

Title: Technology Enhanced Learning as transformative innovation: a note on the enduring myth of TEL

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Abstract

The purpose of this paper is to offer a critical insight into the ubiquity of technology enhanced learning. The use of technology in higher education is underpinned by a promise that technology will enhance teaching and learning despite an apparent lack of systematic evidence. This raises questions of how this enhancement agenda persists, and of how technology has established a position of dominance within higher education. This orthodoxy is evident across a range of relevant actors, from commercial interests, universities, government, academics, and technologists. This paper utilises a critical logics approach, which problematises the competing interests of these different actors, exploring ways in which the social, political and fantasmatic practices between these actors contribute to the ubiquity and dominance of technology enhanced learning. This paper argues that the technology enhanced project resists in-depth critique, with the repeated failure of technology to transform education attributed towards academics, students and institutions.

Keywords

Technology, E-learning, Discourse, Logics, Transformation

INTRODUCTION

Technology enhanced learning is an academic field dominated by literature attesting to the use and success of learning technologies within specific educational settings. Laurillard (2008) suggests that education has been “on the brink of being transformed” through learning technologies “for some decades now”. It is not an academic field renowned for critical or political analysis of technology in education (Selwyn, 2014). In this paper we attest that the use of learning technology in education is not a cemented, fixed set of practices that have transformed educational practice, rather it is much more discursive in nature, a contingent project open to critical engagement and contestation. We problematize technology enhanced learning (TEL), arguing it must be examined as a social and political force which is constructed as being at the frontier of pedagogic transformation, across both students and academics. This requires us to address how these groups construct and understand learning technology, and to identify the many actors with vested interests in its use. As such, this article aims to problematize technology enhanced learning as a form of disruptive innovation (Bower and Christensen, 1995) as opposed to a sustaining innovation, intended to open up and create new and ever more innovative markets. Central to these disruptive tactics are rhetoric’s of enhancement, transformation, even ‘liberation’ from the shackles of time and place (Njenga & Fourie. 2010), with technology enhanced learning heralded as a new of way of learning, a better way of teaching, and a fundamental transformation of the experience of education for teachers and students.

To problematize and critique the rise of TEL in the UK higher education sector we utilise a critical logics approach (Glynos and Howarth, 2007). This approach utilises a model of discourse analysis to identify social, political and ideological or fantasmatic practices that work to construct and sustain particular orthodoxies (Glynos and Howarth, 2007), specifically by focussing attention on the reproduction and transformation of hegemonic orders and practices. It involves an initial problematisation (Rabinow, 1984) of an accepted orthodoxy, followed by a series of iterative critical engagements with that problematisation in order to ascertain its analytical usefulness in explicating the role and import of wider social, political and ideological practices in sustaining or resisting a particular orthodoxy.

Problematization

Whilst TEL has evolved across a range of spheres of higher education, there is a lack of consensus about whether it has delivered on the transformative learning innovations it promised (Selwyn, 2016). This lack of consensus has not constrained these promises however. Indeed, discourse around the potential of technologies to transform education is not a recent phenomenon; in the mid-1970s UNESCO proclaimed its support for information technology and media to transform education (Federov, 2008); in the 1980s the US Congress issued a report on the impact of technology on education with the opening paragraph stating that the impact of the technological revolution will

“affect individuals, institutions, and governments - altering what they do, how they do it, and how they relate to one another”, (US Government, 1982). In the 1990s Welburn (1996) reviewed the evidence supporting TEL, arguing that studies were only just beginning to show the impact of technology, that the literature was “overwhelmingly positive about the potential”, and that “positive effects have been found for all major subject areas”. The promised potential of TEL continues throughout the 2000’s with the UK government describing a “learning revolution” afforded by technology, and imploring the necessity for “all teachers and lecturers, all trainers and mentors [to] experience the fantastic excitement of these new ways of learning and teaching”, (DfES, 2003). At the same time Strother (2002) asserted the need for “systematic research...to confirm that learners are actually acquiring and using the skills that are being taught online”. Similarly, Lane and Aston (2004) stated “the literature suggests that there are potential benefits to the use of e-learning, but there is a lack of systematic research to prove this”. Du Boulay, Coultas and Luckin (2008), redolent of Welburn (1996), reviewed the evidence of the effectiveness of TEL in higher education, and found that there was “not yet compelling evidence” of the effectiveness of TEL, whilst Kirkwood and Price (2013) argue that despite “much talk of the potential of technology to transform teaching and learning in higher education, very often the reality is different”. So despite over thirty years of research there persists an inability to provide a convincing evidence base for TEL.

