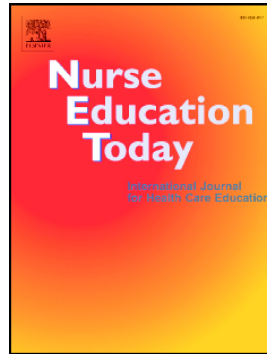


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Does technology really enhance nurse education?

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## Introduction

Technology clearly impacts upon the way we live and work. It is ubiquitous throughout nurse education with virtual learning environments, laptops, social media and mobile phones all routine components of nurse education. Technology has become an integral part of the education experience, and it is accepted that students and academics will engage and utilize emerging technologies as part of teaching and learning. However, there is a lack of systematic evidence supporting the use of technology enhanced learning (Selwyn, 2014), and the pervasive, dominant position of learning technology has led to some within education to question its continued promotion and use. In this paper it will be argued that learning technology is predicated on the largely unrealised promise of its potential contribution to teaching and learning, rather than any hard evidence of its actual contribution. The contemporary concept of technology enhanced learning is viewed as a norm in nurse education, a common-sense notion giving benefit to academics, students and organizations. However, it is possible to take a critical stance, and view technology enhanced learning discursively as a contingent practice, and not necessarily as a progressive development in nurse education. This paper will offer a critical perspective on the emergence, presence and continued acceptance of learning technology within nurse education.

## The dominance of technology

Contemporary understanding of technology, in the context of modernity, is based upon the deterministic assumption that technology has its own autonomous logical course of development where the pattern of technological progress is fixed, with one pre-determined direction as a positive driver of progress (Bijker, 2010). This view rests upon the concept of technological determinism (Wolfson, 2014) whereby technology as a dominant force, bends a social system to its own imperatives (Feenburg, 2002). As a consequence of this, organizations and actors within society are impelled to adapt their ways of operating and working as technology exerts its influence, progressing along its singular route (Bond, 2014). The dominance of technological determinism operates in such a way that it requires all social institutions (such as the university or hospital) to adapt to emerging technologies, as failing to do so will result in those institutions 'falling behind'.

Learning technology when viewed from this perspective results in an acceptance of the positive benefits of learning technology. The positive benefits of learning technology are central within the rhetoric of educational enhancement, with propositions including 'liberation' from the shackles of time and place (Edwards, 2012; Howard & Scott, 2017), a better way of teaching and a new way of learning (Njenga & Fourie, 2010; Morgan, 2014) or even a method of learning that "accommodates everyone's needs" (Gupta, 2017). However, rather

than the inevitable march of progress, the idea of technology enhanced learning (TEL) can be more accurately viewed as an ideological process with social, political and economic agendas which need to be highlighted and questioned. This can lead to the development of an informed critique of the role and impact of TEL, (both positive and negative) upon contemporary educational practices.

TEL rhetoric is evident throughout educational circles (Gordon, 2014; Mallow & Gilje, 1999), but also the mainstream press; witness stories such as “Seven Cyber-learning Technologies Transforming Education” (Huffington Post, 2015); “Five technological trends that will transform education by 2025” (Forbes, 2015). The Department of Health (2011) offered a “Framework for Technology Enhanced Learning”, concluding that “innovative educational technologies, such as e-learning, simulation and smart-phones, provide unprecedented opportunities for health and social care students”. Similarly, the Higher Education Academy host a toolkit for technology enhanced learning, which they state houses “key projects, resources and ways you can connect with technology enhanced learning” (HEA, 2017). If the evidence to support the transformation of education is so clear cut, if it is recognised through academic and wider circles that technology is transforming learning, teaching and attainment, then the conclusion must be that nurse education must also have been transformed by learning technology. This paper argues that TEL, despite enduring rhetoric’s of enhancement, has not transformed nurse education.

### **A discursive practice**

Writing in 2008 Laurillard suggests that education is on the precipice of transformation through learning technology; however, it has been on this precipice “for some decades now”. I argue here that it is more useful to regard the use of learning technology in nurse education not as a fixed set of practices that have transformed education, but rather as a set of discursive practices, i.e. as a contingent project which is open to critical engagement and contest. The emphasis on the potential of TEL, rather than the actuality of it needs to be problematised. How has it been possible for it be constructed by various actors as being on the (persistent) point of transforming pedagogy. To be clear, what is taught has not changed substantially through the application of learning technology, but the mode of delivery has changed, as such TEL is at best an innovation in content delivery rather than a transformation of education.

