Chapter 6
Gamified Learning: Favoring Engagement and Learning Outcomes

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ABSTRACT

In the context of the current COVID-19 pandemic, e-learning represents a more and more important concern of all education providers and an inevitable direction for the current context in training and education. This chapter follows the theory of gamified learning and the theory of flow to understand to which extent game characteristics improve engagement and learning outcomes, such as performance and engagement. To do this, two groups of learners (N=20) were randomly assigned: the experimental group followed a gamified learning module, and the control group followed the same content without gamification mechanisms. The game mechanisms chosen involve a game, a challenge, virtual rewards, an avatar, a final badge, and a system of points and levels. Results show that the gamified course increased the time spent on the course and the overall performance. Hence, this chapter demonstrates the relevance of using gamification to improve learning outcomes.

INTRODUCTION

The context of Covid-19 has impacted the learning process, and institutions had to transform face-to-face classes into online classes within a short amount of time (Al-Okaily et al., 2020; Kiselicki et al., 2020). Even though the Covid-19 pandemic drives a need for innovation, there is a significant difference between an online and a physical learning experience (Sawangchai et al., 2020). E-learning environ-

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ments imply a wide range of applications and resources, structured and interactive learning environments without temporal & spatial constraints (Krishnamurthy, 2020; Masie, 2006). Therefore, distance learning is becoming more relevant than ever before with a disrupted learning transition that forces students to modify their learning behaviours (Meade & Parthasaranthy, 2020). E-learning offers advantages such as 24h/7days training, self-pacing, scalability, repeatability and consistency of educational content for all learners across distance and time. However, many educational institutions were not ready for this digital transition and are still trying to create e-learning courses (Abu et al., 2020). The access to a wide variety of tools can facilitate or not the learning process, creating inequalities between students (Bobokhujaev, 2019). Indeed, students can be reticent toward e-learning in general, due to the Internet costs (Hasani & Adnan, 2020), the cognitive overload with the use of different learning tools, and the lack of efficacy perceived (Meade & Parthasarathy, 2020). Yet, for institutions, this context could represent an opportunity to confirm and establish competences and a reputation in the digitalization of training (Sawangchai et al., 2020). However, students and instructors encounter issues of accepting this new way of teaching as they both perceive online instructions as less effective than face-to-face teaching (Al-Okaily et al., 2020; Tartavulea et al., 2020). E-learning environments also emphasize learners' independence and responsibility for learning since Internet applications simplify access to learning resources (Dragomir & Munteanu, 2020). However, online learning is complementary to traditional teaching and learning methods, as it can be used together to reach the best learning outcomes (Dragomir & Munteanu, 2020). For instance, neurolearning has shown that repeating information multiple times increases memory. Gamification is a way to repeat the same information in different playful forms while enhancing learners' interest, and interest can activate an intrinsic motivation for learning (Silvia, 2008). Moreover, games bring out a better development of the intellectual point of view, creativity and intuition (Baisheva et al., 2017). Therefore, gamification is starting to gain interest in various domains, such as business strategies (Kiselecki et al., 2020). Gamification involves implemented motivational affordances, from perceived opportunities for action to intentions of motivation (Huotari & Hamari, 2012). Therefore, the theory of gamified learning links the theory of motivation (Ryan & Deci, 2002), the resulting psychological outcomes (i.e., anxiety, fun, distraction; von der Heiden et al., 2019) and further behavioural outcomes (i.e., engagement, performance; Huotari & Hamari, 2012).

This chapter aims to understand to which extent gamification influences the learning process, such as motivation, engagement, and performance. To study this research question, we created a gamified e-learning module presented via the Moodle training platform as a potential way to improve user engagement. The first part of this chapter presents a literature review of gamification and the theory of gamified learning; then, the second part of this chapter presents an experimental study that deepen the understanding of the role of gamification on engagement; the third part of this chapter highlights solutions and recommendations for teaching institutions; finally, the fourth part of this chapter brings out future research directions.

BACKGROUND

The background of this chapter describes the literature about gamification, which leads to the description of different gamified mechanisms used in learning processes and the theory of gamified learning. This part aims to shed light on the concept of gamification in education.