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## Academic Papers

# Web 3D simulation-based application in tourism education: A case study with Second Life

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## ABSTRACT

3D simulation-based virtual worlds, such as Second Life (hereafter SL), have been substantially adopted in educational settings worldwide. However, elaborations on such applications in regard to tourism education are still limited. In order to expand our current understanding of the applicability of SL to tourism education, this case study was designed and administered in the summer of 2011. The participants were eight college students who were majoring in travel management ( $N=8$ ); half of them did not have any prior experience with 3D simulation-based platforms. With the design of qualitative research, the present study elicited insightful information about students' perception regarding such application. The major findings of the present study disclosed participants' supportive attitudes toward SL in providing training related to tourism knowledge as well as communicational and interpersonal skills. Learners' self-efficacy as successful future tour leaders also was enhanced.

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## 1. Introduction

Using twenty-first-century technology to design and deliver twenty-first-century knowledge and skills to learners of Net Generation (Oblinger, 2003) has recently begun to appeal to scholars (Eaton, Guerra, Corliss, & Jarmon, 2011; Olasoji & Henderson-Begg, 2011). Discussions on the application of information communication technologies (ICTs) or computer-mediated communications (CMCs) in higher education settings as a new delivery channel have become popular in academic publications (Curtis & Lawson, 2001; Girard & Pinar, 2011; Hogo, 2010; Liaw, Huang, & Chen, 2007; Robinson, 2011; Stricker, Weibel, & Wissmath, 2011). In the past few years, three-dimensional (hereafter 3D) virtual worlds have been widely adopted by educators around the world (Mayrath, Traphagan, Heikes, & Trivedi, 2009). The cost of using Web 3D technologies for educational purposes has been reduced because of the increased network bandwidth and greater processing power of personal computers; these factors enable one to create a virtual environment with greater applicability in education or other fields (Chittaro & Ranon, 2007; Depradine, 2007).

The world has become seamless, as the distinction between the virtual world and real world is increasingly blurred (de Nood & Attema, 2006); there is an inter-reality area coined "third places" which specifically refers to online simulation-based platforms as well as the social networks (Steinkuehler & Williams, 2006). The proliferating applications of virtual reality (VR), which means creating a real world within the context of the virtual environment (VE) or virtual world (VW), are meant to help learners to understand concepts through first-person experiences (Chittaro & Ranon, 2007).

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By accounting for the popularity and functionalities of 3D virtual reality technologies, this study orchestrates a tourism education program designed on the most popular platform, SL, which is proposed to facilitate learning within an authentic context. This study aims to offer the readers a case study which describes how and why SL helps learners to experience the novelty of this new technology in actual practice.

The aim of the present study is to illustrate and explain what happens when SL is applied in tourism education. Based upon this purpose, the present study aims to answer two specific research questions:

1. How do tourism students perceive their experience of learning with SL?
2. Why do they have suchlike attitudes toward the application of SL in learning?

In order to answer these research questions, we first briefly reviewed and summarized the results of related studies that postulated that SL should be well suited for tourism education. Next, the design of this case study is described, followed by the presentation of results and major findings which could provide evidence to indicate that SL may be of great potential in regard to tourism students receiving significant learning benefits. The paper concludes with an in-depth discussion and suggestions provided for scholars and practitioners related to future research design and application of SL in the classroom.

## 2. Virtual worlds in higher education

In order to enhance the adaptability and versatility of their programs, higher education institutions around the world have gradually created a variety of virtual learning environments for their students (Brodie, 2009; Bronack et al., 2008; Dale, 2007; De Lucia, Francese, Passero, & Tortora, 2009; Hsu, 2011; Mapuva & Muyengwa, 2009; Robinson, 2011). As the web technologies have exponentially developed from Web 1.0 to Web 2.0, more interactivities are transforming into various types of virtual worlds. In the present study, the terms virtual learning environment and virtual world are interchangeable for their identical functionalities in applications. According to Twining (2009), virtual worlds enable teachers to infuse playfulness into the course design. Meanwhile, researchers are exploring the potential of such virtual worlds for enhancing students' learning knowledge and collaboration among them (Ibáñez et al. 2011; Jarmon, Traphagan, Mayrath, & Trivedi, 2009; Klinger & Coffman, 2011; Lee, 2009), which attests to Price's (2008) postulation that "virtual worlds also have the potential to enhance and enrich education. Such technologies can bring learning to life in a way that is not readily matched by other digital media" (<http://www.computing.co.uk/ctg/analysis/1831325/virtual-skills-real-world>). In regard to the use of on simulation-based programs in the virtual worlds for practical training or experiential learning, this issue is increasingly being examined in academia (Chittaro & Ranon, 2007; Hamalainen, 2008; Jarmon et al., 2009). Results of prior studies (Chen, Chen, & Liu, 2010; Hew & Cheung, 2010; Mason & Moutahir, 2006; Willems, 2009) have posited the promising potential of experiential simulation-based virtual worlds being used as instructional tools in educational settings.

## 3. 3D simulation-based virtual world and Second Life

Zemsky and Massey (2004) indicated that students enjoy learning through technology while being entertained by the graphic content and music as well as the ability to collaborate with each other online. Simulation-based learning in the virtual worlds intensified the exploitation of new paradigms of higher education, particularly in hospitality education (Penfold, Ma, & Kong, 2007). SL, the most well-known platform in the 3-D virtual world (Barnes, 2010; Jin, 2009), was created and developed by Linden Labs (Gollub, 2010). According to a study conducted by Gartner Inc. (2007), 80% of active users of the Internet will possibly have a "second life" in the 3-D virtual world by 2012 (cited from Jarmon et al., 2009). Virtual worlds, such as SL, provide learners with a representational-rich mediated environment and this virtual reality (VR) tool facilitates residents' interaction through text chats and conversations through avatars (Jin & Lee, 2010; Meggs, Greer, & Collins, 2011; Peterson, 2010). An avatar is defined as a "user embodiment in a collaborative virtual environment" (Gerhard, Moore, & Hobbs, 2004, p. 5) and avatars along with virtual world enable learners to have the sense of "being there" through telepresence or teleporting (Schroeder, 2002). The most advantageous feature of simulation-based virtual worlds is the affordance of staging situations which are challenging to set up in real life, while a user's real behavior can still be retained and manipulated (Kozlov & Johansen, 2010; Mayrath, Traphagan, Heikes, & Trivedi, 2011).

In line with the perspective of Monahan McArdle and Bertolotto (2008), the advent of 3-D virtual environments has transformed the web-based learning platform from exclusively text-based to a more immersed and interactive one; they also pointed out that navigation skills are challenging to the novices of 3-D computer games. Even so, participants in their research expressed a kinship to learning communities created by a virtual reality learning environment while their motivation to engage in the learning tasks was enhanced as well. Among all these 3-D virtual environments being used as a platform for educational purposes, Second Life is the top one in terms of popularity as well as affordances (Jin, 2011; Meggs et al., 2011; Warburton, 2009).

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