There have been many vaunted learning technologies through the last 50 years, all of which have been presented as game-changers for education. These include, chronologically, radio

(Edison, 1913), television (Reiser, 2001), teaching machines (Boehm, 1961), personal computers (Vasko and Dicheva, 1986), CD-ROMs (Athappilly, Durben, and Woods 1994) and multimedia (Gleydura, Michelman, & Wilson 1995), the internet (Lindeman, 2000), virtual reality (Simpson, 2002), mobile phones (O'Connor & Andrews, 2015), and social media (Selwyn & Stirling, 2016). This procession of technology indicates some form of predetermined progress which universities, academics and students have had to respond to. This is not the case, there is multitude of possible directions for progress be they inclusive of emerging technologies or not. Despite the repeated failure of emerging technologies to transform that which is learned, an abundance of empirical evidence reporting on the benefits that technology may bestow seems to persist (e.g. see Kirkwood and Price, 2013; Button, Harrington & Belan, 2014). Lee (2015) published an article in the Nursing Times titled "Using technology to enhance nurse education". This paper reflects much published work in this area, in that it is an opinion piece based upon the common-sense view of TEL, that technology will enhance teaching and learning (e.g. Merrell, 2015; e.g. Dickerson & Lubejko, 2015). Alongside commentary types of papers, there is a plethora of research evidence available, and there has been for some decades, usually exploring the potential of a particular learning technology (Duncan, Yarwood-Ross & Haigh, 2013), or the possibilities if only learning technology were used more appropriately (Gregory & Lodge, 2015). However, conclusions tend to quickly point towards technology as the enhancer of teaching and learning, but with scant discussion of the 'what' and the 'how' of the actual transformation, and little critical debate.

### **So, does technology enhance teaching and learning?**

Learning technology today is an academic field awash with studies exploring the use and success of learning technologies (e.g. Gao & Li, 2016; Zhang, et al. 2017; Maclaren, Wilson & Klymchuk. 2017). Research and theory in learning technology is described by Selwyn (2014) as an "essentially positive project" (p11) where the causal link between technology and benefit to the learner or educator is established *apriori*, and to offer a critical perspective leads to being branded a 'technophobe' or 'luddite'. If you 'Google' the question "Does technology enhance teaching and learning", you are confronted with a vast array of websites professing to explain how technology benefits teaching and learning. Proclamations include that "we can always fuse learning with technology" (Hasan, 2014), or that connected learning is a "model of learning that holds out the possibility of re-imagining the experience of education in the Information Age" (Steinberg, 2015), or the "effective use of technology has the potential to transform" (Granberg, 2016). Quite what any of this means in terms of pedagogic practice is not particularly well-embellished.

Research exploring the success of technology in education often takes place in limited contexts such as within a class or course, with conclusions being drawn shortly after development or implementation (e.g. Walker & Handley, 2016). Teaching within academic calendars, alongside the lifecycle of research funding streams often results in TEL based research which is limited in scope, and narrow in focus (e.g. McDonald & Glover, 2016). This can in part be attributed to the iterative nature of technologies themselves. Hall (2012) argues that it is through repeated innovation and iterations of learning technology that hegemonic positions can be protected and thereby maintained in education. Technologies which are being evaluated are often *new* and *emerging*, and academics are responding to that emergence. For example, it is difficult to conceive what funding would be available for a project to explore the enhancement offered by PowerPoint presentations or overhead projectors, but perhaps easier to envisage funding for a project exploring Virtual Reality devices or *en vogue* social networks. Yet, PowerPoint is a highly visible technology that has clearly impacted upon the delivery of pedagogic material. The emphasis on the high-paced, high-end iteration of technology contributes to the lack of evolution in teaching practice. If there is to be sustained change, educators must move away from looking to emerging technology for benefit, and instead look to pedagogy and their own teaching practice.

However, the issue at hand is the lack of critical empirical research that questions the claims of enhancement technology affords. Kirkwood and Price (2014) undertook a critical literature review of TEL research and concluded that there is an “increasing recognition of the limitations of much research that has been undertaken to understand the relationship between technology and learning”. The discourse of enhancement through technology is so dominant that the failure of learning technology is barely recognised. Even when the need to refresh our approach is apparent, we often turn to new technologies, as evidenced through the recent HEPI (2017) report calling for a “Reboot” of learning for the digital age.

