

EDUCATIONAL ONLINE TECHNOLOGIES IN BLENDED TERTIARY ENVIRONMENTS: A REVIEW OF LITERATURE

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ABSTRACT

This is a review of the literature surrounding five popular media-rich educational online technologies (EOTs) currently being used by educationalists to support blended learning within tertiary environments. This review considers the following EOTs: 1) connective media, 2) interactive gaming, 3) virtual worlds, 4) web conferencing and 5) learning management systems (LMS), and provides educational stakeholders with an insight into the capabilities, current applications and observed benefits of using these technologies to facilitate student learning. As stakeholders across institutes focus on technology as a way to minimise costs, increase efficiencies and better meet student needs, this knowledge can support them in understanding, prioritising and applying new online tools in an effective manner. This review makes a contribution to the growing field of research concerning the integration of EOTs into blended tertiary environments.

KEYWORDS

Online, technology, education, blended, engagement, learning.

1. INTRODUCTION

Educational online technologies (EOTs) play a significant role in the delivery of online education, supporting the global increase in demand for higher learning, and contributing to opportunities for enriched student engagement. Within blended tertiary environments, online advances are improving traditional methods of delivery by fostering increased levels of “connectedness, community and collaboration”, hallmarking the Internet as an important catalyst for growth in education (Bonk and Graham, 2006).

Educationalists have striven to respond “to the opportunities to harness” the benefits by developing their knowledge and application of rapidly evolving technologies (Gregory et al., 2010). In facilitating innovative EOT usage, those whose ideologies entail an adaptive approach to better learning (Tuapawa, 2013) are championing transformations towards the “future needs of learners and teachers” (Gregory et al., 2010).

This is a review of the literature surrounding five popular media-rich educational online technologies (EOTs) currently being used by educationalists to support blended learning within tertiary environments. This review considers the following EOTs: 1) connective media, 2) interactive gaming, 3) virtual worlds, 4) web conferencing and 5) learning management systems (LMS), and provides educational stakeholders with an insight into the capabilities, current applications and observed benefits of using these technologies to facilitate student learning. As educationalists across institutes focus on technology as a way to adapt to change, increase efficiencies and meet student learning needs, this knowledge can support them in understanding, prioritising and applying new online tools in an effective manner.

While targeted primarily towards educational stakeholders, this review also provides valuable information for business groups. As corporate leaders across all industries focus on online media as a way to gain competitive advantage, the use of emerging tools is “commanding organisations to assess and manage the impact these technologies may have on their business” (PriceWaterhouseCoopers LLC, 2013). Using this material can increase understandings towards the application of new tools, assist in EOT-based decision-making “within the context of ...business goals”, and support commercial growth (PriceWaterhouseCoopers LLC, 2013).

The following sections introduce the aforementioned technologies, selected at random to represent a cross section of EOTs currently being used to support blended learning within tertiary environments. The first section discusses *connective media*.

2. CONNECTIVE MEDIA

Connective media or “online social networks, [are] renowned for social discourse and relationship building...[and] have become the major online application” with “over 4.5 billion active users...in 2012”. (Harasim, 2010, p.25). High-ranking social platforms such Facebook, which “by 2012...had 1 billion users” (Harasim, 2010, p.25), MySpace, Youtube and Twitter enable students to “practise their identity” and “seek to make connections”. Designed to connect people together, these mediums have demonstrated “significant potential for supporting learning...” (Kear, 2011). Providing social affordances not dissimilar to physical learning environments, these sites have facilitated an “innovative means of expression” and have acted as a “source of entertainment” by providing spaces where students can communicate freely with friends or acquaintances and affiliate with groups having similar learning interests (Goodman, 2012). Participation in collaborative learning environments including technologies such as social sites, wikis, blogs and instant messaging has fostered sociability and social identity and presence through community-driven learning that for many students “feels real” (Kear, 2011). The next section discusses *interactive gaming*.

3. INTERACTIVE GAMING

Interactive games are being utilised within blended learning environments to support student engagement. Games and simulations have yielded “better attitudes toward learning when compared to traditional teaching methods” (Vogel et al., 2006). “People enjoy a challenge...[and] executing the actions...” states Adams (2010), “it’s fun to fly a plane, shoot a rifle, design clothing, build a castle, or sing and dance.” When gameplay, the primary source of entertainment, is incorporated into a blended programme of learning, students are challenged to approach a problem and improve their skills in a fun and entertaining manner. “Key findings from a review of 89 research papers providing empirical data on the application and effectiveness of computer-based games indicated that the effects of computer-based games on learning were positive (Ke, 2008). Similarly, the outcomes of a meta-analysis where trainees were taught through the use of gaming activities indicated that “simulation games [were] effective for transferring learning in many key areas” (Kapp, 2012). Other studies focusing on online games have yielded promising results for the importance of pedagogy (Harasim, 2012). The next section discusses *virtual worlds*.

