Developing Cultural Intelligence in a Serious Game-Centered Blended Course: Insights from Experiential Learning Theory and Empirical Evidence

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Abstract. Cultural intelligence (CQ) is a crucial asset for employees working in a global context. However, CQ development research has produced inconclusive results, which is why researchers have emphasized the importance of applying theory-based arguments to explain why and how CQ can be improved. This article takes the perspective of experiential learning theory to describe the development of a serious game-centered intercultural management course, thereby contributing learning-theoretical explanations for CQ development by also discussing the relevance of immersion and experiential learning styles in this regard. The effectiveness of the course was tested in a longitudinal study with 278 students, and the empirical analysis indicated that course participation was associated with improvements in overall CQ as well as in terms of all of its sub-dimensions. Moreover, immersion was positively related with CQ development, and divergent, accommodative, and assimilative learners all reported significant CQ improvements, which has important implications and stimulates future research.

Keywords: cultural intelligence, experiential learning theory, serious games, intercultural management education, immersion, experiential learning styles.

1. Introduction

Globalization, digitalization, increasing workforce mobility, and different forms of global work have led to a higher prevalence of intercultural interactions in the workplace (Ramsey & Lorenz, 2016), thereby making intercultural competency a key skill for employees (Dowling, Festing, & Engle 2023; Ott & Michailova 2018). A frequently used construct employed to assess it is cultural intelligence (CQ), which is defined as '*an individual's capability to function and manage effectively in culturally diverse settings*' (Ang *et al.* 2007, p. 337). CQ has been directly and indirectly associated with expatriate performance (Setti, Sommovigo, & Argentero 2020), and it has been shown to constitute an important element of global leader development (Ng, Van Dyne, & Ang 2009), thus making it '*essential for any business professional working in an international or cross-*

cultural setting, where employees, partners, competitors, and customers may come from different parts of the world' (Alon *et al.* 2018, p. 2).

In order to contribute to the growing research interest in understanding *how exactly* individuals develop CQ (Menzies & Ogden-Barnes 2016; Michailova & Ott 2018; Nolan, Liang, Brennan, & Brady 2022; Ott & Michailova 2018; Rosenblatt, Worthley, & MacNab 2013), our aim is to develop and test a theory-based approach to encompassing intercultural competency development that combines cultural exposure (e.g., intercultural interactions) and formal instruction (e.g., academic education). Our approach centers on a serious game integrated into intercultural management courses, as serious games help replicate some aspects of cultural exposure experiences virtually (Kiili, 2005) while also guiding the learner (Westera 2019). Serious games are defined as '*any piece of software that merges a non-entertaining purpose (serious) with a video game structure (game)*' (Djaouti, Alvarez, & Jessel 2011, p. 118), and they are primarily developed for educational purposes (Carvalho *et al.* 2015), as research shows that they can be highly effective instruments for cognitive, motivational, and behavioral training (Connolly, Boyle, MacArthur, Hainey, & Boyle 2012). Importantly, while some research subsumes non-digital learning games (e.g. educational board games) under the banner serious games (e.g. López, Arias-Oliva, Pelegrín-Borondo, & Marín-Vinuesa 2021), most of the serious games-related research focuses exclusively on digital learning games (e.g. Guillén-Nieto & Aleson-Carbonell 2012; Laamarti, Eid, & El Saddik 2014), which are also the focal point of this research article. In addition, serious games should also not to be equated with gamification, as the latter merely uses game design elements, rather than fully fledged games, in non-game contexts (Deterding, Dixon, Khaled, & Nacke 2011).

It has to be admitted that serious games are not new to intercultural education; in fact, they have been used to teach selected aspects of intercultural competencies such as intercultural awareness (El Kechaï & Pierrot 2015). However, existing research suffers from three major drawbacks. First, cultural knowledge has grown substantially within the last two decades (Gelfand, Aycan, Erez, & Leung 2017), and it has not been adequately reflected in existing culture-oriented serious games (e.g., An, Brown, & Guerlain 2019). For example, scientific evidence increasingly suggests that national boundaries might not represent the best proxy for delineating a culturally homogeneous group of people (Taras, Steel, & Kirkman, 2016), as countries can have differing degrees of ethno-linguistic fractionalization (Luiz 2015) and individuals partially and plurally engage with culture—as the polyculturalist perspective on culture suggests (Morris, Chiu, & Liu 2015). However, most culture-oriented serious games still tend to equate country with culture (e.g., An *et al.* 2019; Guillén-Nieto & Aleson-Carbonell 2012). Second, existing research (Shliakhovchuk & Muñoz García 2020) has not looked specifically at how serious games can engender CQ development. Instead, these studies have evaluated learning outcomes that are