In some contexts, this perpetual inability to deliver on promises of transformation would be read, explicitly, as a failure. But for TEL this does not happen, rather TEL is sustained by the constant re-articulation of new and better modes of transformational rhetoric. The constant re-articulation of new, better forms of technology consistently legitimise and justify the failed transformation, underpinned by a rhetoric that it was not because technology cannot transform education, that the purported revolution did not transpire, rather it is simply that the technology was not good enough, and this newest re-iteration of technology will bring the heralded revolution, (until it does not, then the outmoded technology is once more invoked), it is in this context that we define TEL as a disruptive innovation. More broadly to explain this process we draw on the concept of hegemony (Gramsci, 2007) whereby the idea that technology *enhances* learning is an accepted orthodoxy, a common sense view of teaching and learning, and to resist this view seems to fly in the face of rationality. The dominance of TEL is perpetuated over a long historical period, not always consciously, by participants’ own rationalised acceptance and support of these hegemonic discourses, through practices such as widespread use of learning technologies, like PowerPoint or virtual learning environment’s (VLE), demonstrating the vested interest of computing and learning technology companies in constructing and maintaining this dominant position. We consider this historical development in terms of epochs.

Four Epochs of Learning Technology

In terms of the logics approach, in order to operationalise the problematisation we need to outline the archaeological and genealogical frameworks within which these practices were and are constituted. An archaeological analysis allows us to describe ‘the rules that condition the elements of a particular discourse – its objects, subjects, concepts and strategies’ as they are now, whereas a genealogical analysis ‘accounts for their contingent emergence and production’ (Glynos and Howarth, 2007, p.233). We consider the archaeological and genealogical contexts of TEL through a characterisation of four epochs of educational technology.

Epoch 1: Behaviourism and Broadcast Media - late 1950s to late 1970s

The first epoch is dominated by a confluence of principles of behaviourism and broadcast media. The behaviourist focus was directed towards observable and measurable behaviours and how education could influence and change those behaviours. It was at this time that Skinner developed his behaviourist ‘teaching machine’ described as ‘any device which arranges contingencies of reinforcement’ (Skinner, 1964) for use in schools (Benjamin, 1988). Skinner’s technology fixed a firm behaviourist gaze upon the mode of delivery of the material being taught (i.e. as such it was, we argue, an additive technology, rather than a transformative technology). It did not, nor did it claim to, transform what was learnt, rather it *added* another (new, novel) mode for delivering material. Under this model of education, machines (later computers) controlled the learning process, but “the content of education remained the same in nature for all disciplines” (Albirini, 2007: p230). Furthermore, there was little emphasis upon the learner themselves, and the technological promise was predicated on innovation in the mode of delivery, and in this sense, a promise of new technologies that would fundamentally change the task of teaching, thereby creating a very clear need for the adoption of new learning technology.

Epoch 2: Personal Computers - late 1970s to late 1990s

The late 1970’s and 1980’s saw the rise of the personal computer; viewed as an innovative, positive, and somewhat presciently, future-proof ‘educational’ tool. Accompanying rhetoric promised a transformation in the mode of delivery of learning materials, with the computer viewed as an electronic teacher, but whilst the modality of delivery may have changed to a screen, the pedagogic practice changed little, with computer assisted learning programmes remaining focused on persistent behaviourist ideals of ‘*get it right and progress, otherwise try again*’. Carr (1991) stated that behaviourist and cognitivist learning theories are “one of the hottest topics in the field” (p84), and they remained popular throughout this period despite the growing influence of constructivist learning theory (Atkins, 1993), in part, we would argue, because they were so embedded into the project of TEL.

By the early 1990's, personal computers had multimedia capacity, which extended the range of 'educational software'. Yaverbaum (1993) stated that "experts report that multimedia instruction promotes learning", and that levels of student learning across memory, recall and efficiency were far better when "multimedia is embedded in learning" (p2). Gleydura, Michelman and Wilsons (1995) discussed the potential of multimedia, asserting that new developments in computer technology were "changing the way we educate", and that the CD-ROM had become a "tool to change the face of education". Similarly, Athappilly, Durben, and Woods (1994) argued that multimedia technology would help students to become more creative, more knowledgeable and allow for "students to take possession of their own learning abilities" (p.117), without qualifying how they had not been in possession of their learning abilities previously. None of these grand claims have persisted. Whilst these changes do mean that information is (much) more readily available, they do not fundamentally change how that information is learned, simply how it is accessed (so again, it is an additive rather than transformative transformation). Albirini (2007) asserted when reviewing the impact of computers on education that "despite the huge expenditure, wide experimentation and research, and discursive enthusiasm, educational technology has failed to show substantial benefits" (p227).

