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Promoting dialogue in Technology Enhanced Learning

Introduction

There has been a plethora of information written about Technology Enhanced Learning (TEL) and the opportunities it creates for learners, teachers and educators across all phases of education. (Picton 2019; Bodsworth 2017 and Greenwald 2017). This chapter seeks to highlight the positive aspects of TEL for all newly qualified practitioners embarking on a career in education. It aims to simplify some of the most popular and provide a platform for their use in everyday teaching, learning and assessment and to realise the potential of this ever-developing phenomenon. It will clarify the ways in which learners, across all phases of education, experience, conceptualise and understand the numerous TEL opportunities available and the intentions of the educator in providing them. Whilst acknowledging that there are some constraints, it will urge educators to consider using TEL for teaching, learning and assessment, inside and outside of the classroom, with their learners who are already actively engaged in a rapidly changing digital world.

The Technology

Education is in a period of technological change and advancement. This started at the beginning of the new millennium, with the World Wide Web providing content from about three million websites. This new form of material was static and simply provided information to those accessing it. If we call that original version Web 1.0, the following iteration, Web 2.0, also known as the Social Web, changed things dramatically. This version connected people with people and users became participants in the creation of content, interacting and sharing their own opinions, rather than just acting as passive observers.

If the move from Web 1.0 to Web 2.0 was a paradigm shift, the development from Web 2.0 to Web 3.0 was transformational. With the growth and increasing importance of data, not only could people consume information and connect with each other, but applications could also connect with other applications independently, providing data that ensures the enrichment of the knowledge and information created and stored. Artificial intelligence, augmented reality, virtual reality and the internet of things all developed from this version of the web and the related applications are able to interpret information creating a raft of possibilities. Educators and learners can connect and develop relationships in cohesive groups through multiple social networks. These evolving communication channels are readily accessible from a range of devices and connected services. Online communities offer openings for a range of technologies, which over recent years have become ubiquitous through a decrease in size and increase in power, ensuring a much greater acceptance in a range of teaching and learning tasks. This has provided users with access to affordable and highly capable computing devices that can facilitate interactions from almost anywhere at any time. Practitioners engage with TEL in many different ways, such as online collaboration, online peer-to-peer learning, distance learning, blended learning and both summative and formative assessment (Ally et al, 2014). These tools are used to facilitate and support the learning and teaching process, demonstrating how TEL can be seen as a shift from information consumption to information creation and proactive participation by users. For example, the use of blogs, Wikis, and online discussion boards provide a platform for voices to be heard their knowledge, understanding and learning to be shared with an audience that was previously denied them.

These new technologies have transformed the way people conduct business, access information, socialise and connect with each other. The increase in accessibility of these new and emerging technologies has brought with it an escalation of user expectation, and the

demand for all users to be able to access materials and information at their convenience. Numerous stakeholders are demanding a more flexible approaches to all aspects of learning, teaching and assessment. Therefore, the use of such technologies and the mobility of learning opportunities they provide, allows educators globally to rethink their current practices and develop more flexible, creative pedagogies and assessment opportunities.

The Learners

Until recently, technology and the language associated with it tended to be a privilege, belonging to those working in the field or those who grew up surrounded by it, Prensky's 'Generation Z' (Prensky 2001). However, it has now become part of our everyday vocabulary and, more importantly, here to stay. Generation Z are characterised as digital natives by Prensky (2001) who are born between 1995 and 2015; they have grown up with computing as a ubiquitous communication and information-searching tool. Although the work of Prensky was refuted by Guo et al (2008) as being misleading when their research showed no significant difference between the age groups, many people continue to refer to it, as it still provides an understanding of the current population and it is important that educators use their knowledge and experience in developing creative ways to engage learners and enrich curricula.

Increased student expectations are that their diverse computing equipment will interface seamlessly with that of the organisation they attend, and technologies will be available to supplement both social and learning interactions. Consequently, there is a demand for more flexible approaches to programmes of study at education establishments and, in response, many of these establishments are falling over themselves to provide this.

