# LOGICS OF TECHNOLOGY ENHANCED LEARNING IN THE CONTEXT OF NURSE EDUCATION

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## ABSTRACT

This study offers a critical insight into technology enhanced learning within the context of nurse education in the UK. Despite an apparent lack of substantive evidence, the use of learning technology in higher education has become ubiquitous. This study uses a discourse analysis approach to examine technology enhanced learning as a social and political force constructed as being at the frontier of pedagogic transformation.

Data was collected through interviews and observation of teaching practice. A total of 24 semi-structured interviews were carried out with 13 nursing lecturers and 11 pre-registration nursing students who were based within the same School at a UK university. Alongside the interviews, the lecturers were also observed teaching pre-registration nursing students across a range of environments.

The study utilises a critical logics approach which relies upon three basic units that explain social change; social logics, political logics and ideological or fantasmatic logics. Social logics characterise the rules that social actors follow, with social logics of novelty, freedom and caveats identified. Political logics provide a means to explore the contestation and defence of instituted social practices. The identified political logics are logics of equivalence (logics of aligning with TECH, low-tech teaching and enslavement) and logics of difference (logics of liberation, hi-tech teaching and isolated resistance). Fantasmatic logics work to conceal the political dimensions of social practices concerned with technology enhanced learning, with the three identified logics being the logic of promise, performance and performativity.

This study demonstrates that technology enhanced learning is not a fixed set of practices that have transformed educational practice, but is rather discursive in nature, a contingent project open to critical engagement and contestation. Several competing interests are

identified which are working towards the dominance of technology enhanced learning and the resistance of in-depth critique.

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## LIST OF ABBREVIATIONS

HEI - Higher Education Institution

MOOC - Massively Open Online Course

NMC - Nursing Midwifery Council

PDT - Political Discourse Theory

TEL - Technology Enhanced Learning

TECH - Term used to refer to for-profit organisations who manufacture, promote, sell, and support technological solutions for education

VLE - Virtual Learning Environment

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## PREFACE

The year 2020 has seen a developing COVID-19 pandemic caused by severe acute respiratory syndrome coronavirus 2. The outbreak has spread worldwide and has been declared a Public Health Emergency of International Concern by the World Health Organisation. The pandemic is causing unprecedented disruption during 2020, affecting all areas of society. This thesis has been developed over seven years whilst I have been working full time in nurse education. The pandemic has clearly impacted upon nurse education, learning technologies, industry and universities, but it is not possible to retrospectively analyse data and re-write this thesis in light of the events of the Spring and Summer of 2020. However, an endnote is included in the conclusion which discusses this thesis in light of the COVID-19 pandemic.

# CHAPTER 1

This chapter offers an introduction to the thesis through a brief outline of my personal journey as a nurse educator in relation to learning technology, and how the question arose concerning repeated iterations of technology and a seeming resilience despite questions over its use. The chapter briefly introduces the research approach undertaken in this thesis, culminating in an overview of the structure of the thesis.

## 1.1 Background

I registered as an adult nurse in 1996 and have been working in nurse education for 15 years, currently holding the position of senior lecturer in adult nursing. Before starting my nursing career, I attained an undergraduate degree in information technology and have always held an interest in emerging technologies. When I commenced my nurse education career, it was apparent that I was a lecturer who used technology more than my peers, and my position became someone who explored and promoted the use of leaning technologies for both students and lecturers. Twenty years ago, Livingstone (2002) observed that we could not imagine living our daily lives without technology, and technology has become accepted as part of the fabric of everyday life (Haythornthwaite and Andrews, 2011). I accepted this perspective and viewed the use of technology in teaching and learning as an obvious development, a common-sense to be advocated. During the formative years of my nurse education career I developed innovative uses of learning technology. The institution was moving to the deployment of a new virtual learning environment, and I became part of the core group to trial and implement this. This experience introduced me to learning technologists and the wider market of emerging technological solutions. I took a lead role in developing a new clinical skills lab, encouraging the purchase and use of hi-tech patient simulators. I developed several ‘learning technology’ projects, often obtaining internal institutional funding to try new pedagogical approaches. I trialed a mobile learning solution so students could access clinical skills videos on iPods and phones (Goodchild, 2009a), and

then moved to using video to develop a virtual children's nursing student placement (Goodchild, Hayward, & Nobes. 2009), which later evolved into developing mobile support for informal carers (Goodchild, 2009b). I introduced the use of podcasts to the nursing curriculum (Goodchild & Chenery-Morris, 2009), followed by educational blogging (Goodchild, 2010) and 'e-handouts' (Goodchild, 2011). I also held various roles within the institution including that of 'e-learning champion' (Goodchild, 2012) and attending university level groups such as the 'distance learning group'. Throughout this period, it was self-evident to me that learning technologies were nothing but beneficial.

However, I was becoming more aware that technology projects seemed to arrive with a fanfare, were well supported, and then dissipated – this includes the podcasts, virtual placements, and mobile tool's cited above, all which ceased to be used over time. After the initial excitement of using the hi-tech Sim-Man manikins (Laerdal, 2020), I was witness to the technology not being used as I thought it may be - to the point where lecturers would actively choose to avoid the use of the hi-tech functionality. I was also increasingly aware of an undercurrent of concerns from both nursing students and lecturers to the use of learning technology on the nursing courses. This would range from a seemingly over-used PowerPoint, to the difficulties of utilising the virtual learning environment (VLE), or what was perceived as a rolling conveyer belt of technologies all set to benefit students and lecturers, but never quite coming to fruition. As my experience and pedagogical knowledge and skill developed, I was becoming more reflective of my practice, and had begun to question some of the methods employed within my personal teaching. An example of this is appendix 1 which is a reflective account I wrote in 2013 of my evolving perspectives towards my use of PowerPoint in my teaching. As stated in the account I had used PowerPoint for many years, never really questioning its use. However, a destabilizing incident enabled me to use the transformational learning framework (Mezirow, 1991) to challenge my meaning perspectives concerned with the use of PowerPoint, and as highlighted in Table 1 below, I became more open and critical to the use of presentation technologies.

| My Previous Meaning Perspective |
| --- |
| *Using a successful PowerPoint makes people think I am a good teacher.* |

| My Transformed Meaning Perspective |
| --- |
| *PowerPoint can disempower students and decrease ability to learn.* |

**Table 1: My evolving meaning perspectives in relation to PowerPoint**

During this time I also undertook a project at my institution in conjunction with a colleague from the sociology department, exploring lecturer's perspectives of technology in teaching and learning (Bond & Goodchild, 2013). Despite what seemed an increasing series of institutional events to promote technology enhanced learning, I did not see the evidence that technology was *enhancing* the act of my teaching or my students' learning. The core of nurse education seemed to have remained relatively unchanged throughout my career, large group lectures, small group face-to-face teaching, and one-to-one tutorials with the lecturer at the centre of the students' educational experience. My developing critical attitude to educational practice has contributed to my evolution from a lecturer who is predominantly concerned with how best to use technology in nursing education, to one who is concerned with an apparent unreflective acceptance of technology in nurse education. The promise of enhancement seems to have perpetuated irrespective of the success or failure of learning technology.

The 21st century has seen the rise of the knowledge economy and a digitally connected society. Digital technologies have entered all aspects of our lives and play a visible role in education. For many years, the growth, potential and importance of technology in higher education has been much discussed (e.g. Waggoner, 1984; Papert, 1993; de Freitas and Conole, 2010, Roy 2019). The hybridized nature of education and technology has led to the creation of a burgeoning field of academic study, which has as its aim the characterization of technology enhanced learning as the instigator of transformation in higher education

(Selwyn, 2014). This vision of technology enhanced learning (TEL) has as its core the notion that if deployed correctly and supported, learning technology will enhance teaching and learning for its users and the institution. A core tenet of TEL, is that technology will put students at the centre of learning, teaching and assessment, with increased flexibility, freedom and control over their learning, and party to an enhanced teaching experience and a positive institutional reputation with a global reach (AdvanceHE; 2020). Learning technology is viewed as the catalyst for educational transformation (Monguillot, et al, 2014) and is seen as having "revolutionized the teaching–learning process" (Sáiz-Manzanares et al., 2020; p1).

This research does not set out to contest that learning technology can enhance teaching and learning. Nor does this research set out to convince readers that learning technology is a bane for students, lecturers, or nurse education. This study intends to offer a critical engagement with TEL in the context of nurse education. The aim is to critically explain the enduring project of technology enhanced learning in nurse education, to look beyond the common sense of students' and lecturers' perceptions (Peart, et al, 2017). The study aims to explore how TEL is characterised within nurse education, how the language used by nursing students and lecturer's constructs and shapes their positions and identities. To understand how and why learning technology has emerged, persisted and has been promoted, despite what appears as an apparent lack of transformation. To do this, I took a discourse theory approach of logics of critical explanation (Glynos & Howarth, 2007), which allowed for an exploration of the development of learning technologies, a characterization of technology enhanced learning in nurse education, and a critical explanation which was rooted in the political and fantasmatic dimensions of social practice. This poststructuralist informed approach of explanatory logics problematizes and critically explains the phenomena of TEL within the context of higher education (specifically nurse education) in the United Kingdom.

## 1. 2 Terminology

E-learning remains a popular term, alongside more recently used terms such as 'technology enhanced learning' (Higher Education Academy, 2017), but both these are variations among many other competing terms for learning with or through some form of technology (Anohina, 2005; Moore, Dickson-Deane & Galyen, 2011), as highlighted below in Table 2.

| | | |
|---|---|---|
| *e-learning,* | *computer-based training (CBT),* | *Computer mediated education,* |
| *technology-enhanced learning (TEL),* | *computer-assisted instruction,* | *cyber-learning,* |
| *instructional technology, information and communication technology in education,* | *computer-aided instruction (CAI),* | *multi-modal instruction,* |
| | *internet-based training (IBT),* | *virtual education,* |
| | *flexible learning,* | *personal learning environments,* |
| *EdTech,* | *web-based training (WBT),* | *networked learning,* |
| *learning technology,* | *online education,* | *virtual learning environments (VLE),* |
| *multimedia learning,* | *digital educational collaboration,* | *learning platforms,* |
| *computer-based instruction (CBI),* | *distributed learning,* | *ubiquitous learning* |
| *computer managed instruction.* | *digital education*, | *m-learning.* |

**Table 2. Variations of the term e-learning (Wikipedia, 2019)**

In this thesis, the terms technology enhanced learning (TEL) and learning technology will be used to cover all the terms above, and relate to any teaching, learning, theoretical, institutional and practical activities which are related in some form to digital technology.

## 1.3 Overview of the thesis

This section provides an overview of how this thesis is structured. Chapter 2 sets out to problematise TEL in higher education today, presenting a 'diagnosis' of the current situation, critically questioning practices and posing questions as to how and why the project of TEL may be a problem. The chapter examines learning technology as being perpetually on the brink of transforming education through enhancement, and explores evidence which

supports the promissory rhetoric of TEL. The problematisation establishes TEL as an ideological position, introducing the concept of hegemony and antagonistic forces, which may challenge the hegemony through cultural means. The chapter concludes that hegemonic practice has contributed to the development of TEL as a mundane and accepted part of higher education and nursing education, accepted by lecturers and students in their day to day activities. However, TEL is a contested feature of education, with a variety of social actors attempting to solidify the hegemonic status of TEL.

Chapter 3 provides an outline of why Glynos and Howarth's (2007) poststructuralist approach has been chosen as a research method for this study. The chapter discussed the chosen methods used through this study, including participant recruitment, the collection of empirical data through interview and observation, and a wider selection of data to inform the study, the analytical processes to that data, and the ethical principles underpinning this study.

Chapter 4 and 5 present a genealogical and archaeological analysis of learning technology as presented through four epochs. Learning technology has developed alongside the rise of digital and communication technologies, and after a discussion around technological determinism, Chapter 4 considers epochs 1, 2 and 3 which take place from the mid twentieth century to the turn of the millennium. These epochs highlight the contingent nature of TEL, with cyclical arguments of potential and rhetoric of enhancement persisting through the epochs, whilst target consumers of learning technology moved from institutions and educationalists, to students and lecturers by epoch 3.

Chapter 5's archaeological analysis discusses the ubiquitous presence of learning technology in epoch 4, an ever-present mundane aspect of education. The chapter explores

current issues such as disquiet amongst educators to the continually emergent technologies, the automation of roles, effectiveness and the ‘human’ in teaching practice. This analysis presents a glimpse into the success of TEL in becoming the prevailing hegemony. The chapter concludes with an exploration of contemporary nurse education in relation to TEL, including discussion of simulation technologies, mobile learning, and the flipped classroom, and what they bring to nurse education. These two chapters demonstrate that contemporary practice within nurse education has not emerged in a deterministic fashion, but rather through struggles and alliances, with continuing rhetoric of technology as the enhancer for education.

Chapter 6 utilises extracts from the empirical data to provide a detailed account of the three dominant social logics of novelty, freedom and caveats. The logic of novelty maintains the mundane nature of TEL, with the social logic of freedom working to enable an ongoing promise of learning technology. The logic of caveats functions so social actors may inhabit subject positions related to blended learning, therefore meeting both the requirements of what they view as the best method of teaching and learning, whilst also supporting the dominant hegemony of TEL.

Chapter 7 follows the presentation of social logics to focus on political logics, opening with a discussion of the political frontier of TEL and identifying a coalition of partners – technology companies, ‘TEL academics’, universities and students. Three logics of difference (practices that seek to maintain the existing structures) are identified including aligning with technology companies, the logic of low-tech teaching and the logic of enslavement. Three logics of equivalence (practices whose aim is to challenge the existing hegemonic structures) are also identified and discussed, namely the logic of liberation, of technology enhanced and the logic of hi-tech teaching.

Chapter 8 includes a discussion of the ideological dimension of TEL through fantasmatic logics, exploring how the logics work to cover up social contingency, sustaining the social logics and the ideological investments that social actors may make. Three fantasmatic logics are identified, each with a beatific and horrific aspect, the logic of promise, of performance and of performativity. The fantastic logic of promise offers a fantasy associated with reaching potential through TEL, whilst also the horrific outcome related to incompetence. The logic of performance functions through attaining positive and negative appraisal. Finally, the fantasmatic logic of performativity has the beatific logic of ornamenting, represented through lecturers receiving plaudits through the organisation, and the horrific logic of neo-luddite, the lecturer at risk through non-engagement with TEL.

The final chapter concludes the thesis presenting an overview of the arguments within. It considers the difficulties lecturers face in stepping outside of the TEL common-sense, the success of the 'TEL Alliance' using empty signifiers to offer potential as a rationalised choice for lecturers, and the strength of the ideological dimensions of TEL leading to the acquiescence of lecturers and students to learning technologies. The chapter also considers some personal reflections including the use of the logics approach for the study, alongside limitations of the research. There is also an endnote which discusses the thesis in relation to the COVID-19 pandemic, including discussion on the forced move to distance learning and the deployment of learning technology.

## CHAPTER 2

This problematization of technology enhanced learning takes place before data collection takes place, offering an opportunity to critically engage with the present. There is no singular method to follow, with the concept and methods of problematization discussed widely across academic texts. Bacchi (2015; p3) suggests that the methods offered for problematization are merely proposals for how to proceed, and researchers have used the term "problematization" with a wide variety of meanings to fit their particular paradigm. Problematization is the central philosophical device in the work of Michel Foucault (Koopman, 2011), who suggested in later work that problematization tries to "grasp the implicit systems which determine our most familiar behaviour without our knowing it" (Garland, 2014; p369). It is a way of critically questioning practices, asking how and why certain things may have become a problem, the behaviours, processes, the phenomena as a whole (Barnett, 2015). The problematization presented in this chapter is therefore closely related to the genealogy and archaeology presented in chapters 4 and 5. As Dreyfus and Rabinow (1982; cited in Garland, 2014; p367) suggest, the genealogical approach should begin with a diagnosis of the current situation, and a "contemporary orientation". This problematization offers a route to formulate and address the issue of learning technology today, forming part of the explanation of the problematized phenomena. This then enables an evaluation in terms of the construction, maintenance and transformation of TEL in nursing and higher education (Glynos and Howarth, 2007). By presenting current practice, this chapter seeks to uncover and highlight the taken-for-granted aspects of TEL which are part of the teaching and learning experience today.

Technology enhanced learning finds itself today as an academic field awash with studies exploring the use and success of learning technologies within a specific educational setting. It is not however, an academic field overflowing in critical or political analysis of technology in education (Selwyn, 2014; Oliver, 2011; Frieson, 2008) with studies tending to explore the

potential of learning technologies, or what may be if technologies were the mainstay of educational practice. However, as many a lecturer could attest to, everyday educational practice is not governed by or dominated by learning technology, with many areas of teaching and learning remaining relatively untouched by learning technologies. The critical, explanatory approach taken here enables an examination of what is taking place in the "here and now" of educational practice with regards to TEL. This problematisation will engage with the idea of TEL from a critical perspective, to try and "open up" the issue so as it can be further explored through the genealogy, archaeology and through the analysis of empirical data in subsequent chapters.

This chapter will initially focus on learning technology as always being on the cusp of transforming education, a concept filled with potential of enhancement and disruption. The chapter will proceed to explore the evidence behind the promissory rhetoric of purported enhancement as a result of learning technologies and argue that whilst there is an abundance of evidence, it does not necessarily support the rhetoric of TEL. The chapter will problematise the common-sense understanding of technology in education, that learning technology is a boon for both educationalists and consumers of education, unquestioned and obvious.

### 2.1 The cusp of transformation

Laurillard (2008; p1) argued that education is on the "brink of being transformed through learning technologies; however, it has been on that brink for some decades now". The use of learning technology in education is not a cemented, seemingly fixed set of practices that have transformed education, but is rather discursive in nature, a contingent project which is open for critical engagement and contest. To problematize TEL it must be examined as it exists in the present as an ideological force, and how students and academics construct and

understand learning technology, and the many actors with vested interests in its use. Technology as a phenomena in education dates back through the use of papyrus, clay tablets and the printing press, but in this thesis we will consider technology in education in line with modern technological developments through the latter 20th Century; broadcasting, computing, the internet, mobile devices and digital and social media. Technology is largely understood in terms of technological determinism (Wolfson, 2014), which is the belief that technology shapes society in some way, such as the impact of television or mobile phones upon society, or in this case the changes technology has affected towards the practice of teaching and learning. Technological determinism views technology as the central determinant of change in education, a view which is proffered not only in the field of academic study of learning technology, but also in the mainstream press with pronouncements such as “The Year of the MOOC” (New York Times, 2012) and that “Intelligent machines will replace teachers in 10 years” (Radowitz, 2017). This view is in line with the concept of technology *itself* as a disrupter, an innovator, an enhancer.

Technology enhanced learning 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 (1995, p49). Christensen (2008) argues that a disruptive innovation attracts new customers by making an expensive and complicated product simpler and cheaper, such as the aforementioned MOOCs that have appeared in recent years (Massively Open Online Courses), which have arguably streamlined attendance on higher education courses at a distance. 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) – a framework existing within a deterministic perspective. By characterising learning technology as a disrupter, and accepted as a common-sense

approach, this chapter offers a critique, to problematize the disruptive base of education today, with the argument that TEL is central within rhetoric's of innovation and enhancement, with propositions including 'liberation' from the shackles of time and place, a new of way of learning, a better way of teaching, and the transformation of the experience of education for all those invested in it. TEL is an ideological process with social, political and economic agendas which need to be highlighted, questioned and critiqued, so as to enable a clearer view of educational practice today. As will be highlighted within the genealogy, computers have been at the forefront for arguments concerning the potential of technologies to transform education, with Levien (1972) publishing a textbook exploring the "emerging technology" of computers in mainstream education over forty years ago. In the mid-1970s UNESCO proclaimed its support for information technology and media to transform education (Federov, 2008), particularly in reference to the widening of access to high quality education. Nearly 40 years ago US Congress (US Government, 1982) issued a report on the impact of technology on American education with the opening paragraph stating that:

> *"Modern society is undergoing profound technological and social changes brought about by what has been called the information revolution. This revolution is characterized by explosive developments in electronic information technologies and by their integration into complex information systems that span the globe. The impacts of this revolution affect individuals, institutions, and governments–altering what they do, how they do it, and how they relate to one another." (p3)*

The rhetoric of transformation is clear, "*altering what they do, how they do it, and how they relate to one another"*, and this is applied to an educational context with the conclusion stating that "*there is evidence of demands for new types of education*". However, it is noted that within this conclusion the findings state that this is based upon what *may be*, rather than *what is*; "*information technology holds significant promise*" (p3), that promise being the transformation of education.

In the next decade Bangert-Drowns, Kulik and Kulik (1991) published a meta-analysis of over 250 studies, which was an updated analysis of a study published in 1986. They conclude that students who receive *computer-based-instruction*, consistently out-perform students in examination who received standard, classroom-based teaching without access to a computer. Welburn (1996) conducted a literature review on the status of technology in the educational system, and argued that studies of the last 5-10 years are only just beginning to show the impact of technology and concludes that most of the current evidence is "overwhelmingly positive about the potential of a variety of technologies". However, there is barely a critical word to be said for the role of learning technology within either the Bangert-Drowns, Kulik & Kulik (1991) or Welburn (1996) paper, with the idea of *promise* and *fulfilment* abundant throughout. The message could not be clearer; students can now "*make greater use of the interactive power of computers*", "*positive effects have been found for all major subject areas*", and "*the tools are already in hand to make transformative change*" (Welburn, 1996).

The promissory rhetoric continues through the next decade as exemplified through the UK government document *'Towards a unified e-learning strategy'* (Department for Education & Skills, 2003). The education secretary at the time sets the tone describing "the learning revolution" afforded by e-learning, and that it is necessary for "all children and adults, all teachers and lecturers, all trainers and mentors [to] experience the fantastic excitement of these new ways of learning and teaching", concluding in the recommendations that "the time has come to recognise the benefits that these technologies can bring to the way we teach and learn" – a recognition that seems to have been taking place for some time. Nearly twenty years on, and the UK government (albeit Conservative rather than Labour) have released a very similar paper, *'Realising the potential of technology in education' (Department for Education, 2019).* Chris Skidmore (then Minister for Universities, Science, Research and Innovation) taking a deterministic perspective, urges those in education to respond to technology;

> *"As the way we interact with technology is changing at an ever-increasing rate, it is more important than ever that the education system keeps pace with the change around us. We need to work with leading head teachers, education experts and tech companies to unlock the benefits."*

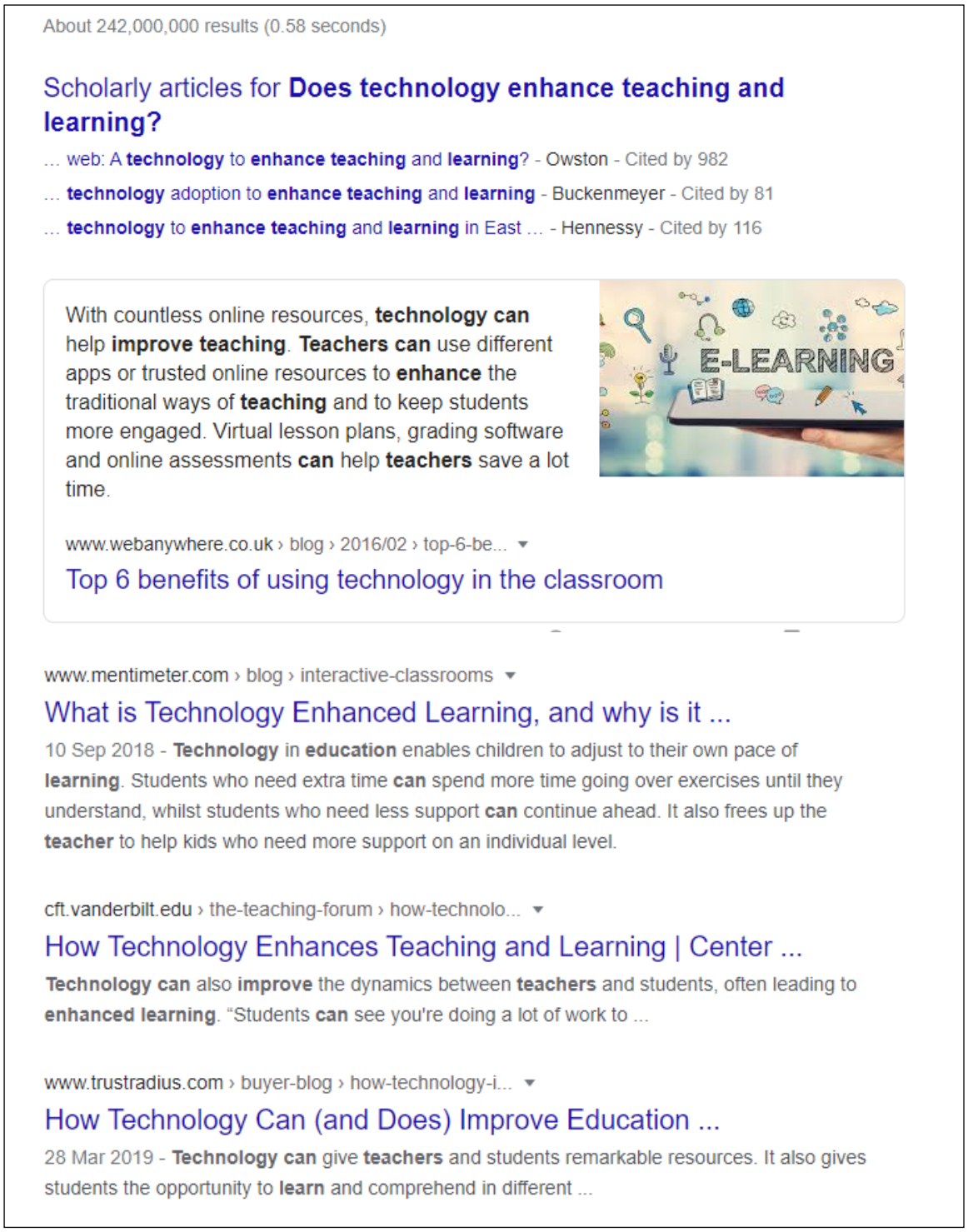
The intention of, and alliance between government, education managers and the tech industry, is evident. When unveiling the 2019 strategy, the Department for Education suggested that the new strategy will allow "education to be transformed", with particular emphasis on the aim to "reduce teacher workload, and boost student outcome".

Rhetoric is abundant in educational circles and mainstream media, that technology will transform education; "Seven Cyber-learning Technologies Transforming Education" (Huffington Post, 2015); "Five technological trends that will transform education by 2025" (Forbes, 2015) ; "Digital Revolution: A new approach to teaching and learning in higher education" (Times Higher Education, 2018); "How Technology is transforming education" (European Business Review, 2019); "Preparing for education 4.0" (Times Higher Education, 2020). A report to NHS Education for Scotland (2014) stated that staff value the efficiency and flexibility that may be offered by learning technology, whilst the Department of Health (2011; p6) 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". If the evidence is so clear cut, and has been for at least the last four decades, if it is recognised through academic and wider circles that technology is transforming education, transforming teaching practice and the improving the attainment of students, then the questions can be asked; *Has education been transformed?, and if so, Why is promissory rhetoric still suggesting that education is on the cusp of transformation?*

Alongside these questions, it can also be asked whether there is systematic and compelling evidence to support the notion of transformation through TEL. This problematization argues that TEL, whilst it has evolved across a range of spheres of higher and professional education, has failed to transform education as academics and students know it. The much-vaunted new ways of teaching and learning, enabled through broadcast media, teaching machines, personal computers, multimedia, the internet, Virtual Learning Environments, mobile phones, virtual reality and social networks, has not materialised as an enhanced 'standard-pedagogy' across all forms of education. Rather, the technologies that have promised revolution remain either obsolete, or still on the precipice of bringing about a radical transformation for educators and learners. However, despite this enduring lack of transformation, there is continuing rhetoric of potential and transformation through learning technology. There is also a wide range of evidence available of the benefits many different learning technologies can bestow upon educationalists and students.

**2.2 Evidence and rhetoric**

If you 'Google' the question "Does technology enhance teaching and learning?", you are faced with a vast array of websites professing to explain how technology benefits teaching and learning. For example, a search conducted 20/06/16 resulted in the top three results offering proclamations such as for students' "betterment we can always fuse learning with technology" (Hasan, 2014), or from Steinberg (2015) that connected learning is a "model of learning that holds out the possibility of re-imagining the experience of education in the Information Age". Granberg (2016) states that "all the faculty members interviewed for this article believe technology has great power to influence their teaching" and the "effective use of technology has the potential to transform". A Google search conducted 30/05/20 gave the following top results:




The message on offer is clear; “enhance traditional ways of teaching”, “can help teachers save a lot of time”, “frees up the teacher”, “improve the dynamics between teachers and students”, “leading to enhanced learning”, “ opportunity to learn and comprehend in different ways”.

But what of empirical evidence supporting the beneficial effects of learning technology? For an example of evidence in relation to the context of this study, Lee (2015) published an article in the Nursing Times, the UKs most popular nursing journal and the largest nursing website in Europe, titled “Using technology to enhance nurse education”. The article concluded that “entrepreneurial educationalists need to continue to lobby for further developments within TEL, to not only enhance the student experience but also to encourage deeper, more meaningful learning” (p19). This is characteristic of the type of evidence often found in learning technology papers across subjects in part outlining the potential for transformation, but also reflecting the common-sense belief that technology does enhance teaching and learning. Lee’s paper (2015) also reflects much published work in this area, in that it is not empirical research, but is rather an opinion piece based upon the proposition that technology does enhance nurse education and needs to be used (e.g. Merrell, 2015; e.g. Dickerson & Lubejko, 2015).

There is a plethora of evidence available surrounding the use of and beneficial impact of learning technologies. However, there is a lack of a sustained critical perspective throughout the academic study of learning technology which is “self-evident to anyone with even a passing interest in the literature” (Selwyn, 2015; p439). There are some isolated examples, such as Bulfin, Johnson & Bigum (2015), and from Kirkwood and Price (2013) who undertook a critical literature review and explored the nature of research in the discipline of TEL. They suggest that enhancement is conceptualised in a variety of ways, and whilst the influence of technology is apparent, there is no clear understanding about its effective educational contribution. They highlight the “increasing recognition of the limitations of much research that has been undertaken to understand the relationship between technology and learning” (Kirkwood and Price, 2013; p26).

It should not be a surprise that research exploring the potential and success of learning technology tends to have premature evaluations and consequently, premature conclusions.

Research is usually led by a *tech-invested* educator and often takes place in limited contexts such as within particular classes or modules, with conclusions being drawn shortly after development or implementation. To aid rigour, research would benefit from taking place in less than ideal conditions and being run by those without a vested interest or engagement with learning technology. Teaching within academic calendars, alongside the lifecycle of research funding streams often results in research which is limited in scope and narrow in focus. This can also be attributed to the highly iterative nature of technologies themselves, in that the technology being evaluated is often a *newer technology* or described as *emerging*. For example, it is difficult to conceive what funding would be available for a project to explore the enhancement offered by an overhead projector or using PowerPoint slides, but perhaps easier to envisage funding for a project exploring the enhancement surrounding virtual reality, artificial intelligence or *en vogue* social networks. A cursory glance through a recent contents of the British Journal of Educational Technologies (e.g. Vol 50, 2019) shows the research articles are dominated in exploring what can be termed *new* and *emerging* technologies; 'learning analytic', 'A.I.', 'performance metrics', 'social networking', 'augmented reality', 'mobile technologies', 'gaming' and 'big data'; not so much on interactive whiteboards, PowerPoint, and Virtual Learning Environments. Cassanova, Moreira and Costa (2011) developed a 28 point scale to assist in the evaluation of 'technology enhanced learning', as they argued that the impact of technologies on the students learning experience has not been properly evaluated. The Scottish government commissioned report titled 'Literature Review on the Impact of Digital Technology on Learning and Teaching' (ICF, 2015), highlighted that research tends to focus on short term evaluation and concluded that upon examination of the body of evidence as it stands today, there is "no conclusive case" for the beneficial impact of technology on longer term educational attainment outcomes (p41). King et al (2014) argue that there is need for wholesale change in how evidence for TEL is gathered and viewed by academics and institutions, with a move towards what they describe as realist evaluations, with a greater focus on the quality of reasoning within research rather than the quality of the data. This suggests that the evidence that does exist

and is alluded to, does not necessarily indicate, or correlate with embedded enhancement of educational experience. As Carr-Chelman (2006) suggested, many academics are not even aware that there were any criticisms being levelled at online education and the field of e-learning, something which persists to this day. Mishra, Koehler and Kereluik (2008) highlighted the high-paced iteration of technology which has resulted in a lack of transformation in teaching practice.

What these arguments demonstrate is that a large amount of the evidence surrounding the efficacy and deployment of learning technologies through the last 50 years can be described as 'weak' at best. There is also an emerging critical movement towards the use of learning technology, seeking the creation of a critical educational technology agenda (Selwyn et al, 2020). In recent decades, there have been numerous reviews and studies of the evidence of the effectiveness of learning technologies, some based purely within the higher education sector, but some also exploring 'corporate e-learning', usually comparing some form of 'e-learning' or 'blended learning' with what is described as traditional or face-to-face classroom learning. Strother (2002) conducted a literature review exploring the benefits of e-learning, but assumed a position which already seems to accept the promissory nature of technology in education, beginning the conclusion by stating that "few people debate the obvious advantages of e-learning" (p13). However, Strother goes on to explain that the evidence thus far is not conclusive, and "systematic research is needed to confirm that learners are actually acquiring and using the skills that are being taught online" (p13). Lain and Aston (2004; p20) state in conclusion to their literature review of evidence of e-learning that "as a general rule, 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) conducted a literature review of evidence to see how compelling the evidence was that learning technologies were effective in the higher education and healthcare sector, finding that there was an apparent lack of reviews and meta-analysis of evidence. After a wide-ranging review of available evidence, the conclusion drawn was that there is "weak, positive but not yet

compelling evidence" (p117) of the effectiveness of learning technologies. However, throughout this paper there are examples of conflicting results, a lack of strength of evidence based upon results and methodology, and little discussion from a critical perspective of the researchers undertaking the studies.

One of the largest reviews available is the US Department of Education study (2010) which conducted a meta-analysis of over 1,000 studies which compared online, blended and face-to-face courses. The results are far reaching but the main conclusion was that online and blended learning courses gave a small, if inconclusive benefit in student outcome above that of a purely face-to-face course, and within that, blended learning was slightly more favourable than a purely online course, however this benefit was deemed negligible. Blended learning is a term that is used almost universally throughout higher education by both lecturers and students, but about which there are a range of conflicting meanings. Far from being problematic, this lack of coherence has been lauded by advocates such as Driscoll (2002; p1) who asserts that these multiple definitions "illustrate the untapped potential of blended learning". Regardless of consensus, the term was viewed as a positive influence on education - either as a means of adding online learning to classroom-based learning, or perhaps in its original meaning from EPIC-Learning (1999) to add classroom learning to online only education. Central to the lack of consensus has been disagreement about what is actually being blended (i.e. tools; modalities; spaces; media; time; pedagogical approaches), and there are multiple meanings with no single, agreed definition. The argument is that the non-specific definition of blended learning is a strength of blended learning, as it then has freedom as a concept with no prescriptive template for educational providers to follow. However, with the inclusion of the internet and digital media in the definition, it is evident that technology is key to the concept of blended learning. In a discursive context blended learning is an empty signifier, which has been practically emptied of content, or may even be so over-filled with content it means nothing and everything at the same time (Torfing, 1999). The utility of setting blended learning up as an empty signifier is

that is allows advocates to embed learning technology as a constant presence in the educational landscape, future-proofing it against possible technological demise (such as floppy disks, CD-ROMs or PDAs), and affording it the appearance of a constantly evolving and developing field. It could be argued that the use of blended learning is a strategy from techno-philes. The acceptance by academics of the tenets of "blended learning" (as loose as they may be) is a method to ensure that technology is included in the formulation of teaching practice, albeit with some acknowledgment that face-to-face is also a vital component of teaching, thereby appeasing techno-sceptics.

A more recent example of blended learning, and a term that has risen in popularity over the last decade is that of the 'flipped classroom' (Fisch, 2010), which has been pronounced as the real revolution in education (Ferenstein, 2012; Tomas et al, 2019; Mojtahedi et al, 2019), and is another example of an empty signifier. The pedagogical notion of active classroom learning is not new, embracing tenets of Vygotsky's work (1978), and with many decrying the whole notion of lectures as an effective learning tool (Bligh, 2000; Gibbs, 2013), why would an online lecture be an enhanced solution? Part of the reason for the success of the flipped classroom, is that as with the empty signifier of 'blended learning', the 'flipped classroom' ensures technology is at the heart of teaching practice, whilst also acknowledging the voice of those lecturers who may be critical of teaching in the digital age (Partarrieu, 2015), ensuring the centrality of their sacrosanct time spent in the classroom, actively engaging learners.

In the meta-analysis from the US Department of Education (2010) the variance between online and classroom teaching was found to be greatest when there were clear distinctions between the two methods. If online classroom activities replicated face-to-face classroom activities, then there was no difference, but when the online learning included an element separate from the face-to-face classroom, such as extra instruction opportunities or an increase in variety of pedagogical method, then the apparent benefits of online learning

emerged. However, it is questionable whether this is a meaningful comparison, and yet one often employed in comparative studies of online learning. For example, in a study comparing the learning achieved by nurses studying pain management (Keefe and Wharrad, 2012) learning was compared for nurses who received 'standardized training' with those who also received an additional 'e-learning session' on top of the 'standardized training'. The conclusion was that e-learning enhanced the knowledge of the participating nurses. But the comparison was a control, not a well-designed and managed classroom experience – if the extra training was not e-learning but rather an engaging classroom session, then could the conclusion be drawn that classroom teaching 'enhances' learning? The US Department of Education (2010) study also concluded that the more individualised the online learning experience, the greater the benefit for learning online, a conclusion which seems to rally against the principles of Massively Open Online Courses (MOOCs). MOOCs have been much hyped, much discussed and much feared in equal measure (Bulfin, Pangrazio & Selwyn, 2014; DBIS, 2013). They include a wide variety of models and institutions who are supporting them, including a raft of venture capitalists, corporations, and HEI's such as Stanford, MIT, Harvard, Cambridge and the Open University. MOOCs are viewed as having great potential (*sic*) to disrupt the market of higher education, offering free education to the wider public (Yuan & Powell, 2013), however, this view still rests upon potential. As the hype of MOOC's settled, there was the beginnings of a critical lens being aimed towards them. There is some suggestion that there has been a failure to deliver on the potential and promise of educational transformation (Selwyn, 2014), whilst the failure of most students to complete their MOOC course has been referred to as a feature of MOOCs, rather than a point of contention (Rivard, 2013). Rowe et al (2019) stated after their critical review that there is little evidence to support the use of MOOCs in health professions education. Perhaps the MOOCs biggest selling point, free higher education, has also failed to come to fruition, with the major players in the MOOC industry employing some form of funding model (for example, Coursera charges for a student to receive a certificate). The majority of 'evidence' supporting MOOCs remains with similar flaws as discussed earlier, such as the

study from Wang et al (2019), a short timeline, small groups of participants and tech-savvy researchers with vested interest who conducted the experimental group teaching.

There are other reviews and analyses concerning nurse education and learning technology available. For example, Li et al (2019) conducted a meta-analysis of the effectiveness of blended learning in nurse education. However, whilst their conclusion was that blended learning can improve satisfaction and knowledge, (although not skills), this was based on only 8 studies, which were again focused on singular classes and conducted by tech-invested authors. Massey et al (2019) conducted a review of online discussion boards in nurse education, and their findings offered a cautionary note of increased disengagement. They also note that the identified studies “include small sample sizes, single locations and minimal discussion of the reliability, validity or rigor” of the studies (p31). The main finding from a review by Leidl, Ritchie and Moslemi (2020) was the blended learning was actually used as a term to cover a wide range of pedagogical interventions (see discussion on empty signifier), including distributed, decentralized, hybrid, and flexible learning, but there was not discussion on effectiveness. Means, Toyama, Murphy and Baki (2013) published a meta-analysis of the evidence of effectiveness of online and blended learning, with the conclusion that there was a small benefit of online learning, and within that, blended learning again gave the greater benefit of the two (above that of face-to-face classroom learning). However, the conclusion is tempered with the suggestion that studies using blended learning tended to include additional learning time and additional resources. They also suggest that social media (at that time) was lacking in evidence due to the fast-paced nature of technological iteration and innovation. Social media is a recent example of a learning technology which has seen significant growth over the last decade as highlighted in Figure 1 below.

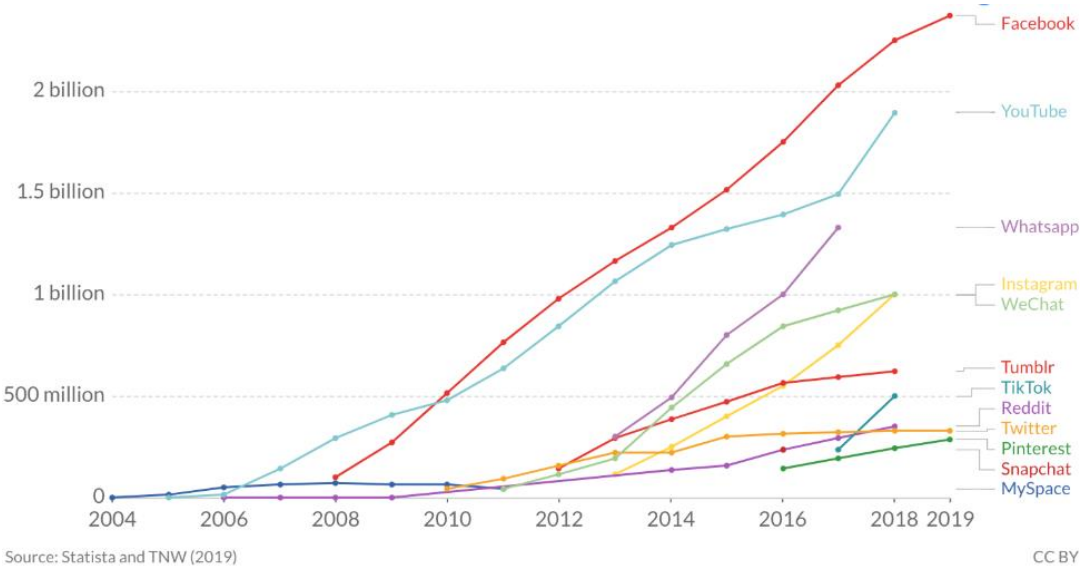



**Figure 1: Worldwide number of people using social media platform 2006-2019**
Source: Smart Insights (2020)

Whilst educators may have felt daunted by the ethical and legal issues associated with social media communications (Cain & Fink, 2010), others have argued that the pedagogical use of social networking in healthcare education has begun to realise the promised transformation of learning technology (Greenhow, Sonnevend & Agur, 2016). Tower, Latimer and Hewitt (2014) explored nursing student perceptions of Facebook as a learning tool, and concluded that social networks were innovative and promoted learning as an extracurricular activity, whilst Peck (2014) reported on evidence outlining applications of social media for nurse education, asserting the obvious benefits social media has for education. However, it is clear that the promise of social media in revolutionising the delivery of education (Patrut & Patrut, 2013; Dabbagh & Kitsantas, 2011) has as of yet, failed to materialise. Selwyn and Stirling (2016) suggest that educators still remain hopeful that social media may yet be the 'killer app' capable of transforming education, but academic papers still tend to talk about 'potential' rather than actual transformation of education (Willems et al, 2018; Zachos et al, 2019).

This problematization argues that there is a substantial proportion of literature exploring technology in education which is prejudiced within the common-sense concept of technology as a boon. It is evident that there is a vast body of evidence stretching over several decades exploring TEL, across a range of subject/technology journals. This problematization is not proposing that technology *does not* enhance aspects of teaching and learning. Rather, it is the continuing presence of pre-judgment and common-sense existing within academic literature and across a wider educational context, that use of learning technology will lead to enhancement of teaching and learning, and that this acceptance is actually based upon a large body of evidence that has been, and remains inconclusive at best. The ubiquity of TEL 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 in part resulted in an unquestioned acceptance throughout structures within education, what may be termed a hegemonic dominance.

### 2.3 Common sense

As outlined above it is not a certainty that learning technology will enhance or transform teaching and learning, but transformational rhetoric continues to persist. It is at this point that the concept of hegemony (Morton, 2007) may offer insight. That technology *enhances* learning is an accepted position, a common-sense view of education today, where to resist this view seems to fly in the face of rationality and common sense. This dominance makes it 'hegemonic', demonstrating the way that this viewpoint is used by dominant actors in the field to sustain a position of dominance above all else. The dominance of TEL is perpetuated, not always consciously, by participants own rationalised acceptance and support of the hegemonic discourse, such as academics accepting learning technologies as the new and better way to conduct a certain aspect of their teaching, and students accepting the concept of days away from the physical university to learn as directed by the VLE. Hegemonies are not fixed and sealed, but rather are open to challenge through cultural means. However, they can become so dominant, so accepted, as TEL has become, that

they escape closer scrutiny from those who are embedded within the social practices, for whom the contingency is not evident.

Howarth, Norval and Stavrakakis (2000) stipulate two conditions for hegemonic practices, first, the existence of antagonistic forces, and second, unstable political frontiers which divide those forces. For example, a frontier may exist between possible antagonistic forces; those lecturers who choose not to use emerging technologies in their teaching in the classroom, rather focusing on the use of personal dialogue or spontaneity through face-to-face discussion; and those who choose to teach in the classroom using emergent learning technologies. They may be part of an organisation which promotes the use of learning technologies through learning technologists, with posters in the classrooms directed at academics proclaiming ways for “technology to enhance your teaching” or instructions outlining ways classroom technology can be used to “enhance your session”. Learning technologists and managers within that organisation may want those lecturers to see the common sense, perhaps even promote the university with technologized ways of teaching, thus establishing that political frontier. Within this problematization, this hegemonic practice might be understood in terms of the way in which academics who are committed to low-technology based teaching and learning seek to construct approaches and conceive themselves utilising theories of teaching and learning that may exclude learning technologies, whilst those academics who embrace the potential transformation may align themselves with theoretical positions and practices that embrace learning technologies. This leads to a struggle between these competing discourses for dominance in this contingent area of education, as there is competition to define what is the accepted view or truth within this particular domain.

The common-sense understanding of TEL is an ideological position which does not emerge purely from lecturers discussing the efficacy of learning technology, but is actually a position which is promoted and maintained by a variety of groups with a vested interest. Today, the

online space in particular provides those actors with a malleable environment unlike that of a physical university, where they can continue with practices as they wish with unprecedented direct access to students, lecturers, and leaders in education. The ideological nature of TEL is visible as a lecturer in all areas of their role. Traditional publishing houses laud the virtues of TEL as they proffer their wares, with examples of solutions including 'i-clicker' from Palgrave Macmillan, 'Evolve' from Elsevier, and 'Sage Edge' from Sage Publications. All offer enticements as to the advantages they can bring for both student and academic to a brighter, connected array of resources to enhance learning. University libraries have embraced technology with searching, reading and study skills firmly entwined with learning technologies (Williams, Wavell & Morrison, 2015; Mallon & Bernstein, 2015; Peters, 2012). Academics and students are given a physical environment of classrooms and learning space which is resplendent with (for example) Microsoft enabled computers, Google accounts, Sony flat screen televisions, Toshiba projectors, Samsung visualizers, CISCO hotspots and Apple tablets, displaying or accessing Blackboard virtual learning environments. The marketisation of education in terms of technology is clear to see. Literature describes the physical environment that students find themselves today as like being "immersed in a rich, technology-enhanced learning environment" (Conole et al, 2008). However, it is not always apparent when teaching, and a cursory glance into a learning space may still offer a view not far removed from decades previous, with desks in rows, textbooks, pens and face to face discussion with no technology in use, a far cry from the picture painted by some academics of cyborgs entwined within a technology laden environment.

In all aspects of educational practice, technology is ever-present, and yet we return to the argument that the benefit it brings to academics and learners it is not always clear, or the rationale for why technology is being used is not evident, but it remains accepted. As Carr-Chelman (2006; p95) outlines "web-based education was the great white hope for higher education…. I bought these arguments". Despite its acceptance and continuing presence throughout education, there is still teaching and learning which is barely touched by

technology, and as Selwyn (2015, p5) 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”. Amory (2010, p69) argues that the fundamental ideological beliefs embedded within technological products are not congruent with educational transformation, which may then lead to an internal ideological debate for academics, leading to them being an unwitting component of hegemonic struggle. TEL is part and parcel of the movement of higher education to a market-driven system, where the student is a consumer, and the academic a provider and salesperson. This may be part of what Basil Bernstein termed a wider pedagogized society (Singh, 2014), where education can take place ‘anytime, anyplace, anywhere’, free of the shackles of traditional educational conventions (Selwyn, 2014). Take virtual learning environments for example, initially developed for managing student data, they have found themselves as a central device for managing the students educational experience, including teaching and learning, enabling access to media, hosting academic debate and delivering classes. However, the move to a market economy in higher education is not liberating for all parties involved, and the benefits of marketization are not equally spread across interested parties, rather it is unequal, and therefore contested. The message for providers, academics and consumers of education is clear within this framework, where to be successful, you need to be modern, innovative, technologically driven, and attractive to new paying students. There is a hegemonic common-sense that education needs to be or is being disrupted by learning technology. There is an acceptance that iterations of new technology will come and solve some problem encountered by institutions, educators or learners. Finally, there is a common understanding that you need to engage with emergent learning technology, there is a TEL bandwagon and as an institution, educator or learner, you need to be on that bandwagon.

Hegemonic practice has contributed to the development of TEL as a ubiquitous, mundane and accepted part of the landscape of higher education and nursing education, which is predicated upon the unfulfilled promise of transformation from emerging technologies. It is

accepted by lecturers as part of their daily practice and remains unseen by many as they engage with day to day activities, and yet despite this veneer covering all aspects of higher education, it is not a totality. It is a contested feature of education, with technologists, managers, government, companies and academics attempting to seal the hegemonic status of technology enhanced learning, against what this problematization proposes is the reality of education for many academics and students where they benefit from pedagogical approaches which remain barely altered over the last century, what may be a low tech experience, where the best way to learn is away from technology, where technology may impede successful learning, and may not be wanted from those within education.

# CHAPTER 3

This chapter will explore the idea of discourse from a poststructuralist perspective before focusing on Glynos and Howarth's (2007) discourse theory approach, Logics of Critical Explanation. Following this will be a discussion of the research methods employed through this study including the collection of empirical data through interview and observation, the inclusion of a wider selection of data to inform the study, and the analytical approach to that data. As noted in the introduction to this thesis, my early interest was in the disjuncture that was felt between my experiences as someone interested in developing my teaching practice, and the iterations and deployment of learning technologies as part of that. This led me to explore the idea of researching the experiences of nurse academics within the context of a hi-technology teaching environment, through hermeneutic phenomenology (Van Manen, 2016). Phenomenology is popular within nursing research (Balls, 2009; Matua, 2015), partly due to the foundational work from Benner (1984) who utilised this approach, but also as it espouses to be a holistic research methodology with the subject's experiences central to any exploration. As an approach it had been widely used to explore the experiences of learning with technology as a student (Peggy, 2012; Abdelrahman, Attaran & Hei-Leng, 2013; Huei-Lin, Groom & Lin, 2013) and a utilising learning technology as a lecturer (Young & Diekelmann, 2002; Lim, 2011; Cigdemodlu, Arslan & Akay, 2011).

However, stories about the experiences of lecturers did not fit with my growing critical perspective of failed technology, but a seeming persistence to continue high levels of engagement despite this. I wanted to find a methodology that would allow a better understanding of how technology persists, and the continuing support (and promotion) from organisations, lecturers, and students and therefore political issues. Discourse analysis was an approach which seemed to fit with my emerging critical perspective, offering a critical approach to taken for granted knowledge, an historical and cultural specificity, whilst linking knowledge, social processes and social action (Jorgensen and Phillips, 2002). As Glynos,

Howarth, Norval, Speed (2009) state there are various approaches under the umbrella of discourse analysis. Critical discourse analysis (Fairclough & Wodak, 1997) was considered, but it is dialectical in focus, with a strong foundation in linguistics (Breeze, 2011), which I felt did not offer a route to explore the subject positions, and the historical elements of TEL. The focus of this study was concerned with the formation, development and sustenance of practices concerning education technology within the context of nurse education, with a purpose that was both explanatory and critical. The work of Laclau and Mouffe (1985) offered a theoretical foundation which resonated with my perspective, namely discourse theory. Discourse theory would allow the study to explore the development of learning technology, whilst also focusing on how TEL is currently characterised as a practice. In particular, the approach of logics of critical explanation (Glynos and Howarth, 2007) was employed in this study.

### 3.1 Theoretical Framework

The concept of discourse has been much discussed and debated through academic writing (Wetherell, 2001), with the result that the term ‘discourse’ has a wide variety of meanings, across a wide variety of contexts. Through this time there has also been development of an array of theoretical approaches to discourse, drawing on numerous conceptual resources (e.g. Fairclough, 2002; Hepburn & Wiggins, 2007). Consequently, discourse has accrued a multitude of meanings and inferences dependent on the epistemological underpinnings of those theoretical perspectives (Morgan, 2010). In general, discourse refers to the use of language through structured patterns. Subjects follow these structured patterns in talk concerning shared aspects of life to create meaning, resulting in discourses that relate to the ‘social’, such as ‘shopping’, ‘nursing’ or ‘teaching’. The discourse provides the subjects with meaning, and access to reality is always through the language that is used. It is language which constitutes the social world. The description of discourse above is generic, and to fully grasp the methodological approach for this study it is useful to consider the foundations to

the chosen theoretical perspective, to uncover the particular philosophical premises (ontological and epistemological) which concern the role of language in the social construction of the world. This discussion will lead us to the particular approach used in this study, which is Political Discourse Theory (PDT) (see Glynos and Howarth, 2007).

The revolutionary work of Swiss linguist and semiotician Ferdinand Saussure (*b.*1857 - *d.*1913) is fundamental to the modern understanding of discourse. Saussure introduced the notion of "arbitrariness" into the study of the relationship between *form* and *meaning* (Thompson, Vinson & Vigliocco, 2009). Arbitrariness refers to the idea that the meaning of a word cannot be predicted by its form, and vice versa. The Saussurean model moves away from the idea of language being a 'name' and a 'thing', but rather an 'utterance' (*parole*) and a 'concept' (*langue*) (an "acoustic image linked to an idea"; Saussure, 1910, cited in Bouissac, 2010; p122), which stems from his proposal of language as a system of signs, which are a union of the signified and the signifier (Hauer, 2017). Language does not exist externally to the social world, or social actors who use language, but is rather viewed as an ideological structure, which is produced and transformed by those actors.

> *"language is what we may call a 'product': it is **a 'social product' …** language, in turn, is quite independent of the individual; it cannot be a creation of the individual, it is essentially social; it presupposes the collectivity."* Saussure (1910)

The term structuralism is used here, and this term refers to an intellectual movement (largely French) through the 1950s, 60s and 70s, with proponents including Levi-Strauss, Foucault, Althusser, Derrida and Bourdieu. The system of differences as proposed by structuralists, between the signifier and the signified can be termed a 'social convention'. This social convention works to enable shared meaning, because the social actors utilise the language through continual use. The structuralist perspective argues that for a sign to function, the meaning of that sign must be fixed (Hauer, 2017). This enables actors to utilise the shared

meaning, and then for communication and meaning to function as intended. This idea has also resulted in a move towards a synchronic (ahistorical) approach to linguistic study, which considers the state of language at one specific time (Reda, 2016). Paz (2013) suggests that the system of signs is of such complexity, that no group of users (speakers) could actually gain awareness of the system in such a way as to change it intentionally.

