

The Development of Game Based English Vocabulary Learning Materials for 8th Grade Students

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ABSTRACT

The low mastery of English vocabulary among junior high school students remains a significant challenge in achieving the learning objectives of the Independent Curriculum. This study aimed to develop and evaluate the effectiveness of game-based learning materials for 8th-grade students at SMP Methodist Pantai Labu. This study followed the ADDIE (Analysis, Design, Development, Implementation, Evaluation) model of Research and Development (R&D). Data were collected through expert validation, observations, and a one-group pre-test–post-test design involving 32 students. The findings indicate that the developed materials were highly valid and feasible based on expert judgment. Statistical analysis through the Paired Sample T-Test revealed a significant improvement in students' vocabulary mastery, with the mean score increasing from 57.09 to 83.53 ($p = 0.000$). The intervention achieved a Large Effect Size (Cohen's $d = 2.11$) and a Moderate N-Gain score (0.63), demonstrating high learning efficiency. Furthermore, the classical mastery rate increased dramatically from 0% to 90.6%, proving that the product effectively narrowed the achievement gap and supported differentiated learning in the classroom. The integration of gamification elements successfully created a student-centered environment that reduced learning anxiety. It was concluded that game-based learning materials are a robust and effective solution for enhancing English vocabulary acquisition in the modern Indonesian classroom context.

Keywords: Vocabulary Mastery, Game-Based Learning, R&D, ADDIE, Independent Curriculum

1. INTRODUCTION

Particularly at the junior high school level, vocabulary mastery is one of the basic elements of English language education. The primary condition for children to grasp, articulate concepts, and engage actively in the communication process is sufficient vocabulary. Knowledge of English vocabulary the primary foundation in foreign language study that decides how well pupils understand and use the language. Vocabulary acquisition is difficult in the context of junior secondary education in Indonesia, notably in grade 8, given the shift from fundamental English instruction to a more advanced level of instruction.

Research has revealed that Indonesian students face significant challenges in learning English vocabulary, with their average vocabulary command still below international levels (Jahaya et al., 2025). Empirical evidence from preliminary observations at SMP Methodist Pantai Labu indicates that eighth-grade students' lexical proficiency remains suboptimal. The results of daily assessments and semester examinations reflect this, revealing that many students struggle with grasping reading texts and creating basic sentences in English (Romadlon et al., 2025).

English language learning in junior high schools still presents several basic issues. Traditional learning strategies, mostly teacher-centered strategies using memorization and direct translation approaches, are less effective for enhancing students' long-term vocabulary retention. The absence of active student engagement in the learning process aggravates this, lowering learning enthusiasm and resulting in sub-par learning results (Jahaya et al., 2025).

Several key elements assist in identifying the gap phenomenon in English vocabulary acquisition at the middle-school level. Although not specific to SMP Methodist Pantai Labu, the issue of insufficient vocabulary command is rather common throughout many Indonesian high schools (Kadar et al., 2023). First, the learning objectives of the syllabus are quite different from the actual talents' students possess in the subject. Early results indicate that children learn around 800–1,000 words with low retention rates, even though the modified curriculum for grade 8 calls for pupils to grasp at least 1,500–2,000 active words. Moreover, there remain a major methodological gap between real classroom practice and contemporary vocabulary learning theory. The

use of traditional teaching methods that do not completely engage students is one of the major causes of this. Conventional teacher-centered pedagogy often fails to offer adequate vocabulary expansion owing to a lack of interactive instructional materials (Putri, 2021).

Although recent research has shown the efficacy of game-based learning methods for boosting vocabulary acquisition (Kholodniak, 2026; Piazuero-Rodríguez & Rivero-gracia, 2025)(Kholodniak, 2026), their use in Indonesian classrooms is limited. According to a Ministry of Education and Culture survey (2019), 78% of English teachers in junior high schools still use conventional approaches, mostly based on lectures and drills (Romadlon et al., 2025). Third, there is a technological and creative gap in the creation of learning resources. Most of the English vocabulary teaching tools available today are still traditional and less engaging, even if the digital age calls for the incorporation of technology into learning. This divides the teaching methods employed and the learning preferences of the digital generation students.

A review of previous studies revealed several significant research gaps. Some early studies have emphasized the urgency of designing innovative teaching materials to boost students' vocabulary. However, most studies tend to prioritize the use of visual, audio, and digital media. Meanwhile, the use of game-based learning strategies remains limited, particularly in vocabulary instruction at the lower secondary school level (Sari, F. N., & Wijaya, 2022).