The Organisation

From an organisational perspective, there are a number of drivers for institutions to engage with and use technology. The ability to maximise the potential of large cohort student groups within the same delivery mode is a very seductive strategy from an economical perspective (Molesworth et al., 2011). Whilst there are other more complex reasons including providing a more helpful work life balance, changing demographics, funding, competition, increased flexibility of learning options and widening participation and accessibility. The reliance on traditional modes of face-to-face learning are potentially, being superseded by greater accessibility to technology.

The nature of learning and teaching, what is worth knowing and what is valued, is affected by technology. According to Heslop (2019) tacit knowledge is derived from personal experience (Wellman, 2009) and includes learned skills and expertise (Botha et al., 2008). The dynamic and changing nature of technology should inform and influence pedagogical models / frameworks and their application to practice. Educators need to gain an insight into how this drive towards TEL is experienced and interpreted by learners, together with an understanding of the intentions behind the materials which are made available via these online platforms. The holding of knowledge is no longer good enough - information is too freely available. Higher education institutions, for example, continue to charge tuition fees but the curriculum being taught is sometimes also streamed free of charge on the internet and this is an anomaly that cannot exist indefinitely. The traditional model of education will need to adapt to embrace the underlying change in the way we perceive and interact with knowledge. In some cases, the purposes of the university might just be as an accrediting institution.

The Practitioner

Across education and training organisations, there is a drive to introduce various elements of TEL into all curriculum and programmes of study.

In order for staff to engage fully with this drive and strategy, there is a need for a deeper understanding, from a practical, theoretical and pedagogical base, as to what actual benefits these new technologies offer in practical terms, rather than the 'potential' that has been promised for many years. This positive outlook is not without threat or compromise. For every opportunity to use technology to engage with and support learning opportunities, there are many potential risks. For example, students who choose not to use technology are at risk of being excluded from accessing materials and the support their peers can. However, this is not always just about choice. Learners from families of poverty, minorities and learners with special needs are also more likely to become excluded through ill thought out, unplanned use of TEL.

Mobile technologies can also raise expectations to unrealistic levels regarding communication and response times. This, potentially, can harm the work-life balance for teachers, academics and students, given the intrusive nature of these devices. Therefore, new protocols need to be established and acceptable practices outlined in order to ensure all learners are included. Mobility of Learning does, however, provide great potential for flexible pedagogies and online assessment, with the opportunity to 'flip the classroom' (Bergman & Sams, 2012; Wheeler, 2015) providing the educator the opportunity to differentiate the learning and use face to face classroom time more effectively.

The Learning Experience

People currently engage with technologies that allow them to communicate, collaborate and share information and ideas online. These technologies now underpin the way we live our everyday lives. From sharing personal photographs with family and friends, to choosing, downloading and listening to a range of media. More recently, with the improvement in 4G and the imminent introduction of 5G wireless technology, this culture has been extended to being able to do all of these things from any location at any time, enabling individuals to better manage competing commitments. Increasingly therefore, learners have an expectation of how technology will assist in their learning process and this will involve not only the delivery of materials, but how staff and students share and create knowledge. Given the extensive pressure on educators from a range of stakeholders, it is imperative that these emerging learner expectations are managed in a cohesive way. Boundaries need to be established from the outset to ensure time for educators is protected and a work life balance secured.

The Cost

Although the economic advantages of using technology are clear and evident, it is not the only driver for choosing to deliver learning online. For those sessions that are repeated often, or need reinforcement, it would be advantageous to deliver via online methods. This would allow teaching staff greater flexibility and freedom to explore, research and investigate current trends in pedagogical research to inform their practice and further develop learning and teaching materials in their specialised subject areas. This will in turn, enhance the learning experience and help improve competitive advantage.

The Business of Lifelong Learning

Technology is key to further expanding markets and assisting in increasing the student population. Online systems not only improve accessibility but operate globally. The power of the internet and related technologies should not be underestimated. Through these technologies, institutions have the potential to reach prospective students worldwide. Learning technologies provide the opportunity for students to continue to study over a sustained period of time. The potential is for the students to have more influence over their duration of study without any major impact on organisational resources.