Therefore, for structuralists, it is the relationship with, but also, the differences from, other signs that provides meaning. The given meaning can only exist because of the differences from other signs. The meaning of each part of the language works, because it maintains this difference in meaning from other parts of the language – consequently providing the structure. Whilst an individual actor would think of the specific meaning they associate with the language used, it is the structure where the origin of meaning resides. Therefore, it is "the structure itself that decides what—can be or sometimes just has to be said—on various occasions and in different situations" (Heracleous & Hendry, 2000; p1253). To summarise, there is a structure and meaning to language fixed at a point in time, and to function within that language, users must accept both the shared meaning, and also the differences to ensure that meaning is unique.

As stated above, the synchronic approach allows for an understanding of the meanings within the structure to be revealed at a given point in time, rather than considering those meanings in relation to historical development. To understand the 'discourse', a structuralist perspective maintains that the entirety of the relations within the system need to be considered to fully understand meaning. However, the approach taken within this thesis resides within the post-structuralist paradigm, which fundamentally differs from the structuralist perspective. Thinkers such as Michel Foucault, Louse Althusser and Jacques Derrida challenged the accepted structuralist perspective, suggesting new ways of thinking.

When encountering discourse analysis for the first time, it was the work of Michel Foucault which first seemed to offer a unique approach to the problem under investigation. Foucault used the term discourse to refer to a system which is historically contingent and produces knowledge. Foucault talks of the rules, systems and procedures which comprise a discrete realm of discursive practices, the realm where knowledge is produced (Hook, 2001). In this context, discourse represents a method of organising this knowledge, (and the structures that constitute the social) through a collective understanding of the discursive logic which functions to make social practices work, and intertwined with an acceptance of the discourse as fact (Arribas-Ayllon & Walkerdine, 2017). An important note is the rules and procedures of the discursive practices are *a priori* - they come before the discourse, again a reference to the historicity of discourse. The discourse acts in such a way (the rules are hidden), that to think outside of it is nigh on impossible. Discourse can at once both constrain, but also enable – the concept of discursive practices and what Foucault talked about in terms of discourse being positives as well as negative - and hence it is intrinsically linked to political action. Foucault (2005, p131) described discursive practices as autonomous, historical rules "always determined in the time and space that have defined a given period, and for a given social, economic, geographical, or linguistic area, the conditions of operation of the enunciative function". This is then the central theme for Foucault – exercise of power. Discourse is produced, manipulated, and controlled by those procedures. There is variance in power relations which can have an impact on how discursive practices can shape the world around social actors. This theme is central to the chosen methodology for this thesis and will be turned to below when exploring political frontiers – the formation of alliances and antagonisms between or against those with vested interests.

Fundamental to the work of post-structuralist discourse theory, and arguably the movements founders are Laclau and Mouffe (1985), who built upon the work of Antonio Gramsci's theory of hegemony (Gundogan, 2008). Antoniades (2008) suggests that there are different

approaches to hegemonic thought, and this thesis identifies with the radical approach. Laclau and Mouffe (1985) view hegemony as a discursive order, where a particular project has acquired universal signification. Hegemony is fundamentally concerned with power and how a particular set of practices have gained legitimate agreement, where the hegemonic social forces have the capacity to resist counter-projects and maintain dominance. Laclau and Mouffe argue that hegemony presupposes "an open and clear field that can be hegemonized in an infinite number of ways, free of prior determinations" (Jacobs, 2018). There is no natural foundation to how society is structured and functions. Social phenomena cannot be traced to some underlying essential principle, but rather rests upon a historical set of contingent formations, structures, divisions and principles. Post-structuralist discourse theory views discourse as a reduction of possibilities where discursive fields are "characterized by a surplus of meaning that can never be fully exhausted by any specific discourse" (Howarth, 2000). Post-structuralist discourse theory views all social structures as discursive in nature, which is not implying that the material world does not exist, but rather that outside of discourse as a subjective practice, there is no meaningfulness (Jacobs, 2018). As suggested above, objects and social actions are meaningful through a particular system of significant differences (Howarth 2000). Meaning is dependent upon the web of discursive connections, which is open to being reconfigured which would represent a shift in meaning. Discourse is an *attempt* to fix a web of meanings within a particular subject area. As Glynos & Howarth (2007; p104) attest, "every social practice is also *articulatory*, as human beings constantly engage in the process of linking together different elements of their social lives in these continuous and projective sequences of human action". Signifiers can be structured into certain meanings to the exclusion of other meanings, and therefore are a reduction of possibilities, and consequently an exercise of power (Howarth & Stavrakakis, 2000). This is represented by a variety of discourses which can each represent and structure any 'reality' in a given way, and thereby compete to define what is 'true' within a particular domain. Discursive *struggle* constructs this reality, for example how subjects perceive themselves as individuals and within a group, so that it appears as common sense and

natural, but it is central to this concept of discourse that a subjects understanding is contingent, and always open to new ways of seeing and understanding, particularly as competing discourses challenge perceptions. Therefore, any knowledge subjects have of their world, and themselves within it, is constructed through discourse – and this discourse cannot be disengaged from the historicity within which it exists.

Ontologically, discourse “signals the centrality of meaning to practices” (Glynos and Howarth. 2007) but it also subscribes to the realist perspectives that ‘objects’ obviously exist independent of human conception, although only ever partially fixed. The “subject” in discourse theory is not a self-enclosed and self-sufficient identity (Hudson, 2006) but rather the subject can be considered a signifier without a signified, and thus, the subject (due to a lack of identity) has to access its discourse of ‘choice’ (Hudson, 2006; p304). The subject position is social and contingent, as meaning is temporarily fixed, but also bound to social determination through discourse. Discourse theory is opposed to positivistic and naturalistic conceptions of knowledge and method, rejecting the search for scientific truth or hermeneutical interpretation, and rather is concerned with understanding and explaining “the emergence of discourse and the socially constructed identities they confer upon social agents” (Howarth, Norval and Stavrakakis, 2000). All our ideas and thoughts are products of the social environments in which we find ourselves (Jacobs, 2019), and continuing that argument, individuals therefore have no purely personal thoughts. For example, I cannot simply modify the subject position of myself as a registered nurse and an academic, as this would require me to step outside of my own identity. My subject-positions attained through working in the NHS and in public universities cannot simply be swapped for different subject positions – as they constitute me as a subject. There is not some form of thinking that I as a subject possess which is outside these discursive structures that constitute the social world. Therefore, it is also clear that as a researcher, I am located in a political and historical context with no “neutral Archimedean” (Howarth, Norval and Stavrakakis, 2000), or objective

standpoint which somehow transcends reality. Howarth, Norval and Stavrakakis (2000) suggest that the method employed within this thesis allows for the exploration of "different forms of this impossibility" thereby offering an explanation of the "mechanisms by which the blockage of identity is constructed in antagonistic terms by social agents" - and therefore it is only possible for me as a researcher to interpret reality as it is constructed through discourse.

The social practices which sustain our identities generally conceal the contingency of our social systems.

> "Objects and subjects are marked by an 'essential instability' that problematizes a simple listing of their necessary intrinsic properties and causal capacities. Therefore, of greater import for us is their contingency, historicity and precariousness"
>
> (Glynos & Howarth, 2007; p11).

The radical contingency of social relations refers to what Grebe (2009) describes as both the condition of possibility and impossibility - the impossibility of attaining a totality of fullness, with the possibility of new understandings always present. However, "any social edifice suffers from an inherent flaw or crack which may become visible in moments of dislocation" (Glynos & Howarth, 2007; p105). The day-to-day view of reality as common-sense, or social practices appearing as 'natural' or 'given' is the result of discourses successfully becoming hegemonic. Hegemony in this sense is when a discourse articulates unfixed elements within the discursive field so they become fixed, although never totally. Howarth, Norval and Stavrakakis (2000) stipulate two conditions for there to be hegemonic practices, the existence of antagonistic forces, and unstable political frontiers which divide those forces. For example, the frontier between possible antagonistic forces, learning technologists and teachers, may be in the classroom with posters proclaiming ways for "Technology to Enhance Your Teaching". The learning technologists want those teachers to "get on message" with the common-sense viewpoint, thus establishing that political frontier.

Meanings, self-understandings and practices are inextricably linked, and discourse theory offers a way to think about the relationships between social structures and political agency, leading to a focus on “the creation, disruption and transformation of the structures that organize social life” (Howarth, Norval and Stavrakakis, 2000).

### 3.2 Logics of Critical Explanation

The potential dislocation and contingency inherent in social structures led Glynos & Howarth (2007; p112) to present a schema with four dimensions on two axis – the political/social axis and the ideological/ethical axis. The social dimension refers to the social actors who are so absorbed in their day-to-day practices, they do not witness the radical contingency of social relations – for example academics who are managing the day-to-day of academic work are not witness to the acceptance and unfolding *accoutrements* of learning technology. The other end of this axis is the political dimension. This dimension is not about politics at a government level, but rather highlights the use of power as social actors are persuaded to conform to the accepted discourse (hegemony) and focuses on the decisions made in a contingent terrain (Glynos, Howarth & Griggs, 2016). Conversely, the second axis concerns the ideological dimension. Whilst political action may reveal radical contingency, ideological actions can be where subjects collude in trying to conceal the radical contingency of social relations (Glynos & Howarth, 2007; p119) through the identification of a particular discourse. For example, it is hard to avoid the fantasy on offer through the use of technology in aspects of education, from ‘anytime, anywhere learning’ to ‘mobile learning’. The final dimension on this axis is the ethical dimension. This sees subjects who are attentive to the radical contingency of social relations as they engage in social practices, and focuses on how a subject manages its own contingency in the face of dislocatory events (Glynos & Howarth, 2007; p119). The term dislocatory events refers to moments where the experience of social actors misaligns with the discourse – a ‘crack in the edifice’. An example would be the breaking down of a PC in the classroom and loss of PowerPoint, the academic being forced

to improvise their teaching without the use of technology, perhaps finding that this leads to a freedom in teaching, or a more positive response from students. The academic questions the material benefit those technologies may bring – the subject finds themselves 'seeing anew', dislocated from the accepted discourse, revealing the radical contingency of discursive structures.

Glynos and Howarth's Logics of Critical Explanation (2007) draws upon Laclau & Mouffe's discourse theory and notions of hegemony and radical contingency as identified above. Laclau's (1990) characterisation of logic is portrayed as a "rarefied system of objects, as a 'grammar' or cluster of rules which make some combinations and substitutions possible and exclude others" (p76), and lets the researcher grasp what those rules are, how they operate, and what makes that operation possible. Glynos and Howarth (2007; p136) suggest that the "logic of a practice comprises the rules or grammar of the practice, as well as the conditions which make the practice both possible and vulnerable." They argue that a method is required to focus attention on the reproduction and transformation of hegemonic orders and practices, offering an account for why subjects are gripped by certain discursive formations, whilst also looking to resistance projects. Within the framework of political discourse analysis, this problem driven method allows the researcher to focus on questions such as why are certain practices considered the norm? How are they sustained as the norm and how do they evolve? How can these discourses be critically evaluated? Glynos and Howarth (2007; p4) position logics "counter-posing them not simply to causal laws but also to causal mechanisms and contextualized self-interpretations", and argue that it is a type of explanation that admits of a certain generality, providing the space for critique, whilst respecting the specificity of the case under investigation.

Logics of critical explanation offers an approach to formulating problems, addressing them and then evaluating the answers that have been produced, and the methods proposed will enable this process. Glynos and Howarth (2007) state that whilst they resist the temptation to offer a 'method' or 'technique driven' solution, they also reject a retreat into subjectivism where 'anything goes', as they suggest that this would provide the researcher with no methodological constraints as they work towards explanations and critical evaluations. Logics of critical explanation involves the articulation of social, political, and fantasmatic logics, along with the empirical contexts they inform and within which they function, in order to achieve an overarching logic that is descriptive, explanatory, and has critical aspects – and this therefore requires that the logic of explanation begins with intentions and self-interpretations. It is critical to pass through subjects' self-interpretations, partly as the process of problematization to refine and understand the problem, but also for the understanding of social, political and fantasmatic logics (Glynos and Howarth, 2007). Problematization is the first of three moments in the overall logic of critical explanation, with a retroductive explanation being the second, and critique being the third.

### 3.3 Problematisation, Retroductive explanation & Critique

Problematisation constitutes the first of three moments in the overall logic of critical explanation, an approach to research that is a problem driven, rather than theory or method driven approach. Problematisation provides a critical, rather than descriptive method to explore 'reality', with the object under study being 'constructed'. This is because a "range of disparate empirical phenomena have to be constituted as a problem, and the problem has to be located at the appropriate level of abstraction and complexity" (Glynos & Howarth, 2007; p167). It lets the researcher look at the problem under study, and through genealogical analysis, explore how the problem and solutions have evolved at different times, and in different contexts. Problematisation involves an outlining of the genealogical framework within which the practices explored are constituted. A genealogical analysis will be

presented which will help to account for the contingent emergence and production of discursive practices within an historical context (Glynos and Howarth, 2007, p.233).

Retroductive explanation begins with the identification of social, political and fantasmatic logics, and builds on Foucault's genealogical approach. Retroduction is best understood as a cyclical activity with the empirical data, what Glynos and Howarth (2018, p9) describe as a "restless 'spiral'", moving to-and-fro between the data and tentative explanations, revising aspects of a provisional account. This combines both theoretical and empirical elements that may have no links, into a new configuration which may make possible a tentative hypothesis, and consequent critical explanation of the phenomena under exploration. The retroductive step also allows the researcher to move towards the content of a critical explanation, namely logics.

Critique provides the 'critical' perspective upon the 'explanation' offered thus far and incorporates a 'normative' critique focused on rationale behind the accepted practices of everyday life (e.g. what are the alternative solutions, values and ideals?), and an 'ethical' critique which offers a focus on the way in which discourses grip subjects and conceal the radical contingency of practices. Glynos and Howarth (2007) offer a logics as a set of "basic explanatory units used to problematize, explain, criticize, and evaluate an empirical phenomena" (Remling, 2007; p4). The use of these logics is not to establish or verify a truth, but rather to enable a characterisation of the rules that govern regimes or practices, alongside the objects and conditions that makes those rules possible. The three logics in this case are social, political and fantasmatic logics (Glynos & Howarth, 2016, p101), and 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).

### 3.4 Social, Political & Fantasmatic Logics

Social logics characterize the regimes of a practice, setting out the norms and self-understandings which inform that practice. All social practices are *articulatory*, as we constantly engage in the process of linking together different elements of our lives in a "continuous and projective sequences of human action" (Glynos and Howarth, 2007, p.104). For example, the practice of preparing for a teaching session in a classroom has a repetitive character based upon norms for students, and yet it is also always slightly different.

Political logics are concerned with the historical emergence and formation of a particular practice or how they are transformed, and are expressed as logics of *equivalence* and *difference*, relating to the concept of hegemony, with conformity and acceptance to a regime or practice. A fantasy or myth of enhancement of teaching practice permeates learning technologies. Rear & Jones (2013) state that the formation of a myth is fundamentally hegemonic as it rearticulates dislocated elements to form a new objectivity (the realisation that there may be other ways of practicing), which can be seen to be analogous with a repeated movement to convince of a "new dawn" in pedagogy with emerging learning technologies. As discussed above, dislocations can occur within practices, where a flaw or crack in the "social edifice" may become apparent (Glynos & Howarth, 2007), with new possibilities becoming available and which can be responded to with a political practice (perhaps challenging the orthodoxy with a political action). These social imaginaries are constituted to the *logic of equivalence*, and its opposite the *logic of difference.* The *logic of equivalence* removes boundaries between competing groups or interests, so they are related under the common project, set up against the 'opposition'. To view this under terms of learning technology, it can be viewed as learning technologists promoting the cost savings of increasing the use of technology in classes, to draw allegiances with managers in HEIs, in comparison to the "orthodoxy" of traditional methods of classroom teaching, which may be

under threat from an the emerging technological orthodoxy of distance learning. These are political practices which help to sustain the regime of technology enhanced learning.

Fantasmatic logics focus on the way subjects are *gripped* by a practice, by the fantasy, the possibilities on offer. They cover up social contingency, or possibilities, sustaining the social logic (Glynos, 2008). Two dimensions of fantasmatic logics are *beatific* and *horrific (*Glynos & Howarth, 2007); the beatific dimension relates to a narrative of a fullness-to-come once a particular obstacle is overcome (perhaps that obstacle is the presence of technology itself), whilst the horrific dimension relates to the possible disaster if any obstacle is insurmountable (imagine your teaching practice in a hi-tech world – what would hi-tech students think of your lo-fi teaching?). Counter logics may be invoked to capture the potential ways of being which can be found hidden within dominant practices and discourses, and they become prominent subjects resisting assimilation into the existing structures (Glynos, Howarth, Norval, Speed 2009).

The aim of this study is to understand and interpret socially produced meanings, rather than searching for any causal explanations, and discourse theory does this “by analysing the way in which political forces and social actors construct meanings within incomplete undecidable social structures” (Howarth, 2000). To achieve this it will be necessary to examine the *hegemonic project* of learning technology, the particular structures within which people take decisions and take actions to sustain or resist the project, whilst locating theses historically and in wider contexts than just nursing education, thereby enabling a basis for critical evaluation of the existing practices.

### 3.5 Methods

The strategy used in application of the logics approach was that of an in-depth case study incorporating interviews with nurse academics and nursing students, and observation of teaching in classrooms. “Context and detail are indispensable” (Glynos & Howarth, 2007), and the case study method forms the prime element in the overall research strategy which can provide the necessary detail. This case study has significance when it is viewed contextually in relation to the participants, the wider organisation, the student body, and connected practices stemming from the problematisation. Discourse analysis involves the analysis of a variety of ‘texts’, and this project will bring together a corpus of text which includes transcriptions of in-depth interviews, observations of classroom teaching and online teaching, and access to a wider selection of *data* such as education position papers from professional organisations and higher education institutions, policy documents, and academic publications and blogs. The contextually specific knowledge stems from observing teaching and interviewing nurse academic staff and pre-registration nursing degree students within a “Nursing Department” at a UK university. As the researcher for this project I am a nurse academic and registered nurse and have worked in education for 15 years. Therefore, it is necessary that I consider my position.

### 3.6 Position of the Researcher

As a researcher I cannot be considered neutral within this study, due to being a member of the social and historical context of nurse education, and as part of the production and interpretation of data. The problematisation argues that there is a dominant common-sense-understanding inherent in education regarding the use of learning technology, which I reside within, and it is precisely this discourse that requires analysis. Therefore, this study requires an attempt to maintain distance between myself as a researcher, and the subjects and discourse under exploration (Jorgensen and Phillips, 2002; p21). Researcher subjectivity is a question which can be applied to all qualitative research, as at the basis of qualitative

enquiry is a naturalistic and situated concern (Daher, Carre, Jaramillo, Olivares & Tomicic; 2017). Discursive research is concerned with subject's construction of meaning in particular contexts (Glynos, Howarth, Norval, Speed; 2009), which necessarily raises questions about the subjectivity and positionality of the researcher. Also, the idea that a completely objective researcher can exist, is incongruent with the constructivist view of social reality (Cupchik, 2001). Within this study, it is acknowledged that the analysis relied upon my own personal perspectives as a researcher, and I have to necessarily play a role in the collection and interpretation of data. However, there was a conscious effort on my part to reduce any bias or proclivity towards particular arguments present within the data.

For example, I took a reflexive approach (Finlay, 2002, p532) within this study, which offered a means of establishing credibility towards the data, whilst increasing the integrity and trustworthiness of the study. Bucholtz (2001; p179) suggests that any data as produced will be my own individually arrived at data interpretation and being reflexive towards my own subject position and demonstrating the presence of myself in the co-creation of the textual data. A reflexive approach is a method employed by qualitative researchers who are aware of the relationship between the researcher and the data (Jorgensen and Phillips, 2002. p49). It facilitates a critical attitude towards the data and the research processes, such as the location of data collection and recognition of the "sensitivity of the topic, power relations in the field, and the nature of the social interaction between the researcher and the researched" (Miller and Brewer, 2003. p259). There is recognition that the researcher is "part and parcel" of the culture and the context of that which is being explored (Altheide & Johnson, 1994. p486), and an awareness of the positionality of the researcher in relation to the subjects at a critical level is then necessary for authentic engagement with the data. However, as a researcher it is not possible to completely 'step outside' of the discourse, the discourse analyst "is always anchored in some or other discursive structure" (Jorgensen and Phillips, 2002. p49). Meaning is constituted by and through discourse, with me as the researcher

making sense of my own meaning as a nursing academic. For this study, the problem under exploration has arisen from a position as a nurse academic who has seen the use of technology as a positive in teaching and learning, whilst also holding several academic roles over the last decade which have incorporated the promotion of TEL. These roles include conducting staff development in the use of learning technology and attending university level groups on teaching and learning which incorporated learning technologies. This project has co-existed alongside a growing knowledge of technology use within higher education, but also the development of a critical perspective and problematisation towards contemporary educational practice. This has manifested itself in a move in teaching practice away from the acceptance and use of technology, with a questioning attitude to the benefits that any technology may bring to academics and students.

Historicity forms part of the reflexive approach which also encourages a conscious attitude to data collection and analysis, partly attained by reflecting on subject position and practices, returning to the problematisation and highlighting key areas under exploration. Jorgensen and Phillips (2002; p22) suggest that to distance ourselves from our taken-for-granted understanding, we need to view “the world through a particular theory”. Here, the logics framework (Glynos & Howarth, 2007) offers a mechanism to conduct data analysis, and to some extent background the pre-judgements of the researcher (Watts, 2013. p3), focusing data collection and analysis to the logics perspective, resulting in an actively persistent and reliable method. The aim is then not to posit causal relationships, but rather to interpret the data with this theoretical framework as a lens, to uncover meanings and offer explanations.

### 3.7 Ethical Considerations

This project adhered to the codes of ethical practice as outlined by the Economics and Social Research Council (ESRC, 2015) and the NMC Code (2015), specifically an awareness of the role of integrity in ethical research practice and the responsibilities held for

the wellbeing of research participants. Whilst full ethical approval was sought and attained, it is also recognised that ‘research ethics’ is not solely concerned with approval committees. Gatekeepers were used to contact potential participants for expressions of interest. Potential participants were then asked to contact myself who could then give further information. These issues such as anonymity and confidentiality were paramount, and each participant was assured that their data would remain confidential, and that all data for analysis and dissemination was anonymised with codes for participants used throughout the study. All data was scrutinised for names, places, organisations or systems which could lead to the identification of individuals, and these identifiers were removed or altered. As for data protection, only myself as a researcher has access to the audio recordings of interviews and notes taken during observation, which remain located on a password protected system. The autonomy of each participant has been respected and informed consent obtained from all participants. It was recognised that issues of informed consent can be challenging to researchers (Miller & Bell, 2012), with challenges in attaining an entirely neutral stance when seeking informed consent. As part of this, a review process with participants addressed this after consent was obtained (a cooling off period), and participants were given opportunity post data collection to discuss the research process for them as individuals, and any potential impact (this was not part of the data collected).

### 3.8 Data Collection

Keller (2013) proposes a set of key questions to be asked when considering the data to be collected (see Table 3 below). Using these questions as the starting point it was evident that data needed to be collected from both academics and students through the use of interviews. Atkinson (2015) argues that interviews alone do not provide the necessary level of detail as required for a case study such as this, as they do not gives access to the techniques and skills as deployed by social actors in the course of the daily lives.

Consequently, contextual data was obtained from observation of teaching from a range of physical and online spaces, including photographs of the learning and teaching environment.

1. *What data fits the problematisation?*
2. *What data can be collected within the framework of available resources?*
3. *Through what sources can these data be accessed?*
4. *Are the data collected really suited to the problematisation, for example in time-horizon, thematic scope and specificity?*
5. *Are subsequent collections necessary?*
6. *When is the data collection at an end – how is this justified?*

**Table 3: Key questions for consideration of data (Keller. 2013. p98)**

Common to many types of qualitative research, a purposeful sampling technique was employed for this study (a term often used interchangeably; Gliner, Morgan & Leech, 2017; p148), which when used strategically ensured that participants and data sources that were sampled were relevant to the aims of the research. Data collection took place in one UK University, in a Department of Nursing. The data was collected through a series of semi-structured interviews with nursing lecturers and nursing students, which took place during the academic year 2014-2015. Teaching observations also took place in 2015. Thirteen interviews were conducted with nursing lecturers, and eleven with pre-registration nursing students, all from a range of nursing fields (Table 5). The initial aim was to have twelve interviews for each of the lecturer and student groups, totaling twenty-four participants. However, there were issues with recruiting students and students not being able to be commit to an interview, which meant that the total number of students interviewed was eleven. To keep to the participant total of twenty-four, one extra lecturer took part resulting in a total of thirteen lecturers being interviewed. This was a convenience sample, with the intention to be as representative as possible of the target populations of pre-registration student nurses, and nurse academics involved in teaching those students. The sample was driven by a concern to uncover ways that a range of people talked about learning technology in different contexts, so was therefore aiming for variation across the sample, rather than

homogeneity within the sample. Lecturer participants were therefore asked to categorise themselves prior to the interview with what they thought their own attitude and engagement was towards learning technology (Table 4). Three categories were offered in respect of how the participants viewed themselves in relation to TEL – enthusiast, cynic and mid-point – with three criteria for each category; if the VLE was used in their teaching, if they worked with the university TEL team and if they use learning technology other than PowerPoint in their teaching. This was to ensure a range of engagement levels were present in the sample.

| Category | Components of category |
|---|---|
| Technology Enhanced Learning **"enthusiast"** | VLE used in your teaching.<br>You work with Technology Enhanced Learning team.<br>You use technology other than PowerPoint in your teaching (e.g. clickers, iPads, podcasts, forums, internet, apps). |
| Technology Enhanced Learning **"mid-point"** | Sometimes use VLE in your teaching.<br>You have had some engagement with the Technology Enhanced Learning team.<br>You often use PowerPoint or the internet in your teaching. |
| Technology Enhanced Learning **"cynic"** | You have little or no VLE use in your teaching.<br>You have little or no engagement with TEL Team.<br>You have used little technology in your teaching. |

**Table 4: Lecturers self-categorisation prior to interview**

All the interviews lasted between forty and seventy-five minutes in length and were audio recorded. The interviews were conducted at a time of the participant's choice and in a neutral venue of their choosing (all interviews took place in university buildings on the academics' campus). I undertook the task of interviewing and the task of transcribing the interviews.

| Code | Years in Post | Academic Role | Self -Categorization |
|---|---|---|---|
| **LA** | 5 | Senior Lecturer Adult Nursing | *"TEL enthusiast"* |
| **LB** | 9 | Lecturer Mental Health Nursing | *"mid-point"* |
| **LC** | 11 | Senior Lecturer Adult Nursing | *"mid-point"* |
| **LD** | 6 | Senior Lecturer Adult Nursing | *"TEL enthusiast"* |
| **LE** | 12 | Senior Lecturer Adult Nursing | *"mid-point"* |
| **LF** | 9 | Senior Lecturer Adult Nursing | *"TEL cynic"* |
| **LG** | 7 | Lecturer Child Health Nursing | *"TEL enthusiast"* |
| **LH** | 2 | Lecturer Adult Nursing | *"mid-point"* |
| **LI** | 2 | Lecturer Adult Nursing | *"TEL enthusiast"* |
| **LJ** | 5 | Lecturer Mental Health Nursing | *"mid-point"* |
| **LK** | 7 | Lecturer Child Health Nursing | *"TEL enthusiast"* |
| **LL** | 4 | Lecturer Adult Nursing | *"mid-point"* |
| **LM** | 9 | Lecturer Adult Nursing | *"mid-point"* |

| Code | Year of Course | Student Role |
|---|---|---|
| **S1** | Second | Pre-Registration Nursing Student - *Adult Nursing* |
| **S2** | Third | Pre-Registration Nursing Student - *Adult Nursing* |
| **S3** | Third | Pre-Registration Nursing Student - *Adult Nursing* |
| **S4** | Third | Pre-Registration Nursing Student - *Adult Nursing* |
| **S5** | Third | Pre-Registration Nursing Student - *Adult Nursing* |
| **S6** | Third | Pre-Registration Nursing Student - *Adult Nursing* |
| **S7** | Second | Pre-Registration Nursing Student - *Child Health Nursing* |
| **S8** | Second | Pre-Registration Nursing Student - *Mental Health Nursing* |
| **S9** | First | Pre-Registration Nursing Student - *Mental Health Nursing* |
| **S10** | First | Pre-Registration Nursing Student - *Mental Health Nursing* |
| **S11** | Second | Pre-Registration Nursing Student - *Child Health Nursing* |

**Table 5: Details of lecturer and student participants.**

### 3.9 Interview Guide

To ensure an effective interview guide was developed which allowed participants to talk openly without influence (Cruickshank, 2012), three pilot interviews were conducted with non-nursing 'healthcare-professional' academic staff (Malmqvist et al, 2019). Participants were asked their opinions of the clarity of the questions, if the questions or interviewer were leading in any way, and if follow up responses used by the interviewer allowed them to talk openly. Alongside these responses, a reflective note was made after each interview which influenced a review of the interview guide after each pilot interview. Two student pilot interviews were conducted with third year nursing students already known, with the interview guide again being revised and the process discussed with the students to ensure clarity of

questions. Finally, one lecturer and one student pilot interview were transcribed. The reasoning behind this was firstly a practical one, to test transcribing software and practicalities, but also it gave a chance to understand how the questions worked, as transcribing involves a deeper engagement with the responses. Again, this led to minor structural changes to the interview questions. For example, it was noticed that the prompt "can you explain that" was seen to provide useful dialogue as participants seemed to search for an explanation (in available discourse). There was also a question directly concerned with learning technology and nurse education, but in all the pilots the participants struggled to discuss this, so it was retained but as a secondary question. Final interview guides can be seen in Appendix 2. Discourse analysis does not seek participants to talk about how they feel during their experiences or their subjective interpretation of how technology is used in teaching (Hammersley, 2013). Rather, the interview is a method that can provide the discourse analyst with text which can portray the discursive positions of the participants, whilst also allowing exploration of the TEL hegemonic project, and any potential resistance. Howarth (2000) suggests that discourse analysts using in-depth interviewing should be aware of the ways in which research subjects retrospectively construct their narratives in particular ways – arguably an issue common to all research interviews. It was stressed to the participants on initial meeting, and at the outset of the interview that they should not say what *I wanted to hear* (Hoffman, 2007), but rather to consider what they believed. The purpose of these interview was to examine the ways the participants engaged with a range of possible discourses concerned with the practices of TEL, not to focus on their personal experiences.  It is not possible to remove the potential influence of the researcher on the interview process (Qu & Dumay, 2011). Reflecting upon the questions asked, the drive was to get the participants to talk about learning technology across a range of contexts, but also to offer a chance for participants to reflect critically upon their own meaning making, asking them for evidence to support the statements they made. It was also decided to ask participants to reflect on some of the arguments they repeated during the interview, and to

offer a critical perspective of TEL, which was of note as it revealed some inconsistencies in their talk regarding learning technology.

### 3.10 Challenge of Interviews

Hammersley (2007) suggests that there is an over reliance on interview data and little doubt as to some of the limitations of interview as a method, with an ongoing critique of the usefulness of interviews in qualitative research, and their ability to access participants social worlds beyond the interview situation (Silverman, 1997; Atkinson 2015). The radical critique of interviews as a method (Hammersley, 2017) challenges the blanket use of interviews as a source of data, but acknowledge that interviews offer an opportunity to gather data directly from social actors, in this case concerning the discourses under exploration. The challenge of interviews can be characterised into issues concerned within the process of interviewing, and those concerned with the post-interview stage and data analysis. For example, as has been suggested above discourse analysts using in-depth interviewing should be aware of the ways in which research subjects retrospectively construct their narratives in particular ways (Howarth, 2000). The interview process fixed the participants to their social identity of a *student* or *lecturer* (Foucault, 2006) but also, hidden behind the assigned roles of "interviewee" and interviewer, are a variety of subject positions which can be held. The discursive context of the interview can guide or impact on how the participant has a perception of reality (Cruickshank, 2012). The questions used in the interview can certainly shape the way participants respond, with a selectivity in how a participant chooses to respond to questions posed (what they include and omit). However, this selective choice still yields data that is of note and can be analysed within a framework. For these interviews the main method of questioning was to ask the participant either what they did in their social roles (as a *teacher* or *learner*), whilst progressing to ask if the participant "can explain….", referring to some element of their talk. This method was chosen as it is using questions open

enough so as not to funnel the answer through a particular route, and also asks the participant to access a selected discourse in their answer – essential for this methodology.

The interview is an interactional method (Warren, 2012), and therefore it may be useful when data is presented for the reader to witness the context of the talk more fully. Consequently, the questions posed before an answer is given have been presented on occasion alongside the "talk" of the participant. To add to the context, the interview guide is available in Appendix 2, and this was adhered to with all participants with the same order of questioning, with occasional repetition of questions, reflection of statements, but with little if any deviation from the set questions. I conducted transcription myself as soon as practicable after the interview took place, with minimal coding such as using "[ ….]" for *pauses* in talk. Azevedo et al (2017) suggest that interview transcribing is usually *naturalised* or *denaturalised*. I worked to a form of denaturalised transcription, as only the sentences utilised by the participant and obvious pauses were included on the transcript – there was no references to micro aspects of talk such as intonation, facial expression, emotions and considerations such as body language. For this methodological approach, it is the social actor offering explanations as they access constructions of reality through a discourse which is pertinent, not how they *feel* about recalling an experience they may have had. The other empirical form of data was through observations of teaching.

### 3.11 Observations of Teaching

Twelve observations of teaching sessions were undertaken as identified through the lecturer participants (Table 6) and were recorded using the guide in Appendix 3. The teaching observations were arranged post-interview with lecturer participants and ranged from observing large classroom-based teaching sessions, to session based in the clinical skills lab and VLE based remote teaching sessions. The purpose of these observations was not to

offer a critique of the teaching methods or style of the lecturers, but to sample the social activity, the methods being employed in the session in relation to the use of technology, and to offer some comparison to what was said by the participants. The lecturers were asked to give three possible sessions for observation, and one of these was chosen to ensure a wide variety of teaching contexts was observed. Again, it was stressed to the academics that the session should be their "usual approach" for this session so as to access the mundane, routine practices, and not to change it because of the research study – however, it is acknowledged that this is a potential risk. Anonymity was highlighted, and for observation the researcher seated themselves towards the back of the class. The lecturer explained to the students in the session that I was observing the lecturers teaching methods and was not observing the students.

| Participant Code | Type of Session | Number of Students |
|---|---|---|
| **LA** | Classroom Based Teaching Session | n. 45 |
| **LB** | Classroom Based Teaching Session | n.110 |
| **LC** | Classroom Based Teaching Session | n.70 |
| **LD** | VLE-based Session | *n/a online* |
| **LE** | Classroom Based Teaching Session | n.70 |
| **LF** | Classroom Based Teaching Session | n.16 |
| **LG** | VLE-based Session | *n/a online* |
| **LH** | Teaching Session in Clinical Skills Lab | n.14 |
| **LI** | Teaching Session in Clinical Skills Lab | n.12 |
| **LJ** | Classroom Based Teaching Session | n.88 |
| **LK** | Classroom Based Teaching Session | n.65 |
| **LL** | Classroom Based Teaching Session | n.90 |

**Table 6: Details of Teaching observations**

The problematisation talks of an acceptance of the presence of learning technology and that learning technology is perceived as a disrupter in education. Consequently, after each observed teaching session in a classroom/skills lab, the lecturer participants were asked what technologies they had used in their session, and photographs were taken of the environment used for teaching and stored with the observation data. These observations identify what technology is being used in the learning environment, its use from a pedagogical perspective, and by verifying with the lecturers it also provides insight into the common-sense social practices and acceptance of the quotidian aspects of teaching in a classroom.

### 3.12 Wider Data

For this study, interview and observation data form the main body for analysis. The interview and observation data gives access to the participants use of language as they construct their understanding on learning technology as a lecturer or student, utilising discourses to represent TEL. When returning to the questions identified by Keller (2013) in table 3, it became evident that a wider collection of data would help to provide a wider context, and access to dominant discourses. Academics, commentators and organisations involved in learning technologies profess to impart the “truth” in relation to TEL, with proclamations from these social actors replete with myth, fantasy and truth related to learning technology. As such, it was felt important to engage at some level with data from commentators and organisations invested in the use of learning technology. This enables a greater understanding of the subject positions, and the discourses that may be accessed by both students and academics. This can in part be met by a literature review, although as Bryman (2016; p109) recognises, the literature review, whilst often viewed as a distinct element of the research process, is rather an ongoing activity, and with a project of this length it would be disingenuous to state that one review took place – rathe literature guided all elements of the study. To create a selection of data that has utility, it was felt necessary to engage with

social media from both personal and organisational actors, to get access to the dominant discourses in regards of TEL. To identify a pertinent selection of data from such an abundance of available material in relation to the subject matter is problematic, as by the very nature of the virtual environment, boundaries of time and space, this would be difficult. Rose (2012; p197) suggests that when looking to explore data such as this, some "key sources will be immediately obvious", as known through prior knowledge and other researchers, and engagement by the researcher with social media and the learning technology community was already in existence prior to data collection. Philips and Hardy (2002; p66) suggest that initial sources should be those that would give theoretically relevant results, and the aim for this study was to identify sources that would be productive. Intuitively, there were a range of sources I felt would be of use, but it was important to develop some objective criteria (Table 7 below) to ensure that I was not swamped with data or inappropriate sources, whilst retaining a level of utility.

| Inclusion Criteria | Exclusion Criteria |
|---|---|
| Active >2010 | Active <2010 |
| Publish/post in some form => monthly | Publish/post in some form =< monthly |
| Learning technology focus | Non-learning technology focus |
| Further/Higher Education focus | School focus |

**Table 7: Initial Sources of Data Inclusion and Exclusion Criteria**

Using the above criteria applied to my already existing data sources enabled a rationalisation of sources, and the identification of a range of prominent learning technology "experts" who could be followed, explored retrospectively, whilst maintaining some active exploration prospectively. The data was accessed retrospectively over a 10 year period as identified in the Action column, and top posts and publications accessed (see Table 8).

| Internet Address | From | STEP | Type | Author | Action |
|---|---|---|---|---|---|
| http://www.steve-wheeler.co.uk/ | 2015 | a. | Blog Twitter | **Steve Wheeler** – UK TEL consultant | 10 most popular posts annual 2005-2015. >100 blog posts read. |
| http://elearningstuff.net/ | 2015 | a. | Blog Twitter | **James Clay** – UK JISC Project Manager | Search for most popular posts 2005-2015. >50 blog posts read. |
| https://twitter.com/Neil_Selwyn | 2015 | a. | Twitter | **Neil Selwyn** - TEL Academic | Publications searched; Twitter followed retrospectively |
| http://www.dontwasteyourtime.co.uk | 2015 | a. | Blog Twitter | **David Hopkins** - UK eLearning Consultant | Search for most popular posts 2005-2015. >30 blog posts read. |
| http://daveowhite.com/ | 2015 | a. | Blog Twitter | **David White** – UK TEL Academic | Popular blog posts 2005-2015 >10 posts read. Publications & Links |
| http://blog.edtechie.net/ | 2015 | a. | Blog Twitter | **Martin Weller** – UK TEL Academic | Popular blog posts 2005-2015 >20 posts read. Publications & Links |
| http://www.elearnspace.org/blog/ | 2015 | a. | Blog Twitter | **George Siemens - US TEL Academic** | Connectivism Theory. Popular Blog posts >20 read post 2005 |
| http://www.downes.ca/ | 2015 | a. | Blog Twitter | **Stephen Downes** - Researcher, NRC | Access to >1,000 articles. Read popular >20. Publications & Links. |
| http://hackeducation.com/ | 2015 | a. | Blog Twitter | **Audrey Watters** - TEL Consultant | Popular blog posts 2005-2015 >20 posts read. Publications & Links |
| https://andyramsden.wordpress.com/ | 2015 | a. | Blog Twitter | **Andy Ramsden** - Senior Consultant Blackboard | Popular blog posts 2005-2015 >10 posts read. Publications & Links |

**Table 8. Initial key sources identified.**

The sample should not be too restrictive however, as this may have implications for the quality of the data and any interpretation, and for sources to be followed prospectively it was felt a wider corpus of data would provide a useful context for the study, whilst ensuring a manageable amount of data over this period. Of course, it is impossible to read all social media concerned with TEL as there are thousands of items related to TEL posted each week, the vast majority of which is not linked with scholarly debate (Poore, 2014). Therefore, an element of critical snowball sampling (Bryman, 2016; p415) was utilised to enable a wider variety of sources of data to be identified, searched through, and followed over a set period of time (2 year period: Sept 2015-Aug 2017). Critical snowball sampling included identification of regularly 'referred to' academics and commentators through this dataset, and also through identification of keynote and invited speakers at the UK Association of Learning Technologists (ALT, 2015) conference (the largest academic conference for learning technology in the UK). This resulted in access to a wider variety of websites, blogs and social media accounts that could be followed and searched through for relevance and utility. A purposeful sampling method was developed as shown in table 9 below (Gliner, Morgan & Leech, 2017; p148), which enabled a series of steps to be followed logically to arrive at a manageable and relevant selection of sources.

- Preparatory Research

STEP 1

- Association of Learning Technologists Conferences searched (2015) to identify keynote speakers and invited speakers.
- Keynote speakers and invited speakers were searched for on Google in conjunction with the terms "technology learning" i.e. "*First name Surname technology learning*"
- If search returns were personal-websites/blogs/social-media related to technology enhanced learning <5 years old, then they were bookmarked and followed.
- If links to other relevant personal-websites/blogs/social-media with a focus on TEL were also returned, then these were also included.
- If search returns were >5 years old and/or *'not TEL focus'* then not followed.

STEP 2

- Names were then searched for on Twitter and followed if relevant to TEL.

STEP 3

- Separately, the term #TEL, #EdTech, #elearning (commonly used terms) were searched for on Twitter alongside the search above.
- Any users identified as discussing TEL from a critical perspective, rather than promotional were also followed.

STEP 4

- The term "Technology Enhanced Learning Blog" and "Education Technology Blog" was also searched for on Google when searching above.
- The first 10 pages of results were looked through and personal-websites/blogs/social-media which focused on higher education and learning technology were followed, and links to Twitter followed.

**Table 9: Method for identifying blogs, Twitter accounts and other websites.**

The resulting list of sources added after step 2 above is identified below in Table 10. These sources were accessed monthly over a two-year period so as to inform the analysis and critique, to provide insight to contemporary discourse, and inform regarding developments of contemporary evidence.

| Internet Address | From | STEP | Type | Author | Action |
|---|---|---|---|---|---|
| http://www.steve-wheeler.co.uk/ | 2015 | a. | Blog Twitter | **Steve Wheeler** – UK TEL consultant | 10 most popular posts annual 2005-2015. >100 blog posts read. |
| http://elearningstuff.net/ | 2015 | a. | Blog Twitter | **James Clay** – UK JISC Project Manager | Search for most popular posts 2005-2015. >50 blog posts read. |
| https://twitter.com/Neil_Selwyn | 2015 | a. | Twitter | **Neil Selwyn** - TEL Academic | Publications searched; Twitter followed retrospectively |
| http://www.dontwasteyourtime.co.uk | 2015 | a. | Blog Twitter | **David Hopkins** - UK eLearning Consultant | Search for most popular posts 2005-2015. >30 blog posts read. |
| http://daveowhite.com/ | 2015 | a. | Blog Twitter | **David White** – UK TEL Academic | Popular blog posts 2005-2015 >10 posts read. Publications & Links |
| http://blog.edtechie.net/ | 2015 | a. | Blog Twitter | **Martin Weller** – UK TEL Academic | Popular blog posts 2005-2015 >20 posts read. Publications & Links |
| http://www.elearnspace.org/blog/ | 2015 | a. | Blog Twitter | **George Siemens - US TEL Academic** | Connectivism Theory. Popular Blog posts >20 read post 2005 |
| http://www.downes.ca/ | 2015 | a. | Blog Twitter | **Stephen Downes** - Researcher, NRC | Access to >1,000 articles. Read popular >20. Publications & Links. |
| http://hackeducation.com/ | 2015 | a. | Blog Twitter | **Audrey Watters** - TEL Consultant | Popular blog posts 2005-2015 >20 posts read. Publications & Links |
| https://andyramsden.wordpress.com/ | 2015 | a. | Blog Twitter | **Andy Ramsden** - Senior Consultant Blackboard | Popular blog posts 2005-2015 >10 posts read. Publications & Links |
| http://sianbayne.net/ | 2015 | 1. | Website Twitter | **Sian Bayne** – UK Academic | Publications & Links |
| http://www.helenbeetham.com | 2015 | 1. | Blog Twitter | **Helen Beetham – UK** TEL Consultant | Search for most popular posts 2005-2015. >20 blog posts read. |
| http://warburton.typepad.com/ | 2015 | 1. | Blog Twitter | **Steven Warburton** – Academic | Publications & Links |
| https://twitter.com/edtech_update | 2015 | 3. | Twitter | **USA Govt Public Education (TEL)** | |
| http://playthinklearn.net/ | 2015 | 1. | Blog Twitter | **Nicola Whitton** – UK TEL Academic | Games & Learning Publications & Links |
| https://twitter.com/R3beccaF | 2015 | 1. | Twitter | **Rebecca Ferguson** – TEL Academic | |
| https://twitter.com/iLearningUK | 2015 | 3. | Twitter | **Joel Mills** - TEL Academic | |
| https://twitter.com/davecormier | 2015 | a. | Twitter | **Dave Cormier** - TEL Academic | |
| http://call4teachers.blogspot.co.uk/ | 2015 | 4. | Blog | **Ammar Merhbi** - TEL professional | Popular blog posts 2005-2015 >10 posts read. Publications & Links |
| http://www.emergingedtech.com/ | 2015 | 4. | News Website | **Kelly Walsh** - TEL professional | Links |
| catherinecronin.wordpress.com/ | 2015 | 1. | Blog | **Catherine Cronin** – UK Academic | Publications |

**Table 10: Final list of wider sources**

To access Twitter accounts of the above the software TweetDeck was utilised. Also followed within the TweetDeck software were the terms *#educationaltechnology*, *#TEL*, *#Edtech*, *#technologyenhancedlearning* and *#elearning* as they were commonly cited (Figure 2). This was accessed monthly and the most popular posts from that calendar month were reviewed.

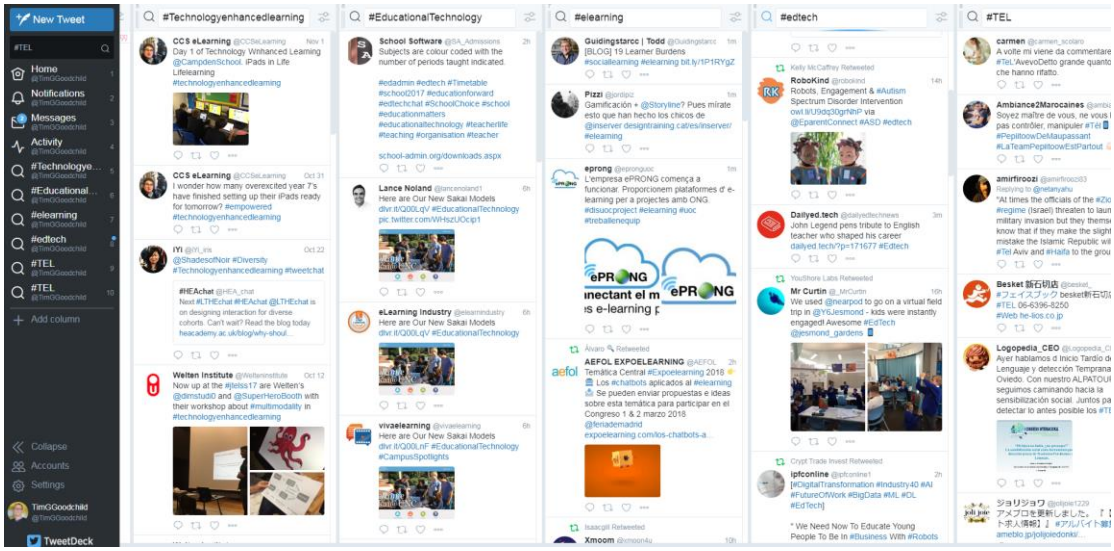



**Figure 2: Image of TweetDeck being used to follow specific hashtags on Twitter.**

Alongside the identified online data and internet search, a search for relevant literature of published sources via online article databases (EBSCO, CINAHL) took place using key terms linked to the research aims. As outlined above, this was in part an iterative process as the literature identified did not form part of the primary data, but rather informed the thesis. It is important to state that this list of sources cannot be considered exhaustive, as by the very nature of modern research enquiry wider links may be encountered before, during and after the period of data collection, often serendipitously (Yin, 2016; p157). The aim here is to demonstrate that whilst it initially felt an intuitive task to explore the TEL discourse, a systematic and objective method was developed to ensure the task was manageable, whilst also identifying a useful body of data to be used in conjunction with the primary sources of data through interview and observation.

### 3.13 Data Analysis

For the purposes of this study, the steps for data analysis took place as outlined in Table 11 below, with the interview texts at the core of the data. The interview text houses descriptions and explanations of the social practices of the participants, how they go about their lives as lecturers and students, the routine practices of teaching and learning, life in education, and

using technologies such as the VLE. Through reading, re-reading, highlighting and categorising key passages of the text (see table X below), contradictions, similarities and differences in patterns within and across the texts have been sought, and dislocations or issues highlighted. Discourse theory asserts that no discourse can be fully established, although at particular moments, some discourses may seem natural and relatively uncontested. Systems of rules and practices form part of the data (Glynos and Howarth, 2007. p106), such as those surrounding PowerPoint use for teaching large groups of students in a classroom, the use a resident PC and projector, where academics and students stand and sit, the undertaking and the aftermath of teaching activity, the unseen, unreflective ways of being which are open to analysis.

1. Transcription of Lecturer Interview Data.
2. Transcription of Student Interview Data.
3. Read and re-read the data, make initial notes.
4. Reflective pause; consider problematisation.
5. Analysis of text: search for patterns – early themes.
6. Early identification of logics.
7. Analysis of text: search for patterns and differences across the accounts.
8. Further identification of logics.
9. Analysis of text:
10. Further clarification of social, political and fantasmatic logics.

**Table 11: Steps of data analysis undertaken.**

The interview transcripts were separated and a general reading/re-reading of all interviews took place (step 3 Table 11) whilst taking notes of initial ideas and thoughts in relation to what was being said, and the early identification of themes. On further readings this then led to a consideration of the positioning of participants in relation to the topic under discussion and any emerging patterns. The subject can be fragmented and not positioned in only one way and by one particular discourse. Rather, the participant is ascribed many positions by the competing discourses, such as that of student, disaffected student, hi-tech lecturer, VLE-professional, colleague and employee (Jorgensen and Phillips, 2002. p41). A purposeful reflective moment took place (see point 4 above, table 11), where the aims of the original

project and the problematisation were turned to once again, considering the initial note taking and themes which arose in the early part of analysis. Upon the next reading, the initial themes were identified as shown below in table 12.

**Lecturer Interview Data**

- Technology is used for everything.
- Different technologies used in classroom.
- Definitions of technology enhanced learning.
- Importance of the human side of teaching.
- Everyone uses PowerPoint.
- Do not know the evidence if technology enhances.
- Many drivers to use TEL – university.
- I have not engaged/don't know how to.
- Lack of substance with technology/it is flashy.
- Trying not to use technology in teaching.
- The VLE is not good.
- Safety in technology when teaching.

**Student Interview Data**

- Technology is everywhere and you need it for the course.
- Technology is good for us.
- Technology makes learning more flexible.
- Technology makes learning fun in the classroom.
- TEL makes life easier as a student.
- Teaching is good when mix of technology and no-technology.

**Table 12. Initial themes identified.**

The interview data remained as the primary focus of the analysis, refining these general themes, and then analysing the data at different levels, identifying similarities or contradiction within and across the interviews, as well as identifying patterns and repetitions. For example, the contestation or sedimentation of certain discourses were considered, not by looking to what words were specifically used or what the language meant, but rather how it functioned within the discourse. The social, political and fantasmatic logics were considered in conjunction with the data and problematisation. These were developed alongside the identification of relevant excerpts of data. The explanatory nature of the project is reliant on the identification of these logics. However, despite having this framework, this very linear process evolved during the analysis of the data, and the data was not encountered in an unswerving, linear step-by-step approach, but rather the researcher

followed certain patterns, the logics, examining certain aspects of data more closely. Logics were also considered in relation to the wider corpus of data being followed, and dominant discourses, for example data taken from industry actors, and there was movement between the empirical data, and wider positions from learning technology blogs or organisational papers.

The reflexive stance was maintained throughout this process, with a log of the iterations kept as the logics were developed (examples from the log is shown below in table 13). This process and the reflective stance aids in preventing what Antaki *et al.* (2002) and Burman (2014) describe as the risk of under-analysing in discourse analysis, with issues such as ‘taking sides’, ‘over quotation’ and ‘simply spotting features’ being identified as potential risks to avoid.  It also acts as a reminder of the position as a researcher in the process.

Excerpt from June 2017

- Changed political logic (equivalence) of “student becoming independent”, to “being self-directed”, as students did not talk about independence, but rather a repeated belief they had, that the academic wanted to use technology and the VLE so as to ensure students are more self-directed in their learning. Rather than stating that they were not getting as much face to face learning as they wanted, it was rather an evolution of them moving to being “self-directed learners”.
- Moved from Fantasmatic to political logic “learning styles”. This was identified after working through the student data again in relation to learning needs and learning styles. Students would talk about some students having different learning styles, or their own personal learning style and because of this, learning technology was a necessity for them, they must have it – they needed that technology. Or that because there is such a varied amount of learning styles (which they have been told about), then there needs to be variety in teaching, which technology then helps you to achieve that. The library has lots of information on learning styles, and they are also discussed on induction with students, to help them identify what type of learner they are – and consequently there is a view of the need for technology. It is political, not fantasy.