Epoch 3: E-learning and the Internet - late 1990s to mid 2000s

During this third epoch, the term *e-learning* (amidst much hyperbole) became the standardised umbrella term for all forms of education used as a form of technology. In 2000, a UK newspaper stated that the "traditional form of teaching is becoming redundant in an Information age", and it "will no longer be necessary for students to go to [a physical] university" (Guardian, 2000). This trope was repeated in articles from 2013, the year the Massive Open Online Course (MOOC) entered the higher education consciousness (Selwyn & Bulfin, 2015). Still however the focus was not on pedagogy, but rather on efficiencies in scale. There is no denying that the impact of the Internet on education has been profound. The growth of the Internet, and the move towards online higher education provision was reflected in the literature of this epoch in themes of freedom and liberation for students from traditional teaching. Hoyle (2002; p298) outlined a range of benefits of e-learning in terms of attempting "to harness the power" of computers, and concluded that technology may "provide education which time and location have previously denied us". D'Alfonso and Halvorson (2002) suggested that e-learning was the "new frontier" in education with an "infinite number of possibilities and creative solutions". Whilst remote teaching has become more of a feature of higher education delivery, it has not, by any stretch, replaced the physical attendance of students at lectures.

Audience Response Systems (ARS) or 'clickers' were one technology which came to the fore during the latter part of this period. They have been used in education for over 35 years (Reid, Robinson & Lewis, 2016; Bojinova & Oigara, 2013), and are widely used across Higher Education . Supporting this use are a variety of papers reporting the benefits to students of ARS (Oliveira, Binda, Lopes &

Vaile, 2017; Giacalone, 2016). However, many papers suggest that whilst students perceive ARS positively, there is no actual benefit to student learning (Funnell, 2017; Karaman, 2011). Kay and LeSage (2009) conducted a literature review on the use of ARS concluding that much of the evidence was based on questionable methods, with the majority of ARS investigations consisting of “broad assessments of attitude and/or anecdotal observations” (p825). Reid, Robinson & Lewis, (2016) agree that “the existing literature in relation to [ARS] utility is anecdotal (p10), and the provision of ARS “is an expense that many educational programs may be unable to afford” (Maloney et al., 2017). Similar to many technologies under the TEL umbrella, we argue that ARS is an example of an additive, not transformative technology. It does not change what is taught, only how it is taught.

Epoch 4: Social and Mobile Internet - mid 2000s to present

There have been numerous claims for the transformative impact of social media on education (Tower et al, 2013; Peck, 2014), but again, there is also little consensus on the actual benefits. Cartledge, Miller & Phillips (2013) found no evidence of enhancement to learning. Blended learning has become a staple as part of the fourth epoch. Whilst ubiquitous throughout higher education, there is little agreement as to what blended learning actually is (Sharpe et al, 2006), never mind what it may enhance. Yet this did not prevent its progress as a catch-all term, and also as a prospective transformative innovation, with Watson (2008) suggesting that blended learning was likely to “emerge as the predominant model of the future”, superseding both online and face-to-face delivery.

Much recent hyperbole has focused on the Massive Open Online Course (MOOC) which build on the principles of elearning and online delivery, for example, 2012 was pronounced as “The Year of the MOOC” (New York Times, 2012), with the Guardian claiming ensuing MOOC-led change “will be the end of the Open University as we know it” (Guardian, 2015). MOOCs have been much hyped, much discussed and much feared in equal measure (DBIS, 2013), with great potential to disrupt the market of higher education (Yuan & Powell, 2013). The MOOC was widely heralded as a disruptor for H.E., with images of students no longer attending a brick and mortar university or even a university in the same country. They were also free. No cost, and liberation in time and space with courses from institutions such as Stanford and MIT, although there has been realisation that courses are not continually reusable, and dropout rates are continuing at high levels (Chuang and Ho, 2016). There is also a growing movement to monetize MOOCs (Epelboin, 2017), with monetisation being derived from a move into recruitment (courses by Google, AT&T) course materials, summer schools and advertising. This is in direct opposition to initial appeals to students of the democratization of education. MOOCs are also very much painted as part of the “monolithic” education structure, with traditional universities providing content and also funds for many of the providers (e.g. FutureLearn in the UK). Some commentators have lauded the MOOC movement as “the largest and most disruptive change in the livery of learning in Higher Education in decades, if not centuries” (Ufi,

