Chapter 6
Synergistic Play Design:
An Integrated Framework for Game Element and Mechanic Implementation to Enhance Game-Based Learning Experiences

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ABSTRACT

The development and implementation of dynamic learning strategies as a means to enhance student engagement and retention have contributed to a promising resurgence in the field of education. One innovative educational strategy aimed at fostering student motivation is 'game-based learning' (GBL). GBL is designed to integrate subject matter with gameplay, facilitating the application of this knowledge to real-world situations. It harnesses the principles of gaming to achieve specific educational objectives, whether they relate to knowledge, skills, or behaviours. Through the amalgamation of these approaches, it is intended to increase student participation and empower them to cultivate cognitive abilities and behaviours that are conducive to their learning. This chapter explores the potential benefits of effective GBL implementation and delves into the numerous pitfalls and potential issues that can arise when incorporating game elements and mechanics into the educational, alongside the requisite institutional conditions for students to fully immerse themselves in the provided context.

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1. INTRODUCTION

Given the dynamic influence and continuous advancement of technology, it is imperative to develop innovative game-based learning environments tailored to the needs and preferences of contemporary students. Consequently, fostering an engaging and motivating educational experience is crucial as it pertains to learning objectives, the learning process, and learning assessment(Adipat et al., 2021; Zhong, 2019). Game-based learning (GBL) broadly refers to the utilization of video games to facilitate and enhance teaching and learning. Different studies articulate and interpret this broad definition in different ways. (Perrotta, 2013) GBL denotes the utilization of games as a pedagogical instrument to facilitate effective and captivating learning experiences. It encompasses the application of gaming principles within real-world educational environments, with the aim of augmenting learning outcomes(Lane, 2022). In GBL, the game itself serves as the primary instructional tool, in contrast to gamification, which involves the incorporation of game elements into conventional learning activities (Buckley & Doyle, 2014).

GBL is frequently characterized as enjoyable, appealing, moving, and beneficial, hence the growing popularity of games in our society has attracted great interest among educators and tutorial developers towards a concept known as gamification. Above all, learning to have fun is motivation and encouraging because it provides a platform for learners to compete in a healthy way. This is because games have rules and conflicts, which encourage learners to actively participate in triumph alongside the learning process (Rodrigues et al., 2019; Serborn & Fels, 2015). Numerous current shapes of gamification center on utilizing learning amusement mechanics to make a compelling and locks in encounter that can initiative and alter users' behaviors. Instances of amusement mechanics incorporate focuses, identifications, levels, challenges, virtual products, and pioneer sheets. These features generally in GBL based on the gamification model can be concise as takes as follow (Smiderle et al., 2020; Seixas et al., 2016):

- Points refer to indications collected by the learner that can be used as status indicators unlock access to certain level of content.
- Badges or awards refer to badges displayed on the learning platform as symbols or logos achievements of a specific activity, such as completing a learning lesson.
- Levels refer to a state that indicates the level of chapter or an often by acquiring experience points.
- Challenges refer to tasks that the learner must complete. Challenges provide learners with a target to complete or obstacles to solve.