Excerpt from January 2018

- Reviewed political logics this week. Changed logic of ‘little value placed in VLE’ to also include previously identified ‘poor student engagement’ – these two logics are running hand in hand, the student places little value in the VLE, which leads to poor engagement, or they believe that other students place little value in the VLE, which then leads those students to having poor engagement. If those students valued learning on the VLE more highly, then their engagement would be more – it is not the fault of a failing technology, but rather that students are pre-judging it to be of little value to their learning.
- Added in political logic (difference?) of “Pedagogical Skill” of academics. This was due to students talking about the art of teaching, or how individual academics used their skills (pedagogy?) separate from technology. This was then changed again from “Pedagogical Skill” to “Human Skill” – this is because it is not a pedagogical skill, but rather about using personality and interpersonal skills to ensure a teaching session was a success – still unsure. This needs thinking about more – the human side of teaching. **Return to this.**

**Table 13. Examples from the log of the iterations of data.**

### 3.14 Identification of Social Logics

To identify the social logics, normative assumptions about technology and education were identified from within the interview texts, developing from the themes highlighted above. These common-sense beliefs about the world, such as technology being a boon and of benefit to those who utilise it in any sphere, were repeatedly expressed by participants. The social logics went through many iterations, of which can be seen in Table 14 below.

| | |
|---|---|
| **IDENTIFICATION OF SOCIAL LOGICS 01/09/16** | SOCIAL LOGICS<br>• of ubiquity.<br>• of technology as a boon.<br>• of technology as new. (ACADEMICS)<br>• of potential to enhance. (ACADEMICS)<br>• of must use technology. (ACADEMICS)<br>• of anytime, anyplace, anywhere. (STUDENTS)<br>• of saving time. (STUDENTS)<br>• of blend is best. (STUDENTS)<br>of technology adding layers of learning |
| **IDENTIFICATION OF SOCIAL LOGICS 21/03/17** | *Relate social logics to archaeology and genealogy – long standing social logics*<br>TECHNOLOGY<br>- of the ubiquity of technology.<br>- of technology as a boon.<br>- of technology as emerging.<br>- of technologies potential to enhance.<br>EDUCATION & TECHNOLOGY<br>- of learning anytime, anyplace, anywhere.<br>- of technology saving time.<br>- of blended learning is the best way to learn.<br>- of technology adding layers of learning. |
| **IDENTIFICATION OF SOCIAL LOGICS 07/10/17** | - logic of the ubiquity of technology.<br>- logic of technology as a boon.<br>(- of technologies potential to enhance)<br>- logic of technology as emerging.<br>- logic of learning anytime, anyplace, anywhere.<br>(- of technology saving time)<br>- logic of blended learning is the best way to learn.<br>(- of technology adding layers of learning) |

**Table 14: Example of development of Social Logics**

What can be seen across the iterations is that the logics as identified evolved far less for the social logics than for the political and fantasmatic. Initially I tried to ensure the logics were representative of the talk from academics and students, then considered the logics in relation to the genealogy and archaeology. However, these logics remained quite descriptive, and analysis continued through the writing period as this enabled a greater depth of reflection and modelling in relation to how the logics worked. The data gave access to the mundane aspects of technology being used in teaching and learning – the day-to-day unseen social assumptions of social actors. Social logics characterise the rules that social actors follow, and the final social logics are the logic of novelty, logic of freedom and logic of caveats. The logic of novelty explains how TEL has become the quotidian, the mundane in

education that remains for the most part unseen as technologies come and go, only coming to the fore when there is a fissure in that edifice. The logic of freedom concerns the enduring promise for students and educators of the emerging technology as a boon offering emancipation. However, the logic of caveats challenges normative practices when students and lecturers problematise the march of learning technology. These logics enable us to characterise learning technology as new and emerging, being part of all education. These are the rules implied in the day-to-day practices in education, and enable us to understand the reality of TEL, where students fully believe that technology enables them to learn with a freedom, unhinged from time and space and that by mixing online and face to face learning, they can receive the best methods of teaching and learning. These social logics are also closely related to the genealogy presented in the next chapter.

### 3.15 Identification of Political Logics

The interview participants have outlined the sedimented ways of being, with political logics providing us with a means to explore the contestation and defence of those instituted social practices. The political logics were initially developed using extracts from the date that provided a framework that described ways in which the logics were apparent. For example, technology enabling self-directed learning or more freedom for students, or there being little evidence of enhancement or an over reliance on technology for academics. This naming of the logics stifled the analysis as it was too descriptive and did not allow insight into how the logics operated and functioned. Examples of the development of the political logics are highlighted in Table 15 below.

| | |
|---|---|
| **IDENTIFICATION OF POLITICAL LOGICS 21/10/17** | EQUIVALENCE<br>of university wants "Technology Enhanced Learning". *(Private Industry/University/TEL Team)*<br>of enabling self-directed learning. *(Students & Lecturers)*<br>of technology makes learning fun and adds variety. *(Lecturers/Students & Private Industry/TEL Team)*<br>of nursing needing technology. *(Students/Private Industry)*<br>of learning styles needing technology. *(Enhancing discourse/Lecturers/Students)*<br>of conforming to the technological environment. *(Enhancing discourse/Lecturers/Students)*<br><br>DIFFERENCE<br>of preferring teaching without technology. *(Students)*<br>of technology as emperor's new clothes. *(Lecturers)*<br>of learning technology for efficiency and savings. *(Lecturers & University)*<br>of technology means a lack of substance. *(Students & Lecturers)*<br>of liberation away from technology. *(Lecturers)*<br>of using technology makes more work. *(Lecturers & University)*<br>of having no evidence of enhancement. *(Lecturers)*<br>of the centrality of human skill of teaching. *(Students & Lecturers)*<br>of technology not working *(Students & Lecturers)* |
| **IDENTIFICATION OF POLITICAL LOGICS 07/01/18** | LOGICS OF DIFFERENCE<br>Logic of preferring teaching without technology<br>Logic of liberation away from technology<br>Logic of the emperor's new clothes<br><br>LOGICS OF EQUIVALENCE<br>Logic of university needs "Technology Enhanced Learning". (TECH/University/Tech Academics)<br>Logic of conforming to the digital environment. (TECH/University/Lecturers/Students)<br>Logic of making learning fun and adds variety. (Lecturers/Students/TECH/Tech Academics)<br>Logic of nursing needing technology. (Students/TECH)<br>Logic of learning styles needing technology. (University/Lecturers/Students)<br>Logic of enabling self-directed learning. (Students/Lecturers) |

**Table 15: Example of development of Political Logics**

The iterations above demonstrate the emergent understanding of the various actors with vested interests in learning technology, as I tried to explain how the logics worked to sustain or challenge learning technology. Analysis continued beyond this period with initial writing of how political logics may operate. This led to the development of a model involving the interests of academics, students, the higher education organisation and the technology industry, which then allowed a more nuanced understanding of the functioning of the logics and a re-framing of the logics. The final logics are the logics of equivalence of aligning with

TECH, of low-tech teaching and of enslavement. The logics of difference are the logic of liberation, logic of hi-tech teaching and logic of isolated resistance. An example of how these logics work is the alliance between the university and TEL evangelists (university TEL support team), who state they are there to “help staff integrate innovative technologies to enhance their teaching programmes” and also to help academics “develop and pilot ways to enhance teaching and learning through innovative technologies”. There is a clear choice for academics of whether to align with this, or to offer some resistance. This may be countered with an alliance between students and academics who talk of a preference for teaching with “low technology”.

### 3.16 Identification of Fantasmatic Logics

Fantasmatic logics offer a further method to explain and offer a critical commentary upon TEL. They cover up the ‘cracks’ in the social structures by offering consistency, reinforcing the common-sense-understandings as natural. The initial identification and development of the fantasmatic logics demonstrates identification of both beatific and horrific logics (see Table 16 below). For example, identifying a fullness which may be achieved to both academics (e.g. a logic of technology making you look like a good teacher, or students liking academics who use technology), and students (e.g. a logic of technology making learning easier). The horrific logics offer a glimpse of what may be without successful use of technology in education, a logic of academics “being left behind” or “others looking better than you”. However, these were still describing the logics, rather than moving to how they worked.

| | |
|---|---|
| **IDENTIFICATION OF FANTASMATIC LOGICS 01/09/17** | **Beatific Logic**<br>of a better lecturer with TEL. (ACADEMICS)<br>of looking like a good teacher with TEL. (ACADEMICS)<br>of engage with TEL and you are needed by organisation. (ACADEMICS)<br>of TEL's full potential. (ACADEMICS)<br>of students liking TEL lecturers. (ACADEMICS)<br>of TEL = success. (STUDENTS)<br>of ease with TEL. (STUDENTS)<br><br>**Horrific Logic**<br>of being left behind. (ACADEMICS)<br>of others looking better than you. (ACADEMICS)<br>of being replaced with technology. (ACADEMICS)<br>of no escape. (ACADEMICS)<br>of not being successful. (STUDENTS)<br>of necessity of technology. (STUDENTS)<br>of technology forced upon us (STUDENTS) |
| **IDENTIFICATION OF FANTASMATIC LOGICS 21/01/17** | **BEATIFIC LOGICS**<br>of technology making you look like a good teacher. (Lecturers)<br>of greater possibilities through 'Technology Enhanced Learning'. (Lecturers)<br>of students liking lecturers who use technology. (Lecturers)<br>of learning technology leading to success. (Students)<br>of technology making learning easier. (Students)<br><br>**HORRIFIC LOGICS**<br>of being caught as an imposter. (Lecturers)<br>of being left behind. (Lecturers)<br>of others looking better than you. (Lecturers)<br>of being replaced with technology. (Lecturers)<br>of there being no escape. (Lecturers & Students)<br>of technology forced upon us. (Lecturers) |
| **IDENTIFICATION OF FANTASMATIC LOGICS 07/03/18** | **Fantasmatic logic of performance**<br>• Beatific logic of judgement - positive appraisal. (Lecturers)<br>• Horrific logic of judgement - negative appraisal. (Students)<br>• Horrific logic of technical competence. (Lecturers)<br><br>**Fantasmatic logic of security**<br>• Horrific logic of being left behind. (Lecturers)<br>• Horrific logic of other lecturers looking better than you. (Lecturers)<br>• Horrific logic of being replaced with technology. (Lecturers)<br><br>**Fantasmatic logic of potentialities**<br>• Beatific logic of making learning easier. (Students)<br>• Beatific Logic of promise. (Lecturers) |

**Table 16: Example of development of Fantasmatic Logics**

The table above highlight the evolution of the fantasmatic logics, initially focusing on the talk of students and academics, then moving from a description to a greater level of analysis trying to show how the fantasmatic logics worked. The development of the fantasmatic logics continued trying to better understand how the beatific and horrific logics worked together and focusing on how the logics work to conceal the political dimensions of social practices

concerned with TEL. The final three fantasmatic logics were the logic of promise (beatific logic of reaching potential and horrific logic of competence), the logic pf performance (beatific logic of positive appraisal and horrific logic of negative appraisal) and the logic of performativity (beatific logic of ornamenting and horrific logic of the neo-luddite). As an example, these logics highlight the promise of some *fullness-to-come* which may arise if those practices are adopted (the beatific promise of positive appraisal or reaching potential). They also offer the horrific potential of what may befall social actors (the horrific promise of negative appraisal or competence), and together these logics work to grip social actors to the idea of technology enhancing teaching practice and learning.

### 3.17 Conclusion

There is a dearth of research which takes a critical eye on the role of technology in education (Selwyn, 2014), and this study provides a route to potentially challenge the accepted orthodoxy of embracing the growth of learning technology in higher education. Technology in education is not a new phenomenon, and it has proliferated in the last 30 years with the arrival of affordable personal computers, a stable world-wide internet and powerful smart phones. This study considers that technology in education is best viewed as ideological, shaped and sustained by dominant sets of interests. It provides readers with a critical viewpoint and awareness of drivers and interests which they may not have previously considered. Technology is viewed as an ‘enhancer’ for teaching and learning, and this study will explore this in a critical way, offering an explanation of the formation, development and sustenance of practices concerning TEL.

The chapter has provided a background to the selection of poststructuralist discourse theory and Glynos and Howarth’s (2007) logics of critical explanation as a theoretical underpinning and methodological approach for this study. The justification of the logics approach was its

ability to provide a framework that enabled a critical exploration of TEL through a lens which focused on the common-sense norm of social activities concerned with learning technology. It then provides a route to explore the political logics that support the TEL project, and the fantasy that grips subjects. Empirical data included data from interviews with lecturer and student participants at a UK university and observation of a variety of teaching. There was also an engagement with a wider form of data to support the development of logics accessed through social actors invested in TEL. The chapter culminates with an overview of the data analysis steps as the logics developed through immersion in the data and a critical engagement.

# CHAPTER 4


May 25, 1958 edition of *"Closer Than We Think"*

This chapter will employ a genealogical analysis to trace how "contemporary practices and institutions emerged out of specific struggles, conflicts, alliances, and exercises of power" (Garland, 2014; p369). The genealogical contexts of TEL are considered through a characterisation of four epochs of learning technology. To avoid viewing historical development as a uniform narrative, the term epochs is employed, which enables an exploration of distinct "discursive regimes", focusing on discontinuity and an examination of the processes which remain hidden by the dominant discourses of the time period (Ritzer and Ryan, 2011). This genealogy will suggest that the learning institutions and practices that are valued and taken for granted may actually be more problematic than they otherwise may appear (Garland, 2014).

## 4.1 Technological Determinism

The prevailing view of modernity as natural and accepted is based upon the deterministic assumption that technology has its own autonomous logical course of development (Bijker, 2010). This view rests upon the concept of technological determinism, which Wacjman (1994) argues is the "single most influential explanation of the relationship between technology and society" (p3). Technology viewed here is a dominant force, that when

introduced to a social system bends the recipient system to its imperatives (Feenburg, 2002). The assumptions found within accounts of technological determinism are that technologies themselves can be explained with little or no reference to society and have an autonomous functional logic. The argument is that the pattern of technological progress is fixed, with one pre-determined direction through all societies. Whilst it is possible that political or social forces may alter the speed of progress, the general line of progress is assumed to be predetermined. As a consequence of this, organisations and actors within society must therefore adapt as technology is seen to exert its influence, as it naturally progresses along its singular route (Feenburg, 2002; Bond, 2014). The dominant view has technology as the determinant of change, with vested interests supporting or promoting this view, such that it becomes accepted with little room for questioning. Oliver (2011) suggests that this all seems reasonable as a theory of technology, and appears as common sense across the field of educational technology. Technological determinism leaves social institutions (such as the university or hospital) as having to adapt to the developing technologies, and not to do so means that those institutions are not 'keeping up' with progress or are not viewed as 'contemporary'.

However, technological determinism is accounted for in a variety of ways, often differentiated by the causal power attributed to technologies. For example there are nomological, lawlike accounts of technological determinism built upon invariant laws and consequently focusing most strongly on the term *determinism*, the deterministic nature of technology itself. In the context of TEL, this can be represented by the widely accepted notion of digital natives and digital immigrants (Prensky, 2001), which positions the advent of digital technologies as causing deep rooted change in students themselves. This is also exemplified by Dupuis (1998) who stated that "technology will continue to evolve, new resources will develop, instructional approaches will diversify, buildings will be remodelled, and our skills will adjust to it all" (p12). According to a strict nomological perspective, it is the technology itself which has caused these fundamental changes in students' attention and learning, and even the

physical environment of a university. If we follow this argument, then the technology must have certain properties which invokes these changes, and they would occur irrespective of social structures, and will transpire out of necessity.

If we look to arguably the first learning technology, that of writing, which developed in picture form 5,000 years ago (Bates, 2014), it has become an intrinsic part of society. Writing was denounced by Plato (Xie, 1998), but continued to develop with enabling technologies such as papyrus, wax tablets, paper, the printing press and books, and more recently the internet. However, these technologies have not forged their own predetermined path, but rather have been moulded and shaped by a variety of social actors through time (Feenburg, 2002). This then sits in opposition to a strict nomological theory as highlighted above. There are many social constructivist perspectives on the development and impact of technology which are often termed ‘soft’ and ‘hard’ variations of technological determinism (Hemsing, 2012). These range from perspectives which merely stress the inconclusive role of the social context in understanding the development of technology (Mackenzie & Wacjman, 1999), to more radical stances which argue for complete social construction of technology, where the inner workings of technology are co-constitutive of social processes. This later perspective emerged from *Science and Technology Studies* in the 1970s (Bijker, 2010), and located technology within a far more complex social environment incorporating social, political and cultural elements, where there is far less focus on the deterministic nature of technology, and a greater emphasis on technology as an inseparable part of society unable to exert a force from outside.

### 4.2 Technological Determinism – Defining Epochs

In order to open up a means of investigating ways in which the possibility of alternative ways of thinking or acting have developed, learning technology can be explored in an historical context through a consideration of different epochs (Goodchild & Speed, 2019). The dominant deterministic perspective leads to a consideration of epochs through emerging

learning technologies and related learning theories which drive the uptake of certain technologies. Technological innovations have in part been tied to a particular learning theory, such as teaching machines and behaviourism in the 1950s (Jones & Mercer, 1995). The link is not as clear for cognitivism and constructivism in the 1970s and 80s (Mergel, 1998). Through the 1990s to the present day a series of synergies between 'e-learning theories' and technologies have emerged with examples such as the e-learning ladder and the five stage theory (Watts, 2010), and 'internet-based-learning' and connectivism (Siemens, 2005). This deterministic perspective can give rise to epochs as represented in Table 17 below, which delineates the epochs via dominant learning technologies.

| Epoch | Dates | Dominant Learning Technologies | Dominant Learning Theories |
|---|---|---|---|
| ***Teaching Machines to Computers*** | 1950s to late 70s | *Slide projectors, Teaching Machines, Television, Blackboards, Overhead Projectors* | *Behaviourism, Cognitivism, Constructivism* |
| ***Domination of Personal Computers*** | late 70s to mid 90s | *Personal Computer, Floppy Disk, Whiteboard, Overhead Projectors* | *Social Constructivism, Situated Learning, Andragogy* |
| ***The Internet & E-learning*** | mid 90s to mid 00s | *Internet, CD-ROM , VLE, PDA, Laptop, Smartboard, PowerPoint, PC projector* | *Social Constructivism, Transformative Learning* |
| ***The Mobile Internet*** | mid 00s to present | *Internet, Smart Phones, Social Media, Tablets, Mobile internet, PowerPoint, PC projector* | *Connectivism, Digital Learning Theories* |

**Table 17. Epochs of Learning Technology defined by Technological Determinism**

To further aid this understanding the first two epochs are represented graphically in Figure 3 below, which demonstrates the prevalence of terminology linked to the dominant technologies.

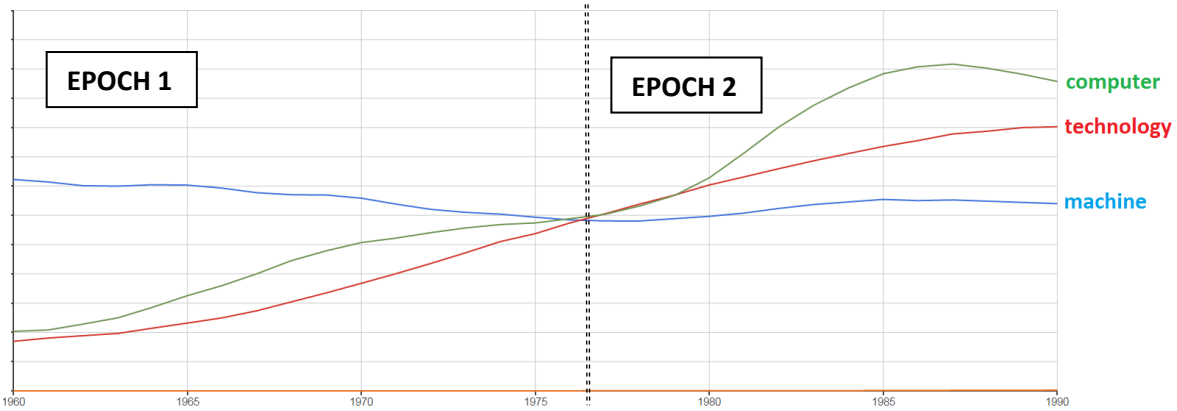



**Figure 3 : Epoch 1 and 2: Usage of the words "technology, computer, machine" via Google NGRAM viewer (1960–1995)**

The dominant technology in the first epoch was the teaching machine, closely linked to behaviourism. The term *machine* has far wider links beyond education, but the decline can be noted against the rise of the terms *computer* and *technology*, which for this frame signalled the changing technologies and move from epoch 1 to epoch 2; with the rise of the personal computer, and increasing use of digital technology in wider society. The end of the second epoch and move into the third is signified by the public acceptance and use of the internet (see Figure 4 below), and also the birth of the term e-learning in the late 1990s.

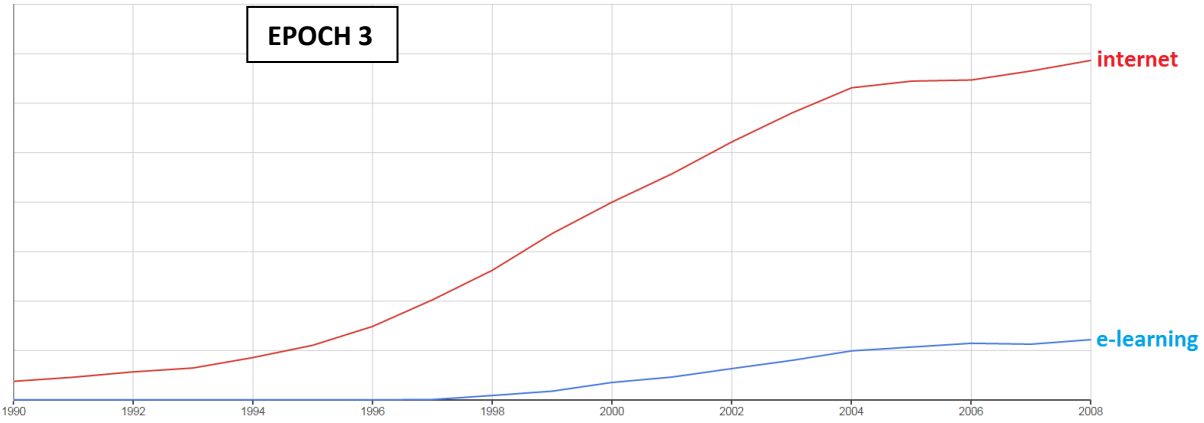



**Figure 4 : Epoch 3: Usage of the words "internet, e-learning" via Google NGRAM viewer (1990–2008)**

From this perspective, the most recent epoch can be defined contemporarily as from the end of the first decade of the 2000s onwards. This point in time was selected as it was the transition of mass consumption of the internet via personal computers to the emergence of

social media (in 2008 Facebook reached 100 million users (Facebook, 2008)), the birth of smart phones and contemporary mobile technology (the *Apple iPhone* launched in late 2007, *Apple iPad* in 2009), and the 3G network became the standard for mobile internet access facilitating the increased use of mobile technology and social networking.

### 4.3 A Counter Perspective of Epochs

A genealogy begins with questions posed as part of the problematisation (Kritzman, 1988), and offers critical intent with regard to the present. The problematisation has posed questions concerning the enduring rhetoric of TEL, despite an apparent lack of substantive evidence to support that rhetoric. Research and theory in learning technology is an "essentially positive project" (Selwyn, 2014, p11) where the causal link between technology and benefit to the learner or educator is established, and to offer a critical perspective risks being branded a 'technophobe' or 'luddite'. The nomologic determinist perspective is dominant in the academic field of learning technology (Friesen, 2008). However, technology can be viewed as being shaped by a wide range of interests, a scene of struggle where competing groups try to advance their own interests at the expense of others. Many feasible outcomes are possible and not just the one imposed by those leading the struggle. This genealogy offers an historical perspective which reveals the present day phenomena of TEL as not resting upon a solid, predetermined foundation, but rather traces "the erratic and discontinuous process" whereby the past has became the present (Kritzman, 1988; p372), suggesting the contingency of the present, and the numerous possibilities for the future. The aim here is to shine a light upon problems within the present which may have otherwise not been 'seen', provoking questions about what many think already has a full understanding (Koopman, 2011). In light of this, and through a counter perspective to the deterministic epochs as described above, a more accurate appraisal of the epochs will be highlighted in the following genealogy, with a demonstration of the redrawing of frontiers between technologists and educationalists signalling the end and beginning of epochs.

It is possible to delineate epochs of learning technologies through a variety of ways, including technology and theoretical perspectives. For example, Winston (1998) and Bunch & Hellemans (2004) compartmentalise technological progress into eras of invention and progress, although by highlighting different technologies. There are many variations on the historical development of learning technology available, each portraying new technologies and the impact on education or the classroom (examples in Figure 5 below), but all of which portray the emergence of destabilising technology as the harbinger of change.

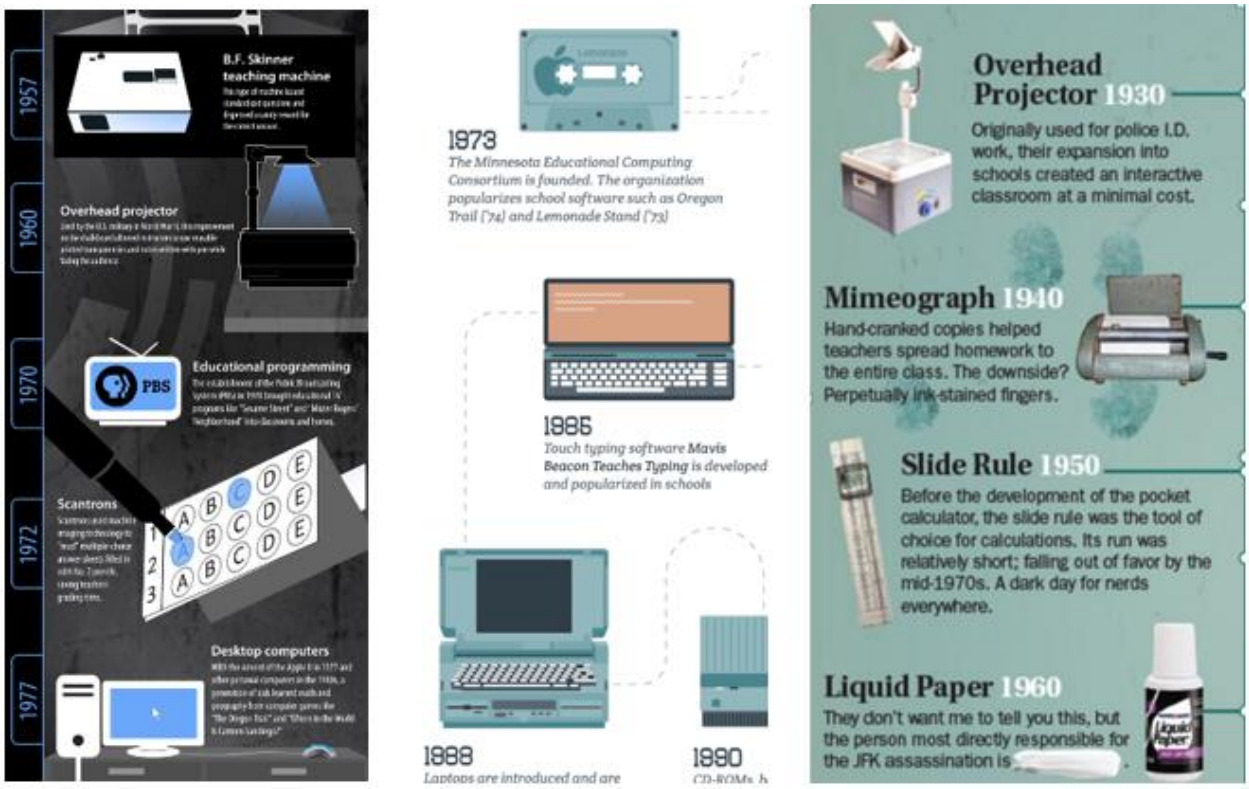



**Figure 5. Examples of Timelines of Learning Technology *on the internet (excerpts)*** *(University of Phoenix, 2017; Elearninginfographics, 2017; TouchMath, 2017)*

Moore's law (Intel, 2017), states that computing power doubles every two years, and that resultant technology will emerge at an exponential rate. Kurzweil's law (Kurzweil, 2001) of accelerating returns regarding technology, states that the outputs of the process become the inputs of the next phase or generation, leading to exponential development and growth. As part of this perspective, Kurzweil suggests that as a particular paradigm exhausts its potential, there is a shift, leading to a new paradigm, reminiscent of a Kuhnian perspective

(Bird, 2011), but different in that the shifting paradigm is not linked to destabilising new discoveries, but rather, the exhaustion of current technologies. These perspectives focus on the demise of potential or the rise of new potential being linked to changing epochs, much like with dated and emerging technologies. Considering technologies as being part of enterprise within society, the ideas of Marx and Engels (1848) in relation to revolutionising production remains pertinent to the consideration of epochs;

> *"The bourgeoisie cannot exist without constantly revolutionizing the instruments of production, and thereby the relations of production, and with them the whole relations of society… everlasting uncertainty and agitation distinguish the bourgeois epoch from all earlier ones."* *(Marx & Engels, 1848)*

This genealogy is not concerned with what technologies are most effective or when they were developed, but with how technologies came to be utilised in education, and the actors involved in their production, promotion, sustenance and re-invention. Therefore, I propose for this genealogical analysis, that rather than defining epochs by the emergence or exhaustion of a particular technology or learning theory (Saettler, 2004), they are rather delineated through target consumers, with the four epochs titled; the *end of machines*, the *rise of computers, e-Learning* and the contemporary epoch, *unseen technology (see* table 18 below).

| | **Epoch** | **Timeframe** | **Target Consumer** |
|---|---|---|---|
| | **Pre Digital** | **<1947** | |
| 1 | **End of Machines** | **1947-1976** | *Educationalists, Institutions* |
| 2 | **Rise of Computers** | **1977-1993** | *Government, Individuals* |
| 3 | **E-Learning** | **1994-2006** | *Universities, Academics, Students* |
| 4 | **Unseen Technology** | **>2007** | *Students, Academics, H.E. Institutions, Media Users (public)* |

**Table 18. Epochs of Learning Technology**

The pre-digital epoch will not be discussed at length in the genealogy as the rate of technological development was far slower in the pre-digital era (Figure 6 below), and it was not until after the second World War, coinciding with the onset of the digital age, that the growth of 'learning technologies' became more apparent.

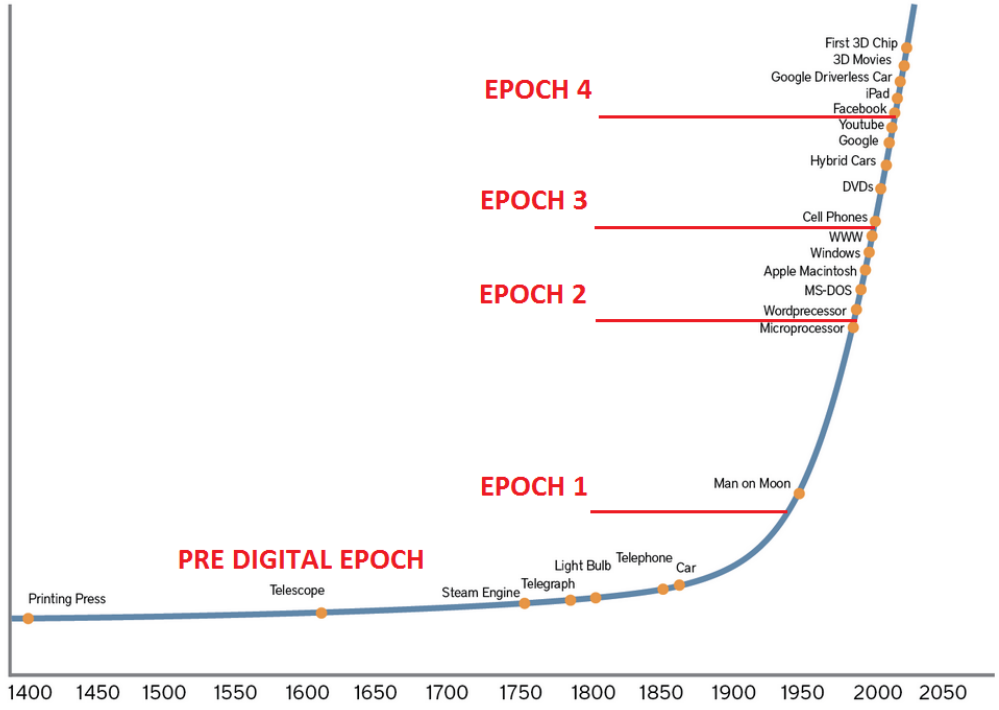



**Figure 6. The pre-digital epoch and the accelerated growth of technology.** (adapted from Asgard Capital, 2014)

The four epochs are not defined by one distinct date but rather a period. As outlined above, the beginning of epoch 1 is the beginning of the digital age in the early 1950s, which then moves to epoch 2 as the technology sector targets government and families/individuals using the growth of micro-computing. Epoch 3 emerges as the concept of e-learning coincides with the proliferation of personal computing and the internet, and a targeting of universities and lecturers. Epoch 4 witnesses the emergence of the learning technologist, mobile and social technology, and technology companies also targeting students as consumers. The discussion below will highlight exemplar technologies through these epochs and their failure or apparent success in education, but also the actors involved with the

sustenance and challenge to learning technology, and the consumers who are targeted by those who create and market learning technology.

### 4.4 EPOCH 1: End of machines

The transistor was invented in 1947, heralding the arrival of the digital era (Haviland, 2002), as it enabled small, fast electronics at an affordable price. Of the many 'histories' of technology in education available (e.g. Benjamin, 1988; Ferster, 2004; Shattuck, 2017), each offers a slightly different timeline and interpretation of what technology was in use across the epochs. Idea Learning (2012) suggest that during the period from 1950-1979 the technologies which had greatest impact were "teaching machines" (from 1954) and early computer based training (1960s). Ferster (2004) places emphasis on teaching machines and then broadcast media in the 1960s and 70s, whilst Drake-Lee (2002) concentrated on the emergence of early computing. For epoch 1 the learning technologies which will be discussed are teaching machines, broadcast media and early computer based instruction. It is a formative period for learning technology with the move from mechanical to digital, initial links between theory and technologies in practice, and early marketing of learning technology.

The growth of behaviourism as a viable theory during the 1950s resulted in the behaviourist gaze being directed towards observable and measurable behaviours in learning and how educational practices could influence and change those behaviours. In the 1950s, Skinner developed his behaviourist *teaching machine* for use in education. These machines were not wholly a new invention. For example, by 1936 there were 700 devices patented in the USA related to teaching activities dating back to 1809 (Benjamin, 1988), but they did not meet the three criteria as set out by Skinner to call them a 'teaching machine'; that it presents a unit of new information, provide a means for the learner to respond to that information, and provides feedback as to the correctness of that response (Skinner, 1958). Pressey

developed *testing machines* in the 1930s (Ferster, 2004), which Skinner (1958) praised as promoting an active role for the student and providing immediate feedback. Pressey (1933) in a book titled *Psychology and the New Education* called for;

> *"an 'industrial revolution' in education, in which educational science and the ingenuity of educational technology combine to modernize the grossly inefficient and clumsy procedures of conventional education … many labor saving schemes and devices, and even machines - not at all for the mechanizing of education, but for the freeing of teacher and pupil from educational drudgery and incompetence.*
>
> (p. 582)

The connection is made between a technology for education, and potential benefits related to resourcing of education, and emancipation of some form for both teachers and learners, emancipation being a theme that will be returned to through all epochs in the analysis of empirical data. However, there was a lack of interest in Pressey's machine, with poor sales and only one version being manufactured. Skinner suggested (1958) that Pressey's machines failed due to a cultural inertia in the education system in the 1930s. During the 1930s the great depression resulted in a period where there was a surplus of teachers (Patterson, 1982), working conditions were often poor, and teachers sometimes remained unpaid (Chalmers, 1968). This was a very different context to the education system of the USA in the 1950s and 1960s, which was a time of economic expansion (see Figure 7).

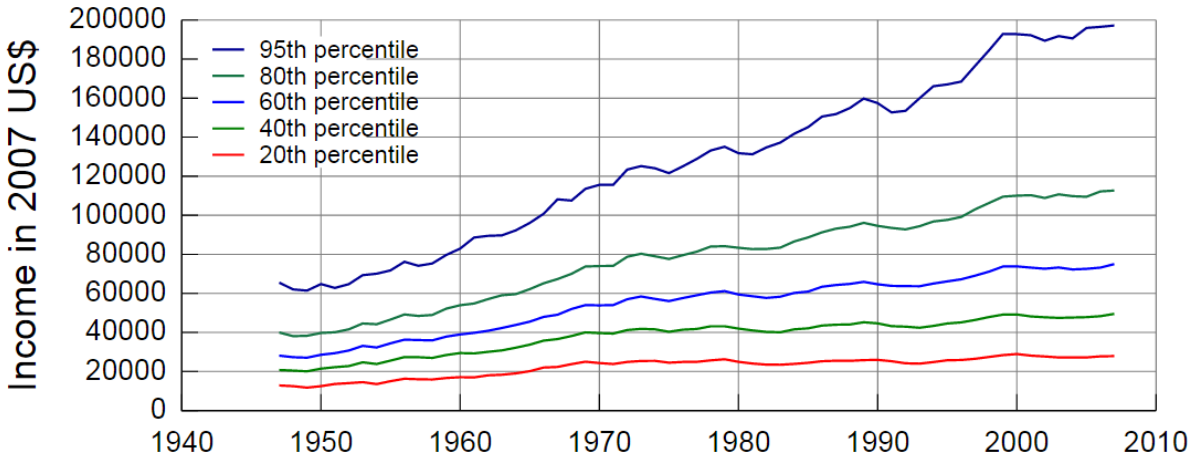



**Figure 7 : Real income in the United States by percentile 1940–2007 (Wikipedia, 2017b)**

Klausmeier and Lambert (1960), argued that whilst the burgeoning technology of television shows “considerable promise for improving instruction” (p324) the teaching machine showed more promise as it is based upon the “three widely discussed conditions of learning – operant conditioning, contiguity and repetition” (p278), the dominant behaviourist methods. Klausmeier and Lambert (1960) suggested that automated teaching machines were more efficient than standardised classroom teaching, and enabled learning to be individualised, with each student progressing “at a rate suitable for him (sic)” (p282). However, they suggest that the machines may not be a success as the current school system inhibits individualisation – the monolithic education system alluded to as a possible reason for failure of teaching machines, not the failure of the technology, but rather the failing of the educational system to adapt. Individualisation of the learning experience was a growing theme. Holland (1960) stated that “the future of education is bright if persons who prepare teaching-machine programs appreciate this, and appropriately educate themselves” (p286) - here it is the educator, not the technology which may be the reason for any lack of success, failing to utilise the emerging technology in a correct manner. The technology is not cited as the reason for any lack of success, and potential remains a possibility.

Suppes (1966) predicted that technology enabled millions of children to have access to the personal services of a teacher. This argument mirrors contemporary discussions around the personalisation and flexibility afforded by TEL, and the individualisation of the learning experience as anathema to institutionalised methods of controlling teaching and learning. For example, Wheeler (2010) argued that today’s students create ‘Personal Learning Environments’ which “are personal to each individual, created by them, owned by them, used by them”, and in direct opposition to the “dull, uninspiring and difficult to navigate” institutional controlled technologies. In the contemporary epoch, these claims are direct appeals to learners with an offer of freedom from the control and limitations of the institution. In the first epoch as presented here, the consumers being targeted were educationalists and behavioural scientists, with calls to use the machines and to reconsider the structure of

education so as to allow for the success of teaching machines (the potential). Klausmeier and Lambert (1960; p324) also offered a warning;

> *"If the producers and manufacturers cannot sell them to schools directly, they will sell them to parents just as encyclopaedias, dictionaries, and non-textbook materials are now sold."*

There are clear groups outlined here with vested interests, the manufactures and sellers of learning technology, and educational providers based within the suggested archaic structure. This warning demonstrates an attempt at forming an early alliance between technology companies and their consumers, educational institutions. They warn that if you want to maintain control, be at the vanguard of possibilities, then you must invest in emerging learning technology, thereby attempting to draw a political frontier between the institutions, and individual users of education.

This technology was focused upon the mode of delivery, rather than the actual subject material itself. Under Skinner's proposed model of education, machines or early computers controlled the learning process, but "the content of education remained the same in nature for all disciplines" (Albirini, 2007; p230). In line with the suggested target consumer, there was little emphasis upon the learner themselves and the responsibility for the process of teaching moved from the teacher to the technologist, and through them, the technology company. This was a promise of a new learning technology that would fundamentally change the task of teaching, thereby creating a very clear need for the adoption of new technologies, i.e. a disruptive innovations that created a new market in education. Skinner (1961) himself lauded that for the first time here was a true technology of education. He (cited in Johnstone, 2003) suggested that machines would liberate teachers from the routinisation of education, to what he suggested was a more fulfilling humanized teaching role. This returns to the arguments as offered by Pressey in 1938, the idea of some form of emancipation, identified here as liberation from the drudgery of teaching (a theme returned

to through the social logic of freedom and the political logic of liberation). Whilst there is a call for the reduction of the labour of education through automation, there is also a suggestion of a humanist side to education that cannot be fulfilled by a machine – also a theme returned to later in the political logic of low-tech teaching. There was an undercurrent of criticism of teaching machines based around the critiques of automation and dehumanization. Boehm (1960) suggested that whilst suited to pigeons (Skinner's favourite test subject), the machines could not work with the complex learning processes of human beings. Bell (1961) in his article in *Popular Science* magazine 'Will Robots Teach Your Children?", suggested that machines could replace some teachers, but there would be a growing premium on critical or analytical thinkers who can think beyond the facts presented by a machine. This is a call that resonates with some of the tenets of connectivism, which has been touted as a 'digital learning theory' (Wheeler, 2008), and calls for education to be less about the teaching of facts with a greater focus on a critical use of information (Siemens, 2005). Bell (1961) suggested that students who are taught via machines are more stimulated, citing a study undertaken in a school where after using teaching machines only "16 per cent of students wanted a return to regular instruction" (p156). Here the teaching machine is clearly identified as an 'enhancer', doing something better, and teaching without machines is labelled 'regular instruction' – reminiscent of the term often employed today to delineate teaching with technology, from teaching without – "traditional teaching" (Ilie & Franineanu, 2019). Bell concludes the article suggesting that the teacher today (1961) is out of date. There is a clear line of difference drawn between those who engage with, and see the potential of the emerging technology, and those who seem to stand in its way. It is evident that during the early years of the teaching machine, the transformative potential of the teaching machine was touted as a central theme.

However, much as with Pressey's testing machine, there was limited evidence suggesting teaching machines were effective, and educational institutions failed to adopt teaching machines in vast numbers (Ferster, 2002). Greene (1968) accepted that the majority viewed

technology as precipitating what she termed the ‘liberation of man’, but with regard to teaching machines wrote in tones reminiscent of Orwell and Huxley, with technology ultimately causing a negative impact upon society. She concludes with what seems to be a lament stating that the “movement towards educational technology is irreversible and that our obligation as educators is to learn how to deal with it” (p7), reflecting the dominant deterministic perspective. Watters (2015) argues that the machines failed in part because schools could not afford them, but also because the positive view of behavioural science in the early 1960s morphed into a scepticism. Benjamin (1988) stated that a more realistic appraisal would point to a culmination of spending large sums on machines with no programs and poor utility, the lack of involvement of educators at almost any point in the development and consequently, a lack of acceptance from teachers and learners (again, not the fault of the technology itself). Broudy (1961) pointed out that the most common threat perceived by teachers at the time was role destruction, with Casas (2002) suggesting that there were concerns that educational administrators would use the technology to increase the ratio of students to teachers. What is evident is that there were critiques of the technologisation of education, which were countered with early applications of technological determinism. Alongside these there were concerns about how technology impacted upon the prevailing orthodoxy of teaching, the existing organisation and administration of large scale education, with a suggestion that learning technology advocates did not adequately convince educators of the purported benefits. A frontier was defined, but difference rather than equivalence prevailed. This may in part lead us to the end of the first epoch, with new attempts required to move the frontier between technologists, institutions and educators.

The United Kingdom was slower to take up the mantle of automated teaching as proffered in the USA. In 1962 the *Association of Programmed Learning* was formed to promote programmed learning with what Bell, Bowden and Trott (1997) describe as a golden age, but reflecting the changing emphasis on machine learning, the association changed its name in 1969 to the *Association of Programmed Learning and Education Technology*, then in 1979

to the *Association of Education and Training Technology*. It is of note that the target consumers in the UK was not through school education, but rather higher education (HE), perhaps offering a more successful battleground for technologists. The Open University (2017) stated that 29 universities had programmed learning machines in place by 1966, but also that there was rapid decline in the early 1970s as cognitive approaches became more popular. Technologists were failing to convince educationalists of the benefits. Further attempts were made with actors peripheral to standard education, with UK trials of teaching machines for people with learning disabilities (Hegarty, 1975), however, the review concluded that 20 years of research on teaching machines "is long enough to have failed to demonstrate the value of complicated teaching devices" (p112).

In the 1960s, the UK looked to broadcast media, specifically television, as a method for enhancing education. The Open university formally launched in 1971 (Open University, 2012) with a partnership between the Open University and the BBC establishing educational television production through the BBC, a relationship which lasted over 30 years. Broadcast technology was used as a means to reach a wider audience, but also to offer liberation, through distance or access. The theme of liberation from 'traditional' education and the constraints of that system manifests again, alongside a democratization of education. The delivery of content was targeted, via broadcast media rather than in a classroom, but the actual method of teaching mirrored the ubiquitous lecture format, except delivered to a camera, to a distant audience, rather than in a classroom (which could be argued has arisen again in 2020 with teaching through video conferencing platforms in response to the COVID pandemic). This content in the 1970s was also delivered through post and via BBC programmes aired in the evenings and weekend mornings, which was thought a good time for students to view the teaching, because home based video recorders did not become popular till the 1980s (Open University, 2012). This is an example of the mediating role of technology, as even though pedagogy is the issue, it is still predicated on access to technology. Alongside the use of broadcast media during this epoch as a method for

educational delivery in the UK, early computers also began to emerge as having a possible impact on teaching and learning. Computers in the 1960s were large, expensive, unreliable, and cumbersome with little utility for mainstream education, and were more often seen as their own 'subject', rather than as a means to learning (BBC, 1969). It was not until the arrival of affordable, personal computers that the possibility of a new frontier between technologists and educators came to fruition, and signalled the end of the first epoch and the beginning of the second epoch. Epoch 2 will see a change in focus for technologists, as they no longer target educational institutions, but rather the individual consumer, to convince them that learning technology is directly in their interest, thereby subverting any objections from educationalists.

### 4.5 EPOCH 2: Rise of computers

The second epoch is dominated by the rise of a smaller, personal computer and the burgeoning rhetoric surrounding the potential impact of computing technology. In 1979, ITV televised an acclaimed series in the UK called the "Mighty Micro", written and hosted by computer scientist Christopher Evans, which gave an overview of the current and future impact of computers on society to an audience of millions. Evans claimed that due to educational computing, the future will see the end of the education system as we know it as it declines into redundancy, magnifying ideas from epoch one, and portraying educational systems as archaic and in need of innovation and reform as technology ushers in a new way. The Atari 8800 was launched in 1975, arguably the first practical home personal computer, although the more well-known Apple II computer is often heralded as such, which was launched in the USA in 1977 (Computerhistory, 2017). Micro-soft (the hyphen was removed at a later date) developed the programming language BASIC for use with the Atari 8800 which enabled home programming, going on to launch the operating system MS-DOS for the new IBM PC in 1981 (Computerhistory, 2017b). After being inspired by the graphical user interface in the new Apple Macintosh in 1983, Microsoft went on to launch Windows in

1985 (Wikipedia, 2019b), leading to domination for the PC in the business and educational sector through the next 25 years, certainly until the challenge from handheld computing (see Figure 8 for sales timeline). These early computers were expensive (Apple II was $1298 even before adjusting for inflation), and it was not until the UK home computer boom led by Sinclair and Acorn, that what was previously thought of as science fiction became a reality for most in the UK - a computer in your home. By 1983 the UK boasted the highest home computer ownership in the world (Mason, 2016).

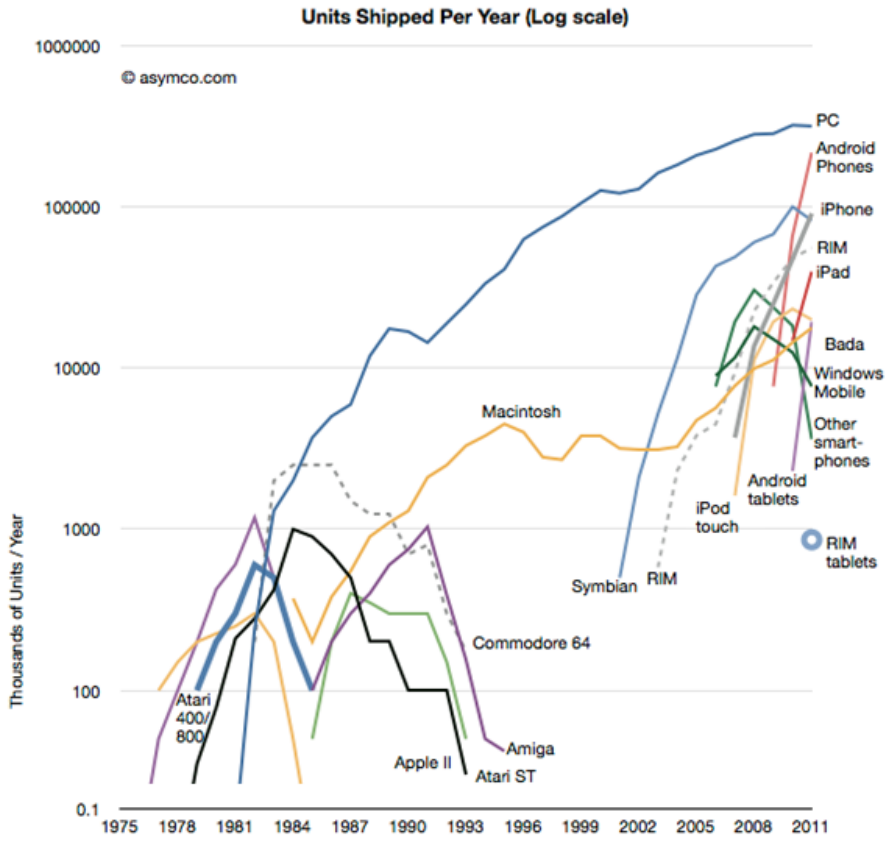



**Figure 8. Sales in units of thousands for computer devices 1975 – 2011**
(Source Kymco, 2015)

Vasko and Dicheva (1986) outlined various policy responses to emerging computer technologies, with major investment in the UK occurring in 1980 through the Department of Education and Science (National Microelectronics Education Program). The aim of the program was to explore the most appropriate ways of using computing technology as an aid to teaching and learning (Aston, 1985), an example of the system of education 'responding'

to the new technologies. Further policies from the UK government followed, including the Department of Industry scheme *Micros in Schools* which had the aim to put a microcomputer into every secondary school in the country by the end of 1982. The then UK Prime Minister (Thatcher, 1983) claimed that the computer was each student's own personal teacher, a teacher with infinite patience working at the student's pace. The increase in computer literacy and associated economic benefit was touted as the impetus for the project, rather than an enhanced pedagogical approach (Blyth, 2012). It may also be read as a "valorisation of the sovereign consumer" (Clarke, et al, 2007; p5), with the emergence of a new frontier for the adoption of learning technology companies to penetrate, where they had previously failed in epoch one. One term which emerged at this time to describe the use of computers in education was CAL, *computer-assisted-learning* or *computer-aided-learning* (Arnould, 2000). The intimation is clear, it is the computer, the technology, which is aiding or enhancing the learning, and the term is very unlike that of 'teaching machines' from the first epoch, rather pointing to technology enabled pedagogy. The assertions concerning the replacement of the teacher with technology are muted, microcomputers were viewed as a boon, and being touted as having an additive function, to enhance or assist learning and teaching. Rather than replacing educationalists, the term CAL acts as a logic of difference, with technologists looking to ally themselves with educationalists.

During the 1990s the rise of the personal computer towards ubiquity continued (Mason, 2016); viewed as an innovative, neutral and future-proof 'educational' tool. Accompanying rhetoric was concerned with a transformation in the mode of delivery of learning materials (Haugsbakk, 2003), but whilst the modality of delivery may have changed to a screen, the principles supporting the pedagogical approach evolved little with computer assisted learning programmes remaining focused on persistent behaviourist ideals of 'get it right and proceed, otherwise try again'. This is highlighted by Carr (1991), who stated that behaviourist and cognitivist learning theories are "the hottest topics in the field *[of educational technology]* today" (p85), and they remained popular through this period despite the growing influence of

constructivist learning theory (Brooks, 1999). By the mid-1990s, standard personal computers housed CD-ROMs and multimedia capacity, which enabled expansion upon the 'educational software' of the 1980s. Educators looked again to the promise of the new technology, with Yaverbaum (1993) suggesting that multimedia instruction promoted learning, and that memory, recall and efficiency are far better when multimedia can be embedded in learning. Gleydura, Michelman and Wilsons (1995) discussed the potential of multimedia in health profession education, asserting that new developments in computer technology were changing the way we educate our students, 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, and more knowledgeable. The evidence reinforces the deterministic view of technology providing the transformation to education, and regardless of technology the rhetoric remains the same. However, Albirini (2007) asserted when looking back at the impact of computers on education through the 1980s and 1990s, that despite a huge expenditure, a discursive enthusiasm and wide experimentation, learning technology of the time had failed to show education any substantive benefits.

During this epoch, as technology further penetrated university classrooms and lecture halls, the targeted consumers moved towards academics and teachers. The Computer Board for Universities and Research Council (CBURC) stated its aims as the development of computer mediated learning in the UK, and evaluation of the potential of technology for university teaching (Drake-Lee, 2002). If a market was to flourish, then the need for technology must be established and maintained. The CBURC became the National Council for Educational Technology (NCET), and did not offer a critical examination of educational technology, but rather had the goal of promoting the benefits of technology in education through sponsored projects aimed at academics and teachers, such as 'Teaching and Learning with IT' (BECTA, 2001). In 1998 under the Labour government, NCET was renamed the British Educational Communications and Technology Agency (BECTA), which continued to promote

the use of technologies, and funded partner organisations to explore the potential on offer from various technologies. In 1993 the Association of Learning Technologists (ALT) was created, offering a journal and professional membership to educationalists who worked with technology – a bridge between technology companies and possible consumers in higher education. ALT is representative of a more recent member of academic teams, the educational technologist, whose remit is to enable the successful deployment of technology for pedagogical purposes (Browne & Beetham, 2009). The ALT journal editorials in its first year asked the question of why ALT needed to exist, suggesting that "those who decide how much to spend on what, can be convinced of [technologies] effectiveness" (Jacobs, 1994; p2) - it is not a question of effectiveness, but rather a targeting of consumers, who need to be convinced of the need to purchase. The New Media Consortium (NMC) was formed in 1993 with the aim (NMC, 2017) of enabling an alliance between industry and the higher education community;

> *"The NMC was founded October 17, 1993 by a group of hardware manufacturers, software developers, and publishers who realized that the ultimate success of their multimedia-capable products depended upon their widespread acceptance by the higher education community in a way that had never been achieved before."*

The marketing by the NMC appealed directly to academics through annual reports, couched in terms of evidence and case studies, a method still evident today with the several annual reports (e.g. Promethean, 2019; Google, 2020, Open University, 2019) suggesting which technologies were to have the biggest impact, and consequently, which technologies academics needed to engage with. The consumers being targeted were individual academics.

### 4.6 EPOCH 3: E-learning

Whilst terms such as computer assisted instruction (CAI), computer assisted learning (CAL) and computer based learning (CBL) gained popularity in academic circles during the 1980s (Kylli, 2005), the origin of the term *e-learning* remains ambiguous. It came into use towards the end of the 20th century, and soon became the catch all term for all forms of education which uses some form of technology (see Figure 9 below). However, it is noted that the term 'technology enhanced learning' has become one of the more accepted terms within the UK in recent years, and used by organisations such as the Higher Education Academy (2017) and the NHS (Department of Health, 2011), arguably in response to negative connotations associated with e-learning when applied to training undertaken by many organisations (Gutierrez, 2015) .