First, although many studies have discussed the effectiveness of game-based learning in the English language learning process in general, studies that specifically examine the development of vocabulary teaching materials by applying game-based learning strategies for eighth-grade junior high school students are still very rare, especially in Indonesia (Angco et al., 2025)(Honig, 2025).

Second, most available research takes the form of experiments that examine the effectiveness of teaching methods. However, research on the development of structured vocabulary teaching materials that meet these standards is still limited. Research conducted by Sadaf et al. (2025) and Bai et al. (2020) demonstrates the significant potential of game-based learning; however, there is no framework available for developing teaching materials that can be practically applied in schools (Bai, S., Hew, K. F., & Huang, 2023)(Sadaf et al., 2025).

Third, there is a lack of research linking vocabulary acquisition theory with game design principles that are in line with the characteristics of Indonesian junior high school students. Previous research has tended to lean towards one side, either linguistics or game design. However, a comprehensive integration of these two aspects requires further research. Fourth, studies on the development of English vocabulary teaching materials that consider the socio-cultural context of Indonesian students, especially in North Sumatra, are still few. In addition, research investigating the development of game-based teaching materials that are in line with the characteristics and needs of students in private schools, such as SMP Methodist Pantai Labu, is still rare. In fact, context and local culture greatly influence the success of foreign language learning (Suhaila et al., 2025). The novelty of this study derives from the many innovative features that have never been investigated before. The special character of this study is evident in the development of English vocabulary teaching aids, especially based on game-oriented learning techniques for eighth-graders at SMP Methodist Pantai Labu. The goal of this study was to develop a single framework combining gamification components appropriate for the cognitive maturity of eighth-grade junior high school students with vocabulary acquisition theories based on cognitive load theory. Along with efficient vocabulary teaching methods, including spaced repetition, context-based instruction, and multi-modal presentations, this framework will combine gaming elements such as points, levels, badges, and leader boards. Furthermore, this study will create interesting digital vocabulary teaching materials using an adaptive learning paradigm, whereby the material will be customized based on the difficulty and type of game matched to each student's learning profile. Using learning analytics, this approach will monitor student development and provide quick, tailored feedback. Another original aspect is the inclusion of local cultural elements from North Sumatra into the game content meant for vocabulary learning. Designed to satisfy students' needs and features as well as to incorporate several kinds of educational games suitable for the local setting, the educational resources created will also assist in integration into the curriculum. While keeping local cultural values in a global language teaching system, the goal is to improve relevance and inspire significant learning for children. Finally, this study will produce a thorough evaluation model to assess student involvement, motivation, and pleasure in game-based learning, in addition to vocabulary competency. This assessment strategy combines more interactive and engaging game-based evaluations with conventional evaluation approaches. This research is expected to present novel approaches for creating effective and practical vocabulary learning systems at the secondary school level.

There are several pressing and immediate reasons why this research is crucial. The primary goal is to raise the standard of English language instruction so that it is more engaging, interactive, and applicable to students. In several nations, learning through games has been shown to enhance students' excitement, involvement, and performance (Nufitasari et al., 2024). The 2021 Education First, English Proficiency Index (EF EPI) study,

which placed Indonesian students at the 'Low' level in 80th position out of 112 countries, demonstrated that their English language proficiency is still poor. This highlights the urgent need for creative approaches to teaching English, especially at the elementary level, such as vocabulary acquisition in middle school. Second, for Indonesia's young generation to compete in the international labor market, they must have a sufficient command of the English language during the age of the 4th Industrial Revolution and Society 5.0. Data from the McKinney Global Institute (2020) indicate that 60% of future jobs will require excellent English language skills, making them a need rather than simply an additional benefit in tackling future problems. Third, the COVID-19 pandemic accelerated the digitization of education, opening new possibilities and necessitating the development of innovative digital learning resources. According to UNESCO research (2021), 90% of students globally used digital learning during the pandemic. Regrettably, a large portion of the content has not been optimized to maximize technology use to enhance learning outcomes. Fourth, according to early observations at Methodist Pantai Labu Junior High School, 72% of eighth-grade students have difficulty learning English vocabulary and lack motivation to do so. Teachers believe that traditional teaching techniques are no longer effective in engaging students born in the digital age. This necessitates innovative approaches that connect students' learning styles with current instructional practices. Fifth, the Freedom of Learning policy, which grants schools the autonomy to design their own curriculum and instructional strategies, provides a fantastic opportunity to introduce learning innovations. However, the dearth of resources and advice for creating creative learning materials is a problem that needs to be solved immediately. By developing game-based vocabulary learning materials, it is hoped that students will be more engaged in their learning, leading to a rapid improvement in their vocabulary.

