliti Pemula*.
- Pusaka Almaida,** 2020. van Laar, E., Van Deursen, A. J. A. M., van Dijk, J. A. G. M., & de Haan, J. (2020). *The relation between 21st-century skills and digital skills: A large scale survey among working professionals*. *Computers in Human Behavior*. 100, 93–10.
- Wang, Y., & Chen, N.** (2022). Interactive learning environments. *International Journal of Emerging Technologies in Learning (IJET)*, 17(4), 45–.