2017), but this is largely unfounded. For example, Ufi concludes that the eventual success of the MOOC will be through vocational and commercial use, rather than higher education, perhaps suggesting again that the MOOC is more additive than transformative.

Across all four epochs we demonstrate how disruptive innovations are used to background previous failings and foreground the transformative potential of TEL, based on the promise of new improved technologies. These epochs evidence clear struggles between established and innovative views of teaching and learning. The current ubiquity of TEL gives an indication of how these struggles have gone the way of the innovators, with the *digital cognoscenti* becoming the prevailing hegemony, such that TEL comes to be represented as an ever-present, mundane and accepted feature of higher education.

We now move to test this problematisation against some data.

Data Collection

A total of 23 interviews were carried out with 12 academics and 11 students, all of whom were in the same School (Health Sciences) at a UK university. Invitation emails went out to all academic staff in the School (n=38). This was a convenience sample, with the intention to be representative. The sample was driven by a concern to uncover ways that a range of people talked about TEL in different contexts, so was therefore aiming for variation across the sample, rather than homogeneity within the sample. Potential participants were asked to categorize themselves as either a TEL enthusiast, a TEL cynic, or somewhere between the two. Note that only one potential participant described themselves as a “TEL cynic”. The final sample of 12 academic participants represents the ratio of self-categorizations (see Table 1 below). Alongside the interviews, the academics were also observed teaching students across a range of environments including lectures, small groups, tutorials and ‘via’ a VLE (their choice, to confirm what technologies were in use and how they were being utilised by both academics and students). Students in the same School were contacted by course administrators, and the sample was purposefully selected to represent a range of courses and year of course (see Table 2 below). All participants gave consent after receiving information regarding the research, and full ethical approval was granted by the higher education institution.

Table 1: Details of lecturer participants & teaching observation undertaken.

Table 2: Details of student participants

An ‘ideological dilemma’: Social, Political and Fantasmatic Logics

Logics assist in capturing the “various conditions that make a practice *work*, contributing to how we understand a practice to become possible, intelligible and vulnerable” (Glynos, 2008). Logics of critical explanation relies upon three basic units that explain social change; social logics, political logics and ideological or fantasmatic logics. Social logics (illustrated in extracts 1,2 and 3) are concerned with the everyday social practices that constitute a regime of practice that are repetitive in character, are based upon norms, and yet is also slightly different each time (Glynos and Howarth, 2007). Political logics (illustrated in extracts 4,5 and 6) are concerned with questions of how practices have emerged and been normalised or contested. They are concerned with ways in which alliances between different groups might emerge to contest or support new or existing practices through logics of *equivalence* or *difference*. To view this within the context of learning technology, we can consider learning technologists promoting the cost-effectiveness of increased use of learning technology, drawing allegiances with educational managers, and in opposition to the “old order” of classroom teaching via traditional methods, under threat from the emerging technological orthodoxy. Fantasmatic logics, (illustrated in extracts 7,8 and 9) focus on the way subjects are *gripped* by a practice, by the fantasy, the possibilities on offer, and how they become emotionally invested in certain social practices. They are concerned with understanding practices of ‘resistance to change or social practices’ (Glynos and Howarth, 2007, p.145). Two dimensions of fantasmatic logics are *beatific* and *horrific*; the beatific dimension relates to a narrative of a fullness-to-come once a particular obstacle is overcome (perhaps a lack of technological ability), whilst the horrific dimension relates to possible disaster when obstacles remain.

Examples of Social Logics

In this section of the paper we consider the responses from academics and students which demonstrate the dominance that technologically mediated teaching practices have. We were interested in the ways that interview talk demonstrated a “grammar” or cluster of rules for talking about TEL in higher education, in ways “which make some combinations and substitutions possible, and exclude others” (Laclau, 2000, p.76).

