

VocabQuest: An Engaging Digital Game for Enhancing English Vocabulary Skills among Foundation Students at Politeknik Nilai

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ABSTRACT

Vocabulary learning is a core component of English language education, yet many foundation students struggle with retention and application when relying on traditional teaching methods. This extended abstract presents VocabQuest, a gamified digital innovation designed to improve vocabulary acquisition through interactive, syllabus-based activities. Developed using the ADDIE model, which strengthens methodological rigor, the innovation integrates cost-effective and widely accessible platforms such as Kahoot, Quizizz, and Wordwall to create three main game modes: Word Hunter, Match & Win, and Survival Quiz. These activities are supported by a reward system of points, badges, and leaderboards to enhance motivation. A pilot study with 30 students revealed a 20% improvement in vocabulary test scores and strong positive feedback on engagement. The findings suggest that VocabQuest enhances not only vocabulary mastery but also fosters motivation, confidence, and essential 21st-century skills such as collaboration and digital literacy. The innovation's novelty lies in its integration of gamification with syllabus-aligned content, ensuring pedagogical relevance while maintaining learner interest. Overall, VocabQuest demonstrates strong potential as a transformative, student-centered approach to language education. Scalable and cost-effective, VocabQuest has strong potential for wider adoption across Politeknik campuses and other educational institutions, demonstrating the transformative power of gamified learning in language education.

Keywords: English Language Education, Vocabulary Acquisition, Educational Technology, Learner Motivation, Gamified Learning

INTRODUCTION

Vocabulary acquisition is central to English language proficiency, influencing students' reading comprehension, writing, and communication skills. Despite its importance, many foundation students at Politeknik Nilai face difficulties mastering new vocabulary due to reliance on traditional approaches such as rote memorization and lecture-based teaching. These methods often result in low engagement, poor retention, and limited confidence in language use. Addressing this issue is essential for preparing students to succeed in academic and professional contexts where English is a vital medium of communication.

Problem Statement

Foundation students at Politeknik Nilai face persistent challenges in mastering English vocabulary. Traditional approaches such as rote memorization, worksheets, and lecture-based teaching often result in low engagement, poor retention, and limited ability to apply vocabulary in real communication. This gap not only hinders academic performance but also reduces students' confidence in using English in academic and professional contexts. Therefore, there is a clear need for an innovative, interactive, and engaging approach to vocabulary learning that aligns with the syllabus while motivating students to participate actively.

Objectives

1. To improve vocabulary mastery among foundation students by at least 20% within four weeks.
2. To achieve at least 80% learner engagement, with students preferring game-based learning to traditional methods.
3. To promote 21st-century skills such as collaboration, creativity, and digital literacy through gamified learning.

Product Description & Methodology

VocabQuest is a digital learning tool that incorporates three gamified activities:

- Word Hunter (word search puzzles based on thematic vocabulary).
- Match & Win (matching words with definitions or images).
- Survival Quiz (scenario-based challenges requiring vocabulary knowledge to progress).

These activities are supported by leaderboards, badges, and points to sustain motivation. To mitigate the risk of demotivation among lower-performing students, the system offers points and badges for effort and participation in addition to achievement, maintaining a focus on individual progress and inclusivity. The innovation was developed following the ADDIE model:

- Analysis: Surveys and lecturer feedback identified key challenges in vocabulary learning.
- Design: Game mechanics and vocabulary themes were planned based on the Foundation English syllabus.
- Development: Games were built using Kahoot, Quizizz, Wordwall, and Genially.
- Implementation: Pilot testing was conducted with 30 students over four weeks.
- Evaluation: Effectiveness was assessed through pre/post-tests, surveys, and observations.

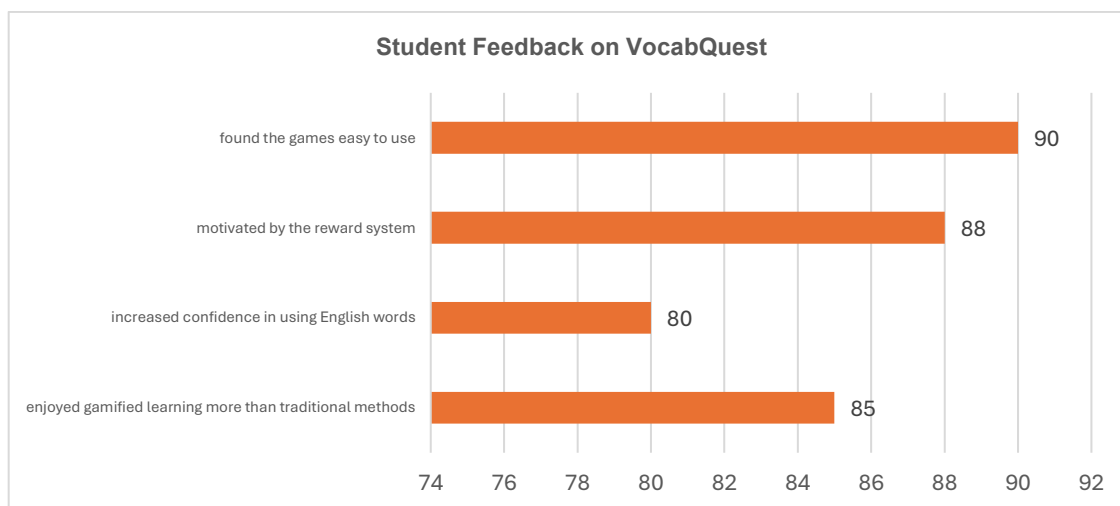
Potential Findings and Commercialization

The pilot study showed encouraging results:

Table 1 Pre-test and Post-test Vocabulary Scores (n=30)

Assessment	Mean Score (%)	Improvement
Pre-test	56%	–
Post-test	76%	+20%

Figure 1 Student Feedback on VocabQuest



These findings demonstrate that VocabQuest is cost-effective and accessible using smartphones and laptops, making it highly feasible for classroom integration. While digital access remains a challenge in some contexts, the pilot ensured students utilized campus Wi-Fi and accessible devices (smartphones/laptops) to mitigate connectivity and device variability issues. Its scalability allows for adoption across other Politeknik campuses and beyond.

Novelty and Recommendations

The novelty of VocabQuest lies in its syllabus-integrated gamification, which combines curriculum relevance with interactive game mechanics. Unlike generic vocabulary apps, VocabQuest aligns directly with the English syllabus, ensuring educational impact while keeping learners motivated.

Recommendations for future development:

- Extend game modules to cover grammar, reading comprehension, and writing to strengthen its holistic contribution to English learning.
- Explore adaptive learning features to personalize vocabulary practice and offer tailored learning pathways for different proficiency levels, ensuring weaker students remain motivated without being overshadowed by competition.
- Investigate long-term retention effects through extended trials.
- Future trials should introduce a control group to strengthen the causal validity and robustness of the findings.

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