4. VIRTUAL WORLDS

Virtual worlds, or three-dimensional immersive environments are also being utilised within learning environments to support student learning. “Virtual worlds” are considered by some as “the foremost in adaptability” providing opportunities to tailor environments to “ensure realistic interaction and imagery” which promotes full “emotional and intellectual engagement in any scenario” (Visual Purple, , 2012). In other environments, virtual world technologies have facilitated rich real-time interaction, unique experiential learning scenarios, wider reach across remote regions, and learnable interactive interfaces (Tuapawa and Skelton, 2012). Notably, virtual worlds have been heralded as ideal vehicles for andragogic experiential learning (Salt et al., 2008). Experiential learning within a virtual world has enabled students to benefit from being “exposed to different ways of learning, not only books or lectures, but by more practical and immersive ways” (Gregory et al., 2010).

Empirical studies have indicated that collaboration within a virtual world has contributed to higher levels of dynamicity. After teaching nine university courses, Professor Calongne from Colorado Technical University, commented on how collaboration within a virtual world promoted an experience that was “lively, engaging and rich with social networks, interaction, and expression” (Calongne, 2008). The Virtual Worlds

Working Group (VWWG), stated in a case study and analysis of 21 Australian institutions using virtual worlds that the simulative characteristics of the virtual world encouraged greater sharing of ideas and collaboration in an engaging online medium (Gregory et al., 2010). Successful uses have leveraged "opportunities for visualisation, simulation, enhanced social networks, and shared learning experiences", creating "a mix of content and activity to support" all learning styles, "auditory, visual, and kinaesthetic" (Calongne, 2008). The next section discusses *web conferencing*.

5. WEB CONFERENCING

Web conferencing enables "a group of users to enter a shared virtual 'room' that supports synchronous interactions through a variety of modalities". In an effective way, this technology has been able to "provide an increased sense of co-presence, ...offer new possibilities for concept representation" and create real-time collaborative opportunities (Bower et al., 2011). Shared features such as whiteboards, screen sharing, chat functionality, voting and file sharing are among those which "we use...to connect, share, educate, interact, and build trust" (Safko, 2012). Although lacking "the spatial component found in... 3D virtual environments... these [technologies] are powerful tools that [have] enabled participants... to engage in a variety of meaningful ways" (Annetta et al., 2010). Web-based platforms such as Adobe Connect have the potential to "improve online learning by enriching...synchronous interactions in audio, video, and text formats, encouraging student collaborations, increasing both social and teaching presence of an online course, providing students with instant feedback...boosting student motivation to learn and self-efficacy on online learning..." (Wang et al., 2013). The next section discusses *LMS*.

6. LEARNING MANAGEMENT SYSTEMS

Many institutions utilise integrated electronic learning environments, such as Blackboard, to efficiently administer and support the delivery of online programmes of learning. The basic functions of these usually commercial and customised learning management systems (LMS) cover student administration, class management, class resource management, courseware delivery, asynchronous and synchronous conferencing, document exchange and access to support services (Gooley and Lockwood, 2012). "Few educational technologies are as widely adopted and implemented as course management systems" (West et al., 2007). A LMS is "an excellent vehicle for training, evaluating and tracking results" (Brown and Johnson, 2007). A key advantage is that a centralised learning environment ensures consistency in delivery and evaluation and easy design and deployment for customised training modules.

7. CONCLUSION

This review has considered five popular media-rich technologies currently being used by educationalists to support blended learning within tertiary environment. These are connective media, interactive gaming, virtual worlds, web conferencing and LMS. Connective media is fostering student social identity and online presence. Interactive gaming is improving student attitudes towards learning and augmenting learning strategies. Virtual worlds are providing immersive scenarios for enriched and authentic activity. Web conferencing tools are offering real-time collaborative opportunities with varied functionality for meaningful engagement, and LMS are enabling consistent online course delivery mechanisms. These online tools are improving traditional methods of delivery by fostering increased levels of connectedness, community and collaboration. Stakeholders who continue to develop their knowledge and application of emerging EOTs will contribute towards improved learning opportunities for current and future students. Business organisations too can benefit by using this material to increase their understanding and application of online tools within a commercial context. Other EOTs not discussed, but which are influencing online delivery includes mobile applications and Web 3.0 technologies.

Further research by the author will attempt to 1) develop an appropriate classification system to help guide tool selection and categorise the extensive range of EOTs, and 2) conduct an investigation towards resolving the disparities that exist between stakeholder needs and EOTs within blended tertiary environments.

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