INVENTOPIA 2025

FBM-SEREMBAN INTERNATIONAL INNOVATION COMPETITION (FBM-SIIC)

INNOVATION IN ACTION: TURNING IDEAS INTO REALITY

Chapter 11
JarQuest

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ABSTRACT

Grammar learning is often challenging for primary school students, especially with traditional, repetitive methods that fail to engage diverse learning styles. This paper introduces JarQuest, an interactive, gamified quiz system aimed at enhancing grammar skills in students aged 10 to 12. Featuring an animated jar that fills with points for correct answers, JarQuest motivates learners through visual progress, digital rewards, and level-up incentives. The monthly reset feature supports ongoing assessment and growth. Teacher trainee feedback highlights strong engagement and potential for improved grammar outcomes. JarQuest shows promise as a supportive tool for ESL grammar education in Malaysian primary schools.

KEYWORDS: JarQuest, ESL, interactive quiz-based system, gamification, progress

1. INTRODUCTION

Grammar acquisition is a challenging component for primary school students, particularly when traditional methods relying on repetitive exercises are used. These conventional techniques often fail to engage students meaningfully and may not fully address the diverse learning needs of young learners. As a result, students may struggle to develop a solid understanding of grammar rules, leading to disengagement and frustration. Recognising this gap in the traditional approach, this paper introduces JarQuest, an innovative, interactive quiz-based system specifically designed to strengthen grammar skills among students aged 10 to 12.

JarQuest offers a unique, engaging approach to grammar practice by incorporating game-like elements such as points, levels, and visual feedback. Central to the system is an animated jar that fills with points each time a student answers a quiz question correctly. This visual representation of progress not only makes learning more interactive but also motivates students to stay engaged with the material. Once the jar is filled, students are rewarded with digital incentives, such as level-ups on their profiles, which fosters a sense of achievement

and healthy competition. The jar resets every month, providing an opportunity for both students and teachers to track improvement over time.

The system was developed with the goal of enhancing students' grammar learning experiences by introducing an element of fun, competition, and consistent tracking of progress. Feedback from teacher trainees who trialled the system indicates a positive response to JarQuest's design and its potential for classroom application. This paper will explore the concept of JarQuest, its implementation in the classroom, and its potential to transform grammar learning for primary school students in Malaysia.

2. LITERATURE REVIEW

Traditional grammar teaching for young learners often relies on repetitive memorisation, which may not suit their developmental needs or learning styles. Although interactive methods have been recommended (Farrah & Tushyeh, 2017), they are not widely applied in classrooms. Game-based learning has shown promise in boosting engagement and motivation through elements like points, levels, and feedback. However, if not well-designed, games may distract rather than support learning (Kapp, 2012).

Visual feedback tools like progress bars and point systems also enhance motivation and achievement (Deterding et al., 2011; Hamari et al., 2014), especially when kept simple. Digital tools such as Quizlet and Kahoot! support self-paced, interactive grammar practice (Wang, 2015), but they often lack focus on younger learners. JarQuest addresses this gap by combining gamification, visual progress tracking, and targeted grammar practice, offering an engaging and age-appropriate tool for primary students in Malaysia.

3. METHODOLOGY

The development and evaluation of the JarQuest system involved a mixed-methods approach, combining system design principles with user feedback to ensure its effectiveness and usability in a primary school setting.

The system design and development of JarQuest began with a needs analysis, carefully conducted to pinpoint the specific challenges that primary school students encounter in grammar acquisition and to identify the limitations inherent in traditional teaching methodologies. This initial analysis was crucial, as it directly informed the design requirements that guided the creation of the JarQuest system. Following this, the system was intentionally designed to incorporate gamification elements, including points, levels, and rewards, alongside visual feedback mechanisms, such as the animated jar. This design choice was grounded in established principles derived from game-based learning theories (Prensky, 2001) and motivational design strategies (Deterding et al., 2011; Hamari et al., 2014). Finally, the JarQuest system was developed through an iterative process, allowing for ongoing refinement of the prototypes based on continuous feedback obtained from teacher trainees.

The evaluation of the JarQuest system involved teacher trainees who participated in trialing the system and providing initial feedback. Data collection during the evaluation process included gathering system usage data, which detailed how the teacher trainees interacted with the system, and qualitative feedback collected through open-ended questions and discussions with the teacher trainees, focusing on the system's design, usability, and its

potential for practical application in classroom settings, with the aim of identifying key themes and pinpointing areas where improvements could be made to the JarQuest system.

4. RESULTS AND DISCUSSION

The JarQuest system successfully increased student participation in quizzes by using a gamified reward approach. This way, students will be motivated to answer more questions correctly to fill their animated jars, which visually track their progress. The monthly reset of the jar encouraged consistent engagement, as learners aimed to improve their performance each month. With each correct answer contributing to their progress, learners were encouraged to perform better in a more engaging, low-pressure environment.

Furthermore, feedback from users showed that the system made learning more enjoyable, the competitive yet non-pressure environment also fostered a positive attitude in students toward repeated learning. This shift is critical in primary and lower-secondary education, where fostering intrinsic motivation is just as important as delivering content. So, by gamifying repetition, JarQuest minimizes the stress of learning and maximizes the enjoyment of the users. JarQuest received an average rating of 4.85 out of 5, based on 13 students and teachers' evaluations as portrayed in Figure 1 below. The bar chart shows a strong skew toward high satisfaction, with 11 out of 13 students (84.6%) rating the system a perfect 5 stars, while the remaining 2 students (15.4%) rated it 4 stars. However, most importantly, no respondents rated it below 4, indicating universal satisfaction with the system.

