Effective e-learning

For many organisations the approach taken to e-learning design has been techno centric, disregarding pedagogical and organisational matters (Tynjälä & Häkkinen, 2005). This dominance of technology-oriented approaches has led to badly designed e-learning which is poorly regarded by management and left unused by employees, thus making it ineffective and a misuse of valuable resources (McKay & Izard, 2012). These findings are supported by Sawang, Newton, & Jamieson,(2013) who conclude that content and structure are more important than technology and note that a learners lack of technical ability or confidence with technology is mitigated through the provision of authentic learning tasks. Macpherson, Homan, & Wilkinson,(2005) argue the full potential of e-learning will not be realised unless there is a substantial investment not only in technical capability but also in pedagogical design. This view is in agreement with Mitchell & Honore, (2007) who argue that pedagogy and technology are regarded as "the foundations" (p. 148) and must be of the highest possible quality.

The reason for the techno-centric approach taken by many organisations may be found in the work of Welle-Strand & Thune, (2003). They find that the policy makers in the institutions researched did not include a pedagogical framework in their policies for implementing e-learning. Welle-Strand and Thune (2003) suggest this indicates that pedagogy is not viewed as a relevant issue and there is an expectation that effective learning is a given, once the technological infrastructure is in place. They propose there is a need for a corporate learning strategy that combines technological and pedagogical considerations for the use of e-learning. Their findings build on the view of Halkett, (2002) who argues e-learning as a medium must be viewed differently as it is not possible to electronically replace the fundamental component of the learning process which is the effective design of a customised learning programme by an expert instructor. The relationship between technology and pedagogy that is necessary for effective e-learning is aptly described by Anderson, (2009) through his use of the metaphor of dance

> The technology is the music setting the tempo, the beat, the timbre and the compelling melodies. The pedagogy defines the choreography, directing the dancers sweeping motions, graceful extensions and enduring embraces. Together, technology and pedagogy reveal and develop our human creativity and responsiveness and allow us to learn effectively and enjoyably. (p. 2)

Anderson's metaphor illustrates the individual role of technology and pedagogy and their effect on each other as they work in harmony to produce effective e-learning.

As organisations move from producing as much e-learning as they can as quickly as possible, to producing higher quality e-learning resources Rosenberg (2006) they are faced with other challenges. The rapid development in learning technologies has led to an increasingly wider range of tools being made available to designers. Anderson (2009) classifies the wide range of technologies now available and contends there are

three generations of learning technology. In his later work with Dron (Anderson & Dron 2012) he alludes to the fact that the earlier generations continue to exist alongside the most recent generation presenting different opportunities and opening up new possibilities. These developments in technology have posed challenges for organisations as they endeavour to align pedagogy with the appropriate technology. Hrastinski, (2008) contends organisations are interested in developing asynchronous and synchronous solutions for training but have limited understanding of their affordances and limitations, a view supported by Bozarth, (2012) who reports Learning and Development (L&D) professionals are "enthusiastic and interested" (p.65) in new technology but have limited knowledge in how to use it. London & Hall, (2011) and Anderson & Dron, (2012) suggest it is necessary to identify the type of knowledge to be learnt before selecting the technology. London & Hall (2011) classify knowledge as being adaptive or generative and use Kolb's model of experiential learning as a framework to identify learner behaviour and describe teaching processes for each knowledge type. Alternatively Anderson & Dron, (2012) use Bloom's taxonomy to identify the type of knowledge which is the aim of the training intervention. They propose the first three levels of learning come within the behaviourist/cognitivist domain, more suited to the earlier generations of learning technology, and contend the remaining levels fall within the constructivist and connectivist paradigms which may be supported by all three generations.

Ehlers, (2009) argues the topic of quality was contentious during the earlier generations of learning technology and suggests it is even more contentious now for later generations of learning technology or e-learning 2.0. He asserts the evaluation of learning content and processes is becoming increasingly important and there is a need for quality management which defines organisational processes, quality assurance which examines if the assured level of quality can be maintained and quality control which detects and prevents errors. As Anderson makes the distinction between the generations of learning technology Ehlers (2009) notes the role of quality development is changing with the generations. He contends with more traditional e-learning methods the need is to check and control quality whereas with e-learning 2.0 scenarios quality development is becoming the "role of enabler" (p. 303) of learning advancement with procedures such as feedback, reflection and recommendation becoming increasingly important.

Ensuring that e-learning facilitates the acquisition of knowledge is challenging and inevitably there may be comparisons to traditional methods of training as organisations question if it is a viable alternative. The website http://www.nosignificantdifference.org/ continues to build on Russell's 2001 study of the comparison of traditional teaching methods with alternative modes of delivery. However while organisations may be satisfied to ensure their e-learning is delivering results comparable to traditional methods McDonald (2002) (as cited in Grandzol & Grandzol, 2006) suggests this may be overlooking the true potential of the medium.

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