Chapter 40
Simulations in Business Education:
A Case Study of Cesim™ Global Challenge

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ABSTRACT

This chapter examines the experimental use of Cesim™ Global Challenge, a computer-based business simulation, in an undergraduate international business program in Bogota, Colombia. The authors analyzed the data from the simulation through the application of a nonparametric statistical analysis, in addition to the application of an ex-post survey instrument, in order to assess the relevance of using simulations in the acquisition of managerial skills among undergraduate students. Key findings include the observation of positive effects of computer simulations in learning environments, as they occur in the literature. The authors accepted the hypothesis that stated that more time spent in the simulation leads to better results in the default winning criteria. Finally, the survey instrument confirmed that the use of the simulation helped the students develop managerial soft skills.

INTRODUCTION

The rapid changes and developments in telecommunication and information technologies have affected many aspects of modern life. For instance, the pervasive use of technology is having a strong impact on the labor market and its economic development demands, and hence on educational strategies aiming to adapt complex communications to transform them into new problem-solving skills (Bogers & Sproedt, 2012; McClarty et al., 2012). Thus, a common concern for educational programs, professors, and students is to cope in a more competitive and technology-driven world.

Scholars have emphasized the importance of transforming mainstream educational practices into technology-based approaches, considering the new learning generation demands. For example, Prensky (2001) introduced one of the most interesting concepts regarding the effects of technology on the *digital natives* (i.e., new generations of learners):

Today's students - K through college - represent the first generations to grow up with this new technology. They have spent their entire lives surrounded by and using computers, videogames, digital music players, video cams, cell phones, and all the other toys and tools of the digital age. Today's average college grads have spent less than 5,000 hours of their lives reading, but over 10,000 hours playing video games (not to mention 20,000 hours watching TV). Computer games, email, the Internet, cell phones and instant messaging are integral parts of their lives. (p.1)

In order to address the educational needs of the digital natives, motivation, engagement and flow are elements that play a fundamental role in the learning process of newer generations (among them, *millennials, and Generation Z*). In the last decades, a growing body of research has found games and simulations to be integral tools to reach out to a younger generation of students with particular learning styles and a unique relation with technology (Csikszentmihalyi, 1990; Fasli & Michalakopoulos, 2006; Gundala & Singh, 2016; Shea, Sherer, Quilling, & Blewett, 2011; Tennyson, 2011). Moreover, the benefits of adapting elements from games and simulations in educational strategies include the improvement of students' decision-making skills, critical and complex thinking, and a major proclivity for teamwork, among others (Tanner, Stewart, Totaro, & Hargrave, 2012; Yang & Yi, 2010).

For the purposes of this chapter, simulations are found to be a more suitable tool in business education, considering they build a link between abstract concepts and real-world outcomes, unlike games, which do not necessarily introduce real-world scenarios in their design (Ben-Zvi, 2010). Nonetheless, this chapter briefly reviews the elements and aesthetics of games in order to discuss a feature which is applied in education technology: gamification. This feature adapts elements and rationale of games into serious activities or simulations; thus, gamification is a key attribute of Cesim™ Global Challenge.

The use of simulations in education has been well documented in fields such as physics, engineering, medicine or business (Bizelli, Fiscarelli, & Fiscarelli, 2013; Eisenhardt & Ninassi, 2016; Peterková, 2014; Ruiz, Castiblanco, Cruz, Pedraza, & Londoño, 2018). However, this research found that, even though empirical evidence or case studies of simulations in business education are abundant, especially on topics related to management, supply chain, accounting, and marketing, they mainly implement traditional simulations, while case studies on digital or computer-based simulations are found in a lesser extent (Gundala & Singh, 2016; Sánchez, Mota, Hernández, García, & Tlapa, 2016; Van der Merwe, 2013). Consequently, this study aims to test a computer-based and gamified simulation as Cesim™ Global Challenge and assess its results in accordance to what has been found in the literature.

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