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Reprint: Learning with a strategic management simulation game: A case study☆

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ABSTRACT

The use of simulation games as a pedagogic method is well established though its effective use is context-driven. This study adds to the increasing growing body of empirical evidence of the effectiveness of simulation games but more importantly emphasises why by explaining the instructional design implemented reflecting best practices. This multi-method study finds evidence that student learning was enhanced through the use of simulation games, reflected in the two key themes; simulation games as a catalyst for learning and simulation games as a vehicle for learning. In so doing the research provides one of the few empirically based studies that support simulation games in enhancing learning and, more importantly, contextualizes the enhancement in terms of the instructional design of the curriculum. This research should prove valuable for those with an academic interest in the use of simulation games and management educators who use, or are considering its use. Further, the findings contribute to the academic debate concerning the effective implementation of simulation game-based training in business and management education.

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1. Introduction

The use of simulation games in learning and teaching has increased due to growing evidence of its effectiveness (Vogel et al., 2006). However, the use of simulations and games has not been as pervasive as it should be, and this may be due to the lack of insight to the use of simulation games in different contexts (Aldrich, 2003). This may have contributed to the scepticism about how well simulations games can be integrated with curricula, and how and why learning takes place in different contexts (Wu, Hsiao, Wu, Lin, & Huang, 2012). As mentioned, whilst there is an increasing body of evidence that indicates the effectiveness of simulation games (Laffey, Espinosa, Moore, & Lodree, 2003), this remains equivocal (Randel, Morris, Wetzel, & Whitehill, 1992) as some studies show that simulation games do not significantly add to learning (Costabile, De Angeli, Roselli, Lanzilotti, & Plantamura, 2003) and whilst other studies have been ambivalent (Rosas et al., 2003).

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Gros (2007) asserts that in addition to linking enhanced learning with the use of simulations/games, research studies must also be more transparent and detailed about the context of the education and training programme using simulations. The context is critical as it helps situate the learning that occurs and deepens our understanding of the phenomenon. Gros (2007) recommends that research studies should describe when and how often the simulations/games is played, the type of exercises carried out pre and post game-playing, the type of interaction between participants and instructor, and the qualities of critical and reflective elements in the game itself.

Whilst empirical evidence is necessary, it is insufficient. Research studies must integrate the evidence with theoretical underpinnings as Wu et al. (2012) found that a majority of these studies did not have any substantial learning theoretical basis. In addition, they found that research have so far failed to categorise the types of learning or use theories in explaining learning. Hence there is a need to understand the types of learning derived from simulations/games (Gros, 2007) such as the call from Zantow, Knowlton, and Sharp (2005) for more insight concerning generative learning that occurs during game playing.

The primary motivation of this study is to empirically explain how learning is enhanced in the use of simulations/games, how instructional design and the context of the study may play a role in enhancing learning and to integrate the empirical evidence with learning theories. This study's contribution to theory building is consistent with the appeals from extant literature (e.g. Aldrich, 2005; Proserpio & Gioia, 2007) in demonstrating how simulations/games can be integrated into a strategic management curriculum, providing empirical evidence in showing the link between the use of simulations/games and enhanced learning, and well as providing insight to how and why learning takes place. The contribution to practice involves informing and potentially validating programmes involving experiential learning in further enhancing its effectiveness. Such contribution will help guide education and training providers in designing their own programmes as Aldrich (2003) claims that business schools, for example, that are able to provide experiential learning via simulations will be in a more competitive position.

The following section reviews the extant literature concerning blended learning, simulations/games, and learning theories. The next section contains a discussion on the research methods adopted, including the justification of the case and simulation game. We then present the findings in addressing the research question. In the final section we discuss and conclude our study by synthesising the findings with learning theories.

2. Literature review

2.1. Blended learning pedagogy

There are few, if any, learning and teaching curricula wholly dependent on technology. Whilst learning and teaching without technology may be considered uninteresting, the use of technology without proper guidance from an instructor may be ineffective. Thus, adopting a blended learning pedagogic approach enables instructors to obtain the best of both traditional and digital domains. Blended learning is mostly associated with the amalgamation of traditional and virtual environments (commonly known as e-learning) in the delivery of a curriculum (Bonk & Graham, 2006).

The most common approach to blended learning involves the supplementation of traditional learning and teaching methods with technology such as using web-based systems as a repository for learning materials for students to access (Arbaugh, 2008). The blended learning approach has enabled the delivery of curriculum to be made more flexible, allowing learning and education to become more accessible to prospective learners that have very different lifestyles, goals and learning experiences.

The robustness of blended learning helps educators to fit curricula within a variety of contexts such as the choice and blend of synchronous and asynchronous interactivity between instructor and students, and students with one another including accommodating a range of class sizes (Graham, Henrie, & Gibbons, 2013). Blended learning also enhances learning through the use of other methods e.g. e-learning tools to enhance traditional face-to-face lessons and vice versa (Garrison & Vaughan, 2008). The flexibility of blended learning can also be observed from research by Lean, Moizer, and Newbery (2014) who adopted the perspective of students in investigating the effectiveness of a blended learning approach utilising a simulation game and reflective learning. Their research employed the critical incidents technique to prompt students to think about their experience whilst game playing to facilitate reflective learning.

2.2. Simulations and games

'Simulations' are a model (or simplification) of reality or some natural systems. A simulated model is valuable if it is characterised by omomorphism, which is the degree of authenticity of the simulation in reflecting reality (Proserpio & Gioia, 2007), that is, the number of key traits in reality that have been reflected in the simulation. The balance in maintaining authenticity whilst minimising complexity is a challenge as simplification tends to degenerate the face validity of the simulation (Vogel et al., 2006). Students learn with simulations by experimenting with changing the input values, parameters and constraints of the process, and consequently observing the change in the output. Pure simulation programmes have no specific goals or competitive element that learners have to consider (Leemkuil & De Jong, 2012).

Games, in contrast, involve competition (or cooperation) against (or with) the programmeme or other players to attain a goal within the rules and constraints of the game setting (Galvão, Martins, & Gomes, 2000). Vogel et al. (2006) state that

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