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FBM-SEREMBAN INTERNATIONAL INNOVATION COMPETITION (FBM-SIIC)

# INNOVATION IN ACTION: TURNING IDEAS INTO REALITY

# Chapter 1
# Developing the Interface and Functionality of Gamified Quiz Platform

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**ABSTRACT**

In recent years, digital learning tools have become essential in education. Static quiz platforms are utilized due to its ease of use, automated grading, and structured assessments. However, this platform often lacks interactivity and engagement, leading to passive learning experiences where students simply complete quizzes. In contrast, gamified quiz platforms introduce elements such as real-time feedback, leaderboards, points, and time-based challenges, making learning more engaging. The project aims to analyze and compare the features of gamified and static quiz platforms, providing insights for educators on how to optimize digital assessment tools for better teaching and learning outcomes. Using a non-experimental approach, data was collected through observation and document analysis. The features of static platform were described and compared with gamification elements, focusing on the interface and functionality of those platforms. Based on the developed gamified quiz platform, the findings revealed several key differences in their design, functionality, and user engagement potential. Future research should examine how long-term use of gamified platforms affects student motivation and retention compared to static platforms. Conducting longitudinal studies could provide deeper insights into the sustained impact of gamification on learning outcomes.

**Key Words:** Gamification, static platform, interface, interactivity, functionality.

## 1. INTRODUCTION

In education, digital learning tools play a crucial role in assessments and student engagement. While static quiz platforms offer structured assessments with automated grading, they often lack interactive features, resulting in passive learning experiences. In contrast, gamified platforms integrate real-time feedback, leaderboards, time-based challenges, and many more features fostering greater engagement. This study aims to analyze and compare the features of both gamified and static quiz platforms to provide educators with strategic insights into optimizing digital assessment tools. The goal is to enhance both teaching effectiveness and

learning outcomes through a detailed understanding of how interactive features can influence student engagement and motivation.

## 2. LITERATURE REVIEW

Static quiz platforms have been extensively utilized due to their straightforward design and capability to administer and grade assessments efficiently. Literature indicates that while these platforms ensure a high degree of control over the assessment process, they may not encourage significant student interaction or engagement (Smith & Doe, 2019). Studies have shown that the lack of interactive elements can lead to rote learning, where students focus more on scoring rather than understanding the material (Johnson, 2020).

Gamification in educational settings incorporates game design elements into non-game contexts, aiming to boost student engagement and motivation (Lee & Hammer, 2011). Elements such as points, badges, and leaderboards are used to transform the learning environment, making it more stimulating and enjoyable (Kapp, 2012). Research by Gomez et al. (2015) suggests that gamified learning tools can enhance student participation and motivation, potentially leading to higher retention rates and better comprehension of the content.

## 3. METHODOLOGY

This study employs a non-experimental, comparative analysis to examine the differences between static and gamified quiz platforms in educational settings. The methodology is designed to provide insights into interface and functions of each platform.

### 3.1. Observation

Observations were conducted to capture the interface of both static and gamified quiz platforms. Observational data helped in understanding the practical use in different settings.

### 3.2. Comparative Analysis

The features of each platform were systematically compared based on usability, design, interactivity, and educational impact.

### 3.3. Development of a Gamified Quiz Platform

A gamified quiz platform was developed specifically for this study to ensure controlled comparisons. Key gamification elements integrated include real-time feedback, leaderboards, point systems, and time-based challenges.

## 4. RESULTS & DISCUSSION

The comparative analysis between static and gamified quiz platforms revealed distinct differences in their design and functionality, particularly highlighting the more traditional features of static platforms. The findings indicate that static quiz platforms typically exhibit the

fixed layout, simple navigation, sequential progression, absence of game elements, and structured assessments. Figure 1 illustrates the example of static quiz platform.

