

Addressing the Learning Needs of Future IS Security Professionals through Social Media Technology

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INTRODUCTION

Students and practitioners are using social media technologies to connect with peers/colleagues, share ideas, resources and experiences for extracurricular activities. However, learning environments will need to support the needs and the career expectations of Generation 2020. The social business gaming platform considered in this article leverages the social networking concept (an activity that all students actively participate in) in an academic environment. This study was undertaken in order to develop Information Systems (IS) security skillsets through the creation and facilitation of social business gaming, which allowed students to measure their performances of understanding as part of their on-going learning. The online business game required students to apply what they have learned to problem situations and to further develop their understanding of IS security (ISS) topics. The problems posed required that the learners had to prove that they understood the material being taught in the traditional lecture and could apply what they had learned in an online environment. The on-going assessment component of the gaming network was used not just as an assessment for grades but also as a learning tool. The online ISS environment used in this study adhered to an on-going assessment process, which clearly outlined the criteria of the game allowing students to both collaborate and compete against their peers in a series of challenges. This article focuses on a group of final year undergraduate students completing Bachelor of Science in IS. The online social game was utilised as part of the continual assessment process to evaluate group interaction, role-playing, competition and learning in an ISS assignment.

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BACKGROUND

Organisations actively use simulated environments to both test (e.g. psychometric) and train (e.g. virtual trading of stocks and case study analysis) employees. Medical and scientific educators actively promote the learning of these disciplines through simulations and modeling tools (Quellmalz & Pellegrino, 2009) but to date social gaming has not been widely applied as learning aids for business and IS (security) graduates. This article endeavours to leverage social media technology to enhance and support the learning and assessment mechanisms utilised in an undergraduate final year ISS module with the objective of providing students with a practical proactive knowledge of the implementation and management of ISS in business, an increasingly important and understudied topic (White et al., 2013). The article is structured as follows; the subsequent section considers the area of learning, focusing on the weaknesses associated with traditional learning and highlighting how learning tools may overcome many of these. Following this, the nature of ISS education is presented and the workplace of the future is considered with particular emphasis placed on the need for business graduates with skills in social media technology. The research approach is then outlined. The case is presented and discussed and finally attention is attributed to the conclusions of the study.

Positioning Traditional Approaches in Teaching and Learning

Traditional learning has its place in third level education however more recently traditional methods are

complemented by alternative approaches to teaching and assessment. These include the use of Web 2.0 technologies i.e. podcasts, websites, video, as a means of active learning, to further support and engage with the learner (Cao et al., 2013). Social media technology provides a solution to these problems allowing the attributes of Web 2.0 technology, specifically the collaborative nature of these environments (Schneckenberg, 2009) to enable the instructor to redesign learning and assessment mechanisms by leveraging the dynamic interactive capabilities that these technologies provide and teach students how to become business and ISS professionals. Traditional learning also known as the teacher-centered paradigm, is regarded as a learning environment which encourages passive learning (Barr & Tagg, 1995), does not develop problem-solving skills and ignores the individual needs of the students (Hanum & Briggs, 1982). It could be argued that advances in technology, such as multimedia and virtual simulations, have left the traditional classroom trailing behind with learners expecting more and more. The widely accepted criticism of the teacher centred model is that the *'what'* rather than the *'how'* of the instruction is delivered (Goodlad, 1984). It is argued that problem-solving and other intellectual skills are difficult to incorporate into the traditional environment due to the very nature of the educational system. Factors such as space, the grouping of students according to grades and the duration and size of classes all hinder the desired environment. E-learning and most specifically social media technology is not the *'silver bullet'* solution to the traditional approach, nor should it be, but it can provide a necessary balance to some of the limitations experienced through the traditional approach.

E-Learning

E-learning supports both the learner and the educator in a number of ways, for example, differing learning styles can be catered for, which help educators reach more students in a variety of ways, and subsequently enable more students to learn the course material (Sulcic & Lesjak, 2001). If an organization or university does undertake an e-learning initiative they must develop an effective solution that recognizes the need for good learning practices, which incorporates good design and development guidelines (Sulcic & Lesjak, 2001). The learning dimensions advocated by Reeves and Reeves (1997) for interactive learning and collaboration

should be incorporated into the design of any learning environment. Active learning approaches, such as case-based learning and problem-solving, have long been advocated as ways of fostering deeper learning (Healy & Neville, 2009; Boyce et al. 2001). For many years organisations have been using problem-solving scenarios such as business simulations to both test and train employees. Simulations enhance the learner's logical reasoning, numeric abilities and spatial thinking through real world problem-solving scenarios. Realising the potential of such methods however requires active engagement from educators and learners alike (Healy & McCutcheon, 2008). For many educators, the lack of appropriate materials, learning management, assessment techniques and guidance are often perceived as barriers to student or employee engagement. With the *'right'* underlying pedagogical approach social media technology provides educators with the technical platform to overcome these well-cited issues. Quellmalz et al. (2013, p. 1111) suggest that "engaging students in interactive assessments may provide a better estimate of their more complex inquiry practices than active or static formats" providing third levels educators with an impetus to deliver a more complete learning experience.

Social Media in Learning

Extant learning theories support the view that student learning is enhanced through opportunities to work collaboratively (Prince, 2004), virtual learning environments actively support learner collaboration (Peat, 2000). Web 2.0 has revolutionized the traditional media content and the way people communicate. Consequently, social media technologies have the potential to support and enhance teaching and learning in higher education (Cao & Hong, 2011; Hajli et al., 2013). In fact, social media gives learners a chance to manipulate their learning environment and to participate actively in the learning process (Hrastinski, 2009). It is through these collaborative technologies that students and knowledge workers will gain enhanced insight in the knowledge at their disposal. These tools will also enable information workers to locate and connect people with certain expertise across organizations, bringing people, systems and data into alignment faster to respond to challenges and take advantage of competitive opportunities. In an educational context Chen and Bryer (2012, p. 99) comment on the potential for learning through the use

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