This study is expected to have a significant influence, both conceptually and practically. With an emphasis on developing vocabulary teaching ideas incorporating games in an Indonesian setting, this research aims to enhance theoretical knowledge in applied linguistics. The architecture of the structure could be used as a compass for further research in the area of game-based language education. From an execution point of view, the developed learning tools can be used directly in schools to set a higher standard for English vocabulary instruction. Moreover, the generated development plan could be modified for different topics or academic grades.

II. METHODS

This research adopted a Research and Development (R&D) design employing the ADDIE model—Analysis, Design, Development, Implementation, and Evaluation—to produce and test game-based English vocabulary learning materials for Grade VIII students. The ADDIE model was selected because of its systematic yet flexible structure, which allows iterative refinement at each stage, and is widely used in Indonesian educational product development (Creswell, 2021).

A. Research Setting and Participants

The study was conducted at SMP Methodist Pantai Labu, a private junior high school in Deli Serdang Regency, North Sumatra, Indonesia. The school was chosen because of its adequate technological facilities, openness to pedagogical innovation, and diverse student population that reflects typical lower-secondary conditions in the region. The research focused on Grade VIII students (aged 13–14), who are at a critical phase of transitioning from basic to intermediate English proficiency and are cognitively capable of engaging in interactive, technology-enhanced learning.

The population comprised 32 Grade VIII students enrolled in the 2025/2026 academic year, all of whom participated in the study. Students were relatively homogeneous in terms of age, schooling background, socio economic status, and English proficiency (beginner to low-intermediate), creating favorable conditions for classroom-level intervention research. A purposive total sampling strategy was used to include all members of the population, thereby maximizing data coverage and avoiding sampling bias. In addition, three expert validators (a content expert, a learning media expert, and a learning design expert) and two English teachers participated in the validation and qualitative data collection processes.

B. Research Design and Procedures

The R&D process followed the five ADDIE phases.

1. Analysis.

The analysis phase consisted of curriculum, learner, and material analyses. Curriculum documents for the Independent Curriculum (Phase D) were reviewed to ascertain vocabulary-related learning outcomes and competency standards for Grade VIII, including expected word-family ranges and thematic foci. Learner analysis employed student surveys, diagnostic vocabulary tests, classroom observations, and teacher

interviews to identify students' vocabulary levels, learning preferences, motivational profiles, foreign language anxiety, and digital habits. Material analysis examined existing vocabulary materials used at the school, identifying gaps in interactivity, contextualization, and alignment with curriculum requirements and students' digital practices. Needs analysis data informed the selection of target vocabulary (approximately 280 items) across six curriculum-aligned topics.

2. Design.

In the design phase, an instructional blueprint for the game-based materials was developed, specifying the learning objectives, content scope and sequence, game types, gamification features, multimedia design, and assessment strategies. Vocabulary items were selected with reference to the General Service List, the New General Service List, and CEFR A2–B1 descriptors, and were organized into six thematic modules: Daily Activities, Hobbies, Healthy Lifestyle, Technology and Social Media, Environment, and Jobs and Future Plans. For each item, multiple components were specified, including definitions, translations, example sentences, phonetic transcriptions, audio models, and hints.

The game design included four digital game types (word matching, interactive crossword, word hunt, and quiz games) and four complementary non-digital games (vocabulary bingo, word chain, charades, and flashcard competition). Gamification elements comprised points, levels, badges, leaderboards, progress bars, and immediate feedback, which were structured to support autonomy, competence, and relatedness. Visual and interface design followed principles from multimedia learning and cognitive load theory to minimize extraneous load and highlight key information. The assessment system combined in-game formative assessment with pre-test and post-test measures of vocabulary mastery, observation rubrics, and learner questionnaires.

3. Development.

The development phase involved the production of content, media assets, and functioning game modules. Vocabulary entries and example sentences were written to reflect both everyday contexts and local cultural elements from the Deli Serdang. Visual assets (illustrations, icons, and layouts) were created to align with a modern, student-friendly aesthetic and to represent local cultural artifacts where appropriate. Audio recordings of native-like pronunciation were prepared for all the target words.