### **The potential of emerging technology**

The view of technology as offering potential, or offering the possibility of transformation is in line with the concept of technology as a disrupter, an innovator and an enhancer. Learning technology has since its beginnings been viewed as a disruptive innovation. Bower and Christensen (1995) when exploring how technologies had led to success and failure for certain companies, offered the concept of technologies as being disruptive in themselves, as opposed to sustaining existing systems (p49). Christensen (2008) states that a disruptive innovation attracts new customers by making an expensive and complicated product simpler and cheaper. For example, MOOCs (Massively Open Online Courses) that have appeared in recent years, which have arguably streamlined attendance on higher education courses at a

distance, often with no cost for the learner. This disruption is viewed within the framework of radical change, the dramatic effects of technology either on learning (e.g. Blaschke. 2013), teaching practice (e.g. Reed. 2012) or educational delivery (e.g. Christensen & Armstrong, 1998).

To view this critically requires a wholesale change in how evidence for technology enhanced learning is gathered and viewed by academics and institutions, with a move towards what King (2014) describes as realist evaluations. These have a greater focus on the quality of reasoning within research rather than the quality of the data. Carr-Chelman (2006) suggests that many academics are not even aware that there were any criticisms being levelled at online education and the field of learning technology. The argument here is not to propose that technology does not enhance aspects of teaching and learning, rather it is the unquestioned acceptance that the use of technology is a boon to teaching and learning. The ubiquity of technology enhanced learning gives an indication of the way in which struggles have moved in favour of those who wish to see the deployment of learning technology. This ubiquity has led to this acceptance, resulting in a hegemonic dominance over other counterviews.

### **Technology enhancing learning is common sense**

Critical commentators have been calling for a questioning attitude towards the use of technology in education for some time (Friesen, 2009; Oliver, 2011; Selwyn, 2015). The problem is that the perspective that technology will lead to enhancement is accepted without question (Selwyn, 2016). This is validated by the argument that if technology does not lead to enhancement, then there must be something wrong, something preventing the expected enhancement, i.e. that the problem is in the system, rather than the technology. This deterministic thinking does not view technology as part of the problem. Rather, it is our responses to technologies, which may be solved by accommodating technology, or perhaps turning to a newer technology (rather than looking to an alternative non-technological solution). Often cited in these examples are academic staff scepticisms, a lack of technological ability, and the wider university culture which should be identifying TEL “as a strategic priority” (Gregory and Lodge, 2015). Mishra, Koehler and Kereluik (2008) argued that the main problem for TEL is resistance from academics to new technologies as they cannot yet perceive the benefits they may bring. The lack of enhancement is laid firmly at the door of academics, citing poor engagement or not understanding the potential for technological progress, rather than a failure of learning technology.

There is a substantial proportion of literature exploring technology in education which is prejudged to view technology as the enhancer (Selwyn, 2014). Transformational rhetoric persists, it is an accepted position, where to resist seems to fly in the face of rationality. It demonstrates the way dominant actors in the field of TEL use this common-sense view to sustain a position of hegemonic dominance. The ubiquity of TEL is perpetuated, not always consciously, by participants own rationalized acceptance and support of the hegemonic discourse. For example, academics accepting learning technologies as the new and better way to teach, resulting in PC's and projectors throughout classrooms, and students accepting the concept of days away from the physical university to learn as directed by a virtual learning environment. Hegemonic practice may be understood in the way academics who are committed to a low-technology based education seek to construct approaches and conceive themselves as excluding learning technologies. Whilst those academics who embrace the potential of TEL, align themselves with theoretical positions and practices that embrace learning technologies. This leads to a political struggle between these competing discourses, as groups struggle for dominance in this contingent area of educational practice (Glynos & Howarth, 2007).

In all aspects of nurse education, technology is a dominant presence, and yet the benefit it brings to academics and learners it is not always evident. As Selwyn (2015) points out, "we find ourselves caught in a situation where the dominant discourses of education and technology work primarily to silence dissent and reduce most people to shutting up and putting up". Hegemonic practice has contributed to the development of TEL as a ubiquitous, mundane and accepted part of the landscape of nurse education, which is reinforced through the unfulfilled promise of transformation from emerging technologies. It is accepted by nurse academics as part of their daily practice, and remains unseen by many as they engage with day to day teaching and learning activities, and yet despite this veneer covering all aspects of higher education, it is not a totality. It is argued here that TEL fails to fall under technological determinism, it is a contested feature of education, fluid and malleable, with technologists, managers, government, companies and academics attempting to seal the hegemonic status of TEL. Nursing academics should approach learning technology critically, and consider what is lost by its use, as well as what may be gained.

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**Highlights**

- Technology in nursing education is accepted and viewed as the norm.
- Technology enhanced learning is not a cemented set of practices but rather a contingent project, open to challenge.
- There is a lack of critical empirical evidence supporting the enhancement of education by technology.
- Despite the lack of robust evidence the rhetoric persists that technology is an enhancer of nursing education leading to potential transformation.

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