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Meaningful Engagement in Gamified Online Quizzes: The Role of Students' Gaming Orientation

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Research-in-Progress

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ABSTRACT

Gamification promises to enhance students' engagement and learning; however, mixed findings are present in the literature on the value of gamification in non-game contexts. In this research-in-progress paper, a framework for meaningful engagement in gamified systems is adopted to examine the moderating effect of students' gaming orientation (*i.e.,* achievement, social, and immersion-oriented gaming) on the impact of gamification mechanics (e.g., points and leaderboards) on engagement and performance. From the perspective of individual-technology fit theory, we suggest that matching students' gaming orientation with gaming mechanics may influence the effect of the latter on students' engagement and performance. Hence, a research model and hypotheses were developed, which will be tested using a quasi-experimental method to examine the moderating effect of gaming orientation on the effectiveness of gamified online quizzes. This study is expected to contribute to the literature by shedding the light on the role of individual differences in gamified systems.

Keywords

Gamification, engagement, performance, gamification mechanics, gaming orientation, gamified online quizzes.

INTRODUCTION

There is an increased interest and attention among educators toward the use of gamified online quizzes to facilitate student learning in higher education. Gamified online quiz platforms, such as Kahoot! and Quizizz, are being used in-class and online to motivate students to learn by introducing *challenges*, providing *instant feedback*, and providing *awarding points* for correct answers (Sailer and Sailer, 2021). This emerging phenomenon is known as *gamification*. Gamification refers to the inclusion of game design elements (e.g., points, leaderboards, badges) in non-game systems (Liu, Santhanam, and Webster, 2017). Gamification promises to enhance user's engagement (Hamari, Koivisto, and Sarsa, 2014; Koivisto and Hamari, 2019; Liu et al. 2017); yet negative and no effect findings are also present in the literature (*see* Hamari et al. 2014; Koivisto and Hamari, 2019). Although such mixed findings are often contributed to contextual and situational factors, only few studies examined the moderating role of individual differences (*see* Hamari et al. 2014; Koivisto and Hamari, 2019; Schöbel, Janson, Jahn, Kordyaka, Turetken, Djafarova, Saqr, Wu, Söllner, Adam, and Gad, 2020).

This study aims to understand the influence of students' gaming orientation on the effect of gamification mechanics on engagement and performance in gamified online quizzes. *Gamification mechanics* (also known as motivational affordances) refer to the rules designed to facilitate users' motivation and their interaction with the gamified system (Liu et al. 2017), while *gaming orientation* (also known as player orientation) refers to the motivational reasons that make individuals interact with games (Yee, 2006).

RESEARCH MODEL AND HYPOTHESES

Figure 1 represents the proposed research model. First, flow

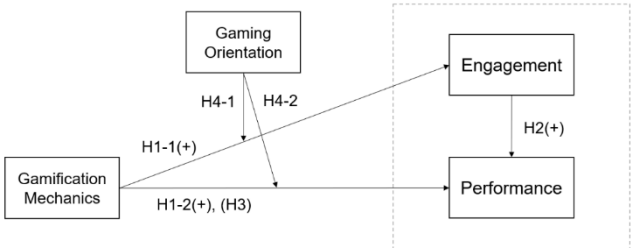

Figure 1. Research Model

theory (Csikszentmihalyi, 2014) is used to define student engagement. Three psychological states of flow, *i.e.,* interest, concentration, and enjoyment, are combined in one composite score to represent engagement. Second, based on the framework of meaningful engagement in gamified systems (*see* Liu et al. 2017), engagement is treated as an experiential outcome that partially mediates the relationship between gamification mechanics and performance (*i.e.,* an instrumental outcome). Third, from the fit perspective (Goodhue and Thompson, 1995; Venkatraman, 1989), we suggest that a good individual-technology fit is achieved when there is a *match* between the type of the employed gamification mechanics and student's gaming orientation.

Hence, we argue that gaming orientation moderates the positive relationship between gamification mechanics and the outcomes of the gamified system.

PROPOSED METHODOLOGY

A quasi-experiment will be conducted to test the proposed research model and hypotheses. An online gamified quiz platform, such as Kahoot!, will be selected and customized to represent one category of gamification mechanics. Since putting emphasis on individual achievement and progress is often employed in gamified online quizzes in higher education (Koivisto and Hamari, 2019), achievement-related mechanics (i.e., leaderboards, points) will be used in this study. Gaming orientation will be measured with items adopted from Yee (2006) to classify students' general game-play preferences (*i.e.,* achievement-oriented gaming, social-oriented gaming, and immersion-oriented gaming). A between-subject research design will be employed to compare between two groups: a gamification group, and a control group. To eliminate the influence of the "novelty effects" (*i.e.,* perceived enjoyment can decline after the first use of a gamified system (Koivisto and Hamari, 2014)) on the results, the quasi-experiment will be replicated. Participants will be post-secondary students enrolled in two sections of a university-level course.

CONCLUSION

This study seeks to contribute to the literature in several ways. First, understanding the impact of gamification mechanics on the experiential and instrumental outcomes (*see* Liu et al. 2017) of gamified online quizzes. Second, examining the influence of individual factors on the effectiveness of gamified systems, which remains underexplored (Koivisto and Hamari 2019; Schöbel et al. 2020). Finally, the findings of this study will be particularly critical to educators who seek to use gamified online quizzes to enhance the learning experiences of their students.

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