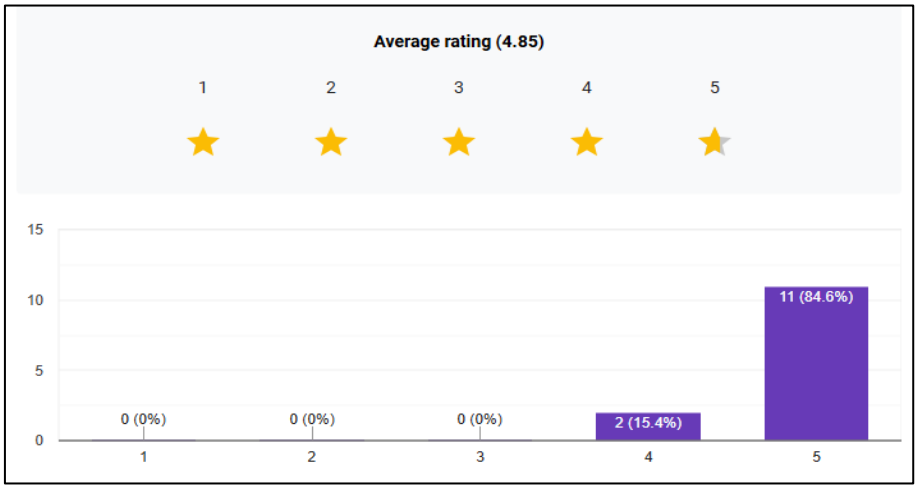

Figure 1: Average rating of JarQuest

However, while the majority of students remained highly engaged, a small percentage (15.4%, or 2 out of 13), as displayed in Figure 2, admitted that the system started to feel repetitive over time. To combat this, respondents proposed several suggestions for increasing engagement like themed challenges, team jars for collaborative learning, voice backgrounds and enhanced animations and many more. These suggestions align with best practices in game design, where personalization and variety are key to long-term engagement.

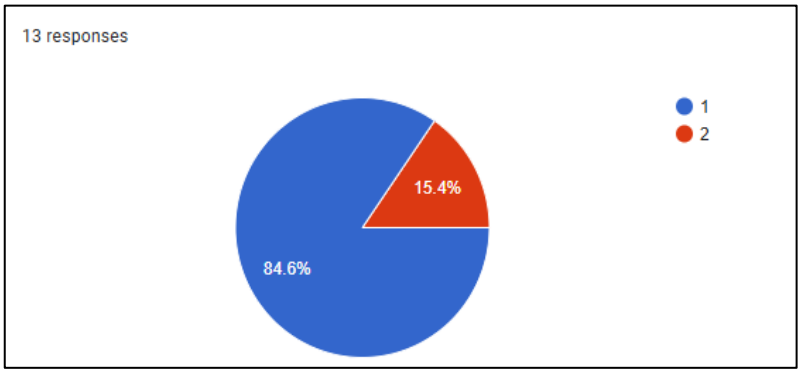

Figure 2: Percentage of responses on whether JarQuest feels repetitive

Overall, JarQuest proves that gamified learning can make education more interactive and rewarding, paving the way for innovative teaching tools. While certain areas, such as reward variety, long-term progress tracking, and collaborative features, present opportunities for improvement, the initial implementation has proven to be highly effective. With ongoing updates and refinements based on student feedback, JarQuest has the potential to become a staple tool for 21st-century classrooms.

5. VISUALS

Figure 3: The front page of the JarQuest website

Figure 3 displays the main landing page of the JarQuest website, designed as an interactive and student-friendly digital platform aimed at improving English grammar proficiency. The interface features a clean layout, intuitive navigation buttons, and visually engaging elements to attract and retain young learners' attention. It serves as the central hub from which students can access various grammar quizzes and learning resources.

Figure 4: The front page of one of the quizzes for Year 5 students

Figure 4 showcases the interface of a grammar quiz tailored specifically for Year 5 students, following the KSSR syllabus. The quiz page includes clear instructions, multiple-choice questions, and interactive elements to support autonomous learning. The layout is designed to be simple yet engaging, encouraging students to practise grammar in a fun and effective manner.

6. CONCLUSION AND RECOMMENDATION

JarQuest offers a creative and effective way to modernise grammar learning through gamification. With its unique jar-filling reward system, it transforms traditional quizzes into an engaging experience. Visual progress indicators, points, levels, and monthly resets promote a sense of achievement and friendly competition. These features not only encourage regular participation but also make learning enjoyable, helping students build a positive attitude towards grammar. The blend of repetition and rewards supports motivation and boosts knowledge retention, making JarQuest a strong bridge between learning and play.

To maximise its impact, JarQuest should first be tested in various classroom settings to gather feedback and assess its effectiveness. Expanding its quiz topics and difficulty levels can help engage a wider range of learners. Enhancements like digital badges or certificates could further motivate students. Teachers should be trained to integrate JarQuest into their lessons and use its features for progress tracking and personalised learning. Long-term studies would help compare its impact to traditional methods, and making it accessible on mobile devices would improve scalability. With these improvements, JarQuest has the potential to become a powerful tool in modern education.

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