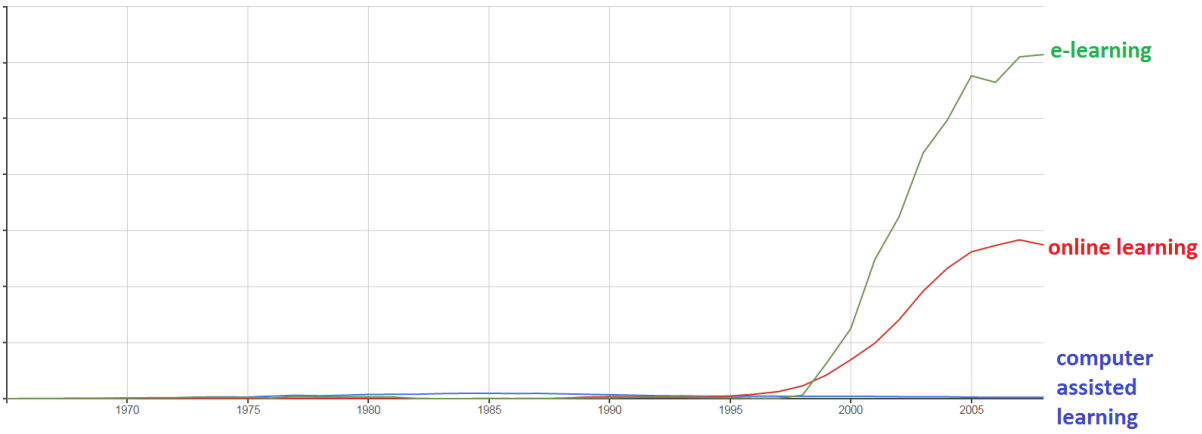



**Figure 9: Usage of the terms "computer assisted learning, online learning and e-learning" via Google NGRAM viewer (1965–2008)**

E-learning remains a term used widely throughout higher education (University of Kent, 2017; University of Manchester, 2017; University of Central Lancashire 2017). However, it has now come to offer so much, and mean so many different things to so many different groups of people (Barry, 2015), that it can be considered an empty signifier (Laclau & Mouffe, 1985), an empty shell awaiting a definition (Baume, 2012).

A flyer from JISC (1997) gives an indication of the priorities in education regarding emerging technology during the mid-1990s, in a call for funding asking for bids in the following areas:

1. *information technologies to support staff and students with disability;*
2. *the use of IT to support the management of* higher education*;*
3. *presentation technologies;*
4. *affordable systems;*
5. *cluster computing;*
6. *authentication.*

These demonstrate that during this time learning technology was largely viewed by organisations as a possible administrative and management tool for education, and targeted at prospective efficiencies (management of H.E., affordable systems, authentication), whilst pedagogical use was limited to presentation technologies (sic), which through digitalisation during this epoch progressed to be the replacement for the overhead projector. Hopkins (1998) gave an idea of the technological complexity of learning technology projects in the 1990s and also the familiar pedagogical basis, citing the problem of multiple courses on offer to many students, anxiety from students regarding technology use, and the issue of students being technophobes and technophiles. These issues may well resonate with lecturers today, the potential divide between what are stated as *technophobes* and *technophiles*, those who are anxiety free and able/willing to use emerging technology and those, who for whatever reason, are less able or willing. This may suggest that educationalists are resisting emerging technologies as they can problematize the technology and are best placed to judge its worth. Whilst the student 'sovereign consumer' (Du Gay & Salaman, 1992) is less able as they are embedded within the common-sense discourse of TEL, a discussion to be returned to in chapter 7. The opposition towards TEL is at risk of repeating itself from epoch 1, so in response the frontier needs to be reconceived by technology companies.

This idea of those who want to engage and those who cannot, or will not embrace emerging technologies can be found through all four epochs. The increasing rate of technological

development and penetration into higher education during Epoch 3 may have led to a greater awareness of this issue, with the demarcation of the *technophile* and those who are not *technophiles* highlighted at the turn of the millennium (Guardian, 2000) with a front page headline stating “You’ve been warned”, continuing*:*

> *'last week the government shook universities awake to a futuristic world of global education where corporations award their own degrees ... A Foresight document, Britain towards 2010, published by the department of trade and industry, said students no longer needed to be resident at universities...'.* [online]

With a repetition of arguments from epoch one, the conclusion is that with technological methods of information distribution the ‘traditional’ forms of teaching will become redundant, with students no longer having to attend a physical university. Whilst this chimes with headlines from 2013, as the MOOC entered the higher education consciousness (Selwyn & Bulfin, 2015), the focus is again not on pedagogy, but rather efficiencies of scale, and the conduit for teaching and learning. Albert (2000) outlined the possibilities of remote teaching through cyberspace pointing towards potential for enhanced learning, but the conclusion remains focused on efficiency for the mode of delivery, as the article ends by stating that students would no longer need to travel to receive education, just *log-on* (Albert, 2000), an appeal again to the sovereign student consumer, as a means of circumventing any possible pedagogical objections on the part of the educationalist. It is significant that this type of future gazing was not discussed in relation to evidence of student demand for education to be removed from a physical university, or demand for computer-mediated-learning. Rather there is discussion of what may befall those who do not engage with the progression of learning technology, again a means of circumventing objection – you must engage, or you will be left behind.

There is no denying that the impact of the Internet on all aspects of society has been substantial. What the internet, and more specifically the interface of the World Wide Web as

launched in 1991, offered education was a format which is continually available for update and innovation, so the ‘teacher’ can update information, redirect students to emergent information or access ‘others’ information as needed. It is also a technological method to reach outside of the bricks and mortar of the university campus. In 1994 there were around 10,000 websites available, by 1997 there were over 1 million websites in use (internetlivestats, 2020). By the year 2000 the internet had entered the public consciousness with private enterprise capitalising on this booming industry and one quarter of the UK population online (BBC, 2016), and by 2020 there are well over 1 billion websites. This continued growth of the internet impacted upon nurse education with Lindeman (2000) suggesting that the internet resulted in a period of rapid evolution. Hoyle (2002) outlined a range of benefits of e-learning for nursing students within terms of attempting “to harness the power” of computers, and conclude that technology may “provide education which time and location have previously denied us” (p298), a freedom from bricks and mortar to a new space for education. However, the repeated notion of liberation for students is also part of wider warnings for academics. Denny and Higgins (2003) suggested that nursing academics who are slow to engage with technology will leave a void, which would be filled by proactive technology users perhaps from outside of the profession of nursing, a warning of potential disaster that technophobe academics will be replaced. They suggest, perhaps with some accuracy, that the luxury of face to face teaching is something that cannot be afforded in the future, and we have to accept the arrival of e-learning, partly prophetic of nursing curricula evident today which includes a substantial element of VLE-led or online learning, but also a deterministic view with the arrival of e-learning being the cause and driver as resulting in a necessary change that is not possible to resist. This can be read as academics scaremongering or offering warnings of danger of not adopting technologies or an unavoidable utopian technological future, and is repeated in literature throughout this epoch, often with a broadly positive conclusion. D-Alfonso and Halvorson (2002) suggest that e-learning is the “new frontier” in education with an “infinite number of possibilities and creative solutions” (p29), transforming the way nurses are educated.  However, they then offer the

warning that e-learning is a ‘new-order’ and there will be pioneers who must proceed with care as “computer assisted learning will emerge as a major force in the shared mission to ensure clinical competency, consistency of content delivery and measurement of quality outcomes” (p30). Atack (2003; p296) suggested that “the web has considerable potential as a delivery mode” for nursing education, but again, the nurse academic offered the warning that “the numbers of nurses opting for web based learning will rise in the years ahead”, and that advance preparation was necessary. Norris (1999) considered the Internet a tool for nurse educators that "amplifies, extends, and even reorganizes human mental powers” (p132), bold determinist claims mobilised against any possible educationalist critique.

There was a wide variety of technological terms partly evidenced above, but one term which came to the fore during the 1990s is the word *virtual*. The use of the term *virtual* in respect of technology is of interest, as the term has two meanings in English, “almost, but not complete” or “not physically existing”. The term was used in relation to technology in the late 1980s with the appearance of *virtual reality* (VRS, 2016) and as demonstrated by Figure 10, became more commonplace during the 1990s. ‘Virtual’ is a term used extensively with regard to educational technology during the third epoch, with examples including ‘virtual university’ (Lauraillard, D. 2001), ’virtual campus’ (Lazenby, 1998), ‘virtual teaching’ (Chu and Leung, 2003)  and specifically in healthcare education, ‘virtual patients’ (Postman, 1995).

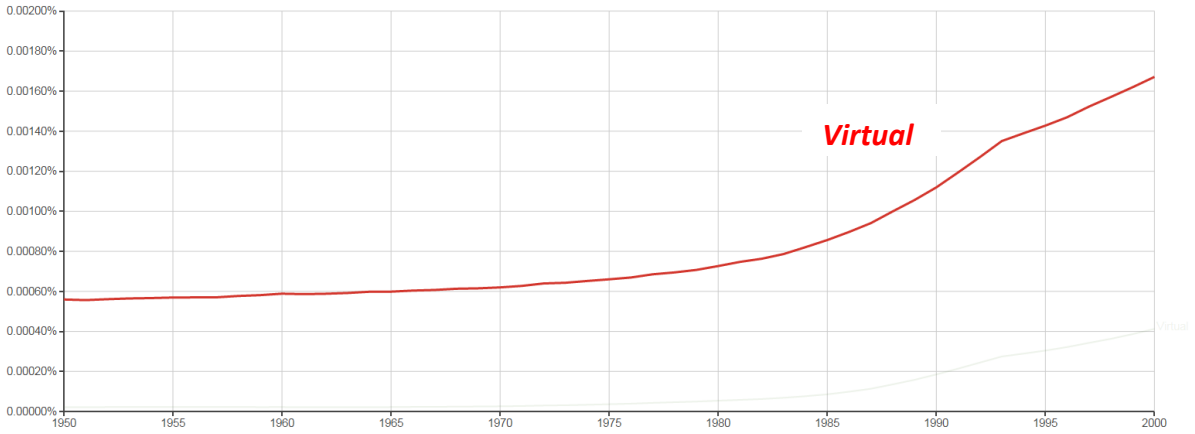



**Figure 10 : Usage of the word "virtual" via Google NGRAM viewer (1950–2000)**

Simpson (2002) explored virtual reality in nursing and stated that virtual technology will prepare nurses for the future, stating that "virtual technology can increase nursing students' clinical skills without risking harm to patients and can help prepare nurses for new practices" (p.14). The rhetoric Simpson (2002) offers continues throughout the paper, suggesting the healthcare science fiction has become fact and that nursing students immersed in technology rich educational settings are be better prepared to practice. The message is clear for academics that virtual reality offers education that is better than actual reality, and any associated administrative or real world issues (e.g. lack of resource, time, space). Skolnik (1998) proposed that the first part of the 21st Century would see a more pervasive change in higher education due to the combined integration of business and markets alongside rapidly developing technologies. Huddersfield University proposed a "Virtual Campus" to enable the university to "develop new markets" with "flexibility to customise education materials to meet the needs of individual learners" (Burnham, 2000), valorising sovereign student consumers that had been successfully identified in epoch two. Lazenby (1998) discussing the creation of virtual campuses (which he defines as outside the brick and mortar classroom) warns that the "ramifications of not embarking on technological innovation, such as the establishment of a virtual campus are profound" (p441) and that universities are threatened by the revolution on offer from technological advantages. The rhetorical focus is the marketisation of education, and the opportunities for interested global organisations, rather than on a

democratisation of education, or a new way of teaching and learning. The target is not the educationalist (who may be targeted indirectly through fears of being left behind), but rather institutional bureaucrats with talk of market opportunities and globalisation. The potential of technologies are referred to for the affordances they may offer with the possibility that innovative methods of teaching and learning empowered by emerging technologies, such as "virtual reality and media, could transform education" (Lazenby 1998; p441).

The emergence of a new, technological globalised H.E. market is envisioned, and it is evident that this is not a neutral, predetermined development, but is rather a development enmeshed within political and economic terms in an area of competing interests. Lynch, Gummell and Devine (2006) highlighted that the emerging neo-liberal movement prevalent during this epoch led to the view that education was simply another market commodity to become normalised within policy and public discourses. UNESCO stated that the global education industry was worth $2 billion by the year 2000 (Lynch, Gummell & Devine, 2012; p13), with for-profit universities in the USA being well established by the turn of the millennium, and now an accepted part of the higher education landscape with global league tables of institutions, payments to attend courses, and internet sites where students can rate courses and individual academics. With this global market emerging during the 1990s, the PC was perfectly placed to dominate and become the technology of choice for enterprise, administration, teaching and learning, whilst also being aimed at individual sovereign users, and therefore a combination of advocates representing a logic of equivalence.

Microsoft PowerPoint was launched in 1990, and whilst it may have added new options, in essence it remains the same tool based on the PC, and more recently, Apple Macintosh, Tablets and the internet. Figure 11 highlights the starting slide taken from 1992 (Gough,

2014), and a similar slide as displayed in 2019 with the current edition of PowerPoint. The similarities are clear.

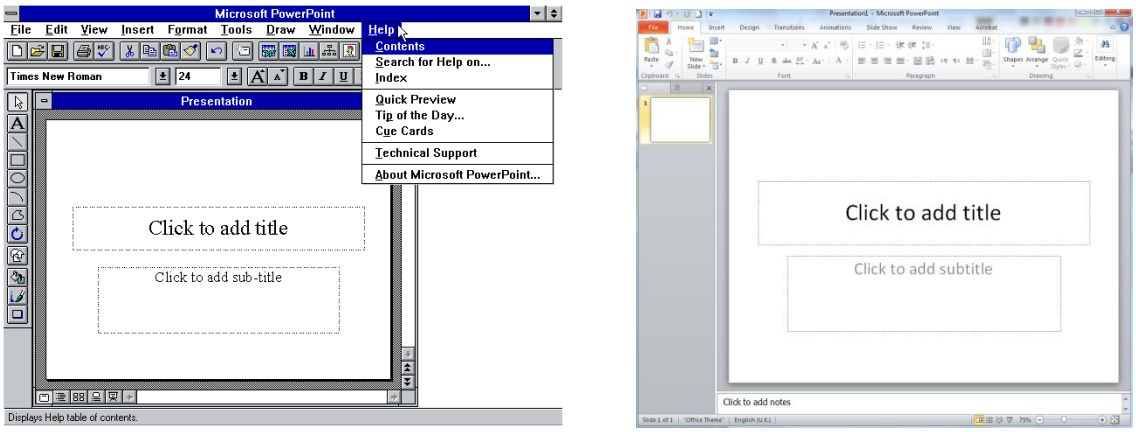



**Figure 11: A PowerPoint presentation from PowerPoint 3.0 (1992) on the left, and PowerPoint slide used in 2019.**

Today there is a lack of empirical research exploring the effectiveness of PowerPoint as a tool. It has become so mundane and accepted that to study its effectiveness would be akin to studying the effectiveness of a kettle to boil water. There was a move to establish a link between Microsoft PowerPoint and enhanced teaching. Holzl (1997) reflected many early articles exploring PowerPoint (e.g. Madhumita & Kumar, 1995; Hay, 1994), in that it explored how it may be used to make presentations better, with no mention of enhanced learning. Ranking and Hoaas (2001) wanted to establish a connection between PowerPoint and enhanced student performance, but found no significant effect on students learning. Nouri and Shahid (2005) found no significant link between PowerPoint and enhancement, and Griffin (2003) also highlighted that there is no established relationship between the use of PowerPoint in the classroom and enhanced student learning. However there is evidence of the lack of a positive effect on learning by using PowerPoint, with Adams (2008) concluding that PowerPoint may prevent pedagogically sensitive dialogue, imposing a style that could negatively affect learning for the student. Mann and Robinson (2013) argue that PowerPoint is the most significant contributor to lecture boredom in terms of teaching method. Levasseur and Sawyer (2006) conducted a review of literature surrounding PowerPoint use

and concluded that the use of PowerPoint had no benefit on the student learning experience, and could be detrimental to student evaluation of teaching, but its use has continued unabated throughout nursing and higher education. Despite these ongoing conclusions, there are contemporary studies looking to establish if there is a link between PowerPoint and enhanced learning, such as Sewasew, Mengestie and Abate (2015) who studied a cohort of 500 students, but concluding that there was a significant enhancement for those students who had *no-PowerPoint* lectures in comparison to lectures using PowerPoint. Universities responded to the proliferation of PCs and wider technology by digitizing the classroom, replacing overhead projectors with digital projectors, which then require personal computers and related software, and possibly Wi-Fi and interactive whiteboards. The beneficiary of this investment is not entirely clear, it may be the student, the academic, and perhaps the organisation, but it certainly is the companies who manufacture and sell the technology and its reiterations who benefit financially, all as part of the drive to ensure educationalists accept the emergent technology. However, the complete acceptance of PowerPoint through education and business as a tool ensures its survival despite any lack of evidence, and even counter arguments of the negative aspects of using PowerPoint e.g. (DuFrene & Lehman, 2004). It is a logic of “it’s not good or bad, just present”, attempting to minimise educationalist objections.

The first three epochs presented in this genealogy have highlighted the contingent nature of the TEL project. It has been demonstrated that the target consumers for technology companies has moved from institutions and educationalists, through to individuals during epoch two, then focusing on both students and lecturers in epoch three. The rhetoric of enhancement has persisted through the epochs, with the potential of learning technologies a re-occurring argument. The next chapter will present the archaeology with an exploration of epoch four and also the use of learning technology within nurse education.

# CHAPTER 5

May 2, 1959 edition of *"Closer Than We Think"*

This chapter will employ an archaeological analysis which proceeds directly from the genealogical analysis in chapter 4 turning the focus towards the current epoch which is labelled 'Unseen Technology'. The archaeology continues the focus on discursive regimes considering contemporary rules that "condition the elements" of the discourse under exploration(Glynos and Howarth, 2007, p.233) - the objects, subjects, concepts, and strategies as they are now. The chapter will consider the iterations of technologies which have been widely deployed during this epoch such as the virtual learning environment and social internet, with social actors such as learning technologists having to renegotiate frontiers and their relationship with vested interests to ensure the evolution of leaning technologies and their particular role. This archaeology will also explore current notions of pedagogy constructed as dominated by the use of learning technology, such as personalised learning, arguing that these concepts are constructed as a natural and beneficial way to teach and learn, but are actually more problematic than they first appear. The chapter will also explore contemporary trends in nurse education, the context for this study, including clinical simulation technology, mobile learning and the flipped classroom. The chapter will culminate with an overview of all four epochs.

### 5.1 EPOCH 4: Unseen technology

In the United Kingdom higher education has been "subject to a gradual process of marketisation since the early 1980s" (Brown, 2015; p5), with a raft of legislation including the introduction of 'top up loans' in 1990, the abolition of the dividing line between universities and polytechnics in 1992, tuition fees of £1,000 appearing in 1998, moving to variable top up fees in 2006, a deregulation on limits to student spaces in 2015, and in pre-registration nurse education the introduction of course fees in 2017 (UK Government, 2017), all pointing to the increasing commercialisation and marketisation of higher education, and the emergence of learners as consumers (Foskett, 2011; p28). It is through innovations and the continuing iterations of learning technology that hegemonic positions can be protected and maintained in education (Hall, 2012). The neo-liberal agenda of marketisation demands that "universities act like businesses and private sector corporations" (Maisura & Cole, 2017; p606) with rhetoric of social justice having been superseded to a large extent, with competition being encouraged, and procurement, development and exploration of technology taking a central role. One technological solution related to marketisation which began to be adopted *en masse* by HEIs during the early 2000's was an electronic institutional management system – the Virtual Learning Environment (VLE).

In the early 2000's JISC, a non-departmental specific public body funded by the Department for Education, supported several projects under the 'Building MLE's in education' programme (MLE=Managed Learning Environment - a synonym for VLE). JISC also organised meetings and conferences between VLE vendors, content builders and education institutions (JISC, 2000), with the aim of increasing VLE penetration. In a review of VLE's BECTA (2004) stated the institutional advantages of VLE adoption, but is focused almost entirely on how to make transition to VLE successful for the institution, rather than focusing on benefits to teaching and learning. BECTA (2006) later recommended a focus on achieving buy-in from academics, and using 'VLE-champions' to boost support, with the

added instruction to avoid technologists for this role – establishing a frontier between pro-TEL academics, and academics who may be a hindrance to TEL deployment. This relates to the genealogy where educationalists are identified as a stumbling block to the success of learning technologies, and there is a mobilisation of actors to be part of a pro-TEL coalition. A further theme from the genealogy which is alluded to in the BECTA Review (2006) was the "limited evidence about how digital resources are being used in learning and teaching" (p27) and that "considerable time and effort" is required to populate the VLEs and use them effectively. The idea of learning technology as a liberator for those in education is common in rhetoric from those with vested interests in TEL, and yet here there is acknowledgement of the considerable work it leads to, a theme to be returned to in the analysis of empirical data. Market penetration continued apace during the 2000s with VLE's becoming a standard across educational institutions, with a raft of commercial options including Blackboard, Lotus, COSE and WebCT, and also open source packages such as MOODLE, eFront, OLAT, Sakai, ILIAS and ATutor. These packages offered technological standardization for institutions and control over administration through technology, supported through rhetoric of liberation for lecturers and personalising the learning experience for students (Sampson & Karagiannidis, 2002). However, there was an evolution in the way the internet was being used in the mid-2000s with MySpace launching in 2003, Facebook in 2004 and YouTube in 2005, all examples of Web 2.0 services which emerged at this time, with Time Magazine's person of the year in 2005 being '*you'*, the *users* of the internet. Potentially, this was a fundamental shift in power shifting from institutional to user control of content and placed socially orientated tools at the centre of the internet and learning experience. The maturing of the wider internet, and increasing mundanity of the VLE, gave rise to a questioning of the purpose and effectiveness of a VLE for teaching and learning (Siemens and Weller, 2011), and enabled learning technologists and pro-TEL academics to strengthen the pro-TEL alliance and related political frontier. This alliance could look to the next iteration of learning technology and had the impetus to steer a backlash aimed toward the 'redundant' VLE and associated administration, with iteration and innovation again protecting the hegemonic

position of TEL, a theme which perpetuates and will be explored further through logics in subsequent chapters.

Stiles (2007) proposed that the death of the VLE as something that should be considered, describing it as a bloated and monolithic system, a representation of ‘traditional’ educational structures. The newer “social internet” services offered a myriad of systems and software approaches that are continually updating, therefore necessitating the presence of a technologist to support academics and students in using them, whilst the VLE does not, as it is far more static and has a focus on administration. The Association of Learning Technologists conference took up the call with a “Death of a VLE” symposium (Clay, 2009) which presented arguments from “pro-TEL” academics that the VLE is only concerned with management, not pedagogy, and limited the teaching and learning experience. JISC (2006, p8) suggested that with “advances in technology … the idea of personalised learning environments (PLEs) is taking shape”. The Personalised Learning Environment (PLE) was being offered as a user-centric system which can liberate the student from the shackles of the slow-moving institution (Lafferty et al, 2011), to replace a VLE which was seemingly rejected by contemporary students. The PLE is an evolution in rhetoric emerging from previous epoch’s related to technologies such as teaching machines and personal computers. These older technologies were couched in terms of personalisation and individualisation, with contemporary rejection of the VLE enabled through a direct appeal to the contemporary sovereign student consumer. PLE’s also enable learning technologists to reach beyond pro-TEL academics to subject academics, thereby establishing a new frontier as antagonistic alliance towards the ‘institutional administration-led VLE’, whilst also able to promote newer, emerging social technologies. This has continued, with personalisation at the forefront of guidance to educationalists in engaging with modern students (Sanchez, 2016; Doucette, 2018).

As part of the ideals of a PLE, personalisation and rallying against institutional controls, the "edupunk" movement was mobilised and discussed by various notorieties in the educational technology landscape (Downes, 2008; Wheeler, 2008; Kamenetz, 2011).

> *"If there will be a new way, it won't depend on the next business model or unique profit-driven approaches to e-learning or textbooks, it will ultimately depend on people finally re-imagining their relationship to status, money and power... EDUPUNK is a state of mind, it's an attitude, and it's a belief that the system in its current incarnation does more harm than good, and so much of the damage is born of the increasingly business logic of higher ed."*
>
> *Groom (2009)*

> *"What we're doing as edupunks is taking the ethos of the punk era and applying it to education. We're bypassing the educational systems that have been put in place by the corporations and institutions."*
>
> *(Wheeler, cited in Howard, Veerman and Saunders, 2010)*

The rhetoric is reminiscent of previous epoch's as learning technology is inherently linked to the 'emerging'. However, the call to use technologies away from institutions, actually proposes using technologies from the not-insignificant Facebook, Google and Apple corporations. On reading it is not exactly clear what the "edupunk" movement stood for or aimed to achieve. Selwyn and Facer (2014) suggested the research into learning technologies is too often characterised by either discourses of effectiveness or "a search for emancipatory youth cultures that draw scholarly attention away from the lived experiences and constraints of formal educational settings" (p5). Whilst the edupunk movement remains nebulous, the arguments offered in relation to 'edupunk' mirror those which will be turned to when discussing fantasmatic logics, concerning automation and liberation from organisational structures.

Social constructivist approaches to learning became more popular during Epoch 3 (Deubel, 2003), which evolved through application of networks and leading to the arrival of a learning theory for the digital age - Connectivism (Siemens, 2005). There are a variety of competing theories concerning learning and technology with examples including; 'wildfire activities' (Engstrom, 2009), a theory with a historical perspective applied to technology and the

internet, with learning centred around communities, collective concepts, personal involvement and risk, and improvisational adaptation and long term goals (Engstrom, 2016; p207); ‘rhizomatic Learning’ (Cormier, 2011) which uses the botanical metaphor of a rhizome to describe the complex nature of learning in the network age; ‘affinity Spaces’ (Gee, 2005) which explores the spaces, both physical and virtual, where informal learning takes place; ‘heautagogy’ (Hase & Kenyon, 2013) which explores self-directed learning and knowing how to learn; ‘paragogy’ (Corneli, 2012) which relates to the peer production of learning in the digital learning environment. The abundance of these theories indicates a searching for a usable theory to hang ideals associated with learning technology upon, with all of these theories focusing on the agency of the learner, freedom and contemporary technology. These are appeals to consumers of students and lecturers and a valorisation of the sovereign student consumer through freedom from traditional educational structures, freedom in time, freedom in space, freedom from traditional forms of knowledge production and utilisation – something which the term ‘flexibility’ has come to cover. The idea of flexibility in learning has grown with internet-based learning, and the move to mobile devices in the late 2000s. Figure 12 below highlights the growth in sales of mobile devices in comparison to desktops and laptops.

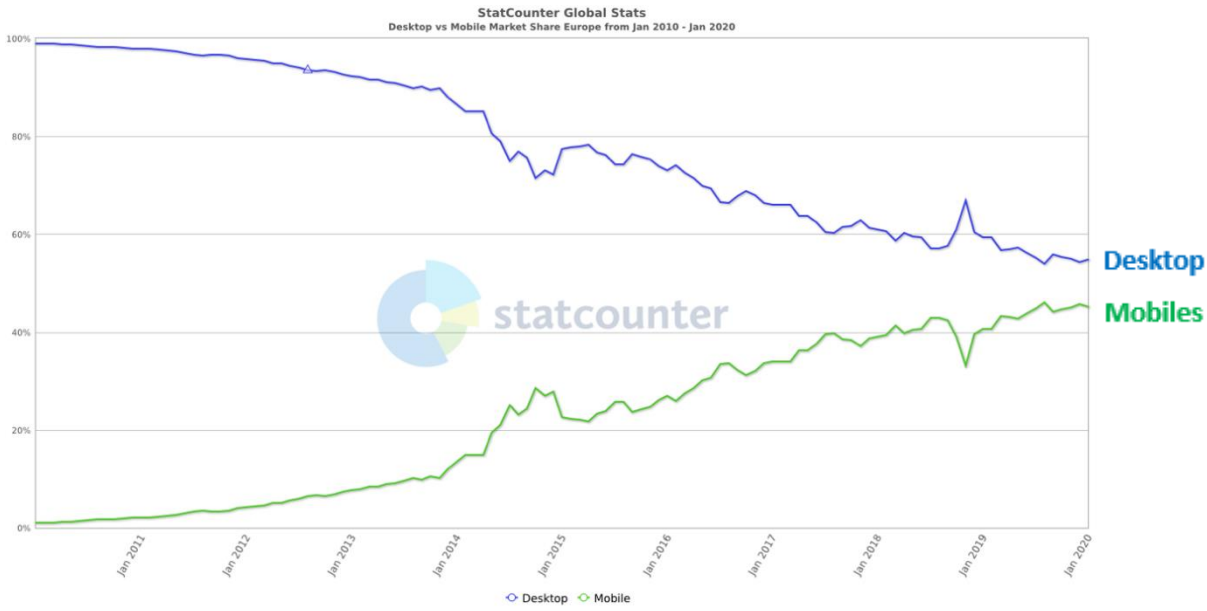



**Figure 12: Market share of mobiles compared with Desktops/Laptops 2010-2020**
*(Data Source: StatCounter, 2020 – European Data)*

This situation was reflected in the New Media Consortium Horizon Report from 2009 which showcases innovations in TEL and also predict what learning technologies will have the most impact in coming years. In 2009 “Mobiles” were to make the biggest impact in “one year or less”. Eight years later, the 2017 Horizon Report has “Mobile Learning” as the technology to make the biggest impact in the coming year – mobile devices also seem to have been on the brink of transforming education for some time. Consumption of digital media through personal computers and mobile devices has increased in recent years (see Figure 13 below), with mobile device consumption continuing to increase in relation to PC’s.

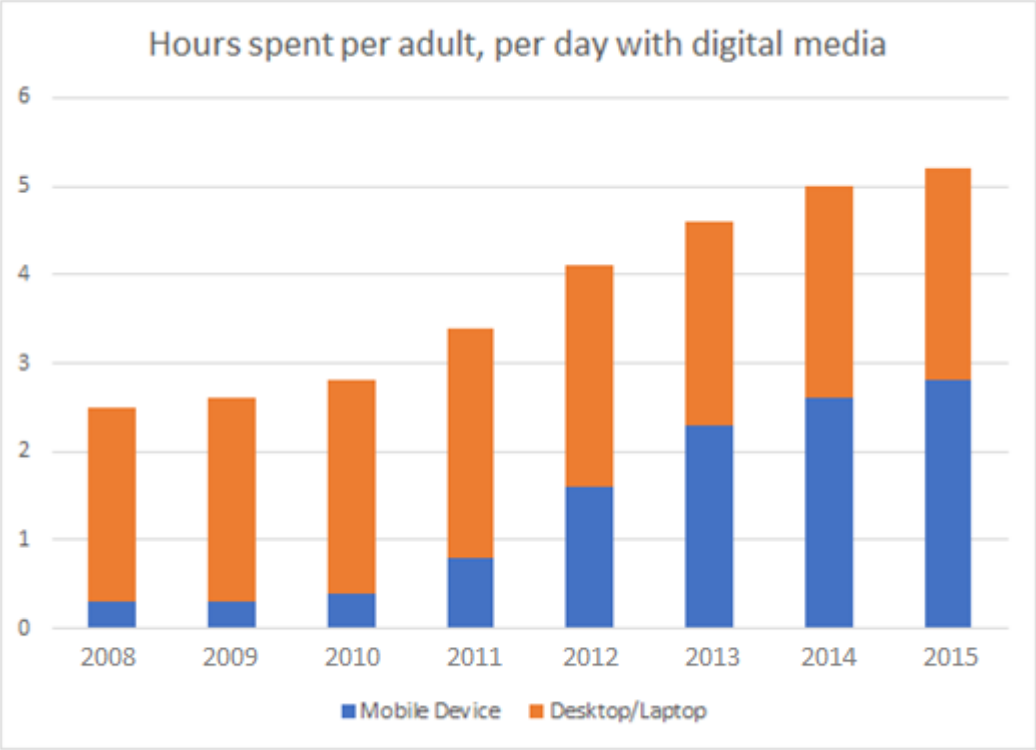



**Figure 13: Digital Media Consumption (USA) (Data Source: SmartInsights 2016)**

Flexible learning is a recurrent them in educational technology literature (Higher Education Academy, 2017), but akin to the term ‘e-learning’, and ‘blended learning’, it is also an empty signifier, and as Kickert (1984) states “it is rather gratuitous to propose the magic word ‘flexibility’ as a solution to various problems, as the concept appears to be quite unclear, to put it mildly” (p28). The Teaching and Learning Research Programme (TLRP, 2008), as funded by the ESRC and the EPSRC stated that there was “growing excitement in the

education community" concerning the ability of emerging social media to offer opportunities for "creation, collaboration and communication". What mobile devices and social media have become for many people, is the main portal to the internet. Facebook for example, is for many the standard entry point to the virtual world, and despite education discussing social media use for 10+ years, it has not had the expected impact on education, but remains a topic where education researchers "remain hopeful that this technology might provide the 'Killer App' capable of initiating significant shifts in how people learn and engage with education" (Selwyn and Stirling, 2016; p2). These changes are not driven by academics or students, but rather by actors with vested interest (i.e. Learning technologists, TEL companies), with a type of reverse engineering of technology to make it relevant to today's teaching and learning. This again repeats arguments from previous epochs where technology is viewed as the deterministic agent which education responds to, consequently nurturing the fantasy of the need to "keep up" with new technology and those who use it.

In 2013 higher education did seem to find its "Killer App", the Massively Open Online Course (MOOC), with promise of democratising education for all, freedom for students, and total transformation of the higher education space. As previously identified the MOOC was widely heralded as a disruptor for higher education (Pappano, 2012), with images of students no longer attending a brick and mortar university common place. They were also free, freedom from cost, liberation in time and space, and freedom from substandard education with delivery from institutions such as Oxford, Stanford and MIT. Chuang and Ho (2016) released a report based on 4 years of data from the MOOC platform EdX (Harvard and MIT), which offered insight into 4.5 million users of MOOCs. The four most evident were:

1. *Students were international (70%), older (median age 29) and from high GDP countries.*
2. *Low course completion rates (<6% obtained a certificate).*
3. *Courses become less popular when repeated.*
4. *Numbers dropped significantly when students had to pay for evidence of completion.*

Courses are not continually reusable, and dropout rates continue at high levels, although this is less of an issue with a large student population. The continued push to monetize MOOCs from for-profit MOOC providers such as Coursera and EdX, sits in opposition to initial appeals of liberalisation and democratisation of education to consumers. Despite appearances suggesting otherwise, MOOCs sit within the “monolithic” education structure, with traditional universities providing content and also funds for many of the providers (e.g. FutureLearn, 2017). Monetisation is being derived from a move into direct recruitment (i.e. courses from Google, AT&T) course materials, summer schools and advertising. The Ufi Charitable Trust (previously LearnDirect) sees a bright future for MOOCs stating that they will bring a disruptive change for Higher Education as not seen for centuries” (Ufi Charitable Trust, 2017), and goes on to predict that the eventual success of the MOOC will be through vocational and commercial use. It is the vocational use of MOOCs that highlights the evolution of software to support education and training.

The technology of MOOCs has not transformed nursing or higher education, the deterministic pathway has not evolved, and consequently operators of MOOCs have made alliances looking to commercial application. Similarly, the VLE has also met opposition in higher education, and has now moved to areas outside of education such as Portsmouth NHS, the Victoria & Albert Museum and the Edinburgh Council (OneFile, 2017). The contemporary epoch of unseen technology has also seen evolution in the use of learning technologies in nurse education.

### 5.2 Nurse Simulation Technology

Nurse education has a long history of engagement with technology enhanced learning. There are research papers dating back to the early 1970s with pioneers such as Bitzer and Bitzer (1973) exploring the use of tailoured computer nurse education for self-directed learning. A recent successful battleground for technology companies has been the deployment of hi-fidelity clinical simulation technology with its use found across nursing and

medical education (Higher Education England, 2016), with recent inroads (new consumers) made into allied health profession education such as physiotherapy (Mansell, Harvey & Thomas, 2019), occupational therapy (Bethea, Castello & Harvison, 2019) and even the military (Laerdal, 2020). Alongside medicine, nursing has been the lead area learning technology companies such as Laerdal have targeted, with nurse education having a long-standing tradition of simulation and most universities now housing nursing simulation suites (e.g. University of Central Lancashire, 2020; LSBU, 2020). The earliest mention of a patient simulator in nurse education was in a book by Lees (1874) when she advocated for the use of a mechanical dummy which was mostly used for manipulation of the patient and bandaging. In the 1920s the “Mrs Chase” nursing manikin was developed (see Figure 14 below), as was the Bedford Hospital demonstration Doll (Adam Rouilly, 2020). The first clinical manikin which housed digital technology for education purposes was the ‘Sim One’ manikin developed by Abrahamson and Denson in the mid-1960s (Cooper & Taqueti, 2004), and the patient simulator ‘Harvey’ (March, 2002) gained some market penetration in the 1980s. There were further developments in the 1990s such as the ‘Human Patient Simulator’ and ‘iStan’, but it was SimMan who was originally released in 2001 who has taken a firm grip upon both the educational and clinical simulation market with further iterations developed over recent years such as SimMan3G, SimMan Vascular and SimMan Essential, all enabling a wider consumer base.

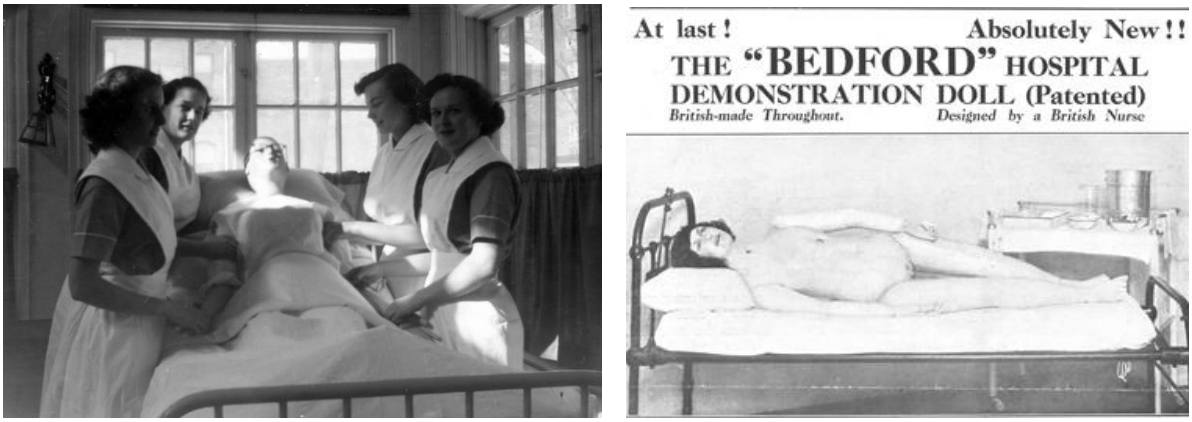



**Figure 14: ‘Mrs Chase’ & the Bedford Doll (source: Virtual Museum, 2020; Adam Rouilly, 2020)**

Improving patient safety is a continual drive in healthcare, and there is evidence available that simulating clinical practice through technology can improve patient safety (Raemer, Hannenburg & Mullen, 2020). However, the evidence supporting hi-tech simulation includes many editorials and opinion pieces which conclude with an imperative to engage with simulation technology (e.g. Medley and Horne, 2004), and) or that simulation provides an enhanced teaching method that students respond positively too (e.g. Faulcon, 2015). There are also an abundance of small-scale studies arguing that hi-tech simulation of patients is more effective than low-tech teaching methods (e.g. D'Souza et al, 2017; Padilha et al, 2019). The construction of hi-tech simulation as a boon does not take a great leap of imagination to comprehend. Simulation enables a student to practice a skill such as physical assessment on "close-to-life" patients, but within a risk-free environment, whilst also encouraging the student to practice their motor skills and to utilise clinical knowledge. Studies conducted using SimMan often focus on the hi-fidelity aspect of the technology, but results of educational effectiveness have often been inconclusive (e.g. Swamy et.al., 2013; Thompson, Harris & Godfrey, 2017), but still point towards the 'positive reviews' that SimMan receives from students (e.g. Swamy et al, 2014). Eyikara and Baykara (2017) promote the utility of simulation for nursing education, citing a variety of studies from the last 25 years, with their conclusion stating that hi-tech simulation leads to "more qualified, skilled members of the nursing profession" (p6). However, on a close reading of this paper, this is generally unsubstantiated from the studies they use to support their arguments - for example, and to highlight this issue, they cite Bambini, Washburn and Perkins (2009) as a good example of how hi-tech simulation leads to an increase in nursing students' skill and confidence. Bambini, Washburn and Perkins' study does state the positive aspects of simulation but is taken from a small survey of non-nursing students, with self-reporting data of an increase in skill. The authors assume that it is the technology which is the cause, when there are many confounding factors such as the impact of the learners themselves, time practicing motor skills, type of feedback, their environment, group personalities, teaching method or the pace of learning. The evidence is inconclusive at best. Lamé and Dixon-

Woods (2018) published a review of simulation-based research concluding that the subject area has shortcomings in studies “in terms of both reporting (simulation context, outcomes, statistical methods) and statistical analysis”. Studies tend to be based on short courses or modules, use researchers who are invested in the learning technology and often run both control and intervention groups. Nehring and Lashley (2009) conducted a review of the nursing simulation literature over the last 40 years and conclude that nursing research into hi-tech simulation “is inconclusive and is hampered by low sample sizes, different samples, different constructs, and instruments with questionable validity” (p538). Whilst there is some evidence of enhancement, what studies regarding hi-fidelity nursing simulation fail to address is whether it is <u>better</u> to use *digital-technology*, or whether case studies, human actors, role-play, discussion and *low-technology* simulation is just as effective. The construction of the fantasy of enhancement through digital technology continues unabated. The pro-TEL alliance offers emerging solutions which are .enhanced’. The dominant assumption is that the technology aspect of the simulation needs to incorporate the latest iterations of digital technology to be ‘enhanced’.

The focus from technology companies has been to create a need in higher education for a hi-tech, digital solution to simulation, a focus that must be viewed as a success with the global clinical simulation market thriving, and predicted to more than double in size from $1.9billion in 2020, to $3.7billion in 2025 (MarketsandMarkets, 2020). Clinical simulation equipment is a substantial investment with SimMan costing upwards of £50,000 (in 2020), with many clinical skills labs having several manikins and versions (e.g. LSBU, 2020), and also a resident simulation practitioner and the need of learning technologists, often with video cameras and associated PC technology. There is also an attempt to diversify the market, with developments of profession specific manikins such as Nursing SimAnne, which is a SimMan, but marketed at Nursing educators (arguably as anecdotal evidence suggests that SimMan is not utilised as envisioned when purchased, as outlined in Appendix 1). Expensive simulation equipment has also become mundane across healthcare education.

Where once having a SimMan may have attracted a potential student, their ubiquity has led to ‘not having’ a SimMan being recognisable and a potential issue – much as a classroom without a digital projector and PC is considered an outlier.

### 5.3 TEL Evidence in Nurse Education

Risling (2016) predicted learning technology trends in nurse education through to 2025, and the impact these trends will have. Risling offers an imperative that nurse education must engage with emerging learning technologies, the deterministic perspective, also issuing the horrific warning that educators need to engage as the practice arena of 2025 will be technology dependent, and education must reflect this. Arguably this is not the case as the core of a nurse’s role as evidenced by NMC educational standards (NMC, 2020) remains person centred care irrespective of whether that is in intensive care, a health centre, a mental health in-patient unit or someone’s home. Rhetoric of enhancement through technology is rife in the nursing subject area, with an example being publishers who are keen to promote this rhetoric. Lipincott published a series of blog posts titled the “Future of technology in nurse education” (Wolters Kluwer, 2017), stating that recent research shows that “82.9% of nursing students report that the use of technology enhances their learning”. Elsevier (Capot, 2017) explain that “nursing education will benefit from adaptive technology and machine learning”, whilst Laerdal (2020) lead their learning material with the heading “*Why your nursing students crave virtual learning*”. The rhetoric does not solely emanate from within industry. Button, Harrington, and Belan (2013) conducted a review of current literature and highlighted the need for nurse educators to support students in attaining digital skills, enabling them to engage more fully with technology. However, their conclusion is couched in terms that bemoan the lack of robustness in the evidence available, with a need to measure the impact and effectiveness of TEL. Da Silva Correia, Christovam and Almeida (2017) conducted a literature review on the effectiveness of blogs to support nurse education, and whilst the discussion fails to highlight particular impacts, again the authors

conclude that nurses need to seize emerging technologies, and that digital technologies improve students learning – the common sense is a given. This theme is evident through much of nurse education literature concerned with learning technology, often with supporting evidence that lacking in robustness, but still concluding about the “need” to engage with a particular learning technology. For example, Sehunwe (2016) presented a literature review examining barriers to e-learning in nurse education. They argue that most nurse educators recommend a paradigm shift towards TEL (with no evidence supporting this), and their findings locate the problems of e-learning within academics, citing a lack of skills, lack of support, and a fear of losing control. These are themes which will arise in the analysis of empirical data and places the blame for any failure in TEL at the feet of nurse lecturers, rather than any learning technology. There is a dominant deterministic perspective in current nurse education literature that accepts and promotes the beneficial impact of technology on teaching and learning, a fantasy that nurse educators feel compelled to ascribe to for fear of missing out on something or putting something at risk, whilst also maintaining a political frontier between *pro-TEL* and *non-pro-TEL* lecturers.

### 5.4 Mobile Learning and Nurse Education

Throughout the last decade, the use of mobile phones in nurse education has been explored through a variety of studies, and as stated above are viewed as a “hot topic” for enquiry. Lee et al (2018) conducted a systematic review into the use of mobile technology in nurse education, with findings that there was no evidence to support the beneficial effects of mobile devices on nursing students' knowledge and clinical skills. Despite any lack of evidence, they conclude that  there should be evidence, and as soon as evidence of the effectiveness of mobile learning is proven, lecturers must engage. The enhancement is common-sense, and to maintain the hegemony, the rationale for lack of evidence must be assumed to be outside of TEL; the common sense holds fast, that technology is a boon within nurse education (as soon as we allow evidence to support it) . A further example of

this common sense is evident from Epstein and Bertram (2019) who claim their study highlights a cost-effective and innovate strategy to use mobile phones in learning nursing skills. However, the study, which was small in scale, also offered concerns from the data of the challenges participants faced – but the reason stated for those challenges is located within the student participants themselves and supporting lecturers, with a call for nurse lecturers to provide better support for students engaged in mobile learning. Cheong-Li et al (2017) pointed out a number of issues with the participants who reported negatively about mobile learning, but then still point to the "potential" of mobile learning. The dominant hegemony persists, with a frontier between the *TEL-willing academics* and *TEL-unwilling*.

Mobile phones are ubiquitous, and penetration of the UK market is near 100% with a focus on updating current technology. With the "Bring Your Own Device" (BYOD) movement (Higher Education Academy, 2017b) there is little specific targeting of consumers. However, universities have been targeted for buy-in to a particular mobile solution, which is the Apple iPad. For example, Clark et al (2017) published a study titled 'Transforming nursing education with Apple technology', a clear example of a deterministic perspective, which unsurprisingly offered a positive perspective on the enhancement available. Mackay, Anderson and Harding (2016) argue that the Apple iPad can enhance teaching but allying themselves with learning technologists and supporting the pro-TEL established frontier, suggest that there needs to be better technological support for lecturers, portrayed as a barrier to enhancement. Some universities have provided iPads to enrolling students (e.g. IECC, 2019), and some have insisted that students provide their own, such as UoC (2020) who then supply students with free e-books and other applications to use on iPads. This has opened a further route for technology companies to target – the clinical practice element of student courses and nursing. Rubenstein and Schubert (2017) recommend a phased in approach to the use of iPads in clinical nursing education and stated that iPads are necessary to respond to the growth in iPad use in the clinical arena. Mobile technology, and

in particular Apple iPads and iPods, have recently penetrated the NHS in clinical areas (NHS Digital, 2018) where they are mainly used as a replacement for “paper” based forms, alongside the delivery of clinical information. The NHS Long Term Plan (NHS, 2019) supports the importance of technology in the future of the NHS arguing for increasing digital transformation and include the provision of technologies such as the iPad for frontline care (NHS, 2020). This recent penetration of mobile technology has also enabled the development of NHS Trust clinical skills training facilities such as Lancashire Teaching Hospitals making use of iPads (Health Academy, 2020), which ultimately leads back to universities as they respond to the increasing shift to mobile digital technologies in clinical practice (Solent University, 2020). The consumer base is shifting for learning technologies as TEL companies target outside of formal education and can establish alliances with professional groups and government.

### 5.5 The necessity of technology in nurse education

During the contemporary epoch, the belief that the world of healthcare is dominated by the successful use and development of technology has taken hold as a common sense (Thimbleby, 2013; Fincher, 2018). This offers potential for technology companies to standardize the use of technology across nursing courses as it results in students wanting to engage with technology, because it is seen necessary to prepare them for their future clinical practice. Examples include Landeiro et al (2015), who called for the need to invest in learning technology to upskill nurses in preparation for care management. Wilkinson, Roberts and While (2013) suggested that more effort is needed for curricula to prepare students adequately for practice. Sharma (2017) points to learning technology as being central to preparing nurses for 21$^{st}$ century practice, even suggesting that technologies which are yet to be conceived need to be incorporated into education. The message from these studies is common through nursing learning technology studies, that nurse education needs to engage with learning technology so nurses of the future are adequately prepared to use clinical technology. However, there is a lack of robust evidence to support the

conclusion that current learning technology developments are enhanced above other pedagogical approaches in nurse education, and that their use will lead to enhanced use of clinical technology. There is a paucity of well-designed evaluations of digital technology, and instead of focusing on emerging technologies, there needs to be robust evaluations of existing technologies (Krick et al, 2019) to explore the actual effectiveness of what is in use in the mundane aspects of nurse curricula.

Perhaps the question could be asked as to why nursing is not more at the forefront of learning technology development if clinical practice is so ‘technological’. SimMan has made learning technology the “patient” for nursing students, but still in a naïve and simplistic way, as despite mirroring elements of practice, SimMan does not have the nuances, depth, frailties and surprises of a human patient a nurse would encounter in clinical practice. Aside from simulation, the VLE and PowerPoint, no other learning technology has made the in-roads that may be expected. It could be argued that there is little left for technology companies to target - the VLE and PowerPoint classroom are ubiquitous, phones are already established with users away from learning, and the clinical skills lab has become mundane. One argument may be that certain disciplines are too niche, and technology companies are forced to target consumers across the sector to see what may become a success, and then develop technologies accordingly. This leads to the situation where there is much rhetoric around potential of technologies as they are witnessed from within the subject area, but little actual enhancement in the day-to-day, much as was with the arrival of the iPad a decade ago. Contemporary practice within nurse education, and wider universities, has not emerged in a deterministic fashion, responding to new technologies as they arrive, rather, educational practices have emerged through struggles and alliances. There is discontinuity across the epoch’s as much vaunted technologies and ways of teaching and learning have come and gone. The contemporary pedagogy of blended learning, or flipping the classroom, of personalised and mobile learning are more problematic than we first consider. TEL is not a natural, beneficial way to conduct education, but can be

critiqued as to why technologies are being used. The rhetoric surrounding learning technology has increasingly dominated for 60 years, and continues to do so, despite a paucity of rigorous empirical evidence to support that rhetoric.

This archaeology has demonstrated the origins of alliances between tech companies and learning technologists as low-tech lecturers are identified as a stumbling block, an alliance which will be explored in greater depth in Chapter 7. Learning technology is contemporarily conceived as 'the' determiner of transformation for education offering benefit for all, with students, lecturers and organisations responding to these iterations and evolutions. Contemporary rhetoric constructs learning technology as a liberator for lecturers and students and has continued through the contemporary epoch, with personalisation of learning being emphasised as part of the fantasy of TEL, which will be further explored in Chapter 8. The current epoch has seen simulation technology constructed as a necessity in nurse education and beyond with new consumers in the health industry. The dominance of TEL as a necessity is accepted in nurse education, despite inconclusiveness from evidence as to its effectiveness, as discussed in the problematisation. This chapter will now conclude the genealogy and archaeology with an overview of the four epochs.

### 5.6 The four epochs of technology enhanced learning

Across all four epochs there are struggles between established and innovative views of teaching and learning, and actors with vested interests concerned with the deployment and success of learning technology. New technology has continually emerged, and at an ever increasing rate. Hagel et al (2013, p2) state that the "current pace of technological advance is unprecedented in history and shows no signs of stabilizing as other historical technological innovations, such as electricity, eventually did". They continue that core digital technologies improve exponentially, which leads to an exponential innovation. Technological determinism is rejected in this thesis – teaching machines, personal computers, multimedia, mobile

devices, social media, hi-tech simulation – the view that these emergent technologies bring transformation to education in themselves continues to be dominant and widespread, irrespective of evidence, and the rhetoric surrounding enhancement and possibilities for nurse education perpetuate. From arguments that Skinner had produced more than a machine, “he had developed an educational technology that promoted a new way of learning” (Benjamin, 1988; p 708), to personal computers which were touted as offering the personal services of a tutor and liberation from monolithic institutions, to personal learning environments (PLE’s) which enable flexible personalised learning, owned by, created by, and used by students. The rhetoric also repeated itself. The popular press returns to stories from 50 years ago. Bell (1961) published an article titled “Will Robots teach your children?” in Popular Science, and more than 50 years later Hansen (2016) writes an article for US News asking “Will robots teach our kids?”, again with the conclusion that it is inevitable that teachers will be replaced with some form of automated teaching. Concerns from teachers in the 1960s were over the automation of teaching and learning, and today, the theme of automation continues, with projects such as the ‘Teacherbot’ project automating the MOOC learning process further (Bayne, 2015).

Thus, rather than define epochs through determinant technology, the genealogical and archaeological analysis supports epochs being defined by consumers and shifting frontiers. What is clear is that transformation in education as caused by learning technology has repeatedly failed to materialise, as education has failed to make good the potential. Chapter three demonstrated that educationalists were the target consumers in the first epoch, alongside their institutions, but the failure of teaching machines and cumbersome computers led to educationalists not engaging and difference rather than equivalence prevailed, thus leading to new attempts to redraw the frontier between technologists and educators in the second epoch. This was heralded with the arrival of the personal computer, a new frontier battle that valorised the sovereign student consumer, and enabled technology companies to

conquer where they previously failed. All schools in the UK were trumpeted to have a personal computer, and individuals found themselves with computers in the home for the first time. The possibility of a new frontier came to fruition between technologists and educators, with the PC, the internet and e-learning enabling administration of education, and innovation in pedagogy, whilst also supporting the development of learning technologists. Appeals were made to student consumers with offers of virtual campuses and flexible personalised learning, circumventing possible pedagogical objections, and giving rise to a combination of advocates which offered a logic of equivalence through epoch 3.

Epoch 4 demonstrates the ubiquity of unseen technology – the ever-present internet, the VLE, the PC, mobile devices, the technologized classroom – the unseen technologies as they are now, mundane, quotidian and the fabric of education. Learning technologists rallied against institutional technologies such as the VLE, to then find allies with pro-TEL lecturers and students with the appearance of MOOCs and use of social media. The learning technologist has become a concrete link between the student and the subject, enabling use of the MOOC, the VLE, the PLE, simulation, with the non pro-TEL nursing lecturer more isolated. The consumers of learning technology have moved from institutions, to technologists, then towards lecturers and students, and this has led to angst, as technology perpetually emerges, standing on the precipice of apparent educational transformation, but also angst surrounding automation and roles, angst around the human in the teacher-learner relationship, angst about effectiveness, and angst about the changing nature of educational structures, and what the future holds. The contemporary ubiquity of TEL gives an indication of how struggles through the epochs have gone the way of the technological innovators, the *digital cognoscenti*, and these have become the prevailing hegemony, such that TEL today is an ever-present, and accepted feature of higher education, with little alternative. This thesis will now move to explore the empirical evidence that has been gathered through a discussion of social, political and fantasmatic logics in chapters 6, 7 and 8.