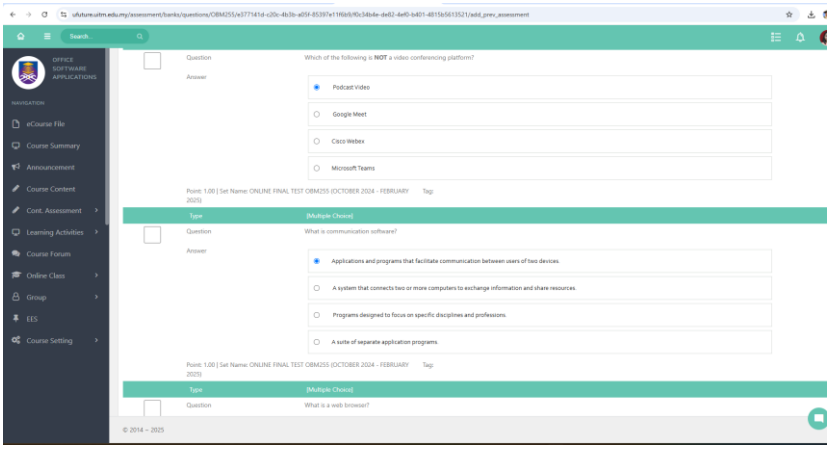
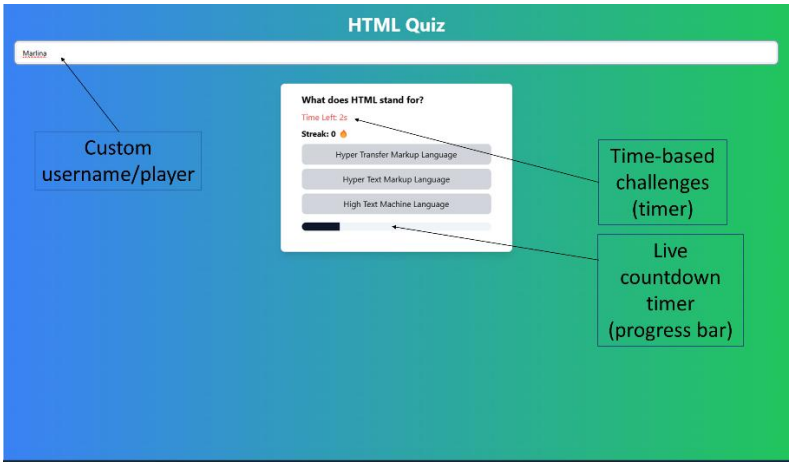



Figure 1: Example of Static Quiz Platform

The developed gamified quiz platform in Figure 2 demonstrated that it is significantly enriched with various gamification elements, which could possibly contribute to a dynamic and engaging user experience.



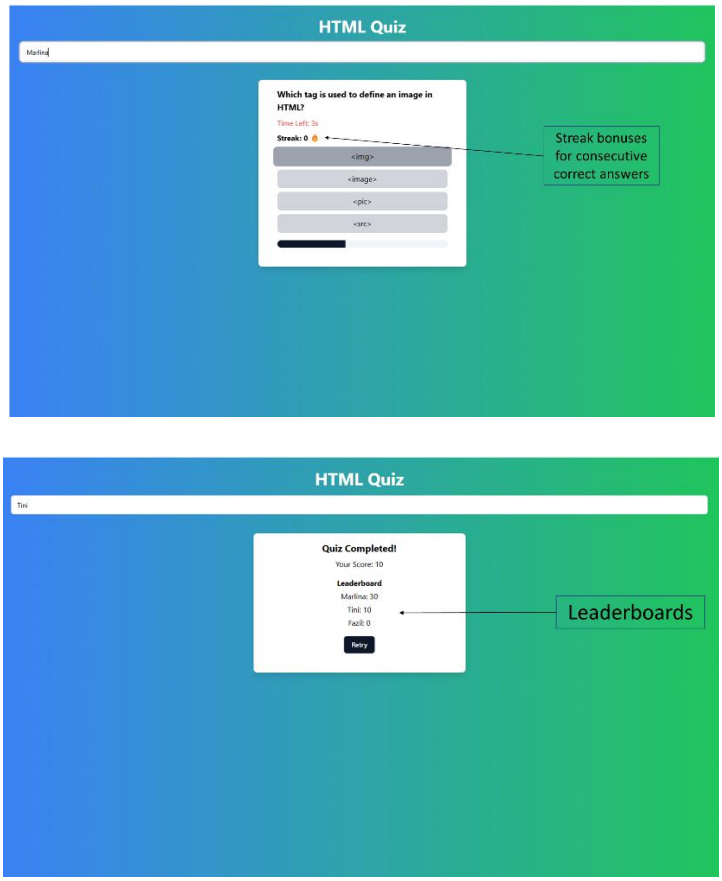



Figure 2: Example of Developed Quiz Platform Based on Gamification

## 5. CONCLUSION

In conclusion, this study highlights the key differences between quiz platforms with gamification elements and static platforms, focusing on their features, functionalities, and possible impact on user engagement. The findings demonstrate that gamified platforms offer enhanced interactivity through gamification elements, possibly fostering greater student engagement compared to the more structured, passive nature of static quiz tools.

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