



## Learning through play: Gamification model in university-level distance learning

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### ABSTRACT

Innovative instructional courses in university-level distance learning are key to improving the quality of education, due to their great ability to facilitate higher education to students with mobility limitations or problems in reconciling their professional and academic activity. However, university distance education presents a great challenge: students often feel lost, have issues with the technology, and experience lack of engagement. All these factors, among others, can result in increased dropout rates or lack of understanding and commitment. This is the context that provides the framework for the project we set out here, and whose goal is to design and analyse a gamification model for university-level distance learning, where game choice is based on skill type and the learning objectives to be attained. Using gamification does not guarantee success, as the results in terms of dropout and interaction will depend on how it is undertaken. We addressed this question via an exhaustive prior analysis, which guided the subsequent experimental design, and has allowed us to assess, through analysis of real experiments which reveal the lessons learned, its effectiveness in different areas of study and types of subject. The method followed in our model is based on the application of gamification techniques in 4 subjects from different fields of knowledge. The total sample was made up of 150 students and the results were compared with those obtained in the previous course without applying the model. This gives interesting results with respect to aspects that might be linked to encouraging interactivity or permanence in distance university students, such as an increase in interaction with students in the classroom, and training resources, a decrease in the dropout rate, an increase in the number of passes, and developmental achievement in creative problems. It thereby satisfies the goals set out for the research and offers the first clues as to how to continue work on the most important points.

### 1. Introduction

In the current psychological and educational context, a challenge we face is that of producing students capable of functioning well in an ever more diverse society that is in constant and vertiginous motion. In this context, something that concerns all education professionals is how to achieve this goal in the most efficient manner, what and how to teach students. Essentially, how to teach students to learn to learn [40]. It is a widely accepted idea nowadays that a high Intelligence Quotient does not guarantee academic or professional success [9]. To do this, it is important to consider how our students learn and how we can enhance their performance globally. Here there come into play not only cognitive aspects, but also social and emotional ones, in order to be effective [32].

The dropout of students in the university is a reality that becomes even more palpable in distance university education, reaching over 50%

in the first years of the degree [21,38]. This can occur for various reasons, among which seems to be a lack of motivation. Active methodologies with technology, with emphasis on gamification - understood as those virtual methods that the teacher uses to convert the process of teaching in activities that encourage an active role of the student and lead to learning- are a good resource when it comes to reducing drop-out rates and increasing student participation and motivation through their interactivity. This has been shown by different research carried out in recent years [28,33,36]. In spite of this, we must be aware that the simple fact of applying methodologies such as gamification does not lead directly to an increase in classroom participation and a reduction in drop-out, it is essential to carefully design the method to obtain positive results [37]. In addition, this design must also be adapted to the specific conditions of the teaching context, distance or face-to-face. In online instruction, the level of participation is translated into the quantity and

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