# CHAPTER 6

The aim of this chapter is to identify the dominant normative assumptions that enable participants to make sense of their reality in relation to technology enhanced learning. The use of technology in education has become so ingrained in the day-to-day as to be considered natural and normal, an unseen common-sense practice within all forms of education. As part of the logics approach, social logics offers a way to examine the unseen 'rules' of a social practice. They offer a method to explore why social actors conceive practices in the way that they do in their lived experience. Whilst this may allude to what has been described as the 'contextualised self-interpretations' of those actors, and will necessarily involve an element of self-interpretation on the part of those involved (Glynos & Howarth, 2007, p47), logics offers a method where participants cannot be solely reduced to self-interpretations. The logics approach enables a determination of the assumptions and normative projections associated with different practices and regimes (here associated with TEL), and how they are characterised by a range of social actors, such as lecturers, students, and organisations, enabling us to examine the particular characteristics of TEL today (Glynos & Howarth, 2007, p133).

Social logics can be identified by analytically focussing on the reality in which practices exist, characterising what makes that practice 'tick', and leading to an understanding of the contemporary context of practices associated with TEL (Glynos, 2008). The logics presented in this chapter arise from data and analysis from two sources, firstly, interviews with nursing students and lecturers. All participants were asked to describe what they understood technology to be, and how they see it used within their experience and knowledge of education (whether as student or academic). Secondly, the nursing lecturer participants were observed teaching nursing pre-registration students. The focus of the analysis was on both what was said during interviews, but also the experience as witnessed through observation. Lecturers were asked to conduct their teaching session as they would normally

- the mundane aspects of teaching and learning are important to consider. Common-sense understandings and the unseen rules of social practices point towards the mundane, the least interesting or least considered parts of social practice. It is also about normative aspects of technology and learning, what is judged as worthwhile, or forced, or as drudgery or even pointless.

The data gave access to the micro and meso levels in relation to the mundane aspects of learning technology in educational practice, including the interactions among and between individuals and informal groups. The everyday, social assumptions are accessed through the interviews with participants, as they describe these assumptions, their practices and beliefs about the world. Social logics are characterised as the rules that social actors follow, so they act as they do on a day-to-day basis, the quotidian. From the data, three social logics were identified; a logic of novelty, a logic of freedom and a logic of caveats (see Figure 15 below). There are a range of actors involved in constructing the social logics; universities, students, lecturers and technology companies. What follows below is an explanation of these logics as they operate in practice, examining the role and influence of different social actors. Whilst it is recognised that this does segue into political logics, this method of explanation will aid in the explanation of why the social logic works.

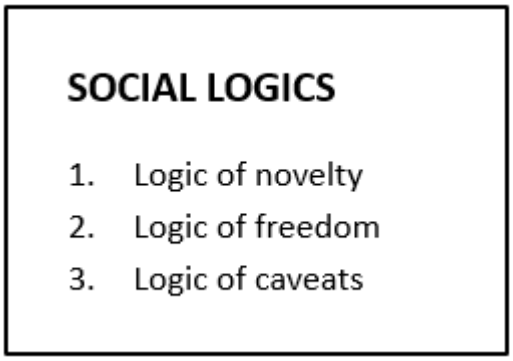



**Figure 15: Social Logics**

### 6.1 Logic of Novelty

Despite the social nature of technology being a topic of investigation for many years, there is a deficit in the exploration of this aspect of learning technology, with several academics suggesting that it has been under-theorised (Friesen, 2008; Selwyn, 2012; Bulfin, Henderson & Johnson, 2013). There is an over-reliance of the technological determinist perspective, where technology is imbued with an overriding force which impacts upon social structures leading to a necessary response or social change - it is the technology which is having the impact. This deterministic view is in line with the common-sense understanding of technology and its relationship with wider society. For example, consider how technology is deemed to have impacted upon families, with Mesch (2006; p120) portraying "families with access to information and communication technology" as differing "from those without them" (primarily as having greater access to technologies, but also in family dynamics). Younes and Al-Zoubi (2015; p82) suggest that technology has led to "the decline in ordinary social behaviours" going on to state that "people recognize that the use of modern technologies is a requirement for life". The opening lines of a report on the effect of technology on Society (Sutton, 2013) , states that technology "*has changed society throughout history", and that "cellular devices, iPads, iPods, computers, and most importantly the internet have completely overhauled the way people interact in society and the way educators work in schools" (p3)*. All interview participants portrayed technology from a deterministic perspective, with technology characterised as having a direct effect upon them, their teaching, their learning and wider education and society. It is important to consider how participants conceive of technology, because as suggested at the outset of this chapter, the intention here is to identify dominant normative assumptions, the unconsidered social rules and practices which enable participants to represent reality as they understand it. The way in which participants talk about and describe technology enables us to address participant's construction of mundane encounters with TEL. For example, consider these excerpts from lecturer participants when asked to describe technology used in their teaching;

> *"I think technology is seen to be quite exciting stuff and it is developing all the time and it is hard to keep up, and if we are showing that we are keeping up, then it is great for students…. so exciting…. it is hard to explain." Lecturer LL; Lines 152-153*

> *"I suppose you think of technology as something which is more advanced…. you link technology with something that is new, or you are just about to start using, rather than something that has been around for a while." Lecturer LE; Lines 15-16*

> *"New yes, different approaches…. fresh approaches, a lot of the technology that is in, seems innovative because it is brand new. Like a new model of a car." Lecturer LF; Lines 265-266*

The participants constructed technology using words such as "new", "cutting edge", "advanced" and "innovative", an approach consistent with all the participants when describing technologies; this normative attribution is positive and reveals a techno-optimist (Wilson, 2017) perspective. The participants cited above did not outline technology as something that "is-steady" or "has-been", rather they evoke technology as something new, ephemeral, out of reach, but also as offering improvement. McKeown (2017) suggests that social institutions, and those within them, have "seduced themselves with ideological notions of technological salvation", and calling upon the idea of technological determinism, outlines a technological imperative with technology as an "autonomous, inevitable and independent force". An example may be a university School of Health looking to stand out from competitors, or find efficiencies, and the lure of novel technologies may be perceived as the solution in this regard. The techno-optimist outlook was evident, as interview participants constructed technology in a similar fashion to how higher education organisations posit TEL; cutting edge, new and here to solve perceived problems of teaching and learning. Lecturer LC began by referring to the organisational perspective at the macro level, with what could be construed as a statement from a University Teaching and Learning Strategy (such as that from UCL; "we want to capitalise on the potential of technology to extend and enrich the classroom experience"; 2020; p17), but then took a reflective turn to look towards the micro level, and what technology means for them.

> *"Technology means …. using new resources to enhance the learning experience, or your teaching of the learning experience…. but for me… I suppose, because of what I have done, that does not necessarily mean whizz bang, the internet or anything like that…. it is just new stuff." Lecturer LC; Lines 2-4*

However, whilst decrying the fantastical elements of TEL, the evocation is still towards "new stuff". The idea of *new* and *current* was referred to by all student and all lecturer participants when describing technology, as exemplified by student S4; *"It evokes sentiments of current and cutting edge" (S4' Line 4).* It is useful to consider the development of the word technology, and the way in which the word technology is used, and how its use has changed through time.

The word technology came into prominence in the English language during the 20th Century, where it was mostly linked to what are considered industrial technologies. In the 1930's, Bain (1937; p860) defined technology as "all tools, machines, utensils, weapons, instruments, housing, clothing, communicating and transporting devices and the skills by which we produce and use them". More recently, definitions have been linked to microprocessors and what is referred to as "high technology" (hi-tech) which separates digital and information technologies from a broader perspective of technology which may incorporate cultural perspectives. Godin and Gingrass (2000) defined technology as *artefacts* but continued to argue for the social dimension of technology. By that they point towards the training and appropriation of technology in social contexts, but also the institutions bound with technology, whether or not those institutions "arise spontaneously from within the community or are institutionalized and have acquired social recognition through their stability over time. Whether they are strong or weak, it is their presence and development in a given society that contribute to culture" (Godin & Gingrass; p46). Technology should be considered as more than just tools or artefacts, and whilst participants point towards computers, mobile phones and social media as representing "their" current

technology, this is more than just a physical or virtual artefact, it is institutions such as Blackboard, PebblePad, Facebook, Apple and Google, the employees of those institutions, artefact users and supporters, government departments who use or refer to those artefacts, businesses related to the technological, learning technology academic groups, universities, course teams, learning technologists and individual lecturers, administrators and students.

The social logic of novelty is evident when considering this within the context of nursing education. Participants described technology within the remit of emergence, and those technologies within the "now", rather than what may be described as more "established" technologies. For example, when asked to outline learning technologies which they were using in their teaching or learning, participants readily talked about novel experiences of trying out iPads, clickers, new smart phones and apps, and software such as Twitter and Prezi, but neglected to mention less novel technologies such as Microsoft Windows, PC's, visualisers, whiteboards and projectors, and only discussed PowerPoint or the VLE when prompted to. As the genealogy demonstrated, technologies such as PC's, multimedia, PowerPoint and social media were all novel 40, 30, 20 or 10 years ago; but novel and emerging technology takes precedence over what may be considered the "mundane" technologies.

The distinction can be construed as the use of mundane technologies compared with what is perceived by social actors as a more visceral experience from novel technologies (*PowerPoint* versus *Prezi*; *Windows PC's* versus *iPads*; *VLEs* versus *Facebook*). It can be argued that the more visceral experience is somehow able to offer a new, emerging, and better experience. One of the reasons (learning) technology is conceived as emerging by participants is the high iteration and constant development of new technologies, what Norman & Verganti (2012) term as an incremental innovation. This leads to the perspective

of technology as something that is constantly innovating, always moving, always new, but also something which has yet to be used to the full, perhaps never. However, the rapid incremental iterations of digital technology, presented as always on the edge of developments is realised in social practice rather than as an inherent feature of technology. For example, a cutting-edge user of learning technology (a positive social attribution) is perceived as making use of current technologies as they iterate and emerge, rather than engaging more mundane technologies to a fuller extent.

Those technology artefacts that have stayed the course, that have been used for 20+ years (for example PowerPoint, Windows PC's and projectors) have now become part of the fabric of the classroom, hidden in plain view, unseen and unquestioned by lecturers and students. Perversely, it is only when the PC projector is novel, that it fails to work without thinking, that it becomes visible to the user. Whilst the construction of technology by participants is of continual iterations of emerging technologies, the reality of the norm of social practice in the classroom is far more mundane. This begs the question of whether pedagogy, and actual teaching practice centred around these technologies has progressed through the use of these continually developing technologies. Just as in the interviews, observations of teaching and learning gave access to the *everyday* in teaching sessions, the mundane social practices. The use of learning technology was observed in all classroom teaching observations (see Table 19 below).

| Lecturer | Type | Class size | Technology Used |
|---|---|---|---|
| LA | Lecture 1 Room 3 | n. 45 | PC, Projector, Windows, PowerPoint, Whiteboard. |
| LB | Lecture 2 Room 1 | n.110 | PC, Projector, Windows, PowerPoint. |
| LC | Lecture 3 Room 2 | n.70 | PC, Projector, Windows, PowerPoint. |
| LE | Lecture 4 Room 2 | n.70 | PC, Projector, Windows, PowerPoint. |
| LF | Lecture 5 Room 4 | n.16 | PC, Projector, Windows, PowerPoint. |
| LJ | Lecture 6 Room 1 | n.85 | PC, Projector, Windows, PowerPoint, Internet, YouTube. |
| LK | Lecture 7 Room 3 | n.65 | PC, Projector, Windows, PowerPoint, Internet, YouTube. |
| LL | Lecture 8 Room 1 | n.90 | PC, Projector, Windows, PowerPoint, Internet, YouTube. |
| LH | Skills 1 Room SK | n.14 | PC, Projector, Windows, PowerPoint, Whiteboard. |
| LI | Skills 2 Room SK | n.12 | PC, Projector, Windows, PowerPoint, Whiteboard. |
| LD | VLE 1 | n.120 | PC, Internet, VLE, Word, internet, YouTube |
| LG | VLE 2 | n.120 | PC, Internet, VLE, Discussion board. |

**Table 19: Summary of Teaching Observations**

In the observations, the trope of Windows PC, PowerPoint and projector were the mainstay for technology being used. The unseen, ubiquitous nature of learning technology is clear. Witness lecturers' comments at the end of the session when they were asked "What technology was used in your session";

> *Lecturer* LH: "Didn't use any really. Only used the PowerPoint."
> *– NB. Used PC, Projector, Windows, PowerPoint, Whiteboard.*

> *Lecturer* LJ: "I have not used any technology… apart from the video."
> *– NB. Used PC, Projector, Windows, PowerPoint, Internet, Google, YouTube.*

> *Lecturer* LB: "Just used the PowerPoint. I edited it to ensure all content was up to date and covered."
> *– NB. Used PC, Projector, Windows, PowerPoint.*

An important consideration is that there has been no demand from lecturers for the suite of technology which is present in every classroom, and in this sense, it can be regarded as an arrangement reflecting wider institutional practices. The suite of technology includes a control desk containing a control unit, PC, DVD player and visualizer, plus a screen and projector for viewing digital content, Wi-Fi internet, and a whiteboard (see images of classrooms from observations in Figure 16 below). There is little chance to escape from the presence of technology which clearly dominates in the teaching rooms.

**Figure 16: Standardised equipment in classrooms from observations**

However, of note is that the setup of the classroom, is not that dissimilar to classrooms from the last century. The classrooms as shown below (Figure 17) still have rows of chairs with writing space, a teaching desk or table, and a board to write on at the front of the room.


**Figure 17: Nursing classroom from 1930s (source: WSNA, 2018) and 1972 (source: Harding, 2012)**

In the image on the right from 1972 a novel technology has entered the classroom - an overhead projector and projector screen, but with little adaption to how the room is being utilised, the pedagogic practice remains relatively unchanged, much like the modern classroom in Figure 17 above. However, in the modern-day classroom, the technology is now less novel, and therefore more integrated as furniture within the room, partly hidden, but also expected by the actor's present. Notice how in the picture on the right in Figure 16 above, that the whiteboard for writing on is on the side of the room, barely usable. The expectation is that all the actors present will want to use the technological suite and projector screen in the centre, rather than the redundant, older technology.

In the 1970s, 80s and 90s the television, video player, DVD, PC, projector and whiteboard entered the classroom (at first clumsily such as on wheeled trolleys or from locked cupboards), but based on the observations in this study, the pedagogic practice observed remains relatively similar to that of the 1970s, with sessions built around didactic episodes of teaching, group work and questioning. The only material change is that the technologies for displaying material to a group are less novel, and consequently more unseen, part of the fabric of the classroom itself. The image on the left below (Figure 18) has a nursing skills

manikin being used to teach nursing skills. How does this differ from the image next to this from a nursing skills session in the 21st Century? The uniforms of the students may have changed but the practice of teaching remains relatively static.

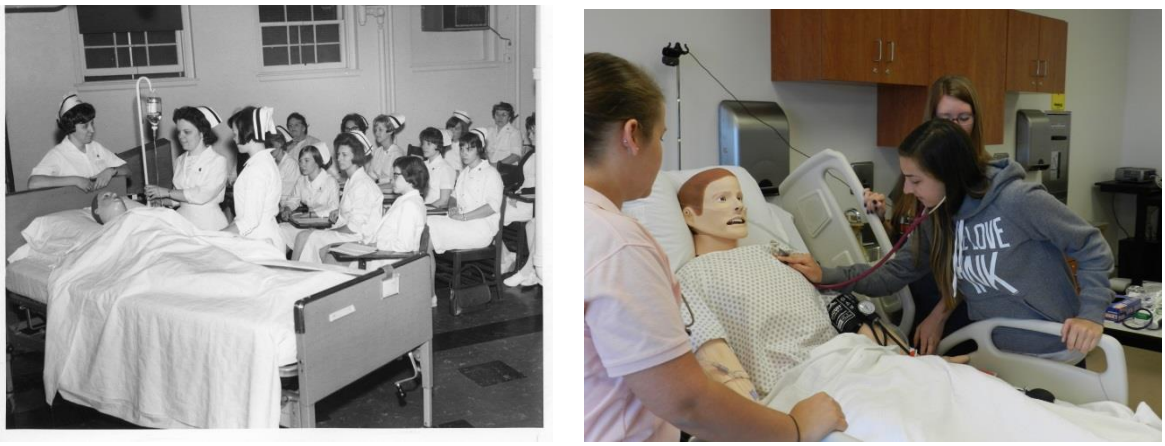


**Figure18: Mid-20th Century and 21st Century nursing skills teaching with a skills manikin (source: BIDMIC, 2018; Beckfield, 2018)**

It can be argued that the practice of education is essentially technicist (Halliday, 1998) with a focus on "procedures, competencies and outcomes" (Fitzmaurice, 2010; p46). The epochs identified in the archaeology and genealogy portray technologies and related teaching practice as developing through these epochs, but the actors in the centre of the teaching and learning experience are part of a practice that has remained relatively stable across those epochs. Teaching the nursing skill of clinical observations (e.g. temperature, pulse, respirations, blood pressure) in the 1940s required a stethoscope, mercury thermometer, paperwork and practicing on fellow students. Today, the technology has been updated with digital recording machines, digital manikins and iPods to record observations (a novelty in 2018); but the teaching of the skill remains untouched - a stethoscope, thermometer and practicing on fellow students. Lecturer participant LL described teaching a clinical skill;

> *"The hands-on stuff is far more meaningful. Again, we demonstrate, they watch, they see it, they practice together, we discuss it and feedback in real time with the student, so that feedback is really valuable, and I think quite strongly, without any*

> *evidence, that face to face is much more useful, it is about hands on, feeding back to them." Lecturer LL; Lines 141-144*

As exemplified by the pictures of teaching shown above, technology has always constituted learning, and academic learning is at its root, technical (Hodkinson, 1998), and hence symbiotic with learning technologies. So, the question can be asked, what is different today? Whilst the technology may have been continuously updated, such as an oral mercury thermometer evolving to digital tympanic thermometer, the pedagogical approach and measurements remains the same. As lecturer LM suggests below, the technology may update, but the teaching practice may not;

> *"Well, we all thought, rather than having all those OHPs stacked in folders, we'd have a nice neat little stick! You think how we all used to walk around carrying files. I can still show you some! Beautiful colours, writing on a ruler. I was taught that to write on a ruler. So, really, in terms of technology, PowerPoint is just a bit of a snazzier version of having an OHP and a handout! And now we are being criticised for that!" Lecturer LM, Lines 29-33*

As Cuban (2001, p196) suggests, the problem may be that there has been no essential change in what teaching practice is, and as Cuban argued at the turn of the century "even if every student had access to a personal computer, the methods to teach will not change". There is a routine, a standard. A standard, mundane practice of teaching today (with technology). During the observations of face-to-face teaching the normalised behaviours were evident, with every lecturer observed routinely going to the technology control desk upon entering the room to power on the PC and the projector. Many walked past students without acknowledging them until the PC and projector was powered on, then acknowledged them. In every observed session, before any teaching commenced, PowerPoint was always started, some using a USB pen drive to load the PowerPoint file, some from the PC.

PowerPoint was always used by lecturers, in every session. The PC and projector always remained switched on in all observed sessions for the entirety of the teaching time. All the PowerPoint presentations remained “on” and visible until the end of the session, except when some lecturers used the internet to play a YouTube video, then returning to display the PowerPoint presentation post video. The PC and projector remained on during coffee breaks from the session and during group work (often going to a ‘lock screen’). When the lecturer was talking without relating to the PowerPoint, the PowerPoint was left displayed on the screen showing an unrelated slide. In the two clinical skills sessions PowerPoint was used for the first part of the session before the break, with the students then going off to practice skills after the break. The projector was left on during the second part of the session showing the lock screen on the PC. In all observations, the final act of the lecturer before leaving the room, was to power down the technology, and then leave the room. It signalled the end of teaching, and of the teacher’s availability. These technologies are employed as a chair, desk or pen is employed – an expected, familiar, mundane part of classroom learning, with a lack of novelty to jolt the user to awareness.

All lecturer participants talked about their teaching in respect of the routine use of PowerPoint. However, as with participant LJ below, there was often recognition that the PowerPoint was not for the benefit of the learner, and excuses were hinted at as to why they had to use it;

> *“I use PowerPoint. I think, the main one I use is PowerPoint. I say to my students it is more of a reminder for me of what I am talking about. I don’t use the simple pictures. But I will have points on there, so I know that I have covered everything that I want to cover. I do try and make it as user friendly for the students as possible so a mixture of images and text. And bearing that in mind for specific learning needs.” Lecturer LJ; Lines 13-18*

Participant LJ has to make an excuse to the students for their use of PowerPoint, and there is also an admission that it is not of benefit for the student as they "try and make it as user friendly for the students as possible" – however, they also characterise PowerPoint as for those with learning needs, adding justification to their choice in using PowerPoint. There is no novelty in the use of PowerPoint, to the point where the term "death by PowerPoint" has been bandied around in education circles (Roberts 2018), and the associated artefacts of technology control panel, PC, Windows and projector remain hidden in plain sight, only becoming apparent when the routine is lost, when students complain about its use, when it gets in the way of teaching in a manner outside of the standard – something referred to by several lecturer participants;

> *"There is always the fear that you can set something up and it does not work, and that technology will fail." Lecturer LE; Lines 102-103*

> *"I was doing something on models of delegation to students who felt like they have had it before, so I had done lots of research and reading, and I could discuss the models off pat, and they were quite complicated to be drawn on a board, so I had them on a PowerPoint. Then it crashed, and it wouldn't come up, and it was still starting up for about 20 mins. The sense of panic of "Oh my god the PowerPoints not working" was just ridiculous." Lecturer LF; Lines 29-33*

> *"The thing is, at the end of the day, if you are using technology you always need a plan B in case it does not work, well we have always needed this from years ago, because you always knew that you could put a presentation onto PowerPoint, but there was never a guarantee that the projectors were going to work, so in actual fact, I think I have always known don't put all your eggs, don't assume that the technology is going to work because it may not. So, for example, I could plan a wonderful session in the skills lab, but if the simulation does not work because somehow or other sim man has died for whatever reason, you have got to have a plan B haven't you."* - LG; LINES 466-478

The mundane social practices associated with teaching are part of the logic of novelty. Technology is routinely present as an unseen part of teaching and learning and only when it

is a novelty does it becomes part of actors' overt awareness (a new app or artefact to use, feelings of distress when teaching, witnessing colleagues doing something beyond personal realm of experience, a student with a new learning gadget). In Figure 16 above of the classroom, the technology blends in with the colours of the classroom, or perhaps the classroom blends in with the colours of the technology. When asked what learning technology they saw being used in their learning, student participants all mentioned PowerPoint first;

> *"PowerPoint upon PowerPoint! Lots of PowerPoint, lots of PowerPoint. Trying to think what else we used … videos, YouTube and other things." Student S6; Lines 17-18*

> *"The lectures are generally given… unless it is A&P, that is generally done verbally and with a bit of whiteboard interaction. But most lectures are given via PowerPoint and used for the lecture and given as a guide." Student S5; Lines 20-21*

There is habituated behaviour for students and lecturers when using PowerPoint, the behaviour of students expecting a PowerPoint, sitting waiting, watching. Lecturers exchange PowerPoint files for teaching preparation, the organisation prepares teaching rooms for its use, and the Virtual Learning Environment becomes a repository to store the virtual PowerPoint. There is no novel aspect of technology here, participants did not mention the mundane in their descriptions of technology, established learning technologies are accepted as a boon, necessary, the institutions insistence upon their use by construction of classrooms centred on teaching using learning technologies. Students insist upon their use, by the norms they have in their behaviours;

> *"You expect as a student, you come in, sit down, have a PowerPoint, discussion, lecture, what have you and you do it without thinking, a naturalised behaviour. That we have the technology, so we need to use it." Lecturer LF; Line 87-89*

Lecturers and students outlined their naturalised, habituated behaviours associated with learning technology, and made sense of the impact of technology upon education by considering their experiences as a necessary outcome of the wider world. Technology is here so we *must* make use of it. Both student and lecturer participants talked of learning technology as a reflection of "the world around us" and just "part of life". They viewed technology as a ubiquitous presence in their home life and their work life, and therefore technology in education is an obvious continuation of that;

> *"It is just so ingrained in everyday life that you are using it without even realising you're using technology." Student S1; Lines 13-14*

> *"It is a reflection of what is going on outside of education, the world around us, technology is used for everything else, so it is logical for it to be used in education." Lecturer LD; Lines 3-4*

> *"The rest of the world is, has, technology as part of their life, so for education not to do that would be backward." Lecturer LD; Lines 21-22*

Participant LD appeals to the hegemonic tyranny of technology, of course we must use technology in education! This perspective of technology as demonstrated by these participants in everyday life, leads to acquiescence of everyday technologies, such as the mobile phone and internet. This is reflected in Figure 19 below, and can also be applied to teaching technology such as PowerPoint;

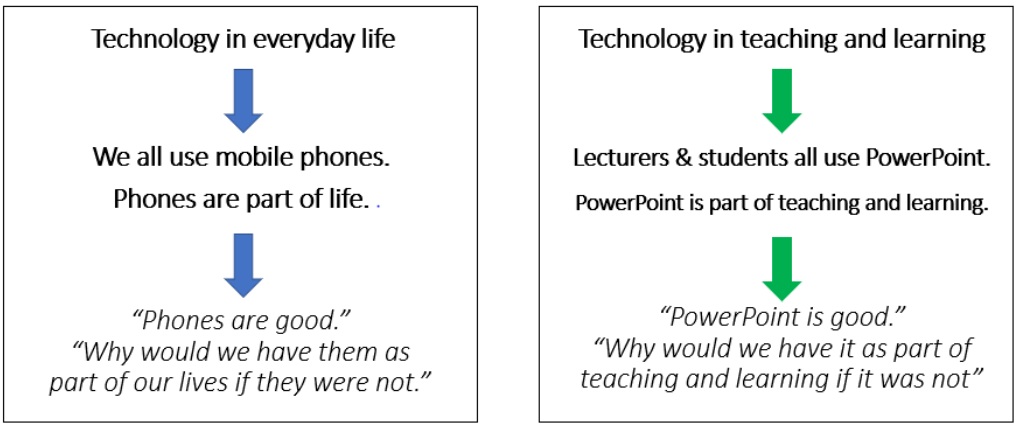



**Figure 19: "Technology in everyday life".**

- *Technology is mundanely present in our everyday life; therefore, we all use mobile phones;*
- *Mobile phones are part of life, therefore "phones are good".*

- *Technology is mundanely present in teaching and learning; therefore, we all use PowerPoint;*
- *PowerPoint is part of teaching and learning, therefore "phones are good"*

However, this view is entirely contingent upon the frame, and challenging this tautology can lead to a critique of this position. Here, technology is not viewed as part of everyday life, with life (we) responding to that presence, leading to our supposition that it is good. Rather, it can be constructed as part of a social logic, technology as unseen, mundane, quotidian, as represented in Figure 20 below.

- Everyday life is present in technology; therefore, mobile phones use us;
- Mobile phones are part of us, therefore "we cannot escape our phones".

This perspective can also be applied to learning technology, as demonstrated below;

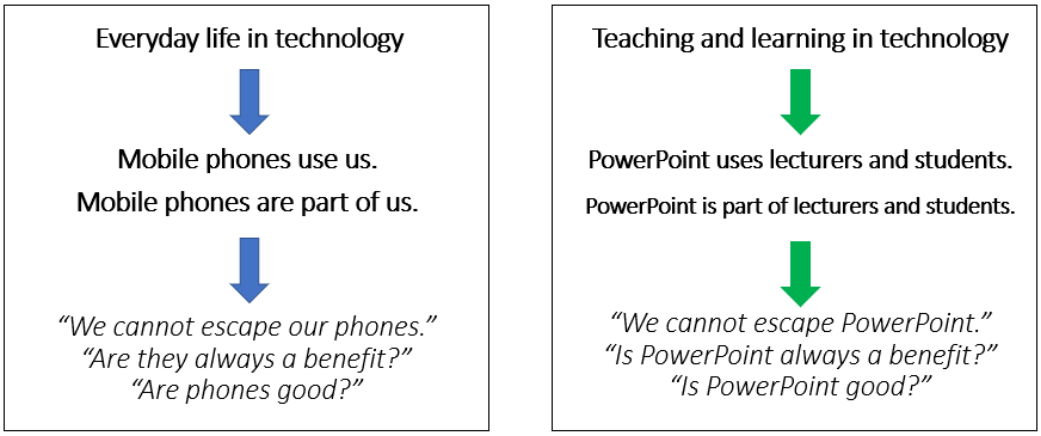



**Figure 20: "Everyday life in Technology".**

Technology uses us, PowerPoint, PCs, Windows, digital projectors and social actors such as learning technologists, use lecturers and students. This leads to a position where we cannot escape learning technology and could lead us to ask questions of its purported beneficence. The unseen nature of learning technology can be viewed in the context of acquiescence from both students and lecturers to its acceptance and use. This is demonstrated by Student S3 who outlines the "reliance" on technology, and the necessary conformity;

> *"I think I was the least, when I started the course, the least technological person. When I first started it took … I hated stuff online, hated accessing stuff. I found it really intimidating. But I found because there is such a reliance on it, and there is such a huge amount of it… and everything to do with university is online, you kind of have to think you must join them." Student S3; Lines 77-79*

This suggests that there is little choice on the part of those actors but to succumb to the dominant discourse. The institutional actors instil arrangements supporting TEL, where it is not student or pedagogy led, but institution led, and by doing this it becomes the quotidian in educational practice. Learning technology, for the most part, remains unseen. The logic of novelty supports the mundane, only bringing it to the fore of experience when there is a crack in the edifice. The novelty of new iterations of technology (consider the appearance of iPads in the classroom, the rush to use Twitter for educational purposes), or a previously unseen technology (such as clickers being used for votes in the classroom), or when

technology abandons the user by failing and the user has the unusual experience of teaching outside of the technological norms. Cultural normative expectations surround technology, supported by institutional arrangement, where learning technology becomes the expectation for individual actors such as students and lecturers, and is part of a wider societal pressure to acquiesce to iterations of technology. The notion of acquiescence to pressure to use technology will be returned to when exploring political logics.

### 6.2 Logic of Freedom

When students were asked about technology in their learning experiences, and to explain how it was used by lecturers, all student participants commented that it was the norm to see technology used within the classroom environment. Technology was actually viewed as so pervasive in their learning experience that many commented that there was rarely teaching without some form of technology;

> *"I think we have just had so many PowerPoints it is like God! I can probably say that we have had very few lectures without a PowerPoint, very few, probably look back and count on one hand how many without PowerPoint of some kind. I mean VLE, there has been PowerPoints, study days there is PowerPoint, so it is 99%, the theory is PowerPoints, so it is a lot." Student S6; Lines 104-106*

> *"See we have never had any lessons where there has not been any technology." Student S4; Lines 136*

All students stated that technology was commonly used in several aspects of their learning, with the most common technologies suggested as being PowerPoint, the virtual learning environment and YouTube. It was explained earlier that lecturers often used technologies for their own benefit rather than for students'. To explore explanations for lecturer's use of

certain learning technologies, students were asked why they thought nursing lecturers used learning technology in their teaching. Across the interviews, students identified three common explanations for why lecturers wanted to use technology in the classroom; blended learning is the best way to learn, technology saves time, and technology is good as it lets students learn anytime, anywhere. The discourse surrounding emancipation in various forms was a thread through the majority of students' discussions around why technology was used in their education. Emancipation in these terms was viewed as being free from the shackles of traditional learning experiences (space of learning), free from traditional timetables (structure of learning), free from having to physically attend university to learn (time for learning), and of being free to learn how and choosing when to, rather than learning being imposed upon them by the confines of the course (rules for learning). Whilst there are elements of fantasmatic logics in the discussions here, it is being framed as a social logic as this notion of freedom for students was so evident, that it forms the boundaries for students learning, the rules that they follow for their engagement with teaching and learning. Consider the concept of learning technology which enables "anytime, anywhere" learning – something referred to by several students. This is a phrase which has been associated with learning technology for some time and implies that the learner is somehow free from time and location constraints. When explaining why technology was used in their learning, student S4 began to talk of learning via the VLE;

> *"Quite often Friday has been dubbed VLE day. So, we go into the VLE and read around the subject and answer the questions… and that can be done anywhere. You don't have to come into university to do that, you can do it at home or in the library. So, what we are reading follows the same pathway as the module and the lectures we have been doing, the physical lectures. We do those on our own speed…. our own time… our own way, guided by the VLE." Student S4, Lines 63-66*

Further examples of the rhetoric around the freedom of learning through the VLE continued when student S7 and S2 were explaining the use of VLE for their course;

> *"I suppose that using technology and being a bit more independent with learning is more convenient for students because you can choose, if it is not a guided VLE session you can go home or do it here, or whatever, you can do it in your own time, to fit around your life, or when you feel you learn better during the day, or middle of the night or weekend or whatever." Student S7; Lines 208-211*

> *"So … technology based …. you can access it here, you can access it at home, so it is more flexible maybe? Flexible as to where you learn, you can do it at your own pace, you can keep going back to it, and it is always there I guess." Student S2; Lines 72-74*

Whilst considering how to explain the enhancement students felt that learning technology gave them on their course, it was the emancipatory aspect which they came to first for an explanation - the idea of flexible learning, learning at your own pace, where you want to. Student S7 espoused the virtues of flexibility, with learning fitting around their life, so you can learn whenever you want, "during the day, or middle of the night", although the logic was evident when asked if they did learn in the middle of the night, and the student said no … but they could. Despite being an oxymoron, timetabled "VLE days" give flexible learning a visible part in the students' timetable. Timetabled "VLE Days" were described as a defined time assigned by lecturers to engage in a specific type of learning set through utilising the VLE, and student talked about the freedom those days would give them;

> *"I think, I like going home and being in my own environment and learning online, and normally, it sort of correlates what we have learnt in lectures … so it is related, and being able to do it at your own pace, where you would like, and how you would like is quite nice and gives you a choice." Student S2; Lines 82-84*

Student S2 states that "it sort of correlates" with the learning from the classroom, suggesting that sometimes it is an addendum to the *core* learning in the classroom. Despite this connotation, the student then turns to comfort, that at least it gives you choice in where you want to learn.

Emancipation in learning, so you can learn at anytime and anywhere is a dominant theme in learning technology, as portrayed in the fantasmatic logic of promise. In Rockman et al's (2000) study (part of a 3-part series funded by Microsoft on "Anytime, Anywhere Learning"), he concludes in the executive summary that;

- *"Laptop teachers show significant movement toward constructivist teaching practices."*
- *"For both groups [teachers and students], the large majority of teachers who indicated a change toward more constructivist pedagogy also indicated that computers played a role in that change."*
- *"Laptop students performed better on our writing assessment."*
- *"Both Laptop and Non-Laptop students perceived specific benefits from computer use."*
- *"All the teachers we surveyed are enthusiastic about the use of technology in the classroom."*

The author puts technology first, naming students as "laptop" and "non-laptop" students perhaps intimating that "laptop students" are technophile. There is also some indication of the ongoing alliance to promote the use of technology between technophiles, and techno-business, with the conclusion that;

- *"Laptop teachers rate computers' effects on students more positively than non-Laptop teachers.*

At a similar time at the turn of the century, and continuing from a technological determinist perspective, Boyatzis (2000) states that students of today (2000) have "basic assumptions about how to work, live and learn [*that*] is different than ours as a result of technology", going on to cite the ability to learn anytime, anyplace. Wharton (2000) stated that there are three paradigm shifts as learning moves into the global information age;

1. ***From Standardized to Customized Educational Content****.*
2. ***From Passive to Active Learning****.*
3. ***From Fixed to Fluid Time and Place.***

> *"Traditional learning is delivered in a specific location at a specific time, presumably to amortize the "set-up" time for a course. The new technology allows students to learn anytime, anyplace and in any increment of time. Institutions need to change their educational models to deliver this just-in-time learning."*

The rhetoric of enhancement for learners and emancipation is clear, tailoured learning; active, experiential learning; learn anytime, anyplace; and just-in-time learning. It should be noted that the authors do not suggest that this is the current state of education, but rather something that can be enabled if educational institutions respond to the potential benefits of technologies. The images (fantasy) associated with anytime, anywhere learning offered to students and educators give a glimpse of learning unfettered by classrooms and others, rather it is learning in free, open spaces away from the confines of four walls (and the physical presence of lecturers).


Has this purported revolution resulted in students learning with a new-found freedom in wooded glades, or rather are students still demanding teaching spaces on campus, such as libraries, study cubicles, classrooms and shared learning spaces? The idea of an independent, self-determining student is central to this notion, with the emphasis placed upon the learner themselves to participate and engage. Selwyn & Facer (2014) suggest that studies are beginning to "unpick the uneasy and often unconvincing assumption of the individual 'rational' learner operating within an efficient technological network". This notion of independent, driven learners who engage with their studies anytime, anywhere also

suggests that those learners who are unable to engage in this way may be impacted in their ability to learn. It is not just the ideal of freedom associated with time and place of learning, students also suggested that lecturers wanted to use technology as it saved the lecturer time;

> *"It has never been explained, I suppose, thinking about it, I suppose it is saving lecturers time." Student S6; Lines 39-39*

> *"It does not tie up their teaching hours, people can do it from home, at their leisure, they have family lives, this and that, so they can do it when it is convenient for them." Student S5; Lines 192-193*

> *"It makes, no it saves time for the lecturer, but makes work easier for the student. If I had to try and get hold of someone by the telephone, or even not, if I took away the fact that I could email, and I can Facebook and contact anybody, it would take so much longer, I can't email this work to you, I can scan it, I can't send anything over, it would, I suppose time." Student S6; Lines 141-142*

> *"I think, because you are going to be busy as a lecturer anyway, it gives lecturers time to do what you need to do." Student S7; Lines 192-193*

> *"I did wonder if it is time, their time. They might have a lot of other stuff on as well, a lot of other students. It obviously takes up space here, you have to have a room, a lecturer, that is kind of why?" Student S3; Lines 53-55*

This perception of freedom from time that students described in their explanation, lies in direct contrast to the experiences described by lecturers, in regard to technology and saving time. None of the lecturer participants said that learning technology was associated with saving time. In fact, when discussing time, it was the opposite that came to the fore in explanations;

> *"When I think of the word technology, I think of lecturers having to do a lot of work in technology in order to function, it has become the norm." Lecturer LK; Lines 5-7*

> *"It never in a million years made it easier, the problem is it didn't make it easier it was a lot of hard work, and a lot of hard work to maintain" Lecturer LG; Lines 253-255*

> *"I tried. I changed bits, but not much – there would be the hope that I could have done a bit more. The outcome is that I could have impressed more. But, you know, the amount of time to set it up is phenomenal. We are being charged with being innovative, with using technology, but when?" Lecturer LM, Lines 168-171*

> *"I think the thing that was most soul destroying about those VLE sessions is that we spent an exceptionally long time designing them and implementing them in the first place, and there was still a lot of ongoing maintenance to make sure the links work, I think that probably, given how many hours I spent on each discussion, I could have done a really good face to face session! I mean, I don't know how many hours I spent putting those materials together, I tell you what, I never want to know!" Lecturer LH, Lines 406-409*

Students clearly perceive that technology must save lecturers time, and yet manifestly this is not the experience of lecturers in this study. We can look towards fantasmatic logics to help explain the social logic of freedom. There is a fantasy that technology will save you time in your work role, that technology enables you to learn where you want and when you want, even how you want. The discourse of learning technology leads to the promise of freedoms, but the experience may be of learning technology constraining the user, lecturers having to find time, or students purchasing new technology. There is a freedom of discussion in a classroom or tutorial when face to face, which can be constrained by technology-mediated learning at a distance.

> *"I think I was the least when I started the course, the least technological person. When I first started it took, I hated stuff online. Hated accessing stuff, I found it really intimidating. But I found because there is such a reliance on it, and there is such a huge amount of it, and everything to do with university is online, you kind of have to think you must join them." Student S3; Lines 77-79*

Student S3 did not wilfully choose to become more technologically literate or to engage with technology. It is because it is so integrated, so relied upon, that the student “had to join”. There is little choice on the part of students and lecturers to succumb to the dominant discourse and ubiquitous presence of TEL. The social logics of novelty and freedom are long standing social logics, as evidenced through the examples in the archaeology and genealogy. Educators and students have had to accept new technologies throughout several epochs, but traditional methods of teaching and learning that have long been established have continued to prosper. The discourse of TEL is pervasive, and resistance is difficult to such a penetrating discourse. The logic of novelty has led to an understanding and acceptance that technologies will come, and they will go, novelties. Technologies do not last, although they may rise again in new iterations. Technology becomes evident when they are new, when they break, cause distress or perhaps are part of peer or institutional strategies. The logic of freedom continually promises so much for students and educators as technologies are revised, we are pushed toward the position of techno-optimists, that technology is a boon and will offer us emancipation in some form. But this position is not complete. Whilst TEL is a normative practice, a logic of caveats can demonstrate how students and lecturers in particular have problematised or opposed the march of learning technology.

### 6.3 Logic of Caveats

The positive benefits of TEL are central within rhetoric’s of educational enhancement. As already discussed throughout this thesis, the propositions are many, including ‘freedom’ from time and place (e.g. Rajagopal et al, 2020; Aguayo, 2020), some form of enhanced way of teaching and learning (e.g. Mcdonald & Glover, 2016; Hepplestone et al, 2011) or a flexible learning experience that manages to meet the needs of individual students (e.g. Fitzgerald et

al, 2018; Blaschke, 2014). However, as discussed through the archaeology and genealogy, TEL is more accurately portrayed as an ideological project, rather than an inevitable route through time. As Bromley (1998) suggests, rather than asking whether a particular technology is a good idea, we should be asking; good for whom?

As outlined above, lecturers and student are in the midst of a continual array of various iterations of technology, from hardware such as computers, tablets and mobile phones, to software such as virtual learning environments, educational apps and social media. The logic of novelty alongside the logic of freedom results in actors within education who are aware of the "new" in learning technology and the apparent "freedom" it may offer, but also that there is an alternative to the ubiquitous presence, an alternative which may marry more closely to their aspirations and values. The logic of caveats works to enable this. Consider Student S10 who was asked the question "*Does technology enhance learning?";*

> *"In the long run … Yes ... I would like to think it would... So yes, technology… if used the right way, can benefit the lecturer and the student… it depends on the setting… and the subject … I am trying to think what is a good example to use in that sense ... I think … what I have enjoyed, about lectures here, is that we always have the ability to engage, you are not just sitting there and being talked at. There is always the opportunity for the group to engage and generate conversation, and I find it just as interesting listening to my peers, as well as from my lecturer, as they might just say something you have not considered or from a different cultural view, that is helpful. Because technology does dominate our lives … so I don't think it is improving the way we learn and the way we teach … maybe it is not happening straight away, but maybe … yeah I like to think that it is helping."; Student S10 - Lines 242-254*

The talk from Student S10 above began by answering the question following the dominant rhetoric of TEL; an enhancer to teaching and their learning experience – all student participants responded in this way. But as they talk they begin to describe their experiences in classrooms with a lecturer; what they enjoy, the discussion, the engagement,

opportunities for the group; and as they portray these clauses they arrive at a conclusion; learning technology is not as positive as first characterised. However, the dominant mode of thinking is so pervasive that they do not veer from the dominant mode, concluding that "I like to think that it is helping". This dominant mode has superseded any doubt, as when asked later in the interview whether '*technology enhances teaching and learning?'*, Student S10 immediately returns to the unthinking response that "yes, yes it does". The proviso or statements utilised limit the dominant rhetorical statements, which enables the logics of novelty and freedom to work, with the caveats permitting the characterisation of enhancement from TEL to continue without question. Student S3, like all the students who were asked if technology enhanced teaching and learning agreed that it did, stating clearly that learning technology enhances their teaching and learning experience. However, when Student S3 described their experiences of being taught, they also moved towards a caveat;

> *"The PowerPoint machine broke, they could not get it up. But … it was a really good lecture. They had a print out, it allowed for expansion for ideas, freedom… more free flowing, it allowed conversation and questions by students to sort of direct the lecture, the aim, everything got covered, but in a more fluid way, not quite as rigid. I think they had a little panic! They had a printout, and they sort of used that, but they encouraged, there was group work, encouraged breadth of talking, it went really well. There was direction, but it was more fluid and less constraining. It was a good one."; Student S3 – Lines 123-128*

Likewise, when answering the question of whether technology enhanced teaching and learning, Student S4 stated it did, stating the VLE as an example. They then proceeded to describe how the VLE enhanced their learning:

> *"For me it does. I like face to face lectures, but I think that what the VLE gives is… allows me to work at my own pace… the only drawback of the VLE for me is that I have a tendency to go off track, so I will read something and within what I am reading something will interest me, which is connected, but reading too much into it will take*

> *you away from the subject matter. Whereas, if you are in a lecture the boundaries of what you are being taught are hopefully dictated by the lecturer and they keep the lesson within those boundaries. With VLE, it is a free for all."; Student S4 – Lines 199-204*

Here the student is clear that the VLE makes teaching better for them. Then, as they describe their learning as mediated through the VLE, they offer a contradiction revealing the crack in the edifice, that a lecture in a classroom gives boundaries for their learning, which suits them better. As Student S4 discussed the VLE and lectures their position evolves further;

> *"I think, I highlighted three lectures that sprung to my mind, thinking I could probably name a few more but I would come back to the same reason why I thought those lectures were particularly good, and it was always because the lecturer was engaged in their own subject. We have had none of the VLE sessions compared, if you wanted me to scale those three lectures against even the best practice VLE which I thought was brilliant, it can't compare to the amount of learning that we gained from those lectures."; Student S4 – Lines 353-357*

> *"It is quite interesting actually, as if you asked me earlier I would probably have said that technology-based learning is the way to go, but actually having reflected on teaching I think I would say that it is not."; Student S4; Lines 362-364*

This change in characterisation has only come through the interview process, which enabled a period of critical reflection so their caveats can be considered against the dominant response. The students' own lived experience does not equate with the TEL discourse within which they function. The way this logic works points to the success of blended learning as a pedagogical approach within higher education. Blended learning has flourished as a term (Guzer & Caner, 2014; Yu, 2015), and whilst the dominant discourse is of technology enhancing teaching and learning, the logic of caveats enables lecturers to be

part of the dominant discourse, whilst also enabling an apparently antagonistic view of technology to exist at the same time. Lecturers are aware that a purely technological approach is incongruent with their feelings about their teaching, in that for them, the human voice is key and face to face contact is needed – a 'blend' enables the two incongruent perspectives to co-exist.

> *"It all goes back to what I was always taught and still believe, and I don't call it technology. Your best teaching aid is above your neck. So, if you are engaged and passionate about your topic, and know your topic, if you like, that is doing the best with your technology!"; Lecturer LM, Lines 39-42*

The logic of novelty maintains the mundanity of technology in education, and acquiescence to iterations of learning technologies. Learning technology only comes to the fore through a jolt to preconceptions and can give rise to an unease over emerging technologies lecturers are faced with. The logic of freedom works to maintain the enduring promise of learning technology, moving lecturers and students to inhabit the role of techno-optimist. Lecturers may question the apparent potential of learning technology, and if that potential will be realised for them. The logic of caveats works to support the use of a 'blend' of technology and 'low-technology-teaching'. This then leaves the possibilities open that remain connected with learning technology through the overreaching TEL discourse. The logic of caveats works so that the best method for teaching and learning needs to equate with the dominant discourse of TEL, blended learning, and then social actors may inhabit subject positions that meets both those requirements.

# CHAPTER 7

The analysis of political logics aims to capture the processes of mobilisation and coalition between social actors constructing and naturalising social practice. Political logics are characterised as operating to connect and mobilise social actors as they defend, stabilise, or challenge the political frontiers between various actors (Glynos & Howarth, 2008). The primary data in this study emerges through access to teaching practice, lecturers and students via interview and observation of teaching, but other social actors will also be considered. This includes managers and learning technologists from within the university, academics within the domain of learning technology (publishing and commenting regularly on issues related to learning technology), and for-profit learning technology companies. The chapter will explore a hegemony of technology enhanced learning, identifying technology companies as the dominant actor within that hegemony. This chapter will consider how logics work to do what they do, demonstrating how dominant actors ally with universities, students, and academics, and exploring ways in which various vested interests get promoted through learning technology. The analysis will explore how lecturers tend to be positioned as mostly passive participants in a struggle against the domination of learning technology.

Laclau and Mouffe (1985) assert that political struggles can be characterized in terms of “logics of equivalence” or “logics of difference”, and these logics are the methodology for identifying and analysing political logics. These logics aim to capture the processes whereby the domination of learning technology is potentially challenged or sustained, with exploration of political frontiers. Logics of equivalence work to simplify the political space so it can be viewed as a “whole”, whilst the logics of difference work to increase the complexity of the political space, to enable challenge to the sedimented ways of being. Logics of equivalence enable the linking of actors into a unified presence, potentially set up against “another” on the other side of a political frontier. For example, it could be argued that there is a logic of equivalence between university managers and students in the name of a better learning

experience where they both benefit, working by nullifying the competing differences. But what a ‘better learning experience’ actually may be, is left unstated, such that it operates as an empty signifier for both, meaning one thing to managers and another to students. University managers look to learning technology in relation to ‘student satisfaction’ survey rates for the university, whilst students look to a better degree enabled through the successful use of learning technology. In the analysis within this chapter, the logics of equivalence will point towards the solidification of the hegemonic project of TEL.

Logics of difference enable the political space to be contested through opposing actors and can draw on other discourses attempting to break the chains of equivalence. The mantra of *“Death by PowerPoint”* is a poignant example. The initial dissent and challenge to TEL with the spread of “Death by PowerPoint” by both students and lecturers (from the early 2000s; see Garber, 2001), has not materialised into an established movement against TEL. Rather, there is a coalescence around counter discourses, which problematise the user and not the technology. The counter discourse is that PowerPoint can be used well by certain lecturers, as an aid for those with learning difficulties, is useful for handouts or with a VLE, or is a good tool when used ‘properly’. This has functioned to split any resistance into separate factions, where lecturers may use PowerPoint with animations or images only, or will make use of other learning technology which, in essence, is still presentation software (e.g. Keynote, Prezi, Moovly). It will be explained through logics, how a logic of difference has allowed for a potential alliance between students and lecturers to stand against the dominant hegemony.

### 7.1 Political Frontier of Technology Enhanced Learning

Over twenty years ago, Heterick et al (1998) predicted that;

> *"the global learning infrastructure will encompass a flourishing marketplace of educational services where millions of students interact with a vast array of individual and institutional suppliers […] it could not have existed 5 years ago – but will be pervasive five years from now. At the technology core of the global learning infrastructure are fully interoperable modules and an enabling infrastructure which will extend to virtually anyone […] provide convenient anytime/anywhere/anyhow access […] deliver high quality, self-paced, customised, world-class content and pedagogy […] be cost-effective, dramatically reducing the two biggest costs of the current system: faculty and physical plant."*

The prediction was of a ubiquitous technological education, open to virtually anyone, through a world-class pedagogy enabled through learning technology, free from challenges of time and space, and all with a reduced economic and environmental impact. This enduring perspective (Iserhagen, 1999; BECTA, 2009; Costley, 2014) aligns with the ongoing dominant understanding of learning technology in education; positive, ubiquitous, accepted. Technology is identified as neutral, an inert tool to be used for the benefit and advancement of all its users. Taking this viewpoint, you can imagine a hegemony of TEL as being 'complete' or 'sealed', with solutions for all those involved in education built upon this positive nature of learning technology. This thesis argues that this common-sense viewpoint is so pervasive and dominant, that the hegemony of TEL has become near total – although it is argued within this chapter that this is an oversimplified state. This hegemony as being near complete is represented in Figure 21 below, where there is an apparent alliance between all actors supporting the proposition of learning technology in education, and its continued development and increasing use.

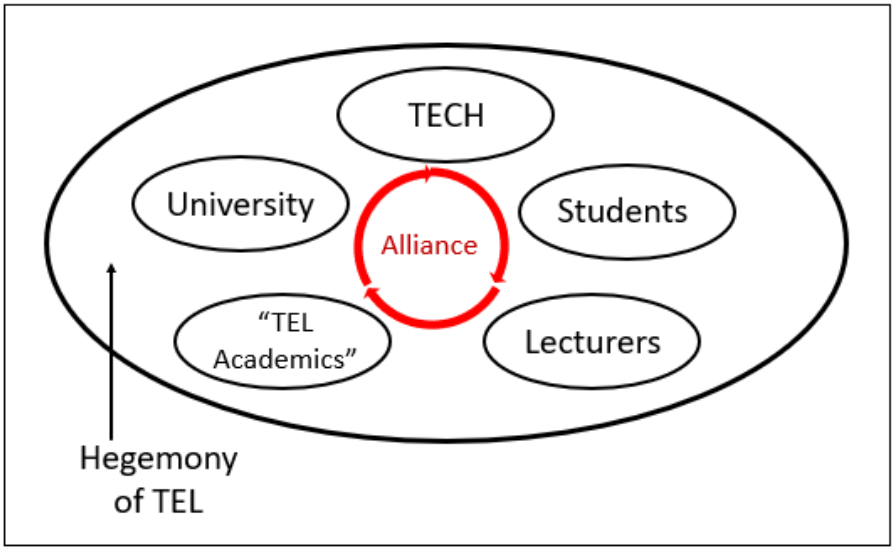



**Figure 21: The *"impossible"* hegemony of technology enhanced learning**

The political project of TEL houses alliances of varying degrees between universities, tech companies (TECH), TEL academics, students and lecturers. It is useful to clarify the terminology in use here. "TEL Academics" is not simply referring to academics who employ learning technology in their teaching. "TEL Academics" refers to people and groups working within education with a vested interest in the promotion and/or use of learning technology. For example, learning technologists employed by the university, academics and cognoscenti working in the field of education and technology, and other educationalists who promote learning technology. "TECH" is a term employed to refer to a conglomerate of for-profit organisations who manufacture, promote, sell, and support technological solutions for education. This will include multi-national companies such as Blackboard, Google, Apple, Dell and Microsoft, as well as a vast multitude of smaller companies focused on the learning technology market, such as the 800+ companies who took part on the BETT 2019 consumer show (BETT, 2019).

Glynos and Howarth (2008) argue that any field of discursive social relations is marked by radical contingency. No discourse is able to succeed at exhausting meaning, and therefore only partial fixation of a particular discourse is possible (Glynos and Howarth, 2007).

Elements of a discourse can be rearticulated in many ways, resulting in a discourse that is essentially unstable, incomplete, and open to challenge. As Eberle (2013) suggests this opens the space "for power and politics: discourses and thus, all social identities and relations, result from acts of power, from decisions taken in an undecidable terrain". Radical contingency means that the model of a sealed hegemony as represented in Figure 21 above is not possible. However, the hegemonic project of TEL is a near-complete hegemony across the education sector, with students, and lecturers in particular, across a frontier from the hegemony of TEL. Figure 22 below presents a more nuanced understanding of the hegemony of TEL. A hegemonic project consists of an "intricate, contradictory, and contingent alliance of forces" (Gramsci, 1971, p. 366). Figure 22 presents the illusion of a complete hegemony with alliances between technology companies (TECH), universities and academics with a vested interest in the success of learning technology. However, there is a political frontier positioned by lecturers, and potentially by students operating as antagonistic actors in opposition to the 'TEL Alliance'.