The first set of practices point to academics drawing upon a social *logic of ubiquity* to frame the normative and quotidian range of TEL innovations:

Extracts 1

Academic 1: ‘Well we use the VLE for all the modules, forums and such like. I don’t really like them, and I am not sure they work well to be honest, but we are trying a blog this term’;

Academic 2: ‘You need to keep people engaged, and that is why things like Prezi and YouTube can help with your performance, those props. I hadn’t really thought about it before!’;

Student 1: 'We have never had any lessons where there has not been any technology. There has always been an element of technology.';

Student 2: 'It is just so ingrained in everyday life that you are using it without even realising you are using technology.';

Student 3: 'So you might as well get used to it, and see it as something that is helpful.';

These extracts demonstrate strong normative appeals (*everyone uses that*) supported by purported benefits (*keep people engaged and help with your performance*). This very aptly demonstrates the hegemony of TEL as an educational orthodoxy, and the role that the idea of disruptive innovation plays throughout this. Where Academic 1 problematises the legitimacy of TEL, this potential challenge is resolved by mention of need for more technology (in form of blogging). This move pragmatically questions the suitability of previous TEL innovations, not TEL itself. This logic of ubiquity was also invoked from students with the accepted view that technology has become part of the everyday experience of education (Student 1), so that they are blind to its presence (Student 2), or that there is no escaping it (Student 3). There is little in any of the quotes that points to practices that are transformative, issues are couched more about additive modes of delivery.

The extracts below demonstrate responses from students and academics that characterise a social *logic of innovation*, of how TEL needs to be characterised as contemporary, and not seen as outmoded or outdated:

Extracts 2

Student 4: 'I think of enhanced, I suppose I think of something new, better, newer really';

Student 5: 'I would see TEL as up and above the likes of forums and blogs, I would see it as ... video calling? The other stuff is old fashioned, which is a funny thing to say about technology';

Academic 3: 'Does technology enhance my teaching? You know, I really don't know how to answer that!';

Academic 4: 'I imagine there is such innovative practice going on that I would love to do, but just don't know about it!';

Student 4 talks about something *'better, newer'*, and Student 5 even invokes it as a disruptive innovation, seeing it as *'up and above the likes of forums and blogs'*. The academics also draw from a logic of innovation, but it is constituted as a promissory logic, they appear unsure as to what the present benefits of TEL are, alluding more to possible future benefits if they utilise TEL more effectively. These two academic quotes demonstrate the power of the logics of ubiquity and

innovation, demonstrating how these logics combine and lead professional educators not to doubt the suitability of the technology, but rather to question their own ability to engage with the technology. The logic of ubiquity is also aligned with a logic of expectation as shown below:

Extracts 3

Academic 5: 'I think we are addicted a little bit - it is kind of accepted, that is the norm now, that is what you do, and my god, "why haven't you put the lecture on the VLE?" "I want that PowerPoint, I want it now, why didn't you do it?" It is like a dependency.'

Academic 6: 'Maybe it's part of the uniform, I don't know whether the whizzy bits and the extras is that, I mean that the student judge you on, that or whether they criticise you for that, there is an expectation that you should, there should be more than you are, and a pen or a piece of paper - I have paid my money!';

In these extracts there is an acceptance that this is how education is delivered, even referring to technology as being part of the uniform of an academic, with the expectancy that an academic needs technology to make them something 'more' or 'better', as stated by Academic 6.

Examples of Political Logics

In terms of the political logics, our analysis demonstrates the ways that politics of equivalence and difference are mobilised around the transformational potential of TEL. In characterising these political logics, we identify a difficulty faced by learning technology providers such as Blackboard and Microsoft, in that they do not have the requisite subject knowledge to offer what is fundamentally the 'real' product. As such they struggle to access the market in a truly transformative manner. Instead they need to position themselves between the providers and the consumers, as a conduit for enhancing the experience (e.g. through provision of a VLE). This requires a whole set of conditions and appeals to end users that legitimate a mediated role for TEL providers, such as by offering to make the students learning better or easier. For example, in their mandate to Health Education England (Department of Health, 2014), the UK government, via the Department of Health, state that they should:

Extract 4

'achieve a significant increase in the use of technology in the education, training and development of staff including through e-learning' (p2319) and explore how 'the existing e-learning package and uptake amongst students can be improved' (p12).