closely related but not equivalent to the sub-dimensions of CQ, such as intercultural awareness (El Kechaï & Pierrot 2015), which constitutes only one facet of metacognitive CQ (Earley & Ang 2003). Additionally, while we did uncover some research evaluating the potential of serious games, in order to achieve multiple learning outcomes related to two or three CQ dimensions (An *et al.* 2019; Froschauer, Seidel, Gärtner, Berger, & Merkl 2010; Guillén-Nieto & Aleson-Carbonell 2012), we could not find any studies examining the ability of serious games to develop all CQ sub-dimensions simultaneously. This is problematic, however, because research suggests that employees need to be proficient in all of them in order to work effectively across cultural boundaries (Ang & Van Dyne 2015; Festing 2012). Third, while debriefing constitutes an important aspect of game-based learning (Crookall 2010, 2014; Grund & Schelkle 2019; Guillén-Nieto & Aleson-Carbonell 2012), existing research about culture-oriented serious games only briefly mentions the subject, for example by describing how short summaries at the end of a gameplay session help debrief the experience (e.g., Guillén-Nieto & Aleson-Carbonell 2012; Khan & Kapralos 2019) or do not mention it at all (e.g., El Kechaï & Pierrot 2015).

To address these drawbacks, we developed a new culture-oriented serious game, in which players assume the perspective of a young woman who has just started working for a multinational company. While playing the young woman, players have to travel to different countries and make various decisions (e.g., how to interact with someone from another country) that affect how the story pans out. Concomitantly, the game also introduces various concepts, theories and models based upon the latest intercultural research to the player (e.g., Gelfand *et al.* 2017), such as, for example, the polycultural perspective on culture (Morris *et al.* 2015) or cultural archetypes (Richter *et al.* 2016). Thus, the game can be conceptually defined as an interactive, story-driven digital learning tool, that allows to virtually experience intercultural situations as well as receive related theoretical explanations while also creating an entertaining and engaging learning experience for the players. In addition, we integrated the game into different intercultural management courses, where we complemented it with lengthy classroom-based debriefing sessions. The latter were important in order to allow students to reflect on their gaming experience as well as the included learning material (Crookall 2010).

In order to systematically design the SG and the debriefing sessions, we drew on experiential learning theory (ELT), which represents a '*holistic integrative perspective on learning that combines experience, perception, cognition and behavior*' (Kolb 1984, p. 21). ELT has been used to understand CQ development (e.g., MacNab 2012) as well as learning from serious games (e.g., Carvalho *et al.* 2015; Kiili 2005), and it also helps explain how and to what extent students may benefit from a course that includes a serious game, especially in light of the fact that they will most likely have different learning styles (Kolb & Kolb 2005b).

It has to be emphasized that *virtual* cultural exposure experiences in a serious game are qualitatively different from *actual* cultural exposure experiences (Jennett *et al.* 2008; Kolb 1984), as game-based learning unfolds within the context, rules, and limitations of a video game (e.g., talking to someone from another culture by playing a character in a video game) (Guillén-Nieto & Aleson-Carbonell 2012). Conversely, actual cultural exposure experiences are much more immediate and direct (e.g., directly talking with someone from another culture over a video chat) (Erez *et al.* 2013). Therefore, we also take into account the concept of immersion, which captures the psychological experience of players up to the extent that those who are fully immersed are '*so absorbed in the game, even to the extent as being in the game*' (Cheng, Lin, She, & Kuo 2017, p. 4). Immersion has been linked previously to positive learning outcomes (e.g., Barclay & Bowers 2018), such as improved performance on scientific knowledge assessments when comparing highly immersed players to players who have experienced lower degrees of immersion (Teng, Chou, & Cheng 2021) and it can also influence how players behave in a game (Hsu & Cheng 2021). Thus, we argue that immersion is an important factor when trying to understand experiential learning from serious games, and so it requires further consideration herein.

Overall, our research aims to answer—by looking through the ELT lens—the research question of *how* an innovative teaching approach involving a serious game and related debriefing sessions can support the development of CQ. We approached this question by conducting a longitudinal study with 278 students, who participated in different intercultural management courses involving both a serious game and related debriefing sessions. As such, this paper makes two important contributions. First, we use ELT to explain how students develop CQ in serious game-centered courses (Michailova & Ott 2018) and also connect this discussion to the concept of immersion, as scientific evidence suggests that experiential learning and immersion are intricately intertwined (Cheng *et al.* 2017; Hsu & Cheng 2021; Teng *et al.* 2021). Second, we apply these theoretical elaborations to the development of a game-centered intercultural management course and empirically test its effectiveness, thereby providing much needed empirical evidence, not only about CQ development, including all sub-dimensions, but also about the role of immersion and participants' experiential learning styles in this regard. Thus, we theoretically and empirically advance the field.

The remainder of this paper is structured as follows. In our literature review, we summarize the existing literature about CQ development and connect serious game-based learning, related debriefing sessions, and immersion to ELT. Based on this discussion, we derive hypotheses about CQ development and present the course we have developed in order to test our hypotheses. We then describe the methods employed in our quantitative empirical investigation, following which we present and discuss our results. To conclude, we summarize our findings and