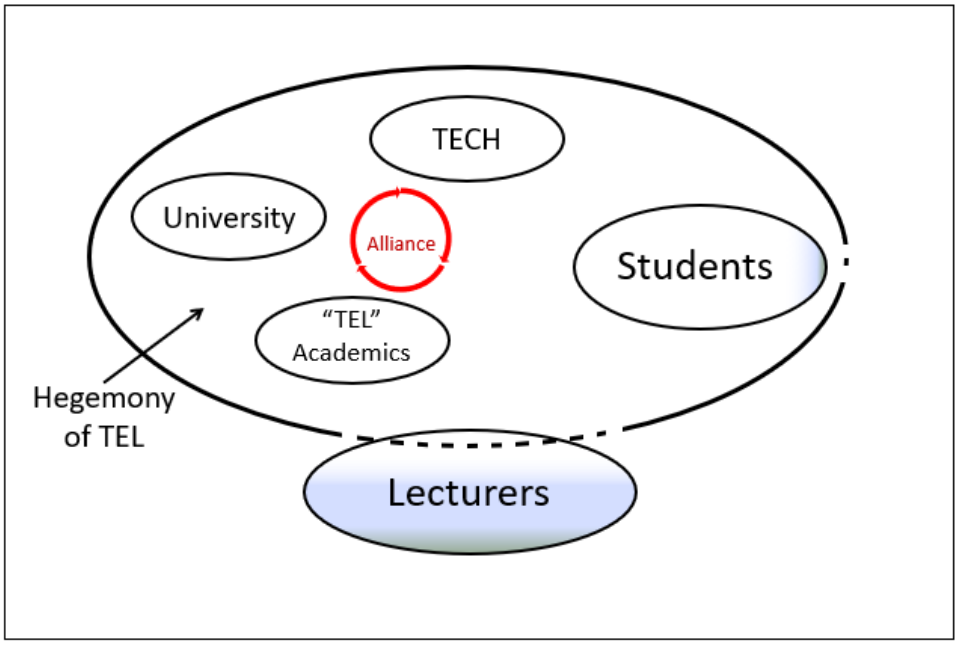



**Figure 22: The Political Frontier of Technology Enhanced Learning**

What can be noted in Figure 22 is the "incomplete" nature of the political frontier, representing the contingent nature of the TEL project. There are 'challenges' to the

‘common-sense’ of the alliance, with lecturers and students seeming to move away from the entente. Whilst this thesis recognises the near complete nature of the hegemony, this chapter will demonstrate a vulnerability to lecturers in the hegemonic project, but also the possibility of challenge from students. Whilst the alliance between the social actors *University / TECH / “TEL Academics” / Students* consists of chains of equivalence, the lecturer’s group are displayed beyond the border, establishing a frontier. An example of the frontier at work can be seen in classrooms and lecture halls. In the observations for this study, many of the teaching rooms had instructions on desks or walls from learning technologists/university administration, on how to operate certain technology, utilise QR codes in teaching or host video conferencing to enhance a teaching session; all examples of the learning technologists bringing the political frontier into the sphere of the lecturer. Another example would be academic managers, who have been shown in previous chapters as urging lecturers to utilise more technology in their teaching.

In the analysis below, the logics of equivalence and difference will help demonstrate the actions of the coalition of partners described above (*University / TECH / “TEL” Academics & Students*), which work as a constellation of overlapping projects, with the consequence of enduring rhetoric of transformation of education at the hands of learning technology. It will also be demonstrated how TECH works as the lead partner in this coalition, which has managed to inveigle their partners into drawing the political frontiers which are demonstrated within the analysis.

### 7.2 Political Logics

To briefly recap, political logics account for how moments of contestation dislocate social practices and reveal their contingency (Glynos & Howarth, 2007). Logics of difference are practices that seek to maintain the existing structures, through the formation and support of

alliances, whilst conversely, logics of equivalence are those social practices whose aim is to challenge the existing hegemonic structures, enabling the linking of actors into a unified presence, set up against “another” on the other side of a political frontier. The identified logics are shown below in Figure 23.

| LOGICS OF EQUIVALENCE | LOGICS OF DIFFERENCE |
|---|---|
| 1. Logic of aligning with TECH. | 1. Logic of liberation. |
| 2. Logic of low-tech teaching. | 2. Logic of hi-tech teaching. |
| 3. Logic of enslavement. | 3. Logic of isolated resistance. |

**Figure 23: Logics of Difference and Equivalence**

Three logics of equivalence have been identified; the *logic of aligning with TECH;* the *logic of low-tech teaching* and the *logic of enslavement*. These logics of equivalence will be demonstrated as supporting an alliance between government and industry, and also a potential alliance between lecturers and students. Three logics of difference have been identified; the *logic of liberation,* the *logic of hi-tech teaching* and the *logic of isolated resistance*. The *logic of liberation* aims to support the alliance between the unified “University/TEL Academics/TECH” and students, whilst *logic of hi-tech teaching*, is a logic which aims to ally “University/TEL Academics/TECH” and lecturers. The third logic of difference explores isolated resistance to the ‘TEL Alliance’. The logics of equivalence will be explored in turn, followed by the logics of difference.

### 7.3 Logics of Equivalence

Logics of equivalence do not share a common positive property, rather the differences between the social actors are downplayed to provide a united front, resulting in the dimension of difference on either side of the political frontier being weakened. Three logics of equivalence have been identified; the *logic of aligning with TECH;* the *logic of low-tech teaching* and the *logic of enslavement*. The first logic to be explored, the *logic of aligning with TECH* arises from wider discourse outside of the empirical data and supports an alliance between TECH, universities and "TEL Academics". Following this, the *logic of low-tech teaching* and the *logic of enslavement* will then be explored.

### 7.31 Logic of Aligning with TECH

Cuban (2001) highlighted several actors invested in the success of learning technology. Cuban described them as a "coalition" (p194) into which he included corporate executives, public officials, and educators who have failed to achieve neither the transformation of teaching and learning nor the productivity gains that they sought, despite the continued introduction of new and emerging technologies in recent decades. The 'TEL Coalition' is more widely viewed within this analysis, incorporating big and small TECH companies, government, education institutions and pro-TEL academics and activists ('TEL Academics'). Rhetoric from this broad 'TEL Coalition' is spearheaded by public bodies and corporate partners, promoting the growth of the education technology sector, with 'TEL Academics' and university managers in close support, all working to align with the message of TECH. To highlight the firm alliances within the TEL coalition, this discussion will focus on debate within the education sector and the respective actors of 'TECH', 'Universities' and 'TEL Academics', but also government, the alliances they have formed, the frontiers and the contingent and vulnerable nature of the TEL hegemonic project.

Forecasts for the size and growth of the market for learning technologies vary, but all recent forecasts project substantial growth. The UK Government estimated a 23% average growth year on year (through 2013 to 2018) for the global e-learning sector, whilst NESTA (UK charitable trust to promote innovation in education, particularly technology) states that the global educational technology market of 2017 was worth $120 billion (NESTA, 2017). Vickers (2017) states that the UK ranks number 1 in venture capital in Europe for educational technology with 1200 companies, or a quarter of all educational technology companies in Europe. The UK learning technology market is expected "to reach £3.4 billion by 2021" (Vickers, 2017), and there are a variety of initiatives from coalition partners attempting to be a part of the continued growth in the e-learning market – e.g. the Mayor of London's Office launch of 'EdTechUK' (London and Partners, 2015). It is therefore not a surprise that as lead members of the TEL coalition, corporate identities need to market their products to "customers", and the most obvious way to sell an educational product is to state the benefits it will bestow on students, lecturers, university organisations and wider society.

An example of this can be seen at the British Education Technology Trade Show (BETT) which has been running since the 1980s and has clear mission and brand values; "At BETT we believe in creating a better future by transforming education. Our mission is to bring together people, ideas, practices and technologies so that educators and learners can fulfil their potential" (BETT, 2018). Maskell, Bathelt and Malmberg (2006, p997) view trade shows as "short-lived hotspots of intense knowledge exchange, network building and idea generation", and it could be argued that the BETT show is mainly designed as a marketing exercise, where attendees traverse a pre-designed path through small booths of start-up TECH companies demonstrating recognisable ideas, through to large corporate stands with lavish messages from the likes of Apple, CISCO, Blackboard, Toshiba and Google. The message on display from the TECH industry at BETT is one of enhancement, transformation

and efficiency. Figure 24 shows examples photographed whilst attending BETT; note the classic example of an empty signifier at work in the lower right image;


**Figure 24: Example of messages on display at BETT 2018**

However, whilst the trade booths are a central experience for the attendees, and there is of course, nothing but an overwhelmingly positive message to be gleaned regarding the benefits of learning technology, the trade show also styles itself as a centre for learning. There are various areas for seminars to take place, and a central conference area, where attendees can sign up to hear speakers from a variety of corporations, social ventures, academics, and policy makers. Bathelt and Cohendet (2014) argue that such shows lead to knowledge circulation and enable practice. However, a perspective which aligns more closely with the arguments in this chapter is of trade shows not being a central concern for the exchange of knowledge, but rather acting as a relay for policy and strengthening consumer ties, with attendees cast as conduits for ideas and instruction to take back to their institutions. Player-Koro, Rensfeldt and Selwyn (2017) describe the badging of attendees, with the three choices being “teacher”, “manager” and “purchaser”, with the attendee’s being differentiated based upon power and influence. Trade shows such as BETT consolidate hierarchical policy networks, and educators’ agency is controlled by “discursive, material and

affective dimensions of such events" (Player-Koro, Rensfeldt and Selwyn. 2017; p19) where the primacy of individualization and competition in education are reinforced.

The BETT show presents speakers from the digital literati (e.g. Anthony Salcito Microsoft Education Vice President; Liz Sproat, Head of EMEA Google; Professor Brian Cox (BETT, 2020)) and also from universities (e.g. speakers from the Universities of Bath, Edinburgh, South Wales, Roehampton, Newcastle amongst others (BETT, 2020)) and government (e.g. Deidre Hodson, Policy Officer European Commission; Ian Ryan, Department of Education (BETT, 2020)). The government often has representatives at shows such as BETT, with government keen to be seen as aligning with emerging and dominant technology. For example, the UK Secretary of State for Education is often in attendance, such as in 2014, clearly demonstrating government 'buy-in' to the rhetoric of transformation and support for corporate partners;

> *"But just as important are the technologies that are changing the way we think about education itself. Innovative, transformative educational technology - like the products and ideas showcased at this exhibition - is already transforming education; has already transformed education; in ways that we could barely predict 2 years ago and could never have imagined 50 years ago."*
>
> *- Michael Gove at BETT 2014 (then UK Education Secretary)*

Damian Hinds (then UK Education Secretary) gave speeches in 2018 at both the BETT trade show, and the Association of School and College Leaders (ASCL) conference, and careful reading of the text of those speeches demonstrates alignment between government, educationalists and TECH. Whilst speaking at the BETT 2018 conference, the Education Secretary promoted the potential of learning technologies (BETT, 2018). However, despite discussing learning technology, the education secretary begins by promoting the role of the teacher, the person in teaching and learning, as of "paramount importance".

> *"And let me be clear about one thing, in the research that the Department for Education in the UK has done on classroom teaching and how it works, it is absolutely clear that direct instruction is of paramount importance. Education is a people business and it is the inspirational teacher at the front of the class that makes the child's education. That is the bit which famously and repeatedly they say they will never, and do never, forget." (BETT, 2018)*

A theme he identified with whilst speaking at a speech at the ASCL conference in the same year:

> *"I know that education is, above all, a people business. Syllabus, technology, structures – these things all matter. But ultimately it is about people: the teacher, the head teacher, the lecturer, the support staff." (ASCL, March 2018)*

Continuing with this speech to the School and College leads (ASCL), the Education Secretary proceeds to outline prominent issues with TEL and mentions the lack of evidence for the use of technology in teaching and learning;

> *"Of course, technology can never replace the role of the teacher in a classroom. And we know that there have been times in the past when technology has been used to promote some of the fads and gimmicks that have spread around the school system – despite a lack of evidence on how this will help children learn. My goal is to support schools to use technologies in ways that actually reduce the workload burden, while supporting teachers to deliver great lessons." (ASCL, March 2018)*

Ending the section in the speech on learning technology, the goal he states is not to transform teaching, learning or attainment, but to "reduce the workload burden". Note that there is no mention of the actual delivery or transformative potential of learning technology. The position government has taken is to harness learning technology "to make work easier, not to interfere in teaching and learning". Conversely, during the BETT speech (2018) the Education Secretary quickly moves on from the centrality of the teacher to the importance of technology. Initially there is recognition that some teachers may feel that technology can have a negative impact on workloads, but this quickly moves on to a call for technology to

“ease workload”, “monitor pupils” (administration), and then further hyperbole regarding the use of TEL with “new types of content”, “whole new worlds” and “virtual classrooms of the future” (Hinds, 2019).

The logic of equivalence of an eventual boon, is to support the alliance between government and TECH, that through using learning technology (and supporting industry), the eventual boon of educational transformation will be achieved. The speech above works to highlight the centrality of the human in education, whilst making an appeal to ultimate transformation through technology. The message from the education secretary above (reducing workloads and increasing efficiency) is replicated with 2019 UK government policy paper, “Realising the potential of technology in education” (Department for Education, 2019), with the tagline on the announcement of the paper stating: “Leading tech companies to work with schools and colleges to cut teacher workload, support professional development and improve student outcomes” (GovUK, 2019). The report states that the government has two aims when it comes to education technology:

1. *We aim to support and enable the education sector in England to help develop and embed technology in a way that cuts workload, fosters efficiencies, removes barriers to education and ultimately drives improvements in educational outcomes. In parallel, we will support the development of a vibrant EdTech business sector in the UK to provide proven, high-quality products that meet the needs of educators and foster a pipeline of fresh ideas.*
2. *Whilst it would be wrong to assume that technology will always deliver improvements, when used and integrated well, technology has potential to help create world-class education, training and care for everyone, whatever their background.*

Two issues are of note. Firstly there is an admission that improvements in educational outcomes ultimately ‘may’ arise from learning technology, with a deterministic perspective continuing to dominate as the second aim suggests that only when (the inert) technology is “used and integrated well” does it have potential to transform – a call again for someone to help users such as teachers and lecturers learn how to utilise technology ‘properly’ to

achieve success. Secondly, there is a clear statement of the alignment from government towards TECH, with the government offering support to industry, with a focus on producing products related to workload and efficiency. As part of this, a Digital Marketplace platform has been financially supported by the government, with recommended "deals" for education organisations (GovUK, 2019; p20), a further statement supporting the alignment. The UK Education secretary (Hinds, 2019) said that:

> *"It's only by forging a strong partnership between government, technology innovators and the education sector that there will be sustainable, focused solutions which will ultimately support and inspire the learners of today and tomorrow."* - Damien Hinds

The logic of an eventual boon works be keeping government moving towards emerging technology that continually promises, but never actually realises its potential. It also enables government to promote itself by being the 'investor and supporter' of the ultimate transformation through TEL, whilst also being a conduit for industry by offering developing technologies to education institutions through its own marketing platform.

The broad coalition of social actors with vested interest in the outcomes of TEL offer rhetoric which inhabits the political space of TEL. For example, there are a host of 'TEL Academics' who create a vast amount of content via social media and blogs on the enhancement offered through learning technology. Whilst examples to share are far too numerous, wide and varied, highlighting posts from one prominent TEL academic (highest ranked 'Ed Tech' blog in UK Top Education Blogs 2019 (Vuelio, 2019)) can illuminate the type of discourse, including the allusion to alliances with the TECH industry. The first excerpt here is from a post from 10 years ago, looking back at the first decade of the millennium (2000-2009);

> *"So, what are we to make of this truly technological ten years? We have seen radical shifts … And what of the future? We don't know what the next decade will hold, but we do know this – it will be increasingly connected. It will also be different – probably more different than we can begin to imagine." (Wheeler, 2009)*

Then in 2011;

> *"We need to be in a position where the excitement of informal learning and the powerful richness of social media, personal gaming and instant messaging can continue inside the formal learning space. The sooner this happens, the better." (Wheeler, 2011).*

Then in 2014;

> *"No amount of technology can replace a great lesson that has been delivered in a passionate, inspirational and focused manner. The trick is not to make technology a central focus in the classroom. It should not be glamourized. It should be mundane. Technology, in whatever form, should become just another part of the learning environment." (Wheeler, 2014)*

Whilst the potential transformation purported to in the first excerpt has failed to materialise, all the above posts have elements of fantasy and demonstrate the use of empty signifiers ("powerful richness of social media"), reminiscent of the discussion around the fantasmatic logic of promise (page 204). The message of the necessity to engage with learning technology is clear, and a constant presence in commentary from 'TEL academics' (e.g. Downes, 2017; Clay, 2019; Wheeler, 2019). The alignment of 'TEL academics' with the TECH industry can also be seen, urging for technology to become "mundane" and "part of the classroom furniture" - as discussed in the social logic of novelty (page 124) – ubiquitous, and to be purchased just as tables and chairs are purchased, as the government is also striving to make a reality. This allying with the TECH industry can be witnessed across many posts, such as the post below from 2018 discussing emerging technologies (Augmented and Virtual Reality), with the need to adopt emerging technologies promoted;

> "*The #LT19uk conference programme revealed that less than a third of organisations appear to have so far adopted any aspects of AR or VR with their learning offers, but of the third that have, there are already some very interesting and productive uses to report." (Wheeler, 2018)*

There is no evidence referenced, but the TEL academic promotes the necessity of engagement with emerging technologies, and therefore for universities and academics to keep up with developing technology. This can be seen across various 'TEL academics', with

a focus on emergent technologies rather than enduring technologies (Laurence, 2019). The Department for Education (2019) ends the executive summary of the "Realising the potential of technology in education" strategy with a proposal for a "new EdTech Leadership Group", which is made up from representatives from the TEL collation, "to continue to drive this agenda forward, find new ways to collaborate and to produce an EdTech agreement by the end of the year." It is of note in the call to academics that there is an element of the horrific fantasmatic logic of the neo-luddite (see page 241), with comment such as that below used to highlight the responsibility of the academic in how they act in regard to adopting emerging technologies;

> *"Academics and students alike need to be aware that many of our previously cherished rules and social mores are changing or in some cases being supplanted …. The extent to which each academic responds to these disruptive changes will determine how effective they will be in facilitating learning amongst a generation of students that is tech-savvy, digitally literate and determined to keep online and in connection wherever and whenever they can." (Wheeler, 2019a)*

Transformation is coming, and the academic must be part of this transformation, or they will be unable to be effective in their role. Alliances are not only constructed between 'TEL academics' and the TECH industry, but there is also an attempt from 'TEL Academics' to reach out to students, as in this post from 2019, creating a line of difference between students and lecturers;

> *"Such complexities are generally only problematic for academics, course designers and teachers. Students largely ignore the boundaries between states or do not consider them as anything particularly significant, usually getting on with the task for learning and applying."* (Wheeler, 2019b)

The need to align with TECH is clear, and Wheeler states that the complexities of engaging with learning technology "are generally only problematic for academics, course designers and teachers", no mention of students or the university. There is a logic of equivalence of not hindering the potential transformation that is coming, with the logic working to create a boundary between those lecturers and academics who may get in the way, and students,

TECH and TEL positive academics who would not. This is a common message in the rhetoric of 'TEL Academics', such as from Clay (2017) below, who calls out the obstacle to realising the potential of TEL;

> *"Often when demonstrating the potential of TEL and learning technologies to academics, the issue of evidence of impact often arises. You will have a conversation which focuses on the technology and then the academic or teacher asks for evidence of the impact of that technology. From my experience when an academic asks for the evidence, then the problem is not the lack of evidence, but actually something else." (Clay, 2017)*

Here the argument is not made for a lack of evidence as a hindrance to enhancement, but rather another issue, emanating from the lecturer themselves (supporting the frontier). Similarly, in a supplement to the USA National Education Technology Plan, the Office of Educational Technology (2017) states that when an academic asks "for the evidence to show technology can make a difference" the problem is not the lack of evidence, but rather "one of resistance to change, fear, culture, rhetoric and motivation". Interesting that this summation takes place, despite the more obvious problem of an actual lack of robust evidence as identified in chapter 2. However, the notion that this is some form of resistance is repeated, academics resisting and hindering the transformation on offer from TEL. For example, Khali (2013; p152), whilst creating a tautology, asks why resistance "to technology in our technological time" is somehow still present, going on to suggest that the problem is that academics in many institutions continue to resist the use of learning technology. Oriji & Amadi (2016; p122) suggest that it is "surprising to say that in spite of sophisticated computing devices penetrating and improving the process of teaching and learning that enhance classroom experiences" many academics "remain resistant cum saboteurs". There are a variety of reasons put forward for why lecturers resist or even try and sabotage learning technology, but most involve a fear of change or a lack of ability to adapt to change. Cohen, Fetters, & Fleishmann (2005) suggest that delay tactics are commonly employed from "the old timers who like things as they were". They go on to argue that universities may not be the best setting for technological innovations to thrive because of its "culture and

comfort" and academics doing things the "old-fashioned way" (p326), whilst Moerschell (2009, p2) stated that the issue is because of attitudes towards technology from "the old timers who like things as they are". Cameron and Green (2004, p249) state that learning technology requires adaptiveness and requires academics to learn about and become familiar with the capacity of the technology to transform the business processes. Oriji and Amdai (2016; p122) cannot understand why there would be any resistance and "assume that there is an element of technophobia?". Within these broad arguments, there is a logic of equivalence of not hindering the transformation, and a frontier drawn between those who do not hinder, and those lecturers being painted as a stumbling block to students' aspirations for engagement with TEL. O'Hanlan (2009) suggests that lecturers resist new technologies because they are embarrassed in their lack of tech-ability, and they "don't want students to have the upper hand", whilst Rose (2015; p317) argued that there is a battleground between a ''collective'' that seeks capital, power, and control and the lecturer ''individual", who in the end is forced to comply with the collective. Howard & Mozejko (2015; p1) conclude that despite significant investment and policy initiatives "there has been little change in the fundamental practices or outcomes" of teaching and learning. The conclusions drawn across TEL literature, and the rhetoric, mirrors the conclusions of Oriji & Amadi (2016);

> *"The traditional methods of teaching are fast fading; the period of time and place-bound lectures are fast vanishing; our learners are becoming less passive, but proactive. Soon, all these will become a history. Consequently, at this time of self-directed learning, there is a need for a paradigm shift in our teaching methodologies in order to meet the challenges of the twenty-first-century curriculum. We (the educators) owe the Net generation a duty, and we must act fast to perform the duty with diligence. As educators, we must change our mindsets so as to embrace the technologies of instruction."*

This rhetoric demonstrates how the logic of equivalence works to unify those who will look towards the eventual boon of transformation, and will not hinder progress towards that aim,

fostering the alliance between ‘TEL Academics’, TECH and students as depicted in Figure 25 below.

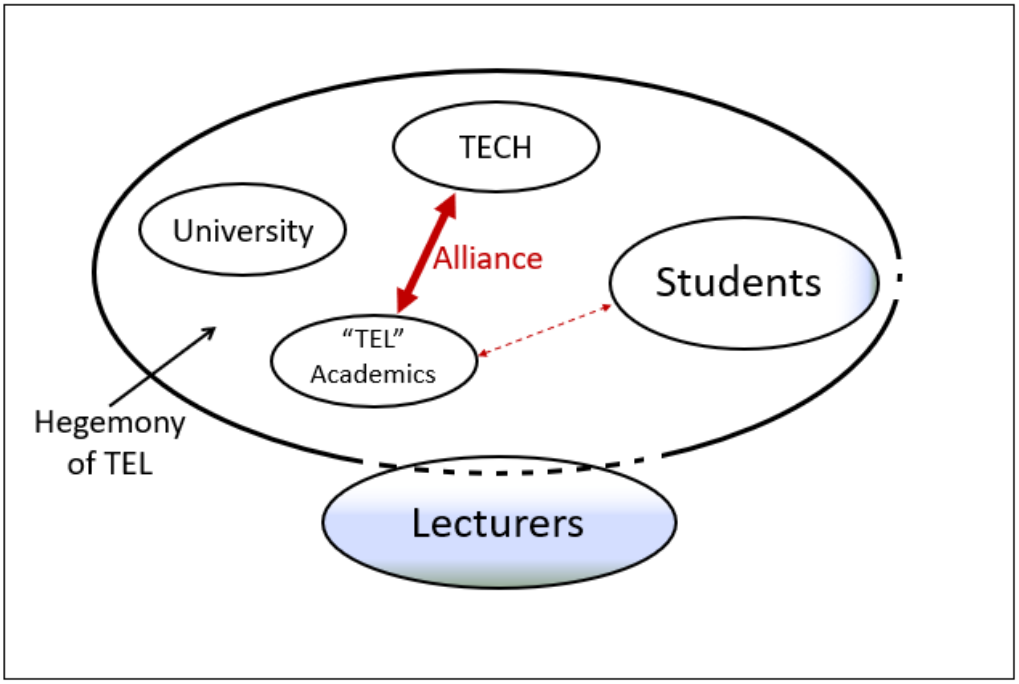



**Figure 25: An alliance between “TEL Academics” & TECH.**

There is also a reference to “we the educators”, focusing on the collective term, rather than the individual educator. This functions to alienate any educator who feels that they are not acting “fast” or “performing their duty with diligence” (Oriji & Amadi, 2016), working with the TEL Alliance. This logic of equivalence between the pro-TEL actors functions to create a frontier between them and the ‘others’ (a theme returned to in the logic of hi-tech teaching), cementing the alliance and helping to sustain each part of that alliance. As has been demonstrated above ‘TEL Academics’ reach out to students through working with TECH and the universities, who also each reach out to students. Yet the alliance between the TECH/’TEL Academics’/University and students is not a firm alliance - the experiences of students works against logic of equivalence and rhetoric of transformation. TECH and ‘TEL Academics’ using the logic of equivalence working to bring students into the alliance has not achieved a strong frontier. The language in the above excerpt from Oriji & Amadi talks of passive learners soon being “history”, with the assumption made that all students are

embracing learning technologies and only lecturers need to catch up with those students. This will be discussed in more detail below as we turn to the empirical data to explore the logics of equivalence and difference – students are part of the TEL discourse, and do make use of language concerning technologies enhancing status, but can also offer explanation about their experience which is manifestly at odds with that language.

The hegemony of TEL as characterised in Figure 26 below, depicts a firm alliance within the political space of TEL, with TECH as the lead partner (with government aligning with them), alongside Universities and 'TEL Academics'. These three partners form an enduring alliance in support of the project of TEL, all working to ensure its solidity. For example, TECH delivers a continual high iteration of technologies preventing "realisation" of the repeated failings of learning technology in practice. 'TEL Academics' profess the looming potential of learning technology to transform the experience of education and institutions. Universities work to attract students and academics "into the common-sense".

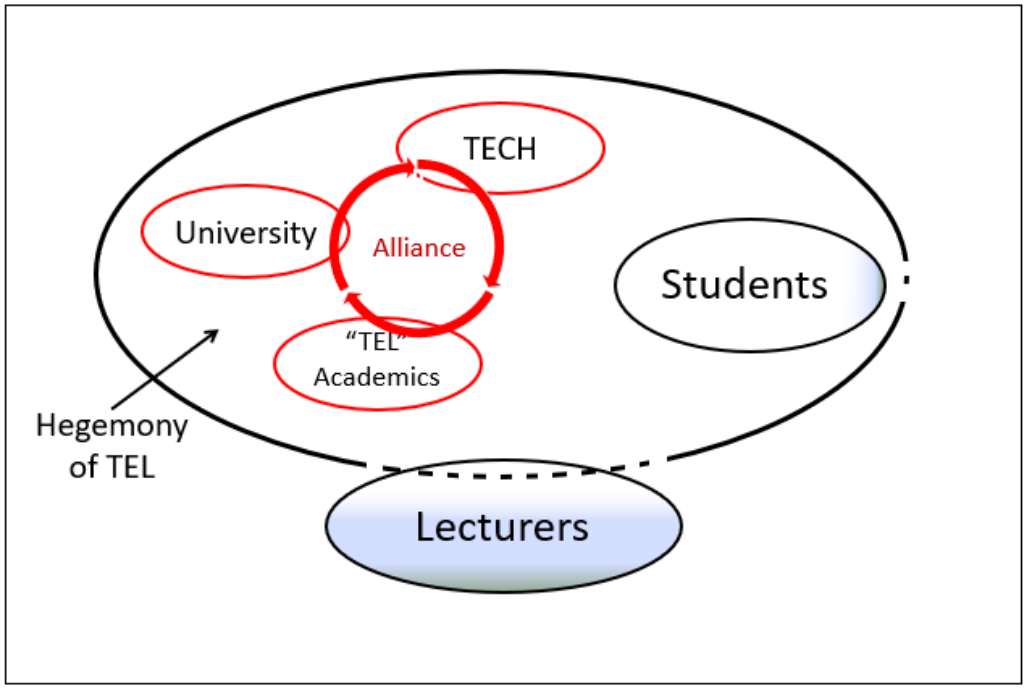



**Figure 26: The 'TEL Alliance' in support of technology enhanced learning**

### 7.32 Logic of Low-Tech Teaching

Figure 26 above represents the TEL Alliance with lecturers (who are not pro-TEL) as their main antagonists across the political frontier, whilst also having students as potential antagonists. The logic of equivalence of low technology teaching is represented by the preference of lecturers for a low-technology pedagogical approach, and also the preference of students to learn in class through low technology teaching. Low technology teaching is contingent, it does not necessarily need to be the preference, but it will be demonstrated from the data that the preference was clearly expressed by both groups, allowing through logics of equivalence, the potential of an alliance outside the orthodoxy of TEL. This is despite the rhetoric from TECH and TEL academics who focus on emerging technology and the enhancement it brings. Lecturer participants considered their own teaching practice and reflected on what teaching sessions have worked best from a teaching perspective;

> *"I guess in my experience, I have been a child of the PowerPoint generation … thinking back to the best sessions for the students, the ones that limit technology are the best ones." – Lecturer LD; Lines 58-60*

> *"I think as we always say, I use it less and less now, I think the more experienced I have got at teaching, the less I use [technology], and the better the sessions are without it." – Lecturer LE; Lines 48-50*

> *"I genuinely think, and this is maybe quite controversial, that technology definitely has a place, and it definitely has a role to play, and the internet as well, but I think in terms of delivery of teaching, I think there is no better way than face to face discussion." – Lecturer LA; Lines 206-208*

> *"Some of the best sessions I have done, is when I have printed it out with lecture notes on and we have just talked." – Lecturer LF; Lines 46-47*

There is a dissonance between the rhetoric of the TEL Alliance and the experience of teaching practice of lecturers, creating the weak anti-TEL political frontier as represented in Figure 27 below.

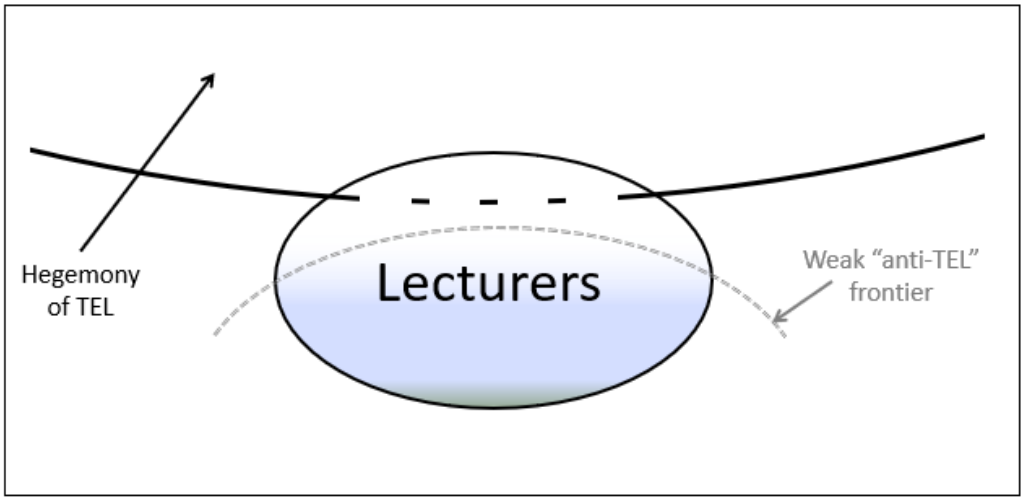



**Figure 27: Disjointed political frontier due to the dissonance of rhetoric versus experience**

Teaching practice also excludes critical members of the TEL coalition (TECH companies and TEL Academics) as they are not required to support this pedagogical approach. However, there are examples of the alliance trying to "get in" on the approach to create a difference – such as Potter (2017) offering methods for using PowerPoint without standard text, Horne (2016) who offers add-ons to PowerPoint to improve their use, and Jordan and Papp (2014) and Hopkins (2017) who argue that it is all in how the tool of PowerPoint is used by lecturers, rather than the tool itself. All lecturers were then asked to explain why they thought low-technology teaching was the basis for the 'best teaching' for students. Explanations varied but nearly all participants referred to the need to have little or no technology, small group, face to face teaching, and there was a theme repeated from several participants of the human side of teaching, use of self, and that technology can impede that;

> *"I do want that verbal dialogue. I want it to seem real, that there is somebody at the end of it. Now that is my insecurities maybe, I want them to find it useful. I would like*

*them to rate it positively. But I don't want it to seem, robotic. Technology sometimes removes the humanness of learning." – Lecturer LF; Lines 426-428*

*"I think they would rather have you as an individual. They want your brain, your interaction, they want to talk to you about it, they want to know what you did in that circumstance when you were in clinical practice, they want that." – Lecturer LD; Lines 225-227*

*"The students really pay attention to the experiences we have had, and that is real rather than using simulated case studies, virtual wards and all that, and it is more real, and stimulates better discussion. The students enjoy those sessions, you know all that technology is very expensive, but it is not meaningful and human I guess. Does it take the human element out sometimes, which we need to make it meaningful?" – Lecturer LI; Lines 220-223*

*"I think it's a sensitive, human, caring aspect, whether through my own naivety, I don't think technology … I could do it better through a discussion compared to [learning technology]." – Lecturer LL; Lines 207-209*

Lecturer LL states that they can "do it better" than with using learning technology, Lecturer LJ claims that you need the human element in teaching. This firm belief in the human aspect of teaching can be seen in part as an explanation for the rise and sustenance of blended learning as an acceptable pedagogical approach, where lecturers view technology as working in partnership with themselves. Lecturers **never** referred to learning technologies, online or blended learning when describing what they thought the best way to teach was, or what the best teaching sessions they had given were.

When students were asked – "what are the best teaching sessions you have had on your course?", the responses were again unified from participants, that low-technology teaching had led to the best teaching sessions they had experience;

*"He came in, it was a very stripped back session. He taught it with very little technology, ironically. He appeared to dispense his idea for the session to go on a different path." - Student S4; Lines 239-241*

*"They had a print out, it allowed for expansion for ideas, freedom… more free flowing, it allowed conversation and questions by students to sort of direct the lecture, the aim, everything got covered, but in a more fluid way, not quite as rigid." – Student S3; Lines 124-126*

*"Best teaching sessions? Definitely the practical skills sessions, they are a small group, they are more hands on, no PowerPoint, maybe a little whiteboard but a small group." - Student S6; Lines 225-226*

*"When there is a human being there teaching you it is more real, you can discuss things and go off on a tangent if you need to, ask questions, whereas if you are watching a video you can't ask it questions, you can rewind it." – Student S7; Lines 19-21*

*"Better to be with other people and a lecturer, when you bring technology into it, you are taking away that lecturer, or it feels like that. – Student S11; Lines 312-314*

Students responded in a similar fashion to the lecturers when asked the question of "what is the best way to teach a session", the students referred to a session being "more free flowing" and "more real" without the use of technology. The lecturer is central in these descriptions of the best teaching, steering the session and using themselves. As noted in the fantasmatic logic of performance, the lecturer in the room is a vital component for how students view what is good teaching, and here, students did not refer to technology, but the human in the room;

*"You could see she was enthusiastic for it, and she was walking around the classroom, and checking up on us, giving us food for thought and giving us feedback. That was good. It was very interactive, almost teaching ourselves in a way. She was giving us the activities and we were going our own route with it. When you see*

*someone is interested in what they are talking about it sort of reflects on yourself really." - Student S2; Lines 204-208*

*"But it depends because [NAME] lectures are really good because they are all discussions, and [NAME] likes us to talk to them, and you can tell that they want us to talk to them. And most of us are good and they listen and don't disregard what people say, and having one of their lectures and talking, whereas, I get a lot out of that because I like discussion and stuff." – Student S11; Lines 205-209*

This call to low-tech teaching and the prominence of the lecturers in how teaching is evaluated allies with other descriptions from students who referred to small group classroom sessions as the best way to teach nursing subjects;

*"Tutorials, small groups are always more interesting, when we are in [small groups] at [locality] we always get more out of it, you know them better, you have one to one time with your lecturer, and it makes the information more readily accessible being able to speak to your lecturer." – Student S3; Lines 313-315*

*"I think in nursing, especially for our learning, our best learning is in small groups when you can communicate with each other, where you get some good arguments going." – Student S6; Lines 219-221*

This disjuncture in how students describe the best teaching works to break the frontier and also against the logic of liberation and logic of hi-tech teaching that will be discussed later in this chapter. The logic of equivalence of low technology teaching works to move students outside of the TEL political space and away from the TEL coalition. As demonstrated in Figure 28 below, the logic works to break down the frontier constructed by the coalition, again highlighting the contingent nature of TEL.

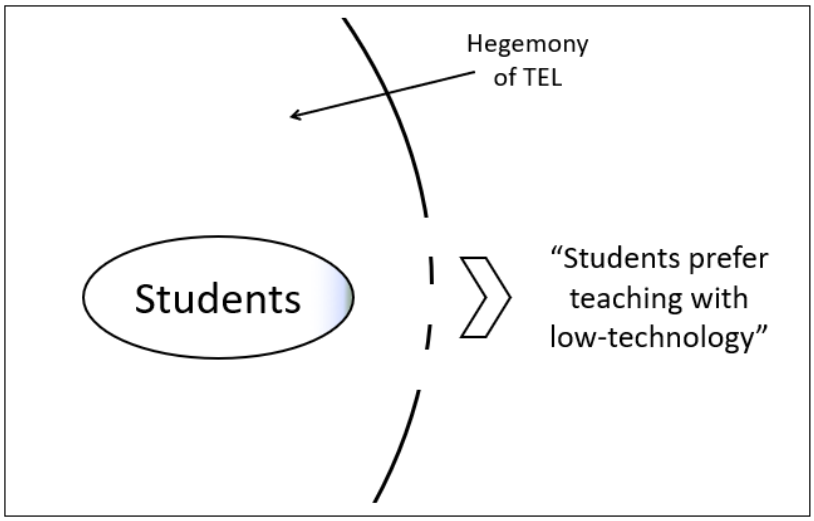



**Figure 28: Logic of Difference – "Students prefer teaching with low-technology"**

However, it is argued here that the figure represents the students remaining wholly within the hegemony of TEL and unable to forge a new frontier. As has been demonstrated earlier, all student participants had no hesitation in stating that technology *enhanced* teaching and learning for them, often in contradiction to earlier stating that the best teaching sessions they had on their course were based on a pedagogical approach of low technology. This was an entrenched common-sense position, and not one they considered challenging. The hegemonic position of TEL is near complete and students sit within that space unwilling or unable to break through the political frontier. Whilst the logic of equivalence works to try and establish a new frontier, the logics of difference (discussed below) are more effective at maintaining the established frontier. All students, except Student S4, still maintained at the end of the interview, the position that technology *enhanced* teaching and learning, despite the discussion they led around preferring low-technology teaching. Only Student S4 looked to their reflections to establish a new position;

> *"It is quite interesting actually … as if you asked me earlier, I would probably have said that technology-based learning is the way to go, but actually, having reflected on teaching, I think I would say that it is not." Student S4; Lines 358-359*

The logic of equivalence of low-tech teaching works to establish a potential political alliance between students and lecturers, outside of the hegemony of TEL (see Figure 29 below). The lecturers who find themselves outside the political frontier due to logics of difference with the 'TEL Alliance' are free to ally with students who may find themselves also outside the frontier – although this is yet to manifest.

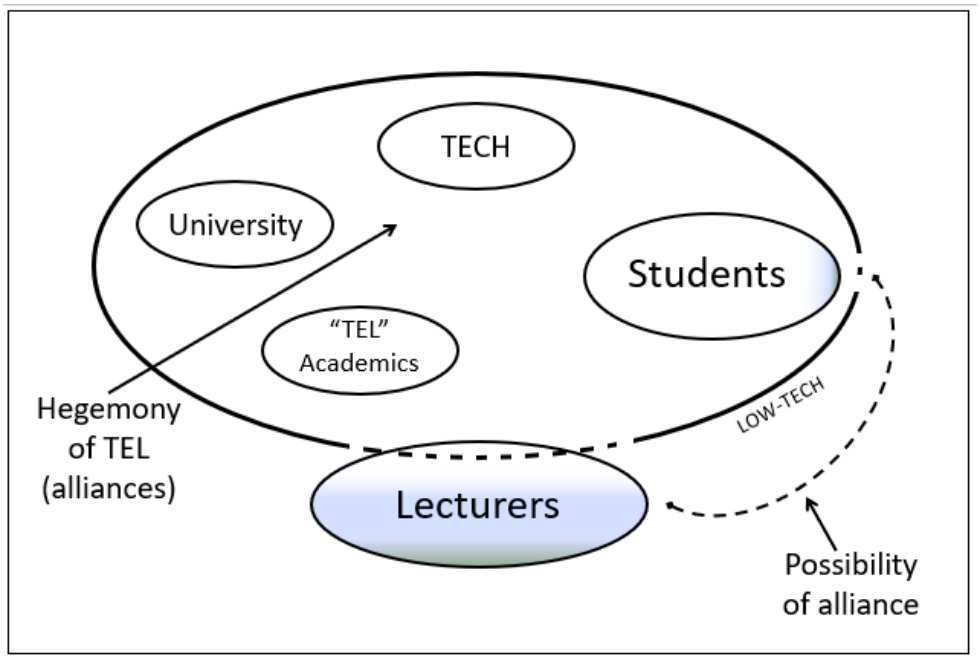



**Figure 29: Potential alliance between students and lecturers**

### 7.33 Logic of enslavement

As identified in Figure 29 above, there is the possibility of an alliance between lecturers and students operating on the other side of the frontier to the 'TEL Alliance'. This is made possible as students potentially can move across the frontier through a logic of enslavement. This logic of equivalence presents the chance of an alliance between lecturers and students; lecturers feel there is no option but to succumb to TEL in their day to day educational practice, which works to pull them across the frontier and accept the common sense of TEL. As has been highlighted in the discussions above, students reside within the hegemony of TEL, and the common-sense perspective that technology *enhances* teaching and learning. However, as students potentially move towards the frontier, logics also work as students

may question the ubiquitous presence of TEL in their education. Students are so entrenched in their common-sense perspective that the alliance with lecturers is only embryonic, and the TEL Alliance retains the necessary power to maintain control. Lecturers frequently talked about ideas of no control, no choice and being forced to use TEL in their teaching;

> *"Well, I do think we are becoming slaves to technology in so many aspects, and that includes in education. I am not sure if I really want it, or what benefit it truly gives. We managed fine before technology, and I don't really see the benefit of what it has given us? We are slaves, in that we have no choice but to use and engage, we could manage, but I don't think we are given that option." – Lecturer LI; Lines 224-227*

> *"It is there, and we have no choice but to make use of it, it is here to stay and only going to grow. You cannot really not use it, you know, choose not to use it, because it is now part of day to day." – Lecturer LH; Lines 290-291*

> *"I literally feel like, trapped, and I don't know whether it is fitting in with what we think they expect." – Lecturer LF; Lines 98-99*

Whilst several lecturer participants described themselves as being enslaved to the use of TEL, they also presented as questioning why they were trapped, evidence of the movement of lecturers across the frontier away from the 'TEL Alliance'. For example, even when clinicians came into the educational sphere to help deliver sessions, they too succumbed to TEL, raising questions from lecturers;

> *"We have a whole load of lecturers this time, the last time it was all clinicians, and they felt they had to do PowerPoint - why?" – Lecturer LE; Lines 261-262*

> *"Even when the nurse came in to do the session, I stayed in, and she just gave a very boring PowerPoint, and, I don't know why she did that, she had much more to say that they would have liked." – Lecturer LG; Lines 109-111*

Lecturers tried to offer an explanation as to why they were enslaved to TEL, searching for a rationale. One example was that the talk around TEL as all positive and never negative, and therefore why would you not use it as a lecturer;

> *"Because the language that is being used, the narrative are all that it is better, we have very little choice to not, every teacher is pre-programmed to be able to have to stand at the front, as everything is positioned, there is a kind of technological prison, you should log in, you should stand behind, you should use this, and I think the students come to expect it." – Lecturer LA; Lines 283-286*

A more common reason turned to by lecturers was that the technology is just a mundane part of teaching now, and just like we use furniture, we use TEL. This ubiquity forces lecturers to conform to the norms of teaching and learning in today's climate.

> *"I suppose some of it is about conformity, conforming to the norm. You expect as a student, you come in, sit down, have a PowerPoint, discussion, lecture, what have you and you do it without thinking, a naturalised behaviour, that we have the tech so we need to use it." – Lecturer LF; Lines 86-88*

> *Every room has technology, the physical structure of the building, the organisation, you can't, if you move chairs around, and you don't move them all back you get an email chastising you for not going back to the structure that has been set out and that is that of a cinema where everyone is sat facing the front." – Lecturer LA; Lines 386-388*

> *"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." – Lecturer LF; Lines 329-331*

As has been stated above, there was evidence of the beginnings of an alliance between students and lecturers who felt there was no choice but to conform to the use of TEL. This was mostly evident through students describing that some lecturers have no choice but to

use technology, the logic of enslavement, and also questioning whether lecturers are "pushed" to use technology from senior positions in the HEI;

> *"You can rail against it until the cows come home, but it is there and you have got to do it. So you might as well get used to it, and see it as something that is helpful. Yeah, some lecturers feel it is a really useful thing, and some think yes, I am going to have to do this." – Student S8; Lines 261-263*

> *"[Interviewer:] Is there a push on lecturers to use more technology in their teaching?*
>
> *[Response:] Yes. From people higher up? Possibly, it does seem that it is going that way now, cause now we are in our second year, I thought we would get more A&P lessons, things like that, because we are meant to be learning more and knowing more. But actually, there is less, and more VLE." – Student S7; Lines 257-261*

The idea of lecturers being "pushed" to use technology by the institution was mentioned by four student participants, supporting the emerging alliance. However, the majority view from students as to why lecturers may use technology in their teaching, was that whilst lecturers may be forced or coerced to use technology by the HEI, this was not about enhancement of teaching and learning, but rather about financial considerations;

> *"They really must be trying to cut down the number of staff, trying to cut costs of running this course to a minimum. I think it has got to be, the uni is a business, it gets a finite amount of money, so delivering things in a cost-efficient way is the way forward for them. Costs, yes, distance is cheaper. Whether in the long term if that proves to be beneficial, I don't know, if we end up with lots of people who have a degree that actually have not learnt a lot I don't know." – Student S1; Lines 257-261*

> *"I suppose there is a financial incentive. If we can get to a stage where university courses are all delivered electronically without any lecturers, then we have a positive input into profit margins of the institutions, it might be that computer programs take over lecturing completely and you come in and sit and watch a TV and avatar popping up delivering the lecture! I would imagine that is probably another driver, as humans are expensive." – Student S4; Lines 320-324*

> *"If I came up with an idea of a new way of teaching that would cost double the amount, but was going to guarantee every student will get a first, it simply would not be considered, as I don't think quality is that important." – Student S5; Lines 329-331*

> *"Well I suppose the university has, not initiatives... the uni would be keen to develop it because it keeps you up to date with other universities and makes it an attractive proposition for students. I suppose for less mature student's technology is what they are used to and has been there for their whole lives. So yes, it has to be up to date, to make students want to come here." – Student S2; Lines 236-238*

This dominant view was not that lecturers are being pushed by the university to use learning technology to enhance students' learning. Rather, as Student S5 states "I don't think quality is that important", and learning technology is driven due to cost concerns, and maintaining revenue through the recruitment of students. The students here are questioning the use of technology as they do not always see the enhancement in their personal experience of teaching and learning. The logic of enslavement works by lecturers feeling forced or coerced to use technology in their teaching, whilst as has already been demonstrated, they are often sceptical at best as to the enhancement that technology may bring to them or their students. The potential alliance has the possibility to emerge between those lecturers who are TEL-sceptical, and students who are questioning why technology is used in such a ubiquitous fashion. But the alliance is in no way apparent as yet, as the other logics of equivalence, and logics of difference as explored below, work to prevent its formation.

### 7.4 Logics of Difference

Political logics provide a method to show how the limits and frontiers of social practice are "constituted, transformed, and absorbed", doing so by "focusing on the way the logic of equivalence comes to predominate over the logic of difference, and vice versa" (Glynos &

Howarth, 2007; p144). Whilst the logic of equivalence provides a simplification of the "TEL space", the logic of difference involves its expansion and complexification, working by accentuating the dissimilarities between and within social groups, and seeking to destabilise the chains of equivalences between the actors within the political space. It has already been proposed in this chapter that the hegemony of TEL is not complete, but rather has frontiers with a dominant alliance of "Universities/TEL academics/TECH", led by the TECH companies. The logics of difference presented below work to destabilise any potential antagonistic forces from setting up against this alliance, and also to move them towards becoming an intrinsic part of the uncontested hegemony.

### 7.41 Logic of liberation

The logic of liberation works to ally students with the TEL Alliance against lecturers who utilise traditional teaching methods or reject learning technology. As stated earlier, Oriji & Amadi (2016) were quoted above as stating that "at this time of self-directed learning, there is a need for a paradigm shift in our teaching methodologies in order to meet the challenges of the twenty-first-century curriculum". However, due to the common-sense acceptance of TEL an assumption is made, that we are already in a time of "self-directed learning". The thousands of tutorial rooms and classrooms regularly in use at Universities suggest that this is not the case. Despite this, the message is clear from universities regarding learning technologies and virtual learning environments – the universities' technology enables students to be liberated from time, from place, from routine, from traditional methods of teaching and learning. Examples taken from university websites regarding their virtual learning environments can be seen below;

> *"You'll benefit from personalised notifications, real-time feedback, multimedia content and much more. And for ultimate flexibility, Canvas is accessible on mobile and desktop,* ***so you can learn anytime, anywhere.****"*
> - Anglia Ruskin University (2019)

> *"Your online virtual learning environment (VLE) is accessible **any time and from anywhere**.*
> - Bournemouth University (2019)
>
> *"Access **course content anywhere, anytime**: Whether you're at the gym or traveling for spring break, you can check grades, view announcements, access course content and complete assignments."*
> - Herriot Watt University (2019)
>
> *"Available to **access 24/7, on any device, from anywhere in the world** with an internet connection. Our learning platform is key to our students studying effectively."*
> - University of Essex (2019)
>
> *"The virtual environment, allowing you to **study when and wherever you like**."*
> - University of Sussex (2019)

As already highlighted in chapter 6, TECH companies promote liberation for students. "TEL Academics" have also been clear in their support of liberation for students, with a message of success for students (and universities) if they adopt a particular technology or practice. An example is VCL (2012), who stated that a VLE allows students "to benefit from self-paced learning and the opportunity to learn new skills without having to travel or arrange childcare while they attend courses." Moravec (2013) coined the term "*Knowmads", whom he defined as "c*reative, imaginative, and innovative people who can work with almost anybody, anytime, and anywhere". Hope (2019) led what he termed a transformation project at a UK Further Education institution using *anytime, anyplace learning*, with (claimed) results of better learning outcomes, better contact with students, reduced workload and money saved – TEL has enabled a product that is both cheaper and higher quality (the Holy Grail?).

As discussed in the social logic of freedom (page 140) the widespread idea of being free from constraints and being self-directed was prominent in talk from students when they initially talked about their engagement with technology, and from TECH companies who have long promoted the idea of learning "anytime, anyplace, anywhere" (see page 28). The rhetoric around anytime, anyplace learning permeates throughout education and was repeated through student participants when they were describing how technology is used on

their course. Some students talked about liberation in their experience of learning, which resonated with the discourse from the TEL Alliance, the logic of liberation working to sow a difference between the students and other lecturers not part of the alliance;

> *"You have got to have some self-directed study, so that meets that criteria. It does not tie up their teaching hours, people can do it from home, at their leisure, they have family lives, this and that, so they can do it when it is convenient for them." – Student S5; Lines 191-193*

> *"*Being able to do it at your own pace, where you would like, and how you would like is quite nice and gives you a choice*." – Student S4; Lines 83-84*

Student S5 above repeats the mantra from the alliance "people can do it from home, at their leisure, they have family lives, this and that, so they can do it when it is convenient for them" – even pointing to the tech-savvy lecturers being freed up from teaching hours. Mobilising students as a group to seek liberation in their learning as framed by the 'TEL Alliance', sets them up in opposition to 'traditional' forms of teaching and learning (and associated lecturers), and being tied to time and place. The language utilised here by the students is rhetoric from the TEL alliance, that the use and uptake of learning technologies is in response to a consumer demand. However, the logics are working here by students re-envisioning the talk of lecturers and learning technologists as to why learning technology is used. Students are told by lecturers and learning technologists that they need to make use of learning technologies (see page 214), to be more "independent" with their learning, and that learning technology will enable that independence. However, the logic falters. When students were explaining why learning technology was being used for their learning, they repeated the rationales from lecturers as to why learning technology is necessary. The students did not say learning technology was utilised as it was the best way to learn, but rather for a subsidiary reason linked to the rhetoric;

> *"Because I think education is going that way a little bit more anyway, towards the technology side of things and independent learning. But also, when we are registered*

> *nurses we will have to look things up if we need it, we are not going to have a lecturer there to guide us, it is our own responsibility to keep up to date with policy, procedure, guidelines etc, so it gets us into a good habit of doing that." - Student S7; Lines 180-182*

> *"Yes. I think it promotes independence, and the degree we are doing you need to be driven and focused, and that encourages you to do research and do it yourself, which is what it will be when we qualify, no one is going to hand you the information, you are going to go and look for that." - Student S3; Lines 111-113*

The explanations presented here are not regarding pedagogy, or what the students view as the best way to learn, but rather excuses for why learning technology is used - it will reinforce the habit of "looking things up" if they need it; no one will hand you information, you need to get it yourself; they need to go off and do it on their own. Similarly, when students continued to discuss their approach to learning through learning technology, further explanation began to reveal cracks in the edifice of the hegemonic status of technology, further weakening any alliance between the university and students;

> *"I think there is an emphasis, or it appears to us, there is an emphasis on making us direct our own study, self-directed study. And so, the university provides the tools and then we sort of learn within our own capacity, obviously different learning styles, and then using VLE, you can sort of learn the most comfortable way to you." – Student S4; Lines 71-73*

This is not something that is wanted or sought for from the students - "we sort of learn", "making us direct our own study" - learning technology and pedagogy associated with it is forced upon the student as necessary, not because it is enhanced or the best pedagogical approach.

### 7.42 Logic of Hi-Tech Teaching

As demonstrated in figure 30 below, the University partner of the TEL Alliance works to try and bring (some) lecturers into the orthodoxy of TEL. In a similar vein to the alliance with students outlined above, this is a weaker alliance.