From this mandate, we can surmise a logic of equivalence between government and TEL providers, characterised as a political *logic of expansion*, through a policy commitment to significant increases in the amount of provision available through TEL. This expansionist logic is further echoed in the report

“The State of E-Learning in Higher Education: An Eye Towards Growth and Increased Access” (Educase Centre for Analysis and Research, 2013), where it is concluded that

Extract 5

‘The majority of students are now non-traditional, and their demand for more technology and the flexibility it offers has fuelled the drive for e-learning initiatives in higher education. However, not all institutions are meeting this demand.’ (p37).

There is little evidence of non-traditional student demands for more learning technology, but it is asserted here as an imperative. But the call is made that “the greatest concerns about e-learning are the adequacy of staff and the technological know-how of faculty”. Few respondents expressed concern that “technology is transforming education for the worse” (Educase Centre for Analysis and Research, 2013. p5). This rhetoric corresponds with the social logic of ubiquity, demonstrating how the normative embedding of technology is facilitated at a political level. Furthermore, the Higher Education Funding Council for England (HEFCE, 2011) identify staff as a potential barrier, which we characterise as a political logic of *engagement*. In a publication titled ‘Collaborate to Compete: Seizing the Opportunity of Online Learning’, they state that:

Extract 6

‘Technology can free up time (central timetabling and room allocation for example), as well as helping to enhance reputation and access to resources ... learning technology very quickly becomes an integral part of everyone’s experience.’ (p.19);

‘Many of the key cultural change issues relate to staff. Not all staff are willing, or able, to engage with technology, which can mean that student expectations are not met.’ (p.19);

This rhetoric demonstrates a clear line of equivalence between TEL providers and HE management. However, the report goes on to identify a possible hindrance to progress, with this caveat placing the blame directly on academics. HEFCE conclude that there is a need to ensure academics are ‘*sufficiently aware*’ of technology, again drawing a line against academics who do not fully engage with the purported benefits and potential of educational technology. These political logics function to foster alliances between government, TEL providers, employers and students (a broad logic of equivalence between these actors) and to disavow alliances between academic staff and all other actors (a logic of difference, where staff are regarded as a barrier to expansion and engagement).

Examples of Fantasmatic Logics

Fantasmatic logics address questions of how particular ideas continue to exert a grip upon a particular sector. The continued grip of TEL speaks to wider issues about attitudes towards technology in contemporary culture, to the projected jouissance (the beatific enjoyment) that comes from the promise of emerging technology, and the projected horror that comes from the threat of a non-technologised future. In this sense, technologised education persists because the hegemony of TEL means there is no option for it not to persist. Academics were asked whether they thought technology enhances learning:

Extracts 7

Academic 4: 'We get brainwashed with a notion ... that technology seems a done deal, there is no question mark – it is marketed to us, there is a narrative, we seem to be pre-programmed to do it in a certain way, the way things are pre-positioned. You should stand here, you should log in, you should use this, and then of course the students come to expect it.'

Academic 5: 'I don't have any concrete evidence to say they learn better with technology than with no technology. I don't think so.'

These extracts demonstrate the dominance of the social and political logics that dictate what distinct sets of practice constitute educational practices. Furthermore, they constitute the view that there is a marked difference between technologised education and non-technologised education. In order to consider how these practices are ideologically legitimated we combine analysis of source interview material with data gathered from promotional materials offered by TEL industry leaders. First, we consider the Apple UK education website (<http://www.apple.com/uk/education/>), which offers an unrivalled fantasy of educational possibility, outlining how technology from Apple “has the power to transform the classroom”, and how it will “teach in ways you’ve always imagined”. Secondly we consider the homepage website of Blackboard Inc (<http://uk.blackboard.com/index.aspx>), providers of VLE’s who ask us to “see how we’ve reimagined teaching and learning, and how we’ve re-engineered our products to engage and delight learners”.

There are a number of different logics played out on these websites. There is repetition of the ubiquitous appeals to innovation, and transformation and expansion, all coalesced around a dominant consumer model (where educators are also listed as consumers, alongside students). This is coupled to a fantasmatic logic of *partnership*, where everyone is working together to do things ‘we never thought possible’, which functions to create the end user as the sovereign consumer driving innovation, transformation and expansion.