The Learning

There are two broad approaches to online learning: *technology-enhanced learning* and *technology-delivered learning*. Technology enhanced learning supplements traditional face-to-face classes and the student regularly has opportunity to meet face-to-face with the lecturer. By comparison, with technology delivered learning, the student is rarely in physical proximity to the teacher. These two approaches are not mutually exclusive however and to maximise the benefits of each, combinations of various delivery methods and new technologies need to be incorporated. This is known as a blended approach to learning. By its very nature blended learning is a vague term when considered in pedagogical terms. However, blended learning allows for innovation and experimentation through the creative use of technology in curriculum design and development. For example, key messages can be delivered by video lectures, with online activities built in, perhaps through a discussion board, or the use of a reflective log. The use of video to deliver information is an interesting one and, if used effectively, can free up much needed face-to-face time in the learning environment for discussion, questions or a deeper examination of the topic at hand.

The Threat

Given the rapid growth in technology careful consideration also needs to be given to potential new risks for both students and staff. Online safety represents a key factor for consideration with regard to engaging with technology. Computer viruses, malware, spyware, privacy violations and identity theft have all led to negative publicity around many available learning technologies. Social networking in particular attracts much of this adverse publicity. Clearly, there is an element of risk attached to posting online. However as long as users are aware of and understand the risks, many of the concerns can be overcome. The main risks encountered when using these technologies relate to content; for example, accessing or uploading inappropriate material, contact via social media sites and conduct; a key concern to education institutions is the online behaviour of its students and staff.

With regard to content and conduct, sharing behaviours are often problematic. People often 'share' more than they intend online, particularly because of the ease in which this can be done and also compounded by the complex wording in the privacy policies created by companies such as Google and Facebook. Information supplied for one purpose can be used for another to the detriment of the originator. Many of these issues however can easily be overcome through a greater understanding of, not only how the technology works, but also through consideration of behaviour. There is a need to raise awareness of the threats, risks and potential harm that can be caused both to individuals and to organisations. Through the development and implementation of workplace policies and procedures, boundaries, guidelines and best practices for acceptable behaviours can be established.

The Future

Over the last number of years, we have seen a shift in how students, children and adults are taught in educational establishments everywhere, with technology helping learners and teachers place greater emphasis on the learning taking place inside and outside the classroom. Newton and Newton (2019) offer a further glimpse into the future by extending these ideas to include the use of robots, operating as the teacher in the home or the classroom environment and how this works in supporting those learners with language development, social, and emotional training, teaching and assessment and those with special educational needs. This, at the moment anyway, is not a physical robot walking around the classroom, but a computer program that learners could communicate with in regard to problems and queries.

The Conclusion

Teaching environments, across all phases, are complex, multi-faceted and involve a range of diverse pedagogies. Teaching approaches are changing to take advantage of technology, particularly in the United Kingdom, from a traditional behaviourist approach to a more social constructivist method. (Mattar 2010). However, one size does not fit all and therefore, what is required is a personal and responsive teaching delivery model (Pratt 2002). Undoubtedly, technology can assist in delivering this aim, through a blended approach, incorporating creative and innovative pedagogical methods, which are integrated with, and mediated by, a range of modern, fit for purpose, safe technologies. It is imperative that educators across all phases of education and Lifelong Learning, continue to reflect on their own pedagogical practices and beliefs. TEL represents an opportunity for educators to engage, adapt and modify these approaches to ensure their learners are engaged in meaningful and authentic learning.

As Prensky's Generation Z reach the age where they themselves become teachers, his vision from 2001 still holds true, 'Our students have changed radically. Today's students are no longer the people our educational system was designed to teach'.

Questions

1. How can you modify your pedagogical practice to support the use of TEL?
2. What opportunities are available for you to 'flip the classroom'?
3. How would ensure all TEL enhancements are inclusive of all learners?
4. Can you think of ways to redesign your assessment practices to include TEL opportunities?

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