INVENTOPIA 2025

FBM-SEREMBAN INTERNATIONAL INNOVATION COMPETITION (FBM-SIIC)

INNOVATION IN ACTION: TURNING IDEAS INTO REALITY

Chapter 15
Grammar Adventure

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ABSTRACT

Gamification in education has proven effective in enhancing student engagement, motivation, and knowledge retention, particularly in developing foundational language skills. In Malaysia, the Standard Kualiti Pendidikan Malaysia (SKPMg2) emphasizes the need for innovative and inclusive teaching methods that accommodate diverse learning needs. *Grammar Adventure* addresses this by using the Roblox platform to deliver an immersive learning experience focused on teaching adjectives to Year 1–3 students. Aligned with the national curriculum, the game features scaffolded levels, real-time feedback, and teacher analytics tools, creating an adaptive and collaborative environment for both students and educators. The game also supports educational equity through offline functionality and minimal technical requirements, making it accessible to under-resourced schools. With planned integration into Malaysia's DELIMa platform, *Grammar Adventure* illustrates the potential of game-based learning to transform grammar instruction in primary education while remaining scalable, inclusive, and curriculum-aligned.

Key Words: Gamification, Adjectives, SKPMg2, Roblox, Primary Education

1. INTRODUCTION

The integration of gamification in education has shown significant potential in enhancing student engagement and understanding, particularly in foundational subjects like grammar. Recognizing the challenges faced by young learners in mastering adjectives, in which is a core component of the Standard 1, 2, and 3 syllabus (SKPM)—this project introduces *Froggy Jumps*, an interactive game designed to transform traditional grammar instruction into an

immersive and collaborative experience. Leveraging the popularity of game among children, *Froggy Jumps* employs a video game framework to teach adjectives through dynamic quests, puzzles, and real-time feedback, catering to students (Years 1–3), primary school teachers, and IPG practicum students as well as a wider scope of users.

The game's novelty lies in its alignment with the SKPM curriculum, offering scaffolded lessons that adapt to individual learning paces. Features such as multiplayer modes and teacher dashboards foster peer collaboration and classroom integration. Preliminary feedback from pilot tests highlights improved retention rates and student motivation. *Froggy Jumps* not only addresses gaps in remote grammar education but also serves as a model for gamified language learning in primary education.

Despite adjectives being a core competency under SKPMg2, traditional teaching methods such as worksheets often fail to accommodate students' varied learning paces, as noted by Vygotsky (1978). Froggy Jumps addresses this challenge through three key strategies: first, by embedding syllabus objectives—such as the ability to identify descriptive words—directly into game mechanics to ensure alignment with SKPMg2; second, by promoting educational equity through offline accessibility, particularly benefiting rural schools as emphasized in Domain 5 (Student Support) of SKPMg2; and third, by empowering educators with analytical tools to monitor student progress, in line with the goals outlined in Malaysia's Digital Education Policy (MOE, 2021).

2. LITERATURE REVIEW

Recent research in educational technology highlights the effectiveness of game-based learning in improving retention and engagement. Plass et al. (2020) found that well-designed educational games can boost knowledge retention by up to 40% compared to traditional methods. Roblox, in particular, has shown promise for primary education due to its collaborative features, cross-platform accessibility, and strong appeal to children aged 6–9 (Nadolny, 2020).

In Malaysia, the SKPMg2 framework, especially Domain 2.3, emphasizes "technology-enhanced student-centered learning" (MOE, 2022). *Grammar Adventure* aligns with this by offering scaffolded game levels that gradually introduce adjective concepts, while providing real-time progress tracking via a teacher-friendly analytics dashboard. This balance of pedagogy and practicality distinguishes it from more generic educational games.

Local research also supports this approach. Azman et al. (2021) reported increased motivation and participation among students using gamified grammar tools, especially those who struggle with conventional worksheets. The Universal Design for Learning (UDL) framework further reinforces the need for flexible, engaging learning paths (CAST, 2018), a principle embedded in *Grammar Adventure*'s design.

Addressing equity, the platform includes offline functionality to support rural learners with limited internet access—a key concern identified by Lim et al. (2022). This supports the goals of the Malaysian Education Blueprint (2013–2025), which emphasizes inclusive, equitable education.

By integrating evidence-based game mechanics, curriculum alignment, and accessibility features, *Grammar Adventure* offers a scalable, student-centered solution for grammar instruction tailored to the diverse needs of Malaysian primary learners.

3. METHODOLOGY

The development of *Grammar Adventure* followed a rigorous research and design process to ensure both educational effectiveness and technical robustness. The initial phase involved comprehensive curriculum mapping to identify fifteen specific adjective-related learning standards within the SKPMg2 framework for Years 1–3. These standards were then translated into interactive game mechanics using Roblox Studio, with particular attention given to creating authentic contexts for adjective application.

Technical implementation leveraged Lua scripting to create adaptive difficulty systems that respond to individual student performance, ensuring appropriate challenge levels for diverse learners. A critical innovation was the inclusion of offline functionality, enabling access for students in rural areas with limited internet connectivity. The teacher dashboard was designed to provide real-time progress tracking aligned with SKPMg2 assessment standards, allowing educators to identify students requiring additional support.

