Digital Learning Technologies: Subjective and Objective Effectiveness Evaluation in Higher Education Settings

Ziad Hunaiti, Brunel University, London, Uxbridge, UK

ABSTRACT

Embedding Information and Communication Technology (ICT) within education is continually evolving research topic, because of the fast changes in information technology, software applications, and speed of internet. Therefore, many researchers around the globe are working in new projects of Digital Learning Technologies (DLTs). The success of new DLT is linked with the methods used during the evaluation process, which sometimes misunderstood. Hence, this article emphasises the importance of following the correct approach when selecting evaluation methods for DLT research and propose an approach, which can be followed by researchers, developers, students, educators, teaching & teaching specialists and other stakeholders to evaluate the effectiveness of new DLT.

KEYWORDS

Digital Learning Technologies (DLTs), Higher Education, ICTs, Subjective and Objective Effectiveness, Technology Evaluation

INTRODUCTION

The advancement in ICT and Internet speed in the last 20 years has contributed to the emergence of a digital society (Kirkup & Kirkwood, 2005). Within the digital society, many aspects of life have shifted to be conducted fully or partially through electronic means, which has been a driving factor in today’s social and economic changes. For instance, social media has changed the way people meet and interact, while online trading has changed the way people shop and business has to adjust to this change (Tapscott, 2008).

In parallel with the earlier mentioned examples, the higher education sector was one of the main industries that witnessed the new digital era of reform, starting with the birth of Electronic Learning (E-Learning) (Welsh et al., 2003). Hence, universities and higher education institutions invested in the needed infrastructure, courses restructuring and change of policies to accommodate the new form of teaching and learning. As a result, with the use of E-Learning higher education teaching and learning has been expanded beyond the physical boundaries of higher education institutions or classrooms, enabling anytime-anywhere activities (Abdul-Hameed et al., 2009).

Moreover, the digital revolution has heralded many new applications designed specifically for teaching and learning proposes, such as Simulators, Virtual Laboratories, Mobile Learning, E-vision, Blackboard, Easy Classroom and Moodle. Furthermore, general applications have been adapted to be
used in teaching and learning activities, such as Facebook, Myspace, blogs, Skype, gaming, YouTube, Twitter and Augmented Reality (AR). Digital platforms or techniques deployed in education are known as DLTs (Dalsgaard, 2006; DuBose, 2011; Gilroy, 2010; Hunaiti et al., 2008; Kim & Bonk, 2006; Lean et al., 2006; Liarokapis & Anderson, 2010; Tapscott, 2008; Warburton, 2009).

There is no doubt that DLTs have revolutionised teaching and learning in many ways, such as enhancing interactivity, flexibility, reachability and equal opportunities (i.e. access to education). Pedagogically, DLTs can contribute to Deeper Learning, which has four main components according to the Hewlett Foundation: critical thinking, content knowledge, communication, and learning to learn. Moreover, as reported by Tom VanderArk and Carri Schneider in their article “How Digital Learning Contributes to Deeper Learning”, there are nine ways by which Digital Learning can promote Deeper Learning (Figure 1): personalization, motivation, persistence, production, collaboration, simulation, access, acceleration and acceleration (VanderArk & Schneider, 2012).

However, the benefits of DLTs cannot be achieved if the design and evaluation of any new technology has not been conducted using a correct and suitable methodology. Therefore, technology developers, researchers in emerging technologies, education researchers and educators have to

Figure 1. Digital learning digital learning contribution to deeper learning deeper learning (VanderArk & Schneider, 2012)
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