Coriander room
1.35-2.00pm

Transferring gamification across disciplines: determining the efficacy of migrating a gamification platform from a language to a law module

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Gamification for educational purposes has received much attention in the last decade. There is contrasting evidence for its effectiveness in supporting student learning, with research indicating both positive outcomes (Beale *et al.*, 2007; Papastergiou, 2009; Nte & Stephens, 2008) and problems posed by the strategy (Dicheva *et al.*, 2015; Mekler *et al.*, 2013; Sward *et al.*, 2008). Dicheva et al, in their systematic mapping of the published empirical research on the application of gamification to education, point specifically to the neglect of "ongoing monetary and time investment" (p. 83) concerns on the part of educational institutions using the strategy. Consideration of these issues is also absent in the largest systematic review of the impact of computer and serious games to date (Connolly *et al.*, 2012).

To address the concern of financial and time demands as relevant on both teachers and students, this paper investigates the efficacy of transferring a gamification platform from a language module (UTW1001S) across to a law module (LL4209V/LL5209V/LL6209V). The game was originally created for and successfully employed in the Ideas and Exposition (IEM) module at the Centre for English Language Communication, National University of Singapore (NUS), where evidence revealed a positive impact on students' comprehension as well as intrinsic motivation (Tan, 2018). The identical platform was used to scaffold pre-reading material for a law module, with changes made to the questions and attached information that supported and tested students' understanding of the key ideas in the relevant reading. To gauge students' perceptions of the effectiveness of the gamification platform in relation to more traditional, cost-effective and less time-consuming scaffolding strategies, a control platform was also incorporated in the form of an online quiz. These students' perceptions (n= 37) were gathered via an online survey of seven questions — four multiple choice and three open-ended — that asked students to compare the two scaffolding strategies in terms of how "helpful" they found them to be, and to explain the specific aspects of the platform that influenced their decision. Initial findings from the quantitative data suggest that students perceived that both the gamification and online quiz platforms supported their comprehension of the pre-reading material, while their qualitative comments revealed that each platform has distinct affordances that students appreciate. From the teacher's perspective, as the gamification platform was already created for the language module, no additional financial costs were incurred in its employment for the law module, although the law professor expended time in becoming familiar with the game structure and in generating the questions that accompanied the quiz and the game. The overall time taken to set up the gamification platform for the law module was perceived by teachers to be only slightly more than that of the online quiz, including the time and support from an educational technologist from the Centre for Instructional Technology (CIT), NUS.

Retrieval or repeated testing in general has been found to produce a large positive effect on learning (Chan & McDermott, 2007; Karpicke & Roediger, 2008; Roediger & Butler, 2012; Weinstein *et al.*, 2010), and gamification has been established as a strategy that can fulfil that purpose in testing and aiding students' comprehension of pre-reading material. This study addresses the lack of research on the concerns of time and financial constraints, from student and teacher perspectives, that come with the utilization of gamification for educational purposes, as well as providing evidence that students are receptive to different scaffolding strategies for their varying affordances.

Keywords

Meaningful gamification; serious games; technology enhanced learning; virtual spaces

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