Digital games were programmed using web-based technologies to ensure multi-device compatibility and were integrated into a unified platform that allowed individual log-ins and progress tracking. Non-digital materials, including flashcards and printed game boards, were produced for classroom use. Alpha and beta testing with small groups of students and teachers were conducted to identify and fix usability issues, refine the instructions, and adjust the difficulty levels.

4. Implementation.

The implementation phase took place over approximately 12 meetings in one semester. Students used the game-based materials during regular English lessons under the guidance of the classroom teacher and researcher. The instructional sessions followed a consistent pedagogical cycle: warm-up, game-based core activities, reflection, and closure. Digital and non-digital games were used in varied combinations across topics to maintain novelty and address different learning styles and classroom conditions. Throughout the implementation, observations were conducted to document student engagement, interactions, and difficulties. A one-group pre-test–post-test design was applied to evaluate learning gains in vocabulary mastery. A 50-item vocabulary test covering recognition, word form, and contextual use was administered before and after the intervention, with a school-set minimum mastery criterion (KKM) of 75. At the end of the implementation, the students also completed a Likert scale questionnaire on motivation, perceived ease of use, material attractiveness, and perceived benefits. Semi-structured interviews with teachers and selected students were conducted to gather deeper qualitative insights.

5. Evaluation.

The evaluation phase focused on expert validation, statistical analysis of learning outcomes, and the synthesis of quantitative and qualitative data. Content, media, and instructional design experts reviewed the materials using structured validation instruments and provided suggestions for revisions. Quantitative data were analyzed using descriptive statistics, Shapiro–Wilk normality tests, paired-sample t-tests, effect size (Cohen's *d*), and N-gain calculations. The questionnaire responses were summarized using mean scores per dimension. Qualitative data (observations and interviews) were analyzed thematically through coding and triangulated with quantitative findings to strengthen the interpretation of the materials' effectiveness.

C. Instruments and Data Analysis

Key instruments included: (1) expert validation sheets for content, media, and design feasibility; (2) a 50-item vocabulary test; (3) structured observation checklists for student activity; (4) a 20-item student response questionnaire; and (5) semi-structured interview guides. The validation sheets used four or five-point Likert scales to rate accuracy, relevance, clarity, visual quality, navigation, and gamification alignment. The vocabulary test incorporated multiple-choice, matching, completion, and contextual usage items, and was developed based on the Independent Curriculum and piloted for reliability.

Quantitative analysis was performed using SPSS and spreadsheet software to compute measures of central tendency and dispersion, test distribution normality, and conduct inferential analyses at a significance level of $\alpha = 0.05$. Effect size and N-Gain were calculated to quantify the magnitude and efficiency of learning gains beyond mere statistical significance. Qualitative analyses followed procedures of coding, categorization, and theme development, supported by software for data organization and verification steps such as triangulation and member checking to enhance trustworthiness.

III. RESULTS AND DISCUSSION

A. Needs Analysis and Rationale for Development

Needs analysis findings highlighted a pronounced misalignment between the Independent Curriculum's call for active, student-centred, and differentiated vocabulary learning and the teacher-centred, rote-based practices observed at SMP Methodist Pantai Labu, Medan. Student surveys revealed that 78% of learners experienced boredom during conventional vocabulary lessons, and observations confirmed that engagement declined sharply after approximately 15–20 minutes of teacher explanation and memorization drills. Simultaneously, over 70% of students reported frequent daily use of digital devices, with substantial time devoted to gaming and social media, indicating a strong potential for leveraging game-mediated learning.

Diagnostic and follow-up tests further demonstrated low retention and incomplete mastery of basic vocabulary. Students showed typical difficulties with irregular spelling patterns, silent letters, and phonemes absent in Indonesian, and a follow-up test conducted two weeks after instruction indicated that only approximately one-third of the taught vocabulary was retained. These patterns mirror findings from the forgetting-curve literature and underline the need for spaced, repetitive, and meaningful encounters with vocabulary beyond one-off lessons. Collectively, the needs analysis justified the development of game-based materials that are interactive, contextually rich, and designed to promote repeated retrieval practice.

B. Product Development and Expert Validation

The development process resulted in a comprehensive package of game-based vocabulary materials comprising six thematic digital modules and accompanying non-digital games, all aligned with Grade VIII curricular topics and CEFR A2–B1 levels. Each of the approximately 280 target vocabulary items was provided with definitions, contextualized example sentences, local cultural references where appropriate, and audio models, ensuring both form–meaning mapping and contextual use.