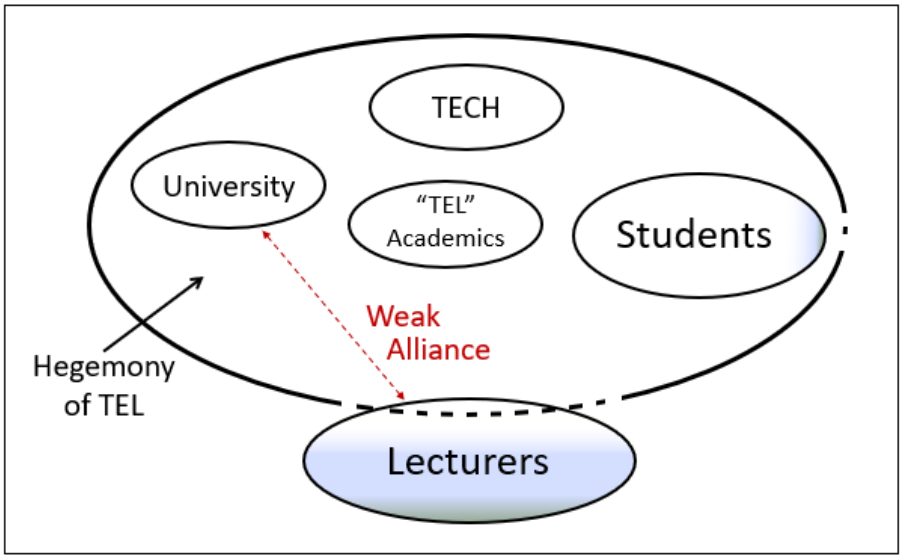



**Figure 30: The weak alliance between 'University' and 'Lecturers'**

The logic of difference of hi-tech teaching is a logic where the university tries to demonstrate the positive nature of learning-technology-based pedagogy to the lecturers. This is done primarily through learning technologists, alongside the management of staff. Several lecturers talked of the feeling that they should engage with learning technologies as evidenced in the fantasmatic logic of performativity (page 233). For further examples, consider Lecturer LI and LC;

> *"We have [TEL team name] - they put things on the staff intranet, offer us sessions, we can do e-learning courses, on annual learning and teaching days they contribute to the programme, so I think there is … an ethos … that the technology team is there, and I am sure their first thing is to support us in the use of technology." - Lecturer LI; Lines 136-137*

> *"There is an expectation that we provide technology enabled sessions. I think we are pushed to use it." - Lecturer LC; Lines 395-396*

The use of learning technology learning teams at universities as a method to reach lecturers is widespread throughout all universities. The term “university learning technology team” was searched for on Google UK (18/11/2019), and the top 20 results were for the following universities; , Solent, East Anglia, Warwick, Bangor, Bristol, Loughborough, Open University, Bradford, Salford, York, Keele, Kent, Nottingham, Bedfordshire, Northampton, Essex, Regents, Sussex, Edinburgh and Sheffield. Example excerpts taken from these university ‘learning technology team’ welcome pages include:

Learning Technologies Team - (Solent University, 2019)
> *“The learning technologies team is dedicated to supporting and developing Solent University’s technology enhanced learning provision, in pursuit of an inspiring learning and teaching experience for students and staff.”*

Learning Technologies - (University of East Anglia, 2019)
> *“We work alongside academics, schools and faculties to build online content and encourage the use of technology to enhance teaching and learning.”*

Digital Education Office - (University of Bristol, 2019)
> *“We help people throughout the University to use technology to enhance learning, teaching and assessment.”*

Learning Technology Team - (University of Bangor 2019)
> “We hold workshops for staff to see how various tools and concepts work and will work with individuals or schools to enable staff to become confident in using the technology.”

Academic Technology - (University of Warwick, 2019)
> *“Providing training, advice, support and consultancy for people using technology to enhance and develop research, teaching and learning.”*

As can be seen from the straplines on their welcome pages, they are placed to “encourage the use of technology to enhance teaching and learning” and to “support staff in the use of digital technologies” – this is familiar talk across the higher education sector. Lecturer LA chooses to utilise stronger terminology when discussing the TEL team (enforcement);

> *“Kind of, we have the TEL team who are employed to enforce … the use … well, it wants to be embedded, and I talked about quality but is it actually better, is it better?” – Lecturer LA; Lines 432-433*

The rhetoric from universities through their own employed 'TEL Academics' (learning technologists employed by the university who are accepting of the benefits of technology on education) cannot successfully work with all academics, as their lived experience may differ substantially from the rhetoric. The logic of difference of hi-tech teaching functions to draw a frontier through the group of lecturers as depicted in Figure 31 below, so as to create the tech-savvy, accepting-of-TEL or pro-TEL lecturers, and the sceptical-of-TEL, or anti-TEL "others".

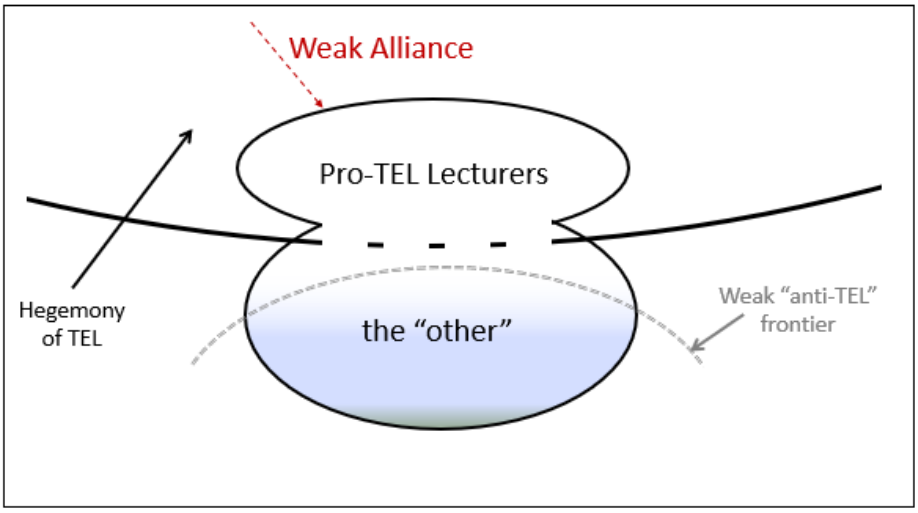



**Figure 31: The weak anti-TEL frontier with creation of the "other"**

Lecturers in the interviews were generally passive towards TEL, the passivity leading them to straddle the frontier and be open to each group. There was an acceptance of a push from the organisation to utilise learning technology, often with little knowledge of the benefit it may bring;

> *"I think the Uni has obviously invested a lot of money to employ people to support lecturers to use technology that, from the top down there is a message, that we should use technology, that it is beneficial to learning. That, if the institution is about raising its profile, moving up league tables, measuring performance, having a team of people, a significant investment, I would hope that the people allocating that investment is convinced that technology is good." – Lecturer LI; Lines 160-162*

> *"Some feeling that yeah, seems a bit of a [university] driver to be using it, and it is not always explained, I would quite welcome more transparency about why you think it is going to enhance teaching or enhance learning, maybe it is there, and I have not got time to find out why, and I think that is one of the frustrating things, as there are workload issues, and it is hard to find out just why do you want me to use this, what do you think it brings to my teaching." – Lecturer LH; Lines 302-305*

This passive attitude to the movement from universities to bring lecturers towards becoming users of hi-tech teaching was not expressed by all participants in the study. Lecturer LD for example, provided recognition of the contingent nature of the orthodoxy, and therefore the possibility of an alternative through some form of questioning;

> *"I think people in the organisation are more subtle in the way that they promote learning technology, I think that there may be a backlash, or a backswing … I think backlash is too strong a word, but there is an evaluation, it has been here now for X number of years, what has it actually bought to us?" – Lecturer LD; Lines 174-177*

> *"If there is a push to go more down that e-learning route, the upper echelons, need to realise that it is not a new golden age, so we have gone from PowerPoint, to e-learning to distance learning, that is going to be fantastic and wonderful, and we can replace the classroom, and then we won't need this building anymore." – Lecturer LF; Lines 438-440*

The logic of hi-tech teaching serves to create a split within lecturers, where there are those lecturers who are accepting-of-TEL or pro-TEL, who are necessarily different from lecturers who fail to embrace TEL. Lecturer LK points towards a new member of academic staff, and posits that they were hired with the intention of teaching other staff "technology" (one has to question how you teach "technology") – the aim is to move lecturers towards the "TEL Alliance", away from the "others" and to strengthen the TEL frontier;

> *"There is a definite drive yes. It's in my appraisal. Well, [lecturer] was hired by [manager] to teach us technology. That was part of her role, to get us all up and running." – Lecturer LK; Lines 248-249*

> *"Yes! I think the [TEL team], they are our, you know emails in the past from [Head of Department] - you know "are you using technology?" and from [TEL team] as well. [Lecturer name] was hot on using technology." – Lecturer LH; Lines 295-297*

But as can be seen in Figure 31 above, the Hegemony of TEL is not sealed, and "other" lecturers who are ambivalent towards, or anti-TEL, begin to split across the frontier. From the participants there were examples of lecturers identifying the split within lecturers and creation of an "other" group, moving from passivity to early forms of (still limited) resistance to the orthodoxy, such as not reading emails, or rejecting TEL values;

> *"The new manager came in and you know I think, we need to promote this and we need to make it aspirational, and it's a lovely term, but it is exactly that it is coded with meaning, kind of enhancing, you will get to the plane of super existence, and all the strap lines, and I don't really read them." – Lecturer LA; Lines 436-439*

> *"Yes, I think very much so with the [H.E.I.] pushing for different ways for using teaching, I don't think that is necessarily a bad thing but I think that is all they do and all they see, so I still think you have to hold on to the fundamental values of what is teaching, what is good teaching." – Lecturer LE; Lines 320-323*

The logic of hi-tech teaching functions to sow discord between the pro-TEL lecturers and the "other" lecturers as it is not just the push to engage which is noticeable, but also the amount of increased work it entails, alongside a realisation of its lack of enhancement. The myth of liberation by "freeing" teachers time has already been discussed in the social logics chapter (page 145), and it is a common theme from learning technologists, as evidence below;

> *"Research has been carried out into the benefits of Virtual Learning Environments for students and teachers: a 2012 study … found that a VLE helps students to engage in*

> *personalised education. At the same time, it frees teachers from the constraints of classroom management tasks." (VCL, 2012)*

However, the actual experience as described by lecturers was clear – technology does not save time. Using learning technology takes an investment of more time. The amount of time and work was discussed by several lecturers, with examples below;

> *"When I think of the word technology, I think of lecturers having to do a lot of work in technology in order to function, it has become the norm." – Lecturer LK; Lines 4-6*

> *"I think that probably, given how many hours I spent on each discussion, I could have done a really good face to face session!" - Lecturer LG; Lines 248-249*

> *"For me, from a teaching perspective it is easier not to use it." – Lecturer LC; Lines 249-250*

> *"It requires an awful lot of effort to be set up, and even then I am not entirely sure that I value the outcome of that is proportionate to that." – Lecturer LB; Lines 372-373*

> *"It is because I just don't have enough time. It did take absolutely ages." – Lecturer LG*
> *"But, you know, the amount of time to set it up is phenomenal. We are being charged with being innovative, with using technology, but when?" – Lecturer LL; Lines 169-170*

> *"I thought at one point it showed them that what a lot of work you have done, but now you realise it was just quite tedious." – Lecturer LE; Lines 55-56*

Of note is that Lecturer LK & LG described themselves as "TEL enthusiasts" (page 50) and yet still offered a more critical perspective (Lecturer LC, LB, LL and LE described themselves as "mid-point" between TEL enthusiast and TEL cynic). This functions to separate those lecturers away from the 'TEL Alliance', to sow discord amongst lecturers, and to stand as antagonistic "others" across the TEL frontier. Further working to move lecturers across the TEL frontier is technology as the emperor's new clothes. When lecturers were asked the

question “what evidence is there that technology enhances teaching and learning?” none of the lecturers responded saying they knew of any;

> *“Absolutely none!” – Lecturer LB; Line 160*
>
> *“Evidence? … I want to say none.” – Lecturer LJ; Line 153*
>
> *“Well I have not got evidence, not that it does actually enhance. Students like it though, from feedback. But evidence? No. Nope. To be honest with you, no.” - Lecturer LI; Lines 129-130*
>
> *“I don’t have any concrete evidence to say they learn better with technology than with no technology.” – Lecturer LF; Lines 209-210*
>
> *“To say that it does? Well I guess I don’t actually. I have never asked the question did the technology enhance what I was teaching, I have just assumed that it does.” – Lecturer LE; Lines 130-132*
>
> *“Yeah ... well I am sure it is…. there is some textbook by Phil Race or someone like that. But ... er... I have not read any to be honest. There is … no hard evidence.” – Lecturer LL; Lines 140-141*

As discussed in the social logic of novelty, lecturers reside with a common-sense deterministic understanding of learning technology, viewing technology as giving rise to an enhancement when utilised. When lecturers begin to question the benefits of using learning technology for teaching and learning, it also works to position them as a neutral force. Some lecturer participants took a more antagonistic perspective towards the ‘TEL Alliance’, and began to express a view based more on their experience rather than the rhetoric. Two lecturers, Lecturer LA & LD, who both self-described as “TEL enthusiast”, were clear in their depiction of no evidence of enhancement from learning technology;

> *“No. There is no evidence. Other than it informs me, and provides a structure and a prompt, but that is the emperor’s new clothes. We get brainwashed with a notion of oh we have got to use clickers’, you have got to make, we can enhance, and actually*

> *that notion, that technology enhanced learning is already a done deal. It is not technology enhanced learning with a question mark following it. When it is marketed to us." – Lecturer LA; Lines 273-276*

> *"Yes that is the rhetoric that comes with it, I think the pro technologists would suggest that it is a cure, it is always a done deal, if you have this, your teaching, your learning will be enhanced, and I don't think there is the evidence there to suggest it is that improvement." – Lecturer LD; Lines 134-136*

The logic of difference of hi-tech teaching functions to create a difference between the pro-TEL lecturers, and other neutral or antagonistic lecturers. Those who embrace the perspective from the 'TEL Alliance' sit across the frontier from the "other" lecturers who resist, either passively or from a critical stance. Lecturers, more so than students, have moved across the frontier of the hegemony of TEL as their experiences are of technology not saving their time, and not seeing the effectiveness promised by the 'TEL Alliance', actively work against the logic. As Lecturer LH said, lecturers have "*this lovely shiny bit of equipment that we need to be using, but actually we are not quite sure why we are using it, and what it brings to the experience*".

### 7.43 Logic of isolated resistance

Resistance to learning technology is rare and isolated. The acceptance of learning technology as a boon throughout higher education has long been a dominant, common-sense perspective. When there is resistance, or counter discourse, it is often short term and isolated. The "TEL Alliance" responds to potential resistance through learning technology iteration, and further arguments around potential. An example of isolated resistance can be found concerning the concept of learning styles. Magulod (2018) argued that;

> "In order to *better prepare university students as proficient, versatile and productive information and industrial technologists in the 21st century, the need to implement*

> *instructional strategies and activities naturally align with their predispositions will make them better learners." (Magulod, 2018)*

This resonates with actors within the "TEL Alliance", students, and also with lecturers. Broadly, the message is that if students wish to have the skills necessary for future workplaces, then they need to be using a variety of learning technologies to support their individual learning style and development. For example, Whittenberger (2019) states that technology is necessary to meet the various needs of students, and that technology is necessary to "meet the needs of different learning styles of students". LearnSafe (2018) states that technology enables educators to accommodate the main learning styles. Learning styles have been part of mainstream educational theory for 50 years with a variety of definitions and descriptions. Honey (2001) suggests that learning styles are a "description of the attitudes and behaviours that determine our preferred way of learning", whilst Gokalp (2013) argues that "every person has his or her own method or set of strategies when learning". Lecturer participants were not asked directly about learning styles, but several lecturers referred to their students' learning styles when discussing learning technology being used in the classroom, in particular justifying their own use of PowerPoint as a teaching tool;

> *"I think it depends on the style of the learner, whether they liked it, the technology. So, if you are an activist style, you want to do something, I don't know, I think you can be overwhelmed by having too much." – Lecturer LF; Lines 123-124*

> *"Well I think if someone needs the PowerPoint for their learning style, then I think that is enhancing, because they don't have that available it is very, very difficult for them to focus on." – Lecturer LJ; Lines 157-158*

> *"We have a huge range of students with different learning styles, I guess that applies to anything you do with them, it does not suit all." – Lecturer LH; Lines 73-74*

The talk from lecturers clearly indicates a perpetuation of the link between their use of technology and students' learning styles. For example, when Lecturer LG was answering a

question of why they chose to utilise learning technology in the classroom, they immediately turned to the idea of learning styles;

> *"Because, one reason is, I know peoples learning styles are different. So for some people I know they won't concentrate more on the verbal, they are visual learners." - Lecturer LG; Lines 46-47*

Members of the "TEL Alliance" have been supportive of leaning styles as an approach. The argument is clearly made in an abundance of peer reviewed journals and blogs, that learning technology will work with the idea of learning styles, so that learning is more successful for students (e.g. Wium, Pitout, Human & du Toit, 2015; Trembach & Deng, 2018; Kumar, 2018). Viorica-Torii & Carmen (2019) argued that it is necessary "to make students become accustomed to a certain deontology of using the technologies and education strategies". Moussa (2018) claimed that if educators aim to produce effective learning, "they should work on integrating students' learning styles with educational technology tools". Corporate partners also support learning styles. Microsoft have learning styles at the front of their student learning offering (Microsoft, 2020), with headlines to students including "Products for every learning style", "easier to use, all based on your unique learning style" and including a message to educators; "Learn how to create accessible content for your class, so all learning styles can benefit". Apple (2020) also suggest that their technology will enhance educators support of learning styles, offering an "immersive and responsive experience that gets students of all learning styles fully engaged". The acceptance of learning styles, and the link to learning technology, is dominant throughout education, and repeated often. Students have learning styles assessed by organisations (e.g. VARK 2020) and university support teams referring to them at the core of their support (e.g. Open University, 2020; Staffordshire University, 2020), it is hard to see any resistance to the notion of the necessity of learning technology to support learning styles. As Reiner & Willingham (2010) conclude "...learning-styles theory has succeeded in becoming "common knowledge", and this widespread acceptance serves as an unfortunately compelling reason to subscribe to them, and the link between learning

styles and technology. However, despite the entrenched acceptance of learning styles as a theory, there is some resistance.

There is a lack of clarity to learning styles, with an innumerate amount of learning styles now available for consideration. For example, Cassidy (2004) estimated over 70 different styles which could be adopted. Pashler, McDaniel, Rohrer, and Bjork (2008) made the suggestion in their (broadly positive) review of learning styles that actually, there is a lack of evidence to support the plethora of learning styles, despite being so popular throughout all levels of education. There is a small, but concerted opinion that learning styles may not actually be based on sound evidence. Kratzig and Arbuthnott (2006) conducted a study on the alignment of how students view their own learning style and their assessed learning style, with little congruence between the two. Rogowsky, Tallal & Cahoul (2015) found no relationship between learning style preference and learning aptitude. The resistance is isolated, and not heard from the main educational community. The logic of difference of isolated resistance tries to establish an alliance between academics and students, to push back against the common sense of learning myths. A good example of this slight resistance is a letter published in the Guardian (Hood, 2017). This was authored by a range of education academics who also enlisted the signatures of neuroscientists and psychologists, putting forward the argument that there is little or no evidence to support learning styles, and labelling learning styles a “neuromyth”. However, the argument remains isolated against the entrenched view, and barely repeated. Another example of the isolated resistance is from May (2018) who questions why the myth of learning styles endures, suggesting that “the notion that universal strategies may enhance learning for all belies the idea that we are unique, individual learners”. However, there is no support outside of these limited circles. The main actors who may form an alliance, students, repeat the prevailing discourse, and whilst an alliance is sought, it is not reciprocated. All but one student, talked about learning styles in their interview, all without any prompting from the interviewer. The topic arose for

most students when they were asked if they could explain why lecturers would use technology in their teaching. For example, Students S4 responded to that question by stating;

> *"I cannot remember for the life of me, where this has come from, but I am sure I remember reading that in order for people to learn more effectively they need a mixture of seeing, doing and hearing, and it is about using all of the senses, and I think visually it plays a big part. Using the projector, the visualizers, the computers, play a huge part, I don't think you could take them away from the course." – Student S4; Lines 146-149*

Student S11 responded to the question of why lecturers want to use technology in their teaching by also turning to learning styles (again without prompting), and arguing that lecturers want to use technology in their teaching, not for enhancement of pedagogy or learning, but rather to add variety;

> *"I assume, this is what I think, because we are all different learners, and you can go on that computer program and it tells you what you are, kinaesthetic or whatever, I am assuming that throughout the course [lecturers] are trying to give us a variety of different things so the people are getting something from it, can get something from all these things, because you are not doing it one way, and loads of people are loving it and everyone else is thinking not, so I am guessing that is why it is being done." – Student S11; Lines 169-172*

The propagation of the notion of learning styles as being linked to learning technologies benefits the "TEL Alliance" by adding to the 'evidence' supporting the use of learning technology, and increased need to utilise technology and promote its use with students. Students referred to themselves and peers as having a particular learning style;

> *"Again, for the visual learners it gives them something to look at whilst they are talking, and it is something for the lecturers to keep reflecting back to, and obviously they can create a discussion whatever is on that slide." Student S2; Lines 97-98*

*"I am a visual learner, I like to see things, I like to do as well, so it all kind of meshes into one, I think for me, it has really improved my learning, anything electronic." Student S5; Lines 116-117*

*"Because people learn differently, some people are visual learners, and some people like to listen and do, so it has to cover every base. It does that. To make it more visually pleasing, to accommodate different learning styles. It is used to aid our research …. to improve our grades inevitably. It is there to enhance different learning styles and facilitate those." Student S7; Lines 51-53*

*"I think some people are very visual and just listening to what somebody said for some people, if they can see something it helps it sinks in." Student S9; Lines 74-75*

*"The VLE allows us to work to our preferred learning style. Coming into uni may not be that preferred learning style for some, so that is probably the reasons why they do and don't like using it." Student S4; Lines 302-303*

The discussion from students demonstrated a lack of understanding related to theoretical ideas underpinning learning styles, and how they function. For example, Student S7 refers to technology being there to enhance learning styles, and S9 considers that "coming into uni" as a preferred learning style. However, it was clear from the student's indications that they talk about learning styles as being necessary, and link them with the use of learning technology.

Academics seeking an alliance with students through resistance is to no avail, as in response to the slightest resistance, the TEL Alliance has developed alternative methods to address any potential concerns. For example, whilst the rhetoric of learning technology being used to support the function of learning styles has continued apace, the "TEL Alliance" have made the movement to a more nuanced approach. In particular, to meet the argument of learning styles as too generalised, and lacking focus on individual needs, they have fostered a movement of individualised learning and the consequent role technology can play in supporting individual need, rather than being based on any one learning style (the most

dominant theory points to four learning styles; verbal, aural, visual, kinaesthetic). IBM (2016) have promoted personalised learning, proffering that “deeply immersive interactive experiences with intelligent tutoring systems can transform how we learn”, and that “data-driven cognitive technologies will enable personalised education and improve outcomes for students, educators and administrators”. Thomson (2018) argued that organisations such as Facebook and Microsoft are championing personalised learning and funding its development through a variety of initiatives. Holmes et. al. (2018) published a review of personalised learning, and to repeat the opening line of the abstract; “*This study demonstrates the great potential of technology in implementing effective personalised learning. Nevertheless, it has not been assessed yet whether the practical implementation actually works*”. Whilst there may be some ‘rebels’ seeking opposition to the established view of learning styles, as has been demonstrated elsewhere, the “TEL Alliance” is adept at moving the dialogue, again based on potential rather than hard evidence.

# CHAPTER 8

The social logics discussed earlier aided in the explanation of common practices associated with technology enhanced learning, its sedimented content. Following on from this, the exploration of political logics examined the over-arching hegemony of TEL as a common-sense activity, a necessary solution for educationalists and learners, and the alliances and contestation in the field of TEL. For a full account of the problematised phenomenon of TEL, it is necessary to include a discussion of the ideological dimension (i.e. fantasmatic). Fantasmatic logics cover up social contingency, or possibilities, sustaining the social logics, and offer a method to highlight the ideological investments that people will place in narratives that give them some sense of enjoyment. Fantasmatic logics help account for the way subjects identify with certain discourses to the exclusion of others, why those subjects are *gripped* by a particular practice or regime – in this case why lecturers and students may be gripped by technology in education. Part of the reason for this may be the enjoyment that subjects feel that they gain. Glynos and Howarth (2007, p. 148) suggest that all aspects of social reality which are related to fantasmatically structured enjoyment "possess contradictory features, exhibiting a kind of extreme oscillation between incompatible positions". For example, there is a contradiction when lecturers who believe that they should be using learning technology because of the apparent enhancement it offers to their teaching, decide to use the VLE for a digital learning experience. However, they then may decry the use of the technology when they consider the time and work it takes to implement this mode of delivery with little apparent benefit - a contradictory position.

Two dimensions of fantasmatic logics which will partly form the basis of the explanation are *beatific* and *horrific* logics. The narrative structure of fantasy will involve some form of *fullness-to-come* (the beatific aspect of fantasy), whilst the opposite dimension of fantasy is the *looming disaster* which may befall the subject if a potential obstacle is not overcome (the horrific aspect of fantasy) – for example see below the beatific logic of how emerging

learning technology can make you “look good” if it is used in front of students; but if you cannot use it properly, then the horrific logic is that you may be embarrassed in front of those students. Horrific and beatific logics become crucial in determining where and how a fantasmatic logic might hold. A fundamental component of the fantasmatic structure is that the fantasy on offer is potentially attainable, and that the obstacle is something that should be possible to overcome. For example, the subject feels that they did not learn how to use the new technology in ‘the right way’ – this scenario allows the beatific promise of TEL to remain unscathed, it is the user that is at fault, not the learning technology.

As has been discussed in previous chapters, there is a reigning common sense which surrounds learning technology, and this discussion is couched in the terms of technological determinism, that of a determinist perspective. Here, technology is represented and perceived to have inalienable qualities (essentialism) such as a neutral beneficent purpose, and exerts an influence upon subjects, interactions and culture. This idea is linked to the development of society where technology is viewed as the main motivation and support to this development. Corresponding with this view is the instrumentalist perspective of technology (Feenburg, 1991) which posits technologies as tools, ready to serve the purposes of their users. Technology is constructed as a neutral object, indifferent in respect of ethics or politics, and is rational in character with a universality of truth and action – e.g. the results of using the technology are the same irrespective of the cultural background of its user or context. This dominant paradigm of essentialism and instrumentalism leads us towards a view of technological potentiality and enhancement which is ascribed to technology itself. This view is persistent, as Hamilton and Friesen (2013; p3) state, both essentialism and instrumentalism still maintain “a great deal of currency within discourses of technology, both scholarly and popular”. Discussion and debate of the use and potential of learning technology is framed within the instrumentalist and essentialist perspectives, where we as lecturers and students need to make use of the ‘wonders’ offered by learning

technology so as our practice, and even ourselves, can be enhanced. Fantasmatic logics have a role of play in completing the void in the subject being explored “and the structure of social relations by bringing about closure” (Glynos and Howarth; 2007, p. 146). Going beyond their everyday experiences, the logics of fantasy allow insight into the beatific and horrific fantasies of both lecturers and students. Three fantasmatic logics have been identified (see Figure 32 below); the fantasmatic logic of promise, of performance and of performativity.

**LOGIC OF PROMISE**

- Beatific logic of reaching potential.
- Horrific logic of competence.

**LOGIC OF PERFORMANCE**

- Beatific logic of positive appraisal.
- Horrific logic of negative appraisal.

**LOGIC OF PERFORMATIVITY**

- Beatific logic of ornamenting.
- Horrific logic of the neo-luddite.

**Figure 32. Fantasmatic Logics**

These fantasmatic logics work to conceal the political dimensions of social practices, reinforcing the common-sense or natural character of political practices. In each of the logics there will also be a contradiction outlined in the working of the logic, between the talk used by the participants, and the experience they then describe – a disjuncture.

### 8.1 Logic of Promise

Education has an abundance of digital learning technologies employed, and yet the benefits this digital technology brings to education is mixed as best (European Parliamentary Research Service, 2015; p80). Learning technology has promised much over the last 50 years, but in actuality, has delivered far less. Exploring the talk of lecturers and students from an ideological perspective allows us to explain why learning technology, despite contradictory experiences, continues to grip those invested in education. Central to this is the fantasmatic logic of promise, the promise of learning technology, the promise that is forever just out of reach, but also potentially attainable.

Lecturers talked of the possibilities of TEL. There was a strong link to learning technology as tools, and if lecturers could only use the tools of learning technology more effectively (representative of the instrumentalist perspective), then they would be able to unleash the potential they offer; a beatific logic of reaching potential; which ties into the techno-determinist perspective as discussed earlier. When asked if they thought technology did enhance teaching and learning, several lecturer participants outlined the belief surmised as yes, the rights tools*, used correctly,* enables enhancement.

> *"I think it can do. If used wisely, and the user knows and has a clear idea about why they are using it, and what it is going to bring to learning. I think it can do. If used wisely. But if you ask me for proof, I have not got any! I think it can if used wisely." – Lecturer LH; Lines 121-123*

In this example, Lecturer LH speaks to a lack of something, a failure or lack of delivery in the promise of learning technology, three times stating that "it can do", but always with the caveat "if used wisely", you can see how they mobilise this as being due to themselves as a lecturer not "doing it" correctly.  Similarly, with lecturer participant LF;

> *"I think it can, as a person who is using it, uses it well, or just tries to, rather than thinking I will put this in because it looks clever, look at its worth for the students." – Lecturer LF; Lines 159-160*

It is a beatific logic of reaching potential. The technologies possess an intractable, potential to enhance, that if only they are used as they could be, then their true worth would become apparent. Both lecturers phrase the technology in terms of "if used wisely" or "if used well" – a potential. This mirrors conclusions in academic work around TEL. As Chinn (2014) suggests when discussing the potential of social media use, "there is still a long way to go in unlocking the true potential". This is signified by the lack of current benefit, and the use and existence of learning technology within education could be argued to be reliant on maintaining this lack of current benefit. In selling the idea that future benefit will always be more than current benefit, but that this can only come about if we persist with TEL in the present. The argument is that we need to persist with TEL now (despite not being convinced) to make it better later. This is exemplified when Lecturer LD gives the example of Sim-Man. The idea of reaching some unknown full potential is ingrained, suggesting that the benefit of Sim-Man is predicated on discovering or unlocking a promise, the full potential. The suggestion offered is not that the learning technology itself (Sim-Man) is ineffective or negative, but it is rather the organisation around Sim Man that is the problem;

> *"I think if you look at Sim Man, very hi tech, very expensive, but even then, that is quite one dimensional, we are not using it in nursing, to its full potential. I think in any organisation the day to day stuff. It does, and it doesn't. It likes the idea of it, but most of the people who are using it, don't know how to use it, and I include myself in that, to its full potential. I think the organisation yes we have seen the need for this somewhere, but actually operationalising it, and training and up skilling and all the rest does not seem to be there." – Lecturer LD; Lines 191-195*

Cook (2008; p60) argued that emerging literature "appears to confirm that when e-learning is used in a pedagogically effective way it can have a positive impact". The issue is that this belief is part of the orthodoxy of TEL, that there is always a better way available to make use

of the technology, so as to reach the seemingly unattainable enhancement and success. Participant Lecturers LC and LJ gave examples of this way of thinking;

> *"Yes, I suppose I am fairly standard really. I don't feel I use technology enough, exploit is not quite the right word, but I would like to exploit that much more to make things easier." – Lecturer LC; Lines 183-183*

Lecturer LC sates that exploit is not quite the right word, and It could be argued that here the benefit is pragmatic rather than pedagogical. Lecturer LJ also calls upon the idea of reaching the potential when they have more experience, however, Lecturer LJ also adds the caveat, that somehow they do not know enough about technology (as opposed to knowing enough about teaching);

> *"When you come into education, I am going to say fear, but reluctance to use the technology. I mean I am probably quite reluctant to an extent, because you go with what you know. But again, it is something I need more experience in to be able to use to its full potential. I think there are other ways. What those other ways are I am not sure, cause as I said I am not at the forefront of technology?" – Lecturer LJ; Lines 266-269*

NCL (2016) suggested four human aspects that "may prevent effective use of TEL" which are; *Lack of staff time to engage with new approaches; Lack of staff expertise; Lack of qualified learning technologists to support staff;* and *Lack of communication routes to reach teaching staff in a timely fashion.* This theme is common in papers discussing barriers to TEL adoption, such as Schneckenberg (2009), who suggested that the "main barrier to technology-enhanced innovation is the lack of faculty interest and engagement in e-learning", which he claimed was due to a multitude of factors including motivational and habitual traits of academics. Davies et al. (2017) in the paper *'Rebooting learning for the digital age: What next for technology enhanced higher education?'* stated that "in light of the new possibilities enabled by digital technology and by data, university staff should look again

at their teaching practices" (p3) and that necessary actions to overcome barriers should include "dialogue with teaching staff to overcome preconceptions and misaligned beliefs". The potential is some better way to do education enabled by technology, again, a techno-determinist perspective. The argument being made is that transformation is possible, but only if academic staff can be made to see the (techno-determinist) light. The conclusion to the paper includes the statement that the "success or failure of the opportunities described in this paper are dependent on the actions and attitude of the staff body" (p46). Lecturers LB and LM give insight into their self-perceptions of efficacy in using the 'tools' of learning technologies, and access the discourse of staff being a barrier to TEL success, with LB again using the term "full potential";

> *"I felt that we don't take full advantage as we could. There are loads of things you could use, wikis, videos, podcasts…. I don't probably use it to its full potential, because I am rather rubbish, I am not brilliant at that aspect of technology. Perhaps that is because we are just not using it to its full potential. The organisation, and me as an individual." – Lecturer LB; Lines 293-296*

> *"So, we are being challenged to teach in a different way. I still have not got my head around this flipped classroom. I don't know – I probably haven't listened hard enough or engaged enough. Lecturer LM; Lines 35-36*

The use of this idea works to counter resistance, the problem not being with the technology but with a range of end users, all of whom failed to reach the full potential available due to their personal failing rather than a failing with technology, thereby making the critique of TEL an impossibility. This works with the political logic of difference (see page 182) between the unified "University/TEL Academics/TECH" and students, with academic staff as the common antagonist. Failings of academic staff are the hindrance that needs to be overcome in terms of the frontiers of TEL practice, with the reason for the failure of learning technology to reach its potential laid firmly at the feet of lecturers themselves. This is also related to the

understanding of what technology enhanced learning is. Lecturer LJ struggled to describe what technology enhanced learning meant for them;

> *"Technology enhanced…. well … it is those things…. probably other things, things I have not mentioned or don't know about…. they can enhance your learning, you know… it's important it is not just used, but used to enhance, because, technology has that ability to, if used properly." – Lecturer LJ; Lines 107-109*

Whilst it is hard to discern exactly what Lecturer LJ is referring to here, the participant does state that technology enhanced learning is "things I have not mentioned or don't know about", and that these things are enhancing. This clearly demonstrates the promissory nature of this fantasmatic logic, but also the horrific side of being left behind or of an anti-TEL position. Lecturer LJ has to maintain a pretence of knowing what TEL means, thereby avoiding positioning themselves as anti-TEL. Technology enhanced learning is an example of an empty signifier, momentarily achieving completeness for subjects. In these examples the subject position of the lecturer is somehow lacking in some respect, and they try to reach a fuller-self as they move to occupy further subject positions – "ready-made identities articulated by discourses" (MacKillop, 2018; p190). It is the discourse which "constitutes the subject position of the social agent, and not, therefore the social agent which is the origin" (Laclau, 1990; p101). In this case, the subject position of a lecturer who utilises learning technology 'wisely', unlocking the hidden potentials within, and in their eyes, reaching an enhanced form of teaching. However, this is a beatific logic which is promissory, never coming into being – the threat or jouissance of the logic underpins their impact in the social practices of the lecturer.

The beatific fantasy of reaching some unknown potential works in tandem with a lack of resistance from lecturers. As discussed in chapter 2 TEL is essentially a political project, and as has been demonstrated elsewhere, there are issues of alliance, control, power and therefore resistance. Despite possibly not wanting to engage with learning technology, the

seemingly beatific pull of potential is strong, the common-sense, that it leads to little resistance. Lecturer participants have mobilised their own evidence that TEL is not working as it should, but consistently find it difficult to resist. The promise or potential of learning technologies for lecturers comes from a variety of actors who promote and protect the orthodoxy of technology as a beneficent promise. There is what Selwyn (2014; p9) describes as the *Learning Technology Community*, a "loose grouping of actors responsible for much of the technical expertise and enthusiasm underpinning the implementation of digital technology in education", and include institutional learning technologists, Ed-Tech academics and think tanks. There is also a vast array of industry concerns involved in learning technology, all with for-profit concerns who wish to promote their vision and their products. As an example, companies behind the day to day technologies encountered by academics and students (phones, iPads, laptops, Google) have an ideological purpose in mind. When students are beginning their journey through higher education and looking to purchase a laptop or tablet, they will be faced with the potential on offer to those who use technology – to somehow be improved as a result of the technology. On the Apple UK website (January 2019), visitors are greeted with the following headlines aimed at students:

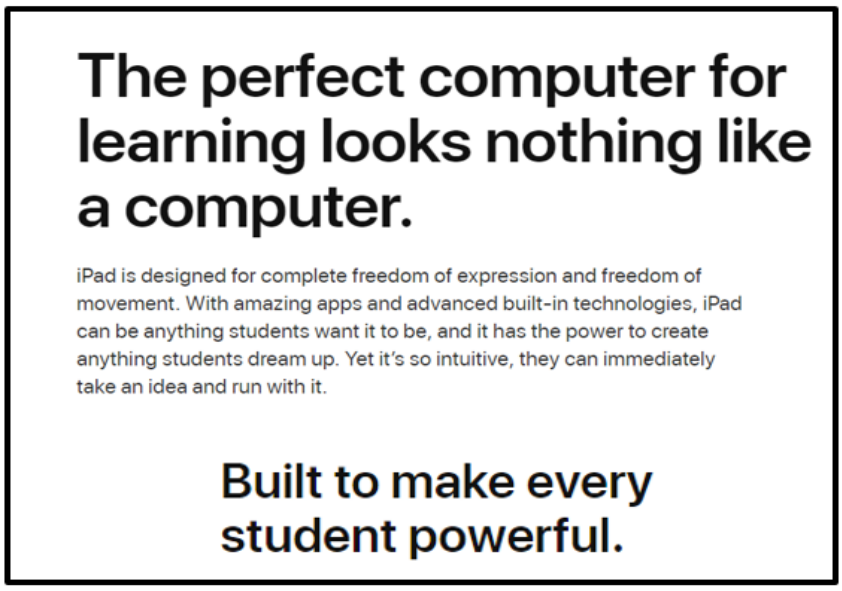



**Figure 33. Headlines aimed at H.E. students from Apple UK website January 2019.**

And from the same website, headlines also at aimed at educators;


**Figure 34. Headlines aimed at educators from Apple UK website January 2019.**

Apple also offer a raft of support aimed at educators from schools, colleges and universities to use their products. There is a free learning programme for educators called Apple Teacher, which is aimed at education institution to support Apple products being used by teaching staff. Alongside this Apple also offer the *Apple Distinguished Educator* programme with support via iTunesU, and also *Apple Education Trainers* who "help educators support deeper student learning through research-based instructional technology practices" (Apple, 2019). Previous incarnations include the 'Apple Classrooms of Tomorrow – Today' initiative which ran during the 2000's. At this time Microsoft also ran the 'Innovative Teaching and Learning' global research program. These programs all normalise the discourses around learning technology, disruption via technology and the need to embrace emerging technologies. Currently, Microsoft target both educators and students via the Microsoft Education website (January 2019);


**Figure 35. Headlines from Microsoft UK Education website January 2019.**

This message is repeated throughout the learning technology industry, from Blackboard (targeted at academics) through to Google (targeted at students);


**Figure 36. Headlines from Blackboard (Virtual Learning Environment) UK Education website January 2019.**


**Figure 37. Headlines from Google Education website January 2019.**

There is a promise of some enhanced way to be in education not only for lecturers (the promises talked about in the extracts above) but also for students. Students also talked about potential that is enabled through technology. In the interviews, students were asked what 'technology enhanced learning' meant for them, and a number of students pointed to an induction session they had from learning technologists at the outset of their course;

> *"We had the session in the first week. They went through all the Google stuff and VLE, how we can use it for our learning. It was an eye-opener, and that obviously is the newer way to learn, you know, you have to do more for yourself." – Student S11; Lines 219-221*

> *"We had a session on how to use the apps, why we need them." – Student S3; Line 20*

> *"But it was pointed out that some embrace technology, which would enhance our learning." – Student S5; Lines 212-213*

Students represent what they were told talking of the way they 'should' be learning from the institution (employed learning technologists with a vested interest in the deployment and use of technology) at the outset of their course, with instruction in the new technologies, and even the rationale for using those technologies. Student S11 taps into the dominant discourse and talks about "the newer way to learn", and Student S3 explains they were told which apps to use, and why they need them on their iPad. The message that technology is necessary for students, and beneficial comes not only from technology companies outlined above, but from the authority of the institution in 'week one' of the degree via the learning technologist. Learning technologists who are not lecturers can be seen as in opposition to educators, describing them as somehow lacking in their uptake of technology. Note that student S4 describes a warning they took from the session, that "some embrace technology" and that then leads to learning enhancement – the message that if you want the enhancement, then you must embrace technology – a potentially *horrific* outcome if you don't engage of being left behind.

Universities employ 'learning technologists', whom the Association of Learning Technology (ALT, 2020) describe as "people who are actively involved in managing, researching, supporting or enabling learning with the use of learning technology", a clear mandate to enable the use of more learning technology. As lecturer participant LM describes:

> *"I think the Uni has obviously invested a lot of money to employ people to support lecturers to use technology, that from the top down there is a message, that we should use technology, that it is beneficial to learning. That, if the institution is about raising its profile, moving up league tables, measuring performance, having a team of people, a significant investment, I would hope that the people allocating that investment is convinced that technology is good". Lecturer LM; Lines 158-162*

It is interesting that Lecturer LM explicitly links TEL to performance metrics, rather than issues of pedagogy, which is necessary with apparent lack of current pedagogical benefit. This is also a clear articulation by Lecturer LM of learning technology as an inherent component of progress. The language proffered by Lecturer LA in the next excerpt is also illuminating in respect of learning technologists, which by the use of aggressive terminology (enforce and reinforce) paints the lecturer as a passive recipient of the service;

> *"I think they are there to enforce or to reinforce the need for technology enhanced learning …. it is about lifting, elevating what you are trying to do to a better plane of existence through the application of technology." – Lecturer LA; Lines 437-438*

Although again, the ideal presented of being enabled by learning technologists to reach a "better plane of existence" is an overt fantasy far beyond what pedagogy and teaching practice can offer. Learning technologists help to conceal the possibilities available to students by inducting them into the benefits of learning technology at the outset of their course, at the expense of other possibilities. When students were asked in the interview, to explain how technology enhances teaching and learning, there was often talk of how technology somehow made their learning easier. Students gave a variety of examples such as saving time, PowerPoint's making things easier, and technology negating the need to travel, as evidenced below;

> *"It makes, it saves time for the lecturer, but makes work easier for the student. I think because it is just simplifies it, it is easier." Student S6; Lines 267-268*

> *"I think the VLE stuff we have is supposed to enhance it, because we can access stuff that we would not have been able to before, PowerPoints and things like that, so I suppose that's enhanced our learning." – Student S11; Lines 219-221*

> *"If a PowerPoint is just used in the same way that an acetate would have been used in the past, that is fine, but it is so easy to do, and you don't have to print it out on acetate or anything like that, and it is so easy to do on the PC." – Student S9; Lines 260-262*

> *"If I could make an appointment to see my dissertation advisor and we could sit there on the camera on the laptop and have a discussion for half hour, she has not come to [CITY NAME] to see me, I have not gone there to see her, we can still discuss exactly the same we would have done." Student S6; Lines 130-132*

Learning being 'easy' is an empty signifier, it represents an impossible fullness which cannot be achieved, and can only temporarily be fixed as in the examples above. The students are constantly rearticulating the idea of technology making their learning easier which empties the signifier of meaning. There is no content or meaning to the description – it is just "easier" or "simpler". It represents the convenience that technology is supposed to offer the learner, that technology somehow will make either the learning or the course easier. Students did not state that the idea of learning being easier emanated from learning technologists, the participants described their session with learning technologists as showing how learning technology is a necessity for today's student – a message that you need TEL to be successful today as a 21st century student, not a message of making learning easier. But this is the fantasy that students appeared to call upon when they were asked in the interviews, "does technology enhance teaching and learning?". It is useful to consider how the students constructed this fantasy of learning potentially being easier, and to consider the contradictions within their discussions. For example, student S6 replied "yes" when asked if technology enhances teaching and learning, and when asked to explain this assertion, Student S6 said;

> "*I think with regards to the students, it would save time, it really would. It has to work both ways to do it, but, trying to think of an example to ..... Ways it makes it better? …. Erm ..... gosh.... mind blank…… teaching better? ….. Yeah ..." - Student S6; Lines 152-157*

The student answered quickly that technology was an enhancer making learning and teaching easier, but when asked to explain how, the struggle to define this is clear. "*Erm ..... gosh.... mind blank…… teaching better? ….. Yeah ...*". It could be suggested that the fantasy

has worked to conceal the radical contingency, reinforcing the natural state that technology is there to make our lives easier. The discourse of TEL as beneficent with a natural potential to enhance teaching and learning is so dominant that student S6 positions technology as a clear benefit, but without evidence to support this. This is not based on their own experiences of TEL, rather the dominant ideological perspective, hence they struggle to find evidence to support their answer. Another example is Student S3, who earlier referred to using the iPad in their learning;

> *"We all use our technology in the classroom, iPads and stuff to help. I find mine really useful in lectures." – Student S3; LINE 19*

Later in their interview, student S3 was asked to explain what technology enhanced learning is, but contradicted the description of using the iPad, going on to describe using paper;

> *"I guess it means enhancing our learning, in the institution. I don't necessarily think that everyone always needs it, I am a bit of a paper, you know, like paper as well, I am not going to, you know, it is easier in the end using the paper." – Student S3; Lines 81-84*

This contradiction is representative of the grip of the orthodoxy. On an initial answer to the question "does technology enhance teaching and learning", all students that were interviewed answered yes, looking to the fantasmatic logic of potential for enhancement, but also demonstrating how difficult it is to go against the perceived orthodoxy. As the interviews progressed and students were asked to explain their indication, as with Student S3 above, their own lack of evidence contradicted the stated position. However, the grip of the fantasmatic logic is so strong, that when asked again later in the interview "does technology enhance teaching and learning" the majority of students continued to state that it did. For example, following the extract above, Student S3 continues;

> *"I know when I was writing my dissertation, having several pages open, is easier, I did use my iPad then, but it was easier printing it all, to look at them. So yes, I think it does enhance learning." – Student S3; Lines 84-87*

The counter narrative within the excerpt above is trumped by the TEL narrative that the iPad made learning easier, and technology enhances learning. Student S3 concludes "So yes, I think it does enhance learning", despite the contradiction of the ease of printing within their explanations. There are several examples from within student interviews where this contradiction was evident. Student S6 was using her experience of the VLE as an example of technology making teaching better;

> *"I would say the VLE has made the teaching better because I think for me as a learner sitting there listening to a lecturer, I have a little bit that switches off sometimes, whereas with the VLE, because I can go at my own pace, I can do my own research, I can phone a friend and question something, do you understand what it means, what has it found, whether that is my learning style." – Student S6; Lines 193-196*

This appears to be a reference to the concept of freedom in learning anyplace, anytime which is portrayed as being enabled by the VLE. Student S6 states that it "has made teaching better". However, it is doubtful that a lecturer in a classroom has told students that they are not allowed to ask questions, so the promotion of TEL here is that you can do it without revealing yourself, students can retreat and not be evaluated by their peers in the context of TEL. But you do not see rhetoric from "TECH" companies suggesting that using learning technology lets you learn anonymously. Rather than empowerment for the student, it could actually be read as being above a lack of social shame. Student S6 was asked to explain how her explanation was the VLE enhancing their learning;

> *"It has been put there by teachers, I am in a way teaching myself this, and I have got the chance to just do a basic VLE and learn what is there or spend an extra hour, and Google or watch a few videos and go that bit further in depth, so I think it just gives you the option to do as little or as much as you want in that day, and having a*

> *day away from the classroom , you kind of feel a bit more positive about doing VLE, not just a case of hey, it's a day off, but OK I have a day off from Uni, I will get my VLE done and enjoy the rest of the day, I haven't got to travel or sit in a classroom, so for me that was the benefit of the VLE." – Student S6; Lines 198-204*

This is not a call to better teaching, or enhanced learning, or achieving better outcomes – this is referring to the ease of their experiences, doing *"as little or as much as you want"*, "*have a day off from Uni", "and enjoy the rest of the day" and ", I haven't got to travel or sit in a classroom"* . The contradiction is evident, for example they also state that "*I am in a way teaching myself this"*. There is a fantasy that technology makes learning somehow better *and* easier, a beneficent myth, the description here is not with regards to enhanced learning or pedagogical improvement. This description is just about removing perceived obstacles which are not pedagogical, the need to travel, speaking to friends, using Google, freeing up of time. The VLE has been widely discussed for 20 years (Gardner et al, 2005; Lingard, 2007; Lyndon 2014), but discussions have rarely move past the argument of whether the VLE is a pedagogical or administrative tool (Clay, 2019). Reverend (2017) suggests that this cyclical argument continues, "the ritual goes on and [VLE] is re-invented in small, pointless ways to garner a new set of interests and values, it won't go away, but it also won't deliver". Wood (2016) argues that the VLE is focussed on administration for the HEI, with VLE vendors *"stuffing more and more tools in there…. as yet another "sweetener" to encourage institutions to pick their product. But we can't blame them; it works – the institutions buy it."* When talking of their experience of VLE based learning, students often gave examples not grounded in their own experience, rather rehashing marketing rhetoric evidenced earlier;

> *"More convenient for students because you can choose, if it is not a guided VLE session you can go home or do it here, or whatever, you can do it in your own time to fit around your life or when you feel you learn better during the day, or middle of the night or weekend or whatever." – Student S7; Lines 207-209*

When Student S7 was asked if they utilise the VLE in the middle of the night or at weekends, Student S7 stated that she "prefers to come to Uni" to do VLE work. This was repeated by

other students, contradicting what is presented as a benefit. For example, Student S6 stated that *"If I had a VLE day then lovely, I could sit at home with a cup of tea, and work through my VLE at my own pace."* (Lines 41-42), but then later stated that *"while VLE is good you don't want to be spending too much time at home without contact, it works for the OU I suppose"* (Lines 216-217). The orthodoxy is so pervasive that there is a real difficulty in breaking away, here the student states it does not work for them but invokes a success by pointing to the Open University. Student S3 stated with regards to learning on the VLE;

> *"Because if you are at home with all the distractions, I found I had to go into Uni, or into the hospital, I just found I got distracted, but I think it does not work for everyone, you have to be quite focused. It is more voluntary, but it is built into our hours. It is meant to be done, but it not always is. I always did mine, but I learnt from my first year to remove myself out of my house." – Student S3; Lines 44-48*

Again. the blame is not proportioned towards the technology. Student S3 suggests that it is how they use the VLE that is deemed problematic, rather than the VLE itself. The fantasy of potential enhancement is so strong that there is an inability to resist against it. Student S4 states;

> *"For me, I don't do any learning at home, if I set aside time at home, it won't get done, I find other things to do like painting jobs at the moment! So, I will always, throughout the 3 years I have always gone into the library on the VLE days, my productivity is much better. I think the lecturers are not stupid and understand that VLE means holiday." Student S4; Lines 73-75*

For the students represented here, the fantasy they call to is a method for learning where "learning technologies can be used to save time, [to] make our lives easier" (Clay, 2011), even if the reality of their learning experiences is different. There are repeated attempts to mobilise some form of resistance against the VLE, but all that is manifest is a modified way of behaving, which ultimately leads them to engaging with the technology. The beatific logic of potential is couched within these terms of the impossibility of resistance, battling alongside the social logic of the ubiquity of technology. Ever present learning technology is looming in

the background as the beatific logic of potential, remains unceasingly on offer, not just for students, but for lecturers. However, the grip of learning technology is maintained not just by the pull of the beatific logic of potential, but by the potential horror of competence.

There is a context where teaching performance is always under judgement, and an environment where the orthodoxy is to then make use of learning technologies in teaching, trying to attain the potential. The social practices reinforce the natural, common-sense character of political practices, offering the beatific promise of something better using learning technology – the idea of technology free teaching becomes almost impossible. To augment the grip of the beatific is the horrific logic of competence - what may happen if you do not make use of TEL or are unable to follow the clarion call to employ learning technology with such potential. Lecturers may try to use technology in their teaching, but this technology may fail, or it is not used to its full extent, or the technology is not used "correctly", leading to teaching being at risk of being perceived as boring, outdated, not as good as the potential offers; the horrific logic of competence.

> *"Am I reflecting that I am not as IT competent as I would like to be, and don't want to show that off in front of the students. You know when I put it on the screen, and they can see what you are doing, and they are yelling instructions to you! I would have to have a little swallow, it's hard, I know I could do it, but I don't want to look a complete prat in front of … you know?" Lecturer LM; Lines 14-17*

> *"I want to be using it, as the guys we are teaching for the majority are technology natives, and I think sometimes you can look a bit behind. When I was at school you could fix a problem and the teacher would not know, look flustered, and you would think "bloody idiot", I know it is rude! I think by using it you are keeping up to date with the changes that are happening". Lecturer LJ; Lines 337-340*

This is further contradiction. The lecturers feel pushed to use technology to try and attain the potential on offer (of enhanced teaching), but at the same time are wary of their competence, and of using new technologies in fear of looking the opposite; a horrific logic of competence.

In an article titled ‘Fears of looking stupid’ (Times Higher Education Supplement, 2017), one academic is quoted who suggests that academics’ number one challenge was to make sure that they were “not an embarrassment to [themselves] in front of … students”. Lecturers have the looming prospect of being caught out as an imposter who is unable to make use of learning technology, but as has been partly demonstrated, the beatific aspects of potential (and positive appraisal below) are an edifying call. Lecturers are working in a context where the dominant message is that literacies which “have dominated higher education in the past” are purported to be “inadequate in the face of social network services, mobile technologies and pervasive computing” (Wheeler, 2010). Rhetoric  such as generation Z (Cilliers, 2017), millennial learners (Monaco & Martin, 2007), net generation (Judd, 2018) and digital learners (Bullen & Morgan, 2011) have been used widely in recent years with the term ‘digital natives’ commonly used in papers concerned with learning technologies (e.g. Prensky, 2001; Helsper & Eynon, 2009; Stickel, 2017), and the associated ‘digital immigrants’ when referring to educators. Students are constructed as modern, digitally fluent learners, and are commonly described with traits such as “absorbing information quickly” from digital sources, operating “at twitch speed, expecting instant responses and feedback”, and expecting to be in “constant communication” (Downes, 2005). This construction was repeated by lecturers in the interviews when referring to how they see the current generation of learners, with lecturers portraying themselves as needing to “keep up” with the digitally fluent learners;

> *“I also suppose with the advent of social media, our students are much more savvy in many respects than I am and colleagues, although my confidence is growing, I think, I think we have to be switched on to what students understand by technology and engaging it, tweeting etc…” – Lecturer LH; Lines 23-25*

> *“The way they use technology, they can be on the internet, on Tumblr, watching a film, on Xbox, football open.  They never speak on the phone. I think it is the millennial population - I read an article about that! The kids, people born from the 80s onwards, will, my expectation is, they will be much more conversant with digital technology than we will ever be.” – Lecturer LC; Lines 442-445*

> *"We have to be switched on to what students understand I think, and kind of engage with it, like tweeting etc, texting maybe, students, it is much more commonplace, and getting my head around that." – Lecturer LJ; Lines 34-36*

This belief in some form of new type of digitally native student, and by implication a new type of learner, with abilities unfamiliar to contemporary lecturers is reflective of wider commentary today. For example, Kohl (2017) indicates a new paradigm of learning where "the only way to keep pace is to become an accelerated digital learner" (empty rhetoric with no meaning). Mohr & Mohr (2016; p86) argue that the current generation of students are "known as eBay babies and 'information curators' resorting to their Google Reflex to interpret the world". Wheeler (2017) in an article titled 'Generation Next' argued that "these young people - sometimes referred to as Generation Z or Centennials will redefine our understanding of learning, and will challenge the way university education is conducted", although again there is a fundamental failure to demonstrate how this will happen, beyond the fact these learners use emergent technology, there will be some form of transformation, and consequently lecturers must also use emergent learning technology.