4. VISUALS OF GAME DEVELOPMENT

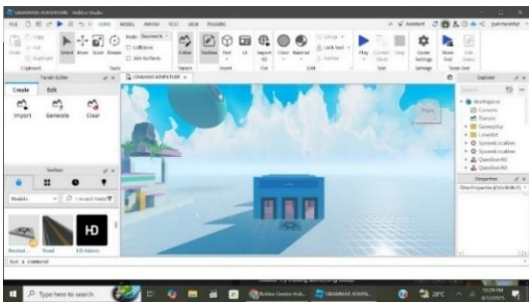

Figure 1: Game development interface in Roblox Studio showing a 3D environment in progress.

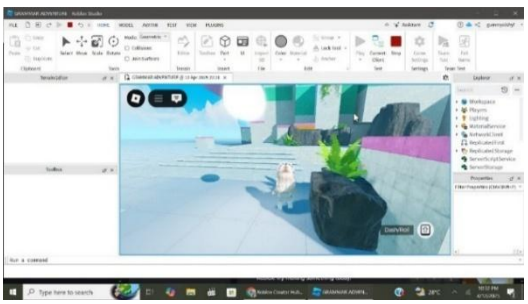

Figure 2: In-game testing of the custom-designed environment in Roblox Studio.

5. RESULTS AND DISCUSSION

The pilot testing of *Grammar Adventure* with 25 Year 1–3 students demonstrated notable improvements in grammar proficiency and student engagement. Pre- and post-assessments showed a substantial increase in adjective usage accuracy—from an average of 62% before gameplay to 87% after, representing a 25% improvement. This outcome highlights the effectiveness of embedding grammar instruction within an interactive, game-based

environment. Research has shown that such approaches help learners retain concepts better by promoting active participation and sustained interest.

Student engagement was another key area of improvement. Before using the game, learners spent an average of 8.2 minutes per session on grammar activities. After the introduction of *Grammar Adventure*, this figure rose to 22.7 minutes, nearly tripling the duration. This increase suggests that the game successfully captured learners' attention and encouraged longer, more focused participation. Informal classroom observations during testing also indicated greater enthusiasm and collaboration among students when using the game, reflecting high levels of intrinsic motivation and positive emotional responses.

Commercially, the project showed encouraging results. The RM5 per-user pricing model was deemed affordable and attractive across multiple user groups. Schools involved in the pilot expressed interest in incorporating the game into their English language curriculum, highlighting its curriculum alignment, user-friendliness, and potential to enhance lesson delivery. Several lecturers from teacher training institutes (IPGs) also showed interest in using the platform to help practicum students develop more engaging and differentiated grammar lessons.

Parental feedback further supported the game's value. Many parents appreciated the game's affordability and saw it as a useful educational tool, especially in comparison to costly tuition classes or mobile apps that rely on in-app purchases. The game's educational content, safe environment, and ease of use were consistently praised.

Additionally, *Grammar Adventure* is designed with inclusivity and accessibility in mind. Its offline capabilities and low technical requirements make it suitable for deployment in rural or under-resourced areas, helping to close educational gaps. This directly supports SKPMg2's Domain 5, which emphasizes equitable student support and access to quality learning tools.

In conclusion, *Grammar Adventure* effectively enhances language learning, increases engagement, and offers an affordable, scalable, and accessible solution for grammar instruction in Malaysian primary schools.

6. CONCLUSION & RECOMMENDATIONS

Grammar Adventure represents a successful integration of game-based learning principles within the Malaysian national education framework. Through its alignment with the SKPMg2 syllabus and its innovative use of interactive gameplay, the project has demonstrated that digital interventions can effectively support grammar instruction, especially in early primary education. The significant gains in both learning outcomes and student engagement observed during the pilot phase underscore the value of combining curriculum-driven design with engaging digital tools.

Given the positive results, several recommendations emerge for stakeholders involved in educational development and policy-making. For the Ministry of Education, incorporating educational games like Grammar Adventure into national programs, such as the Digital Learning Toolkit and school-based innovation grants, would encourage wider adoption and formal recognition of game-based pedagogy. Such support could be particularly impactful in rural and under-resourced areas where traditional methods may fall short in engaging learners.

For developers and instructional designers, the next phase of development should involve expanding the game to cover additional grammar topics while preserving the proven pedagogical structure that supports differentiated learning. Including multilingual support and

culturally relevant scenarios could further enhance the game's relevance across Malaysia's diverse classroom contexts. Additionally, integrating the platform with Malaysia's DELIMa digital ecosystem would streamline access and usage for teachers and students alike, enhancing both reach and functionality.

From a research perspective, there is a strong case for conducting longitudinal studies to examine the sustained impact of game-based grammar instruction on students' academic performance. While initial findings are promising, understanding how continued engagement with such platforms influences standardized test results and language proficiency over time would provide deeper validation of their educational value.

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