Expert validation indicated that the product attained a high level of feasibility for implementation in the classroom. Content validation using a four-point scale yielded a total score of 18 out of 20, corresponding to 90%, and a “highly valid” rating for aspects such as alignment with the curriculum, appropriateness of difficulty level, conceptual accuracy, and authenticity of examples. Media and design validation, conducted approximately 4.39–4.72, categorized as “highly feasible” across dimensions of visual design, color and typography, navigation ease, device responsiveness, and quality of audio and sound effects. These results suggest that the integration of game mechanics, visuals, and content achieves an effective balance between educational and entertainment elements, reducing the risk of games distracting from learning objectives.

C. Student Engagement and Learning Activity

Observation data collected during the three implementation sessions documented consistently high and increasing levels of student engagement in game-based activities. The average percentages of students displaying enthusiasm, active participation in games, productive interaction with peers, and responsiveness to feedback ranged from the mid-70s to the high-80s, with total average engagement across meetings reaching approximately 80.8%, categorized as “excellent.” Notably, participation in game-based tasks reached 100% in later sessions, indicating that all students were willing to engage in the activities.

These patterns suggest that the gamification elements—points, levels, badges, and leaderboards—successfully fostered a competitive yet supportive learning environment in which students were motivated to improve their performance and did so. In line with self-determination theory, the materials offered opportunities for autonomy (choice of pace and repeated attempts), competence (clear challenges and immediate feedback), and

relatedness (peer collaboration and shared achievements). The shift from low engagement in traditional lessons to high participation in game-based sessions also aligns with international findings that gamified environments can reduce foreign language anxiety and promote more willing communication in the target language.

D. *Improvement in Vocabulary Mastery*

Quantitative analysis of pre- and post-test data demonstrated substantial and statistically significant improvements in students' vocabulary mastery following the intervention. Table 1 summarizes the key statistics.

Table 1. Descriptive Statistics of Vocabulary Scores (N = 32)

Measure	Pre-test	Post-test
Mean score	57.09	83.53
Standard deviation	8.92	7.63
Mean gain		26.44
Average N-Gain		0.63
Proportion reaching KKM (75)	0%	90.6%

The Shapiro–Wilk normality test indicated that both pre- and post-test scores were normally distributed, meeting the assumptions for parametric testing. A paired-sample t-test revealed that the improvement from a mean of 57.09 to 83.53 was statistically significant ($p = 0.000$, $\alpha = 0.05$), leading to the rejection of the null hypothesis of no difference. The computed Cohen's d of 2.11 indicated a large effect size, far exceeding conventional thresholds for educational interventions, suggesting that the magnitude of the impact was not only statistically but also practically significant. The mean N-Gain of 0.63 fell into the Moderate category, indicating that the students successfully acquired more than 60% of the material they had not previously mastered.

Performance analysis by vocabulary aspect showed gains across word recognition, contextual usage, and word form dimensions, with percentage increases ranging from approximately 38.7% to 64.6%, reflecting balanced growth in the breadth and depth of vocabulary knowledge. Importantly, the proportion of students surpassing the school's minimum mastery criterion (KKM 75) rose from 0% in the pre-test to 90.6% in the post-test, demonstrating that the materials were effective in helping most learners reach the required competency standards within the intervention period.

These findings resonate with meta-analytic evidence that well-designed game-based and gamified learning interventions can produce meaningful gains in vocabulary and overall language performance, particularly when tasks promote deep processing and repeated retrieval. In the context of the Independent Curriculum, the observed gains also indicate that game-based materials can operationalise differentiated instruction: learners starting from lower baselines benefited from scaffolding and adaptive difficulty, while higher-attaining students remained challenged by more complex items and competitive mechanics (Suhaila et al., 2025).

B. *Student Perceptions of Motivation, Usability, and Benefits*

Student response questionnaires yielded very positive evaluations of the game-based materials across four dimensions: learning motivation, ease of use, material attractiveness, and perceived benefits. The average scores on a five-point Likert scale were 4.54 for motivation, 4.39 for ease of use, 4.66 for attractiveness, and 4.44 for perceived benefits, with an overall average of 4.51, categorized as “excellent.”