In each of the logics presented here there is a disjuncture between the rhetoric from participants and the reality described. The beatific logic of potential works by offering what technology has to offer, just out of reach, but the pull is strong. The horrific logic of competence completes this logic of promise, imposing lecturers to engage with TEL, not just to potentially enhance their teaching, but also to avoid issues of competence. But whilst reflecting within the interviews it was apparent that there was a disjuncture within the talk of lecturers when discussing what students thought of learning technology. Despite the rhetoric regarding the potential of learning technology, the lecturer participants struggled when asked "what evidence do you have that technology enhances learning?". The most common response was a straight "no";

- *"No. Laughs.... No."; Lecturer LC Line 218*
- *"Absolutely none!"; Lecturer LB Line 160*
- *"No. There is no evidence."; Lecturer LA Line 273*
- *"[Pause} .... Evidence? I want to say none."; Lecturer LJ Line 154*
- *"Feedback from students when they, vague feedback though, and I have not, actually have I got any? No, I can't think of any. Only anecdotal."; Lecturer LH Lines 130-131*

All lecturers struggled with this question, as represented by Lecturer LL below;

> *"Vague feedback I would say …. have I got any? Err, no, not really, I don't think I can cite any…. Maybe anecdotal? Student evaluations maybe? Asking if they enjoyed that - not sure."; Lecturer LL Lines 118-121*

All lecturers stated there was limited or no evidence or referred to anecdotal evidence – although often with the caveat that there must be some evidence somewhere. Lecturer LI (below) could not think of any evidence to support the use of learning technology, adding that there is some discussion with colleagues about problems with the use of technology;

> *"Probably none. I have never heard a student say I wish you would tweet! Or say can we have more VLE. Actually, students say they want more face to face stuff. I have heard this quite a lot, and colleagues have told me, students' feedback, too much PowerPoint, they want people who are confident and will engage with them, more face to face. Not formal feedback, but to my face in discussions. It seems more real. That feels more real."; Lecturer LI Lines 269-273*

Lecturer LG also struggled to outline any evidence that technology enhanced learning and went on to suggest that student evaluations provide the evidence. However, the need for technology was framed with a benefit for administration rather than pedagogy, not for "actual teaching";

> *"I don't know, there has been times when they have griped about the technology, so I don't think they are wanting us to do it so much in our teaching sessions. I think they want it there so you can access, so they can access you and things like that.*

> *More in terms of improving feedback and communication in that kind of way, but not for the actual teaching." Lecturer LG Lines 423-427*

Lecturers still continued with the insistence that technology had the potential to enhance. There was also some disjuncture for students when considering the potential enhancement learning technology offers. Students all considered technology a means to enhance teaching and learning throughout their interviews, but there was contradiction when students were asked "what are the best teaching sessions you have had?", the responses looked to teaching sessions away from technology;

> *"I would say in small face to face groups where people felt able to, almost like counselling style groups, where people got to know one another, the dynamics, some of the problems people have got, then you could relate that to situations."; Student S10 Lines 217 – 220*
>
> *"So, it is not really about what it's about, it is who is teaching, definitely. 100% the lecturer."; Student S11 Lines 241-243*
>
> *"It is quite interesting actually, as if you asked me earlier, I would probably have said that technology-based learning is the way to go, but actually having reflected on teaching, I think I would say that it is not."; Student S4 Lines 358 – 360*
>
> *"I don't think I have learnt much. I don't think I have learnt anything using the forums, anything very substantial."; Student S9 Lines 153-155*

And yet, despite saying this, the orthodoxy of TEL is so complete that students cannot see outside of it, and when they were asked a follow up question of "So, does technology enhance teaching and learning", every student participant replied "yes". The rhetoric is about digital disruption and technological enhancement of teaching and learning, but the reality is not. To resist the orthodoxy or to resist technology enhanced learning is nigh on impossible, the discourse of TEL is so dominant.

### 8.2 Logic of Performance

Teaching practice in the classroom, and the performance involved in delivering teaching sessions, has been much discussed in the higher education community, and a common feature of the literature are discussions of the characteristics of what makes a good lecturer or teacher (Martinazzi & Samples, 2000; Walker, 2008; Lupascu, Pânisoară & Pânisoară, 2013). Azer (2005) produced a list of 12 aspects of what makes a good lecturer, including demonstrating leadership, encouraging diversity and emphasizing teamwork, but also aspects of the performance of the teacher in the classroom – such as the ability to engage with the student group. The list is reminiscent of the 'The good teacher is more than a lecturer: the twelve roles of the teacher' (Harden & Crosby, 2000) and the subsequent paper 'Refreshing lecturing: a guide for lecturers' (Brown & Manogue, 2001), where the authors focus on the ability of the lecturer to entertain the audience by using audio visual aids and employing a variety of teaching methods in the classroom. This ideal is common across various discussions – the ability of the teacher to 'perform' in front of a group of students. Performance is recognised in the Higher Education Academy UK Professional Standards Framework (HEA, 2011) which points to teaching performance in the classroom, such as student engagement in the classroom and use of appropriate learning technologies. As Purewal (2016) suggests, the act of teaching is not just imparting what is in your head to an audience, "teaching is a performance, it's reading the room and working it". The fantasmatic logic of performance has a beatific and an horrific aspect – the beatific logic of positive appraisal, and the horrific logic of negative appraisal. These two logics construct a promise of what may come should the lecturer engage or fail to engage with learning technology and shall be explored in turn.

When the student participants were asked what makes a good teaching session, aspects of performance were clear within the interview data, in particular highlighting the ability of the

lecturer to appear passionate and enthusiastic. For example, see the comments from Student S2, S3, S4, S8 and S9 below;

> *"Lecturers who bring their personality in and are enthused about the subject. If you get someone, and even if you think it is a boring subject, if they are enthusiastic about it, and they can get you enthusiastic, when you might have looked on your timetable and gone "oh God", but you have someone come in who is enthusiastic and wants to get across their knowledge, that makes it interesting." Student S1; Lines 84-87*
>
> *"She was very enthusiastic and very passionate about the session itself, I think it was her background, so you could see she was enthusiastic for it, and she was walking around the classroom, and checking up on us, giving us food for thought and giving us feedback. That was good." Student S2; Lines 203-205*
>
> *"So when you have a lecturer that loves the subject you are teaching that is very infectious, and when you get that from them, the audience have got it, it is a done deal. I say audience because it is a performance, and the lecturer needs to perform and the audience needs to enjoy that performance, that is part of the learning cycle." Student S4 Lines 230 – 233*
>
> *"it is an impassioned and engaging lecturer, that is the absolute bottom line, that is what you need. You have got to have a good teacher, you have got to have in front of you someone who is going to engage you and interest you." Student S8; Lines 286-288*
>
> *"I have had some excellent teaching. The best are from lecturers who are really enthusiastic about the subject, the subject does not really matter as the enthusiasm comes over and you get enthused about it to." Student S9; Lines 187-189*

This was common language across students' descriptions of "good teaching"; enthusiasm, passion and the ability to engage with the students. What is evident within these descriptions is that not one of the student participants mentioned the use of learning technology when asked what makes a good teaching session. Students construct good teaching as being enthusiastic, passionate and from a lecturer who can engage the student group whilst teaching. This relates to the performance of teaching and equates with wider

evidence of what students think about teaching, such as from Su & Wood (2012; p148) who analysed secondary data from a range of sources to explore students' beliefs of what makes a good lecturer. They highlighted what students believed were the essential skills contributing to making a good lecturer, which included a sense of humour and the ability to engage students (p148), and also that "good lecturers trigger enthusiasm and are often passionate about the subject they teach, even if that subject happens to be not that exciting" (p149). These notions related to being thought of as a good teacher do not directly point towards the impartment of knowledge from teacher to audience, but rather how that knowledge is imparted – the performance inherent in teaching, and in particular, the ability to engage the students in the classroom. With this ideal of the need for a lecturer to engage students within the classroom, we can look to lecturers, and the logic of positive appraisal.

Whilst the students all mentioned aspects of a lecturer's performance in the classroom related to the lecturer's ability to engage with the students, lecturer participants talked about class engagement linked to learning technology, and a call to learning technologies to enable them to be judged as a "good teacher". Participant lecturer LB discussed the performance they give when teaching, and referred to learning technologies as "props, not as a method to impart knowledge, but as a method to engage the group or keep them interested;

> *"You know concentration varies, but I imagine that on the whole after 10 to 15 mins people have drifted off, so you need to keep people engaged and that is why things like that Prezi, and YouTube clips are there really, to help with your performance. So, they are props as I equate teaching in that sense with, getting in a role, playing to the audience, and managing the audience, you have always got a heckler, and things like that. There is someone asleep, you know when you look at any audience in the theatre, you have the same characteristics, so how do you manage that, so it is about managing that performance, so I use the term props"; Lecturer LB; Lines 89-95*

In the data, participant lecturers discussed why they or their colleagues would want to use learning technology in their performance. Akin to Lecturer LB above, they framed the use of technologies in the classroom not as a method to help the students acquire knowledge, or pedagogy, but rather within a beatific logic of positive appraisal - learning technology as a possible method to help lecturers receive a positive judgement from students, for a session to be liked. When asked why they use technology, often the initial response from lecturers was concerned with impressing the students, not appearing dull, something different than then norm with language such as “sexy”, “glam”, “look good” and “wow, look at her”, such as in the following extracts;

> *“I know it* [learning technology] *makes you look good.” – Lecturer LG; Line 269*
>
> *“It* [learning technology] *is no more enhancing but is quite sexy and glam.” – Lecturer LD; Line 114*
>
> *“I have sat in lectures where it is really boring, and …. if it has something different so there is a clip, or something to watch or something different to look at or a handout or discussion … there is an element of not wanting to appear dull in front of the students.” – Lecturer LF; Lines 164-166*
>
> *“It* [audience response system] *is not easier than a show of hands, but it gave percentages … it looked a quite impressive to the student …. so you think that is a good thing.” – Lecturer LE; Lines 150-151*
>
> *“Well it is about my performance … is doing all the stuff which makes me feel better, for example using Prezi instead of PowerPoint, basically they do a similar thing, but Prezi looks a little bit different, and people don’t use it very often, so people are like ‘Oh wow look at her’. So that is about me.” – Lecturer LB; Lines 103-105*

To further explore the fantasy that using technology enables a positive appraisal of performance, it is useful to consider the wider context of literature and discussions associated with TEL. In particular, there is a large body of academic debates, and an increasing number of perspectives surrounding learning technology and its pedagogical value. As they have in other technology related areas, these technological innovations are expected to usher in dramatic changes in education that are seen by many as both unstoppable and beneficial (Serdyukov, 2017) - this is the dominant common-sense as

highlighted at the outset of this chapter. There is a vast breadth of discussion, as demonstrated in the problematisation related to pedagogical theory, with examples such as connectivism (Siemens, 2005), rhizomatic learning (Cormier, 2011), paragogy (Herlo, 2014), and heutagogy (Blaschke, 2012) vying for attention. Plus there are a tremendous variety of questions being asked. Consider the following table of contents from one leading TEL journal issue in 2018 (Research in Learning Technology) which includes topics such as teacher self-efficacy in online education (Corry & Stella, 2018), utility of learning analytics (Starsfield & Conway, 2018), the impact of TEL on student engagement, attendance and performance (Shah & Burkas, 2018), the electronic management of assessment (Mayhew, 2018), personalised technology enhanced learning (Fitzgerald, Jones, Kucikorva & Scanlon, 2018), online communities of inquiry (Jan, 2018) and social media as a student response system (Liu, 2018) to name but a selection. To quote Hamilton & Friesen (2013; p2), "amidst this diversity, a single theme emerges – that the technologies themselves are, indeed of beneficial value". However, despite this, it is also reasonable to consider that the continual emergence of research into learning technologies has been framed by a representation of the inevitable positive changes that they will usher in, as suggested by Hopkins (2017) when he argued that learning in Higher Education Institutions "is being reshaped before our eyes, thanks in part to advances in technology and the new pedagogical theories facilitated by that technology".

It is of no wonder that the logic functions to blind lecturers who witness the academic debates regarding TEL, to alternative discourse. These pedagogical debates are not only witnessed from the periphery but also from within academics' own discipline, and from learning and teaching professionals within their institution. This then leads to further concealment of radical contingency, and the reinforcement that lecturer's use of emerging learning technology will lead them to be viewed positively. One participant (Lecturer LD) explicitly called out this fantasy which is on offer from learning technology:

> *"if you have a skills lab you have a virtual world, you are in some way better than a place that doesn't, but actually you can do all of that in a, perhaps a less fanciful way, but it is sexy, it is romantic, "wow look at that", the same way in that I am talking to an Apple iPhone here with more apps on it that I can poke a stick at or ever need, but "ooh I like that". So it's selling a fantasy. It is. If you have the technology, let's talk technology in the wider sense, if you have all this whizz bang technology, your university is better, the teaching is better, the learning is better, the students experience is better…. But actually there is no evidence to say that that is the case." – Lecturer LD; Lines 268-273*

The orthodoxy is that technology makes any aspect of the university somehow better, but the lecturer suggests a lack of actual evidence to support that fantasy. Consistent with the disjuncture in the previous logic, whilst Lecturer LD was insistent a number of times that there was no evidence that technology was an enhancer for their teaching practice or students' learning, they still used several elements of technology on a daily basis – the logics working to grip the lecturer in the face of a lack of evidence. The common-sense belief of TEL as beneficent is dominant and resistant to change.

Commensurate with the dominant belief of TEL as beneficent, and that it enables a positive appraisal of performance, is the horrific logic of negative appraisal. That using less learning technology will result in the teaching performance being judged negatively. Several lecturers when talking about the performance of teaching pointed to the stimulation aspect of using learning technology. Lecturer LE described the need to use technology to entertain students, but then culminated their point with the horrific idea of being judged as being dull;

> *"I think there is an element that you want to entertain I suppose, but if you present info in diff ways it keeps peoples interest levels up rather than just chalk and talk or just PowerPoint as that gets, and I have sat in lectures where it is really boring, and if it has something different so there is a clip, or something to watch or something*

> *different to look at. But yes, there is an element of not wanting to appear dull in front of the students."; Lecturer LE Lines 92-95*

This is the potential disaster which is looming for lecturers, that without use of TEL, they will receive a negative appraisal from the students being taught. This is evidenced in how lecturers talking about the new learning technologies they had experimented with in their teaching experience, and also why they had done this. Audience Response Systems (Clickers) were mentioned by a number of lecturers as a learning technology they had tried, and when asked why, it was described as being a "fun things to do". For example, Lecturer LH gave the reason of keeping the students engaged for using clickers;

> *"I have not used [clickers] much, but it does provide a visual and a fun thing to do, not in an educative sense but in a way of jolting them back into concentration."; Lecturer LH Lines 85-86*

Stimulating students during a session was mentioned by several lecturers as a rationale for using learning technology. Lecturer LG talked about using Sim Man, and how stimulated students, far more so than would just sitting there talking to them;

> *"I think on the whole it is not wrong to say that students enjoy the sessions where they are actually being stimulated, so going back to the session such as with Sim Man you can see how lit up the students are at their best, and that does not happen when you are just sat there talking to them."; Lecturer LG Lines 227-229*

Using technology, entertaining students in the classroom helps lecturers avoid the horror of negative judgement from the students. Judgements of teaching performance are highly visible throughout higher education and are not only found in teaching evaluations. Not only are there internal institutional judgements of teaching performance, there are also public facing websites that judge teaching performance, government backed judgements of teaching performance, and public student discussions that also judge teaching performance. For example, there are public websites such as 'Rate Your Lecturer' where lecturers can be

rated by students in relation to their teaching performance, and have comments left against them. There are also websites such as ‘What Uni’ and ‘Student Crowd’ which house comments from enrolled students on students’ experiences of teaching sessions. Alongside these are less formalised websites for feedback such as the ‘The Student Room’ and ‘AllNurses’, which also hold discussions related to what makes good teaching. One example from the web forum ‘AllNurses’ (AllNurses, 2018) from a thread asking nursing students what they thought of their lecturers (243 posts), but not one of these responses mentioned learning technology except when complaining about the use of PowerPoint slides. The recurrent theme presented as to why teaching was good, was the ability of lecturers to engage and to be passionate whilst teaching with comments supporting the data from student interviews, that lecturers need to be passionate about their subject and need to engage with their students. The only references in the discussion forums to a learning technology were to the use of PowerPoint, and all posts discussing PowerPoint were negative in some aspect. Comments from the above threads included asking what the point of reading from PowerPoint was, when the student could just read a book themselves, to the notion that the less able lecturers need to use PowerPoint to support them as a teacher. There are further examples, such as from a discussion thread titled “Why do nursing instructors rely so heavily on PowerPoints to teach?” (AllNurses, 2018b), with 253 posts generally lambasting the overuse of PowerPoint, and painting PowerPoint is a lazy teacher’s method of getting through a session.

Formally within Higher Education Institutions, the National Student Survey is an annual survey of final year undergraduates and provides metrics on various key areas, including one section titled “the teaching on my course”. The results and feedback can then be viewed and compared across institutions via the ‘UniStats’ website. Also, the ‘Teaching Excellence Framework’ was introduced by the UK government in 2017 as a system to assess the quality of teaching in UK universities, arguably to increase the focus from

universities on teaching, to be on a par with research. Again, the assessment is available via the 'UniStats' websites to assist students in selecting the course they wish to attend. Other league tables of universities are also readily available from sources such as the Sunday Times, and Guardian newspapers. UK lecturers are more aware than ever that they are being judged, assessed and rated from all manner of people, including the students sat in front of them, with the Guardian (2017) arguing that there are now "threats from managers" if the feedback is not adequate.

However, within this logic of the possibility of positive appraisal and the looming disaster of negative appraisal, there is a disjuncture between the rhetoric of the lecturers, and what they believed students wanted, and what students actually described as being good teaching. Students were asked about teaching performance, and the focus of the discussions was not on the use of technologies, or being stimulated, but rather on the lecturer, the human aspect of teaching. Student S11 explicitly stated that good teaching is nothing to do with technology, a theme repeated by Student S8;

> *"It is who is teaching, definitely. 100% the lecturer. When I did my first degree, I hated sociology, but I passed, cause the lecturer made sense, she explained it, took it down to a level I could understand, I didn't enjoy it, but I looked forward to her lessons, I like her, I could talk to her. It is nothing to do with the subject or any PowerPoint or any technology, it is definitely the person who is teaching it." Student S11; Lines 243 – 247*

> *"Yes. It certainly enhances my learning as a student, but I am not sure, I am not sure that it enhances teaching. The teaching experience. You have got to have a good teacher, you have got to have in front of you someone who is going to engage you and interest you, and I think for me, one of the most enjoyable things about nurse training is how different teachers have bought about discussion and debate within the classroom, that is down to good teaching, the skill, the human skills of the lecturer." Student S8; Lines 139-146*

It is the human aspect of teaching, rather than the impact of technology.

> "Just having knowledge is not enough, just because somebody is knowledgeable does not make them a good tutor, so there has got to be enthusiasm there and the ability to teach as well, and no amount of technology is going to make a poor tutor a good tutor, and no amount of technology is going to make somebody who is not enthusiastic about their product, come across as enthusiastic." Student S9; Lines 272 -276

Several students talked about technology in terms of being additive rather than transformative, and then looking to the human teaching skills of the lecturer;

> *"It is about the vocabulary that is used, and whether technology enhances learning or is it just an add on? And I suspect it is an add on. It is about the motivation of the lecturer, coupled with the motivation of the students and that is it. If those two things meet, whatever medium you use will ultimately work." Student S8; Lines 287 - 292*

> *"The main thing is the lecturer and what they know and how they project it and how they teach it, and the technology behind that is just something that is added on the top." Student S9; Lines 31-32*

There is a direct contradiction here between the talk of lecturers stating that technology enables them to have an opportunity to excite and engage students, and the excerpts above. They clearly state that technology is simply additive, does not transform teaching, and "no amount of technology is going to make a poor tutor a good tutor", or is "going to make somebody who is not enthusiastic about their product, come across as enthusiastic".

### 8.3 Logic of Performativity

The logic of performativity is associated with how individuals or groups acquire identity through the repetition of performative acts such as language use and particular practices (Butler, 2010). It is linked to forces which are invisible and yet ubiquitous, governing individuals, whilst remaining unknown. The logic is focused on the reality of lecturers who talk of engaging with TEL through a lack of choice, due to trying to make themselves to 'look

good' within the organisation, and also to make the organisation "look good" for subsidiary reasons. The logic also works as the lecturers have to engage to prevent themselves from 'looking bad' within the organisation. This will lead to a discussion of the disjuncture surrounding this logic, which arises from the mis-understood reason's students give for why lecturers want to use learning technology. During the interviews, when lecturer participants were discussing why they used learning technology, they often turned to the idea of not having a choice in whether they utilised learning technology in their role;

> *"Well, I do think we are becoming slaves to technology in so many aspects, and that includes in education. I am not sure if I really want it, or what benefit it truly gives. We managed fine before technology, and I don't really see the benefit of what it has given us? We are slaves, in that we have no choice but to use and engage, we could manage, but I don't think we are given that option." Lecturer LI; Lines 237-240*

The lecturer above uses the term slaves in relation to technology, suggesting a lack of choice, but the second time they use that pejorative term they are talking specifically about their role as an educator, stating that they have "no choice" but to engage with TEL – they see no other option. This idea of being forced to make use of TEL was repeated by several lecturer participants in relation to the organisation and the work of the organisation. It is important to establish the way several lecturers describe the pressure they feel to engage with TEL, as the logic of performativity is based on the notion that lecturers are performing TEL not for reasons of enhancement of teaching and learning, which is the main "sell" of learning technology, but for subsidiary reasons which arise from organisational or work pressure. Lecturer LF raised the idea of pressure a number of times when explaining how they use learning technology, using similar language as lecturer LJ above;

> *"I literally feel like, trapped, and I don't know whether it is fitting in with what we think they expect." - Lecturer F; Lines 98*

The “they” being referred to here was the university, not the student body. Several lecturers talked of this expectation that they should be using technology in their teaching practice which originates from the university they work for. This expectation is voiced clearly by lecturer participants when they tried to explain the reasons why they used technology in their teaching. It is significant that lecturers did not talk about the expectation for use in terms of pedagogy, rather it is for subsidiary reasons. Lecturer LC was talking about why she has tried to use “clickers” in their teaching sessions, and referred to pressure from within the university;

> *“There is an expectation that we provide technology enabled sessions. I think we are pushed to use it. I don’t know.” - Lecturer LC; Lines 395-396*

Lecturer participants overtly talked about the managerial actors from within their organisation who ‘encouraged’ them to engage with learning technology in some form. Lecturer LF talks of their senior manager, faculty meetings and the push to use more learning technology. But this talk is laced with exasperation, as the lecturer does not know why or what they should be asking for, the rationale is not made clear beyond the lines that you need to engage;

> *“I feel pressured by them to do it, I feel pressured by* [Senior Manager Name] *etc, some of the ways that they talk, and faculty meetings, in that we need to look at the way we are doing it. I kind of feel that* [learning tech team] *are there to help, they tend, it feels like it is us having to ask them, but I am at that point where I don’t know what I need to ask, because I don’t know what I don’t know, I just know I don’t know it. So, I am not going to ask, because I don’t know what I am asking for.”; Lecturer LF; Lines 446-449*

The way Lecturer LF expresses frustration at “not knowing” is a culmination of the lack of evidence as evidenced earlier. In the excerpt below, lecturer LH called out an instruction from their Head of Department based on a complaint from students that learning technology was not being used enough;

> *“Maybe it is not explicit, certainly Sim Man*. [Head of Department] *sent an email that students are complaining that “we have this equipment” and “we are not using this*

> *equipment". Wouldn't it be nice to know what do you think it would bring? "Why can't we use it because it is shiny!" Yeah but how do you think it is going to enhance your learning?"; Lecturer H; Lines 317-319*

Exasperation is evident again, as the lecturer asks rhetorically about what benefit it would bring, or how it would enhance learning. But despite this, there still seems to be little apparent resistance. Lecturer LK also evidenced the employment of TEL strategies in formal university appraisals, stating that the use of learning technology was part of their appraisal with their manager, and therefore a requirement;

> *"There is a definite drive yes. It's in my appraisal. Well, [lecturer] was hired by [manager] to teach us technology. That was part of her role, to get us all up and running, to embed YouTube, to put articles up, put PowerPoint up, put discussions, blogs, have VLE interactive discussions." - Lecturer K; Lines 248-250*

The organisational strategy also included the employment of a specific member of academic staff as an overt political strategy so as to facilitate other staff in the uptake and use of technology or "to teach us technology". What is central to this talk is the idea of 'organisational pressure' from the university, to engage with learning technology. Within this, it is evident that academic staff struggled to comprehend the rationale as being concerned with their teaching practice or students' learning. Lecturer LH explained that they thought there was a driver, but it is not transparent as to why this 'drive' exists, and again a call to a lack of evidence for the use of learning technology. It may be about pedagogy, and that is alluded to, but the lecturer is again exasperated as to why the pressure is there. There is also a mention of workload issues, an indication to some form of passive resistance to learning technology;

> *"Some feeling that yeah, seems a bit of a* [university name] *driver, to be using it, and it is not always explained. I would quite welcome more transparency about why you think it is going to enhance teaching or enhance learning, maybe it is there, and I have not got time to find out why, and I think that is one of the frustrating things, as*

> *there are workload issues, and it is hard to find out just why do you want me to use this, what do you think it brings to my teaching." - Lecturer H; Lines 301-305*

When lecturers made comments about a lack of choice but to engage, this was mostly in relation to using the VLE for teaching purposes. Days set aside on the timetable are referred to by students and lecturers as 'VLE Days' - a type of teaching that suggests the VLE as the facilitator of learning. Subsidiary reasons to pedagogy were named as the rationale behind the use of 'VLE Days', they were not described as a choice from the course team based on pedagogical principles. Lecturers demonstrated a belief that use of the VLE was in response to the organisational drive to free up teaching room space.

> *"Obviously the VLE is something that is pre-set and is not something I have influence on. So yes, I am being forced to use it." - Lecturer LJ; Lines 319-320*

Lecturer LK states that there is some resistance to the push from the organisation, as they are "sold" the use of the VLE. The reason given is around pedagogy, but there is a lack of conviction from the course team in engaging with the VLE, and Lecturer LK reveals the rationale as organisational and workload related;

> *"We got the impression that they want … staff were saying we are busy all the time, we have too much to do. So freeing tutors up so they are not teaching, reducing the teaching time, encouraging things to be blended learning." Lecturer LK; Lines 226-227*

> *"[VLE Day] was sold in terms of creating independent learners, lessening the teaching burden, creating space for more innovative projects and research. Basically. It felt like a sell, because a lot of us don't want to do that, a lot of us don't believe in it." Lecturer K; Lines 264-267*

The argument is made that the VLE as a method of teaching is 'not believed in'. It was "sold" in political terms of lessening their burden of teaching (creating space to conduct more research projects), also by the empty rhetoric of TEL (creating independent learners). The lack of choice for lecturers in whether they engage with learning technology from an

organisational perspective is not only evident managerially and administratively, but it is also reflected in the physical university environment that lecturers teach within. There is frustration with the lack of freedom from the lecturers in the excerpts given, reflected by Lecturer LA;

> *"Every room has technology, the physical structure of the building, the organisation, you can't, if you move chairs around, and you don't move them all back you get an email chastising you for not going back to the structure that has been set out and that is that of a cinema where everyone is sat facing the front." - Lecturer LA; Lines 386-389*

The beatific aspect to the fantasmatic logic of performativity, lecturers using learning technology for subsidiary reasons, is the logic of ornamenting. This is not focused on the educational impact of TEL, but rather is concerned with 'looking good' within the organisation. The beatific logic works so as to make a promissory offer that if the lecturer engages with TEL, even on a non-educational, superficial level such as for promotional purposes, then this will make them 'look good' with peers, managers and the wider organisation. This is ornamenting, lecturers talk that if you are seen as a lecturer who engages with learning technology at any level, then this will result in some form of praise or approval, albeit, even if not in relation to actual educational enhancement. For example, Lecturer LG was giving reasons for why they use learning technology, initially stating that it is to meet a variety of learning needs for students. After this, they move on to state that TEL can make a lecturer "look good";

> *"The thing is it looks good. Recording a podcast, and* [manager name] *says 'fabulous!' … but they don't say fabulous for giving a tutorial, or seeing those students."; Lecturer LG; Lines 277-278*

Interestingly, Lecturer LG continues to expound, that it is not just performing well at your job which makes you "look good", but rather the specific use of learning technology by lecturers. This praise is not available for "giving a tutorial" or "seeing students" (fundamental

educational roles), but if you “record a podcast”, then praise may be received. The logic works as learning technology is constructed as enabling the university organisation to appear better at a superficial level, and actions of supporting this thereby make the ‘tech-savvy’ lecturer “look good” within that organisation. For example, Lecturer LM repeats the argument that technology is a beneficent presence in the university in relation to academic performance;

> *“I think the Uni has obviously invested a lot of money to employ people to support lecturers to use technology, that from the top down there is a message, that we should use technology, that it is beneficial to learning. That, if the institution is about raising its profile, moving up league tables, measuring performance, having a team of people, a significant investment.” - Lecturer LM; Lines 158-161*

Lecturer LM talks of the university investing finances to support lecturers to use technology – the use of technology is believed to be wanted by the university – there is a “top down” message that this will result in a benefit. However, this may well be ornamental in essence, as at the end of this excerpt, Lecturer LM states that that there is a top down push for improvement based upon TEL, then immediately voices their own caveat upon this by adding;

> *“I would hope that the people allocating that investment is convinced that technology is good!” – Lecturer LM; Line 162*

Lecturer LE also referred to other institutions from a comparative perspective, with a “thought” that it is being done elsewhere, therefore there is a need to engage with TEL;

> *“I think there is often the idea that other universities that are using it, so we need to look at what is being done, or you feel that you might get left behind if you are not using different forms of tech, you know, not using different forms.” - Lecturer LE; Lines 311-313*

Students intimated to the logic of ornamenting. Student S1 suggested that TEL is mobilised to make the university look more attractive as an offer, and consequently utilisation of TEL would be wanted by the institution;

> *"The university has, not initiatives... the uni would be keen to develop it because it keeps you up to date with other universities, and makes it an attractive proposition for students. I suppose for less mature student's technology is what they are used to, and has been there for their whole lives. So yes, it has to be up to date, to make students want to come here." - Student S1; Lines 234-237*

Student S11 talked about their 'course interview' when they applied to come to the university, how learning technology was reflective of the reality of learning technology use through their course experiences, and therefore ornamental;

> *"We don't use the skills lab enough, I realise there are restrictions, and more people using it. When we came to our interview it was look at this flashy building, so hi-tech, yet the number of times I have used it I can count on 2 hands, the number of times we have been over there and used stuff, which seems a bit of a waste." Student S11; Lines 271-274*

This represents the beatific logic of ornamenting, the lecturer receiving some form of plaudit within the organisation for using technology, such as through the use of hi-tech patient simulators or learning technologies. This was noted by lecturer LD;

> *"Get two sim men! Why have one doing bugger all when you can have two! And it is used as a promotional tool rather than educational, to "have" a sim man. But actually, the Sim-Man that we do have does not do anything more than a person in a bed could do. You could do the same things, "wow we have a Sim-Man", even a Sim-Baby for heaven's sake! It is used very rarely."; Lecturer LD; Lines 248-253*

This use is not for enhancement of pedagogy, but for what is termed subsidiary reasons, such as organisational pressure, or student recruitment. This has led to a disconnect with the actual experience of both students and lecturers. Working with the beatific logic of ornamenting, the pull lecturers feel to engage with learning technology to "look good" within

their organisation, is the horrific logic of the neo-luddite. This horrific logic is constituted by performativity, the performance of TEL for subsidiary reasons, and demonstrates the disjuncture between the rhetoric of TEL, and that from the university. This horrific fantasy works through the possibility that TEL-savvy lecturers may supersede or be viewed more positively than neo-luddite lecturers through their engagement and technological abilities, or achieve an better teaching assessment from students. An example of this was highlighted through the talk of Lecturer LG above, when they were discussing the response from a manager to the use of learning technology;

> *"The thing is it looks good. Recording a podcast, and* [manager name] *says 'fabulous!', but they don't say fabulous for giving a tutorial, or seeing those students."; Lecturer LG; Lines 277-278*

Other lecturers looking "better" than yourself is induced through the logic working. The horrific outcome can be allayed through engagement with TEL through subsidiary;

> *"There is an expectation that we provide technology enabled sessions. I think we are pushed, pushed to use technology in our teaching, and we have to keep up with that. You don't want to be one of the one's who will, you know…. well, you want to be keeping up. There are some who seem to know how to use it more, and you need to be able to. To use it more." – Lecturer LC; Lines 395-398*

Lecturer LC states they are "pushed" into using learning technology, and that they "have" to keep up with that – at what consequence? Lecturer LC does not explicitly state the outcome if you fail to keep up, but begins to allude to this; "you will be one of the one's who will, you know…". Lecturer LI referred to a competitive element between academic colleagues, and that they want to "keep up" with them;

> *"Probably more encouragement from ... a competitive element from between colleagues, I don't want to be the lecturer who only shows a PowerPoint or never shows a PowerPoint. It's about being able to say… she can engage. She can vary her style. That's just me. I think." – Lecturer LI; Lines 175-177*

Lecturer LJ then talks about themselves in the third person - “she can engage”, “she can vary her style” – this represents other actors from the organisation talking about her. The logic works so that there is a fear that technophile lecturers would be left behind, a common perspective which was expressed by several participants;

> *“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.” – Lecturer LE; Lines 315-317*

> *“There are those who can and those who can’t. I suppose you need to keep up with those, you know, the skills so you are not left behind. There is a risk. You need to use it to its full potential to be better.” – Lecturer LD; Lines 195-197*

> *“You are keeping up I guess, digitally keeping up. I think that is, not sure it makes you any more credible, but there is something about being able to keep up with what is going on.” - Lecturer LB; Lines 302-204*

> *I suppose we compare ourselves to our other colleagues, if they are doing whizzy stuff there is a bit of pressure on myself that I should be doing that sort of thing.” – Lecturer LL; Lines 202-204*

The performative element persists, with the above participants demonstrating evidence of comparative performance. The potential horror can be avoided if the lecturer turns to learning technology, or somehow utilises them more “appropriately” or “effectively” – the potential that is forever out of reach. Lecturer LH openly questioned the utility of learning technology, but still felt that they had to engage as they are being judged, and talks about getting on board with “the message”;

> *“Utility is more important than just using it because it is new. But that can be forgotten when seeing what someone has done, that so and so lecturer is using this new technology, even though it doesn’t actually make anything better. So, they are judging us. Those who do, you know, and those who are more careful, I suppose, more critical. But there is a pressure, definitely, to get on board with the message.” – Lecturer LH; Lines 341-345*

The imperative felt by lecturers for using learning technology is peer and organisational pressure, with a lack of pedagogical merit supporting this. If the lecturer does not engage with the new technologies, then the question is raised of whether there is value in replacing that lecturer? It has already been demonstrated above that lecturers were employed for the role of increasing technology adoption within the course team, and that TEL was an overt presence within a lecturer's appraisal. The neo-luddite is opening themselves up to the risk to being perceived as a redundant member of the technophile organisation.

> *"I know I need to use it more"*
>
> Q. What makes you say that?
>
> *"I have seen it used quite well. I have seen other lecturers use it. And it is quite good. And a different kind of activity, a different thing for the students to look at. Yes, it is exciting, it can make sessions, you know, I was going to say less boring." – Lecturer LL; Lines 113-115*

The appraisal aspect of performance is evident in lecturers talk, but there is also the performative aspect, that the lecturers need to be seen to 'act out TEL'. The quote above begins with the lecturer stating, "I need to use it more", they need to show they are using TEL. This is perhaps even if they do not believe in the educational value or efficacy of TEL or to enhance learning, so lecturers perform TEL because it makes them look good, whilst also meeting organisational expectations. When referring to a newer learning technology, Lecturer LI below asks themselves the specific question "would it make my teaching better?", and the answer does not concern aspects of pedagogical improvement, but rather the lecturer turns to how they are presented, to prevent themselves from being viewed as boring;

> *"Have I got the confidence or the time to invest in doing it? Would it make my teaching better? Well, I would not look like a boring PowerPoint lecturer." – Lecturer LI; Lines 91-92*

There is contradiction within lecturer's descriptions of learning technology use with a suggestion of a hierarchy within TEL. There is the possibility that by using learning technologies, the lecturer will not become a "boring PowerPoint lecturer" – a description of a lecturer who is using TEL, but an older, established (oft ridiculed) technology of PowerPoint. But there is a need to be seen not as just "another PowerPoint" user, but as someone who is knowledgeable about the more recent iterations and developments within TEL - relating to political logics of how TEL perpetuates itself with continual iterations. PowerPoint is the standard method of teaching in a classroom which is ubiquitous throughout all forms of education, the norm. Emerging learning technologies which are not the standard teaching practice, offer lecturer's a means to be judged as a user of technology that is new or 'more exciting' in their performance, as described by Lecturer LL when referring to using newer learning technology;

> *"If it is right, the lecturer knows how to use it, they are confident and competent, then yes, it is exciting, it can make sessions, you know?" – Lecturer LL; Lines 113-115*

The horrific idea of lecturers being replaced with technology is not new, and was referred to in the archaeology and genealogy, such as the concern from teachers and academics that teaching machines would replace the teacher in the classroom. Impact of automation is an enduring perspective. In a study commissioned by the Bank of England, the chief Bank economist Haldane (Elliott, 2015), concluded that 15 million jobs are being put at risk due to increased use of technology and automation of roles. In this study, the participants did not refer to the notion of teaching and learning being automated, but did make references to a potential threat on job roles;

> *"Equally you do have to look at resources, and there are better ways of using your time. You have to be of use, and that means being able to use the latest technologies in your role …. But you have to be mindful, we have had complaints from students that there is too much, and they don't like it, because you might as well say "you don't need me."" – Lecturer LE; Lines 252-255*

The passage from Lecturer LE is implicitly critical, with the lecturer saying it does not save time, and there is a concern with how lecturers can demonstrate their value, and how this has come to be measured in TEL. The institutional expectation around TEL indicates that lecturers may be required to do this. The lecturer also seeks to make an alliance with students, as the lecturer suggests they may complain if there is too much learning technology, functionally allying lecturers and students against institutional actors who prioritise TEL against the interests of pedagogy. Lecturer LD referred to organisational actors trying a more measured approach, but with the message that you still have to engage with TEL;

> *"I am not sure this is for your research, but the person who was in charge of the VLE prior to the current boss of the VLE was more verbal in saying this is the future, whereas the current person has a more measured approach and thus perhaps not so, loud. Still a push to use it, just more subtle in the message, that you have to use it to be part of moving forward" – Lecturer LD; Lines 184-187*

The need to consider the methods of education in a financially challenging higher education sector is a contemporary topic (Ballard, 2018; Pincus et al, 2017; Coughlan, 2018). Rowe (2016) discusses the need to ensure lecturers stay relevant in a digital world when learning technology has changed "the way students learn". In a report exploring how to sustain their position in a challenging economic environment, the Russell Group of Universities (Russell International Excellence Group, 2010; p26) consider technology-enabled learning a "key aspect of Russell Group universities' efforts to modernise their curriculum and assessment". A survey by the Guardian (2018) found that UK universities are looking to stay relevant under the challenge from emerging methods of technology driven education, by investing in new campus environments for students with "buildings which facilitate more interactive, technology-driven style of teaching". Sheard (2018) when looking at the financial challenges facing the higher education sector cited the two main challenges as inefficient business processes and "legacy technology platforms", which both hinder transformation. The Higher

Education Policy Institute (HEPI, 2017; p5) stated that evidence from "15 years of project work in the United States suggests systematic curriculum redesign using technology-enhanced learning can enable institutions to improve learning outcomes and reduce costs simultaneously" (again, the Holy Grail). As has been demonstrated, participants in this study often referred to some pressure from the organisation to use learning technologies within their courses, with lecturer LF directly referring to a risk to their role, and the need to use technological solutions to save money;

> *"I feel pressured by them to do it, I feel pressured by the [Senior Manger] etc, some of the ways that they talk and faculty meetings in that we need to look at the way we are doing it. Whether it was in faculty meetings or when we have had the big, you know [Senior Manager] and such, the top bods, coming in and saying we need to save this much money, we need to look at how we deliver our courses, we need to, if they are red, then don't keep your seat warm, we need to look if there are other ways we can deliver these sessions, can we do it distance learning, can we look at the international market." – Lecturer LF; Lines 446-451*

Technology is talked of as a means of meeting admissions targets, not improving the quality of education. So once again, pedagogy is absent, and TEL is simply a market device intended to make the university more attractive to (presumably technophile) students, suggesting that the administrative aspects of the organisation repeats the TEL rhetoric. It was not only lecturers who commented on the perception that learning technology is part of a drive to address financial concerns. For example, Student S4 suggested that technological solutions are not only less of an expense, but also a solution which offers something to aim towards;

> *"If we can get to a stage where university courses are all delivered electronically without any lecturers, then we have a positive input into profit margins of the institutions, it might be that computer programs take over lecturing completely and you come in and sit and watch a TV and avatar popping up delivering the lecture. I would imagine that is probably another driver, as humans are expensive." - Student S4; Lines 321-325*

The institutional drive towards increased learning technology integration is seen by lecturer LA as something that academics do not want, but the pressure to engage is such that are forced to be part of the process, with the excerpt below suggestive that the pressure is administrative, and little to do with student expectation;

> *"Does my manager actually agree with that or do they actually, would they rather not use it. I think many, many lecturers would rather not be taught with technology. I wouldn't. I can't imagine my executive dean wanting to engage in this process, of more technology, but they will make me! And I have to, as others are already. And I have to, to be part of that in their eyes. You have to be part of it." – Lecturer LA; Lines 464-467*

The horrific logic of the neo-luddite is surmised in this excerpt. The lecturer does not want to engage. They suggest that even senior managers would not want to engage. But they "have to be part of it". The logic ensures lecturers continue to engage with TEL, with themes of fear of being left behind, other lecturers looking better than you, and being replaced with technology, driving the continued engagement with learning technology.

However, within this logic, there is a disjuncture which arises through the talk of students when the question is asked "Why do lecturers want to use technology in their teaching?". As lecturers are using learning technology for subsidiary reasons as opposed to pedagogical reasons, students struggle and do not understand why they choose to use TEL. A good example to explore that was mentioned by all students was the lecturers use of PowerPoint, perhaps the most ubiquitous technological teaching tool across education. For a tool that is used so widely in nearly every teaching session, one may assume that students would be able to explain the rationale for a lecturer choosing to use PowerPoint. However, the rational was not that clear, such as with Student S1;

> Q. Why do you think lecturers use PowerPoint?

> *"It is not… sometimes just a heading of what we are talking about, and not essential for a lecture is it? I make notes, because I forget what I have been told, I know the PowerPoints go up on [VLE] and all I see are bullet points that don't mean a lot, and I need to expand upon it." Student S1; Lines 27–32*

Student S1 searches for a pedagogical reason for its use in the classroom, but states it is "not essential", and even when turning to its use post-session, they struggle for a reason. Students S4 also struggle for a pedagogical rationale for lecturers choosing to use PowerPoint;

> Q. Can you explain why lecturers use PowerPoint*?*
> *"Well, er…. it gives an almost generic bank of PowerPoint within the university? And a lecturer must get told sometimes in the last minute, 'do you mind covering this lesson', they then go to that generic bank and pull off the PowerPoint. Because some of the PowerPoints have been used for different lessons and they are quite clearly the same PowerPoint. Then the lecturer, because they had little time to prepare, they then proceed to read off the PowerPoint." - Student S4; Lines 39-45*

There is a disjuncture evident between what may be perceived as a rationale for a lecturer, and the actual experience of students. PowerPoint is a simple example as it is used so widely, however it is an older, established learning technology, and not one that lecturers would be pushed to engage with. However, students also struggled to find a reason when discussing wider learning technology. Student S4 below suggests that lecturers have no choice when it comes to learning technology;

> Q. Why would a lecturer choose to use learning technology?
> *"I don't think they have a choice. The course is mandated that we have to have so much VLE, so I am not sure choice comes into it. I get the impression sadly, that VLE is not something the lecturers have much control over." Student S4; Lines 207-209*

Student S7 and Student S11 have to search for a reason, querying aspects of pedagogy and in the end turning to the needs of varying learning styles;

Q. Can you explain why VLE days are used by lecturers?
*"Maybe because I think it is difficult for students to stay concentrated when there is say 6 students in one room? We all learn differently so lecturers have to facilitate those learning styles. That is it really." Student S7; Lines 252-25*

Q. Can you explain why the lecturer choose to use discussion boards?

*"I don't know, but I am pretty sure from our feedback she won't do that again. I assume, this is what I think, because we are all different learners, and you can go on that computer program and it tells you what you are, kinaesthetic or whatever, I am assuming that throughout the course you guys are trying to give us a variety of different things so the people are getting something from it, can get something from all these things." Student S11; Lines 167-171*

The logic of performativity works by lecturers using technology for subsidiary reasons, not pedagogical reasons. The students S7 and S11 above are not able to offer resistance, even though they do not understand the lecturer's rationale. Instead, they look to learning styles, and the idea of technology being used for variety of approaches. This is also evident when students have talked about what their best teaching sessions have been on their course (see page 223).

This chapter has addressed the fantasmatic logics of performance and potentialities. Fantasmatic logics function to conceal alternative conceptualisations of reality, reinforcing the natural or common-sense, whilst actively preventing the emergence of the political dimension. The discussion surrounding fantasmatic logics have helped to explain why social practices are maintained as they are, and the resistance to change which has enabled those practices to be sustained. Practices of technology enhanced learning have continually evolved from their beginnings in mid-20$^{th}$ Century, but the notions of performativity, competence, security and potential have long been constructed as a promise of what may be, both in the sense of beatific and horrific outcomes.

# CHAPTER 9

This chapter will conclude this thesis by considering the earlier problematisation from chapter 2, before moving on to retrace the analysis and findings from the following chapters. There are four key findings in the conclusion; learning technology as furniture, strengthening the frontier, isolated resistance to TEL, and an enduring fantasy. The chapter will continue with my personal reflections on this study, discussion of study limitations and my position which has evolved throughout the journey of this research project. Whilst it has not been possible to retrospectively analyse all the data and re-visit the thesis in light of the pandemic of 2020, a final endnote is included as a reflection on the emergence of the pandemic in relation to this study.

## 9.1 The problem explored

The aim of this research was to critically explain the enduring project of technology enhanced learning within the context of nursing education. It has been emphasised several times that this thesis does not propose that technology *does not* enhance aspects of teaching and learning. Rather, the problematisation explored the persistent presence of rhetoric, pre-judgements and common-sense of TEL, and that acquiescence to this is based upon of evidence that remains largely inconclusive. The problematisation identified TEL as ubiquitous throughout educational practice, and yet the benefit brought to lecturers and students is not always evident. The academic field of TEL is lacking in critical analysis, with conclusions tending to proffer promissory rhetoric concerning the potential of, rather than actual evidence of educational transformation. The marketisation of education, and the growth of students as consumers has supported the dominant common-sense that funnels universities, lecturers and students to employ learning technologies, with continual technological iterations offering possible means to enhancement. The problematisation has argued that the discursive practices associated with learning technology have resulted in a

contingent project which is open to critical explanation and contestation. Consequently, the method employed was logics of critical explanation, drawing upon political discourse theory, and notions of hegemony and radical contingency, so the problem could be addressed, analysed and evaluated. The key findings are presented below.

### 9.2 Learning technology as furniture

The key findings for this study begin with the historical perspective as presented in the genealogy and archaeology. The historical analysis demonstrated that TEL has not emerged along a deterministic continuum of escalating enhancement and deployment, but rather traced the emergence of contemporary practices through the construction of epochs, witnessing the rise and fall of technologies, alliances between social actors, and an increasing hegemony of TEL within education. Target consumers have moved from educationalists and wider institutions, through government and individuals, to students, academics, and individual higher education institutions – reflective of the need to always offer the potential of TEL, and the growing market for learning technology. Teaching has remained essentially static through the epochs, with the technicist art of teaching remaining relatively unchanged. This can be evidenced contemporarily through a technological lens. The current pandemic crisis has moved nurse education from mainly classroom activities, to teaching online through video conferencing platforms (Lau, 2020; Ubell, 2020). However, even through use of video conferencing platforms, teaching has remained akin to a classroom activity – albeit mediated through a technological mode of delivery. Even when thrust into the use of emergent learning technology, the pedagogic approach does not shift, and the beneficiaries are the organisations who create and support the learning technology solutions. It also positions face to face classroom teaching at greater risk in current financially stressed times as institutions look to solutions away from bricks and mortar and have viewed remote delivery as a viable option (Burns, 2020; van Rooijen, 2020). Teaching observations have shown the habitualised nature of learning technology use and teaching

practice. We have little choice but to succumb to learning technology, we cannot escape it, lecture capture, Apps, Zoom, we cannot escape PowerPoint, technology surrounds us, it uses us, and lecturers and students are pushed to acquiescence. Consequently, learning technology has been positioned as quotidian, now part of the furniture of teaching and learning. Learning technologies have reached such a level of deployment and acceptance that they only become apparent when they are not present or fail. A lecture hall without a PC, a skills lab without Sim-Man, a nursing portfolio not available on a mobile phone – these are now the outliers, noticeable as to what is missing, rather than what is there. When technology moves from being mundane and unseen, such as when it might abandon the user by failing, and the user has the unusual experience of teaching outside of the social norms, or it challenges us in some way, or makes us change our practices, then users may be able to be critical and question technological enhancement, and offer the possibility of resistance. But to step outside the TEL discourse and the social norms of teaching today requires a radical shift in position to be enabled, a shift which coalitions of actors work to deny.

### 9.3 Strengthening the frontier

The contingent nature of the TEL project ensures there are limits and frontiers to social practice. This thesis has identified a political frontier of a near complete hegemony, which houses an alliance within the political space of TEL. The TECH conglomerate leads the alliance alongside Universities and ‘TEL Academics’, working to ensure the solidity of the frontier through continual iterations of technologies, the protestation of looming potential to transform education, and the subsumption of students and academics to the common-sense. Students are mobilised by the ‘TEL Alliance’ to seek liberation in their learning, with a discourse of success for students in their studies, if they succesfully adopt learning technologies. This framing positions students as possible antagonists towards more traditional forms of teaching and learning, and the notion of being tied to time and place.

Despite this positioning it was clear that this liberation was not sought by students, and was talked of as being forced upon them, rather than as some notion of responsive enhanced pedagogy. This is reminiscent of protests as students return to university during the Autumn of 2020, only to find that they have been given freedom to learn online away from classrooms, when they actually want to attend the physical teaching spaces on campus (BBC, 2020). Universities and Faculties work to demonstrate the benefits of TEL based pedagogy to lecturers and students, primarily through learning technologists and the management of academic staff. In the data there was an acceptance from lecturers of a push from the organisation to utilise learning technology, with little apparent understanding of the benefit to their teaching. Elements of the TEL discourse have been rearticulated in so many ways, that it has resulted in a discourse that despite being wholly dominant, is incomplete, and consequently open to challenge. Due to this vulnerability, the dominant 'common-sense' associated with learning technology has the prospect of resistance through lecturers, and a lesser extent, from students.

### 9.4 Isolated resistance to TEL

The hegemonic position of TEL is near complete and resistance to learning technology is highly isolated, but it is possible to challenge the hegemonic status of TEL. Whilst logics of difference maintain the established hegemony, logics of equivalence work to try and establish a new political frontier. The enduring potentiality of TEL leads to social actors who may be perceived as a hinderance to the potential of learning technology, and are positioned across the frontier as an antagonist to the 'TEL Alliance', such as lecturers who avoid the use of learning technology in the nursing curriculum. Those who are passive to TEL are positioned within the hegemony reinforcing the frontier, alongside pro-TEL actors who ally with elements of the wider TEL Alliance, and isolate lecturers across the frontier. It is not possible to resist based on the more substantive issue of a lack of robust evidence to support the uncritical support and development of TEL – the logics work successfully to deny

this active resistance. What is evident in the practice of lecturers is a dissonance between the rhetoric concerned with learning technology, and the day-to-day experience of teaching practice, functioning to support the weak anti-TEL movement across the frontier. There is also the potential of a political alliance between students and lecturers to work against the hegemony. Lecturers were all unified in the data when asked about the best ways to teach and learn. Learning technology was never referred to. Students also pointed to low-technology teaching as the best teaching they have received on their nursing degree. The logic of equivalence of low-tech teaching works to establish a potential political alliance between students and lecturers, with lecturers who are now outside the TEL political frontier, free to ally with resisting students, again highlighting the contingent nature of TEL.

There is a covenant of potential which furnishes the alliance between the TECH industry and government. Government supports the consistently growing TECH industry, despite the potential of TEL remaining forever out of reach, but always functioning as central to the hegemonic discourse. As identified above, attempts are made to create a line of difference; lecturers being blamed as a hindrance - *why would they not engage?* As stated above, student experiences may not tally with the TEL rhetoric, resulting in an incongruent position. Students looked to subsidiary reasons away from pedagogy to support this incongruent position, such as their movement to a world of nursing work inhabited by technology, or feelings that they need to use learning technology so as to be independent or successful. Across the data, taking an antagonistic position towards the TEL hegemony was rare, and the ‘TEL Alliance’ maintain the hegemony with the subjugation of lecturers and students to the use of TEL. The ‘TEL Alliance’ reinforces this through rhetoric with empty signifiers such as blended, personalised and flipped learning, offering the position of potential as the rationalised choice, rather than rejection. The empty signifiers function to enable the mismatch of TEL rhetoric and reflective experience to co-exist. This enslavement to technology is not apparent to those who reside within the hegemony, as the TEL discourse

works so as to offer the continual promise of emancipation. Given the strength of student expectation there is little room to actively resist the hegemony, with lecturers generally passive towards learning technology, and the university and learning technologists working to ensure the prevailing discourse is aligned with the 'TEL Alliance'. The ideological dimension of TEL works to conceal the political dimensions of social practices, with a promissory offer that will be prevailed upon the users of learning technology as one of future benefit being more than current benefit, a promise of enhancement that whilst being just out of reach, is, and must be attainable.

### 9.5 The enduring fantasy

What is evident through this