Contrast these promises with responses from academics who were questioned as to whether technology enhanced their teaching practice. Whilst being generally positive, when they were asked

what evidence they had to support their positive view, all academics struggled, not only with finding evidence, but also with the question itself;

Extracts 8

Academic 2: 'Is there evidence it enhances it's an interesting point, I would probably suggest it hasn't?';

Academic 7: 'What evidence? {silence} don't know. I really don't know ... {silence}well {silence} I'm...alright I feel silly.... {silence}there has got to be! Why would we use something if we did not think there was an evidence base? ... There will be some evidence on why it is better ... but what that is ... I really don't know.' ;

Academic 8: 'Constrained by the technology I have been using. I have got the best feedback when I have been able to be free, liberated.' ;

It was clear that academics when questioned, despite initially presenting the view that learning technology enhanced teaching and learning, struggled to reconcile this with personal and empirical evidence. The disjuncture between the fantasmatic grip of TEL, and the practical experience of those practices demonstrates the ideological grip that logics of TEL have. Students were asked a similar question, and again, all student interview participants initially answered that technology did enhance teaching and their learning, but when pressed as to what their evidence was, they struggled to identify anything.

Extracts 9

Student7: 'It makes ... I think it saves time for the lecturer ... makes the work easier for the student? ... I suppose the evidence I see is the time.... Yes time is the main thing. Is that how it makes teaching better? {silence} I think it may take more time for the teacher I suppose, they have to set it all up, or work to be shared, but with regard to the students, it would save time. It has to work both ways to do it, but ... trying to think of an example yes.... er {silence} ... teaching better yeah {silence}';

Academic 2: 'But we do have to engage. I think we would be left behind, because the students all use the latest [technology], and I have tried, you know ... we have to.' ;

Academic 6: 'You need to be aware that you are not the only lecturer in the village, where every lecturer is using technology and you are the only one who isn't.' ;

Academic 9: 'I suppose we compare ourselves to our other colleagues, if they are doing whizzy stuff there is a bit of pressure on me that I should be doing that sort of thing.' ;

The academics here are not referring to the pedagogically driven use of technology to aid learning, but rather to what more than one participant referred to as the 'whizzy' nature of technology. It can be used to entertain, and the assumption is that as a by-product of this entertainment, learning will be

more effective. There is a fantasmatic logic of *comparison*, with academics comparing their practice to others and students, and the impact that failure compared to others will have on them; students who are bored, who think academics are out of touch, receiving poor feedback and academics who are better with the latest technology.

Conclusion

Our preceding sketch of the different logics shows the ways in which social, political and fantasmatic logics combine to create the hegemonic dominance that TEL enjoys in the field. Such is TEL's ubiquity across the sector it becomes difficult to ignore or resist it, particularly when this ubiquity is tightly coupled to the logic of enhancement. To stand against TEL carries with it the allusion of tilting at windmills, as a curmudgeonly opponent of technological progress.

The social logics are mobilised into political struggles, whereby equivalential alliances are formed across actors around logics of expansion and innovation, as assorted actors work together to extend the TEL project into all possible aspects of education. A logic of difference plays out, couched in terms of engagement, identifying a homogenous 'staff' grouping as a barrier to the technologists, the reforming managers and (technologically) progressive government. These social and political logics combine and work with each other to create conditions of 'truth' where it is difficult to imagine education without technology, they become synonymous. Central to these practices are the fantasmatic logics that play an ideological role in justifying and legitimating this 'truth'. The promise of technological reach, more diversity, more markets and more market share show the bare hand of commodification sitting behind the TEL façade. This promise is contrasted with the threat of failure should TEL not be fully embraced. Considered as a whole, the combined effect of these social, political and fantasmatic logics create the context where TEL is perceived as the best way to offer educational provision in the 21st century. All the while, the actual material remains largely immune to transformation, as more and more elements are added on. TEL is a fundamentally additive technology that does little to transform the pedagogical task of learning. It is aptly characterised as a disruptive innovation, designed to create markets rather than learning opportunities.

Selwyn (2014) suggests that society suffers from a tendency to overlook our interactions with technology, sleepwalking through our encounters with technologies, and considering technology as somehow separate from the 'messiness' of the everyday world. There is little evidence that cultural and educational practices have been transformed as we move through learning technology epochs. In this regard, Bayne (2014) argued that the term TEL is a reductive discourse that renders the questions around technology in education resistant to in-depth discussion and one that positions technology as being in service to demands outside of pedagogical need. However, it is important not to blithely accept conclusions as they fit with a technophile or technophobic point of view, where technology can

be viewed as simply serving elite cultural sectors of education or being demonised as an instrument for poor education; but it is also important to challenge the dominance of the technology enhanced learning project.

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