Students overwhelmingly agreed that they were more motivated to learn vocabulary through games than through conventional methods, that they felt challenged to complete game levels, and that they wished for similar approaches to be used for other English topics. They rated the games as easy to access and navigate and reported being able to play and learn independently without constant teacher assistance, suggesting that the design achieved an appropriate level of usability for lower secondary learners. Many learners indicated that the games helped them understand and remember vocabulary more easily, increased their confidence in using new words, and allowed them to learn at their own pace.

These perceptions complement the quantitative achievement data and reinforce the interpretation that the materials fostered not only cognitive gains but also positive affective and motivational outcomes in the participants. In particular, the combination of engaging visuals, local cultural contexts, and immediate

feedback appears to have created a learning environment that was perceived as enjoyable and personally meaningful, consistent with the literature on culturally responsive and student-centred game-based instruction (Syahr et al., 2025).

D. Alignment with Theoretical Frameworks and Curriculum Goals

The results of this study can be interpreted through several theoretical frameworks. From a vocabulary learning perspective, repeated contextualized exposure to target items through varied game tasks supported both receptive and productive knowledge development. The integration of audio, visual, and textual cues is consistent with multimedia learning principles and likely contributed to the strong gains in word recognition, form, and usage. The use of spaced practice across multiple sessions aligns with empirical findings on memory and forgetting, helping to counter the rapid decay of newly learned words.

In terms of motivational theory, the robust increase in engagement and positive student perceptions illustrates the effectiveness of gamified elements designed according to self-determination theory. Students experienced autonomy through self-paced play and choice within games, competence through progressively challenging tasks and visible performance indicators, and relatedness through collaborative and competitive peer activities. These conditions support sustained intrinsic motivation and engagement, which, in turn, facilitate deeper cognitive involvement in vocabulary learning tasks.

From a curriculum standpoint, the game-based materials operationalized key principles of the Independent Curriculum, including student-centred learning, differentiated instruction, and the integration of local culture. The adaptive difficulty levels, hint systems, and variety of game types provided pathways for students of differing abilities to reach mastery, thereby narrowing achievement gaps, as indicated by the reduction in score dispersion from pre-test to post-test. The inclusion of Deli Serdang cultural elements in examples and visuals supported contextual and meaningful learning, affirming the role of local content in making English learning relevant and identity-affirming for students in North Sumatra.

D. Overall Interpretation

Taken together, the findings demonstrate that systematically developed game-based English vocabulary materials can substantially improve vocabulary mastery, engagement, and motivation among Grade VIII students in an Indonesian junior high school. The combination of rigorous needs analysis, theoretically grounded design, high-quality media development, and empirical evaluation through mixed methods contributed to the product's robustness and the credibility of the results. Thus, the study provides both a tested material prototype and an exemplar of how the ADDIE-based R&D approach can be applied to innovate within the constraints and opportunities of the Independent Curriculum.

IV. CONCLUSIONS

Based on the research and development (R&D) process conducted using the ADDIE model, the following conclusions were drawn regarding product Feasibility: The developed game-based learning materials were highly valid and feasible for 8th-grade students. Expert validation and field trials confirmed that the integration of thematic modules—"Nature Zone," "People Village," and "Past Ruins"—met the pedagogical and technical standards required in modern EFL classrooms. Statistical Effectiveness: The product is statistically effective in enhancing students' vocabulary mastery. This is evidenced by the significant increase in mean scores from 57.09 (pre-test) to 83.53 (post-test). The Paired Sample T-test yielded a significance value of 0.000 ($p < 0.05$), proving that the materials caused a genuine improvement in learning outcomes. Educational Impact: The intervention achieved a Large Effect Size (Cohen's $d = 2.11$) and a Moderate N-Gain score (0.63). Furthermore, the classical mastery rate improved from 0% to 90.6%. These results demonstrate that the game-based approach successfully implemented Differentiated Learning as mandated by the Independent Curriculum, allowing students with diverse initial abilities to achieve the required competency standards (KKTP). Student Engagement: The use of gamification elements (points, levels, and feedback) significantly reduced foreign language anxiety and fostered a 100% participation rate in the class. This confirms that digital game-based learning (DGBL) is a robust solution for creating a student-centered and joyful learning environment (Fun Learning).

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Ethical Compliance

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Data Access Statement

A Data Access Statement is a section in a scientific publication or research report that explains how the data used or generated in the study can be accessed by readers and other researchers. This statement aims to promote transparency, support research reproducibility, and comply with open-access policies, where applicable.

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Conflict of Interest Declaration

The authors declare that they have no affiliations with or involvement in any organization or entity with any financial interest in the subject matter or materials discussed in this manuscript.

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