Gamification Through Mobile Learning in University Students: A Teaching Innovation Proposal

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EXECUTIVE SUMMARY

Gamification is being implemented in university teaching as an innovative method in the teaching-learning process in line with 20th century society and the current type of student. The purpose of this chapter was to develop the experience of teaching innovation carried out with gamification, mobile learning, and flipped classroom resources and tools for trainee teachers at a Spanish university. Specifically, the experience was aimed at making classrooms more dynamic with mobile applications for self-assessment and reinforcement of learning using mobile devices. The results showed that students increased their autonomy, the acquisition of new knowledge, improved academic performance and content retention thanks to gamification. Finally, the use of mobile devices and applications brings students closer to the social and everyday reality outside the classroom.

INTRODUCTION

Methodologies combined with Information and Communication Technologies (ICT) are an inexhaustible source of resources for acquiring knowledge in a deeper and more lasting way, such as the flipped classroom. This methodology could be defined as the inversion of roles in the classroom, where the student acquires theoretical knowledge outside the classroom and the classroom becomes a space conducive to the resolution of doubts and cooperative work (Strayer, 2012). Thus, students work previously on theoretical concepts in non-formal contexts, using digital devices with which they can expand the information through their search and documentation on the web, to later present them in the classroom through small working groups (O'Flaherty & Phillips, 2015). Along the same lines, gamification is acquiring a relevant role in current teaching models where it was previously unthinkable to introduce this type of resource. Gamification is the use of a playful resource that has no didactic intention in formal educational contexts (Kapp, 2012).

In the university environment, gamification seeks to achieve greater student involvement in the subject (Huang et al., 2019), being able to develop certain skills associated with digital games such as those indicated by Contreras (2016): motivation towards learning; improved attention; social skills; and decision-making. Depending in the first instance on the game dynamics that the teacher intends to implement (competitive and/or cooperative). Competitive games are also fuelled by the intrinsic motivation to outperform one's peers and to achieve the reward individually or as a group, if competing in groups. While introducing the cooperative nuance encourages the development of social skills and group resolution, since the relationship and communication between teammates is fundamental to achieve success in the game.

In relation to the possibility of gamification from the introduction of mobile devices, mobile applications (apps) greatly facilitate compatibility and introduction because they are resources already created, tested and available to the public. Following Sánchez (2012), we could classify apps that promote learning through mobile devices into three types: self-assessment, sequential and support. With regard to the first, the central theme of the innovation project, we find as an example the MobiEval application developed by Méndez et al. (2013) for student self-assessment so that each student can detect their weak points and reinforce them before the assessment.

In this scenario, several experiences of gamification of apps with mobile devices have emerged in the university environment. Among them, we find Rodríguez-Fernández (2017), who used the *Kahoot!* app, which allows creating a game of questions and answers with an optionality between 2-4 items, which must be answered in a given time. The student who answers in the shortest possible time and correctly receives the highest score. The implementation dynamics applied with 43 university students consisted of accessing the contents from home beforehand, and then attending a classroom class where, at the end of the class, a *Kahoot!,* was held on the topics worked on. At the end of the experience, a survey was given to the students to get their opinion, highlighting two main benefits: improvement of learning and reduction of study time.

It should be noted that the potential of this type of self-assessment resource is further intensified in education degrees, as it has a double effect on both the development of students' skills and the possibility of transferring them to those who will teach them in the future.

Specifically, the experience was carried out in different subjects of the Bachelor's Degrees in Primary Education, Early Childhood Education, Social Education and Pedagogy. And also in postgraduate