



Chapter 4

Gamification in Education: Development of a Game Theory Equation


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ABSTRACT

The use of gamification in education has been proved to enhance students' attention and learning compared to traditional methodologies. In this chapter, a generic game theory equation is developed and assessed to be applied in different economic and management-related education sessions. Additionally, the main potential digital sources to apply it are exposed. Finally, three examples of gamification dynamics in the scope of those topics are proposed. Consequently, this research opens the door to future developments where the equation is modified to be applied in other areas of knowledge in the context of education.

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INTRODUCTION

Higher university education, in the current educational context, is characterized by the combination of traditional methodologies (usually lectures) together with more innovative tools. In this sense, teaching in the field of Economics and Management usually includes theoretical and practical sessions in each subject, where the division between both tends to be more formal than pragmatic. Consequently, on occasions, they tend to be interspersed within the same day when both modalities are taught by the same teachers.

Given that the basis of teaching is usually conceived in a traditional way, most of the tools used are usually subject to the condition of being applied as an “add-on” or complement to the usual sessions. However, it is possible to apply an opposite perspective: to develop innovative dynamics that use short intervals of lectures as an additional element.

Among the dynamics that are usually employed in the pursuit of a disruptive approach in the classroom is the one known as gamification. Some possible definitions are “the use of game design elements in non-game contexts” (Deterding et al., 2011; Groh, 2012), “using game-based mechanics, aesthetics and game thinking to engage people, motivate action, promote learning, and solve problems” (Kapp, 2012), “the process of making activities more game-like” (Werbach, 2014), “the use of game design elements in other contexts for the purpose of engagement” (Mora et al., 2015), “the practice of using game design elements, game mechanics and game thinking in non-game activities to motivate participants” (Al-Azawi et al., 2016), “the application of digital game elements in non-gaming contexts to motivate user behavior” (Bai et al., 2020), or “implementation of motivational affordances in non-gaming educational contexts” (Sanchez et al., 2020). However, the use of technology is not a *sine qua non* condition. For example, Codish and Ravid (2014) defend that gamification is used to increase student engagement and learning. Other authors like Dicheva et al. (2015) postulate that traditional methodologies are perceived as ineffective and boring by a large part of the student body.

As can be seen, gamification is based on the principle of applying elements from a field other than the one of interest to make the content of the latter more attractive. This precept is of great importance in the academic environment since this interest is the trigger of the attention that can later lead to the assimilation of contents and competences by the students. In this sense, the development of playful mechanics, if properly designed and implemented, can lead to a better transfer of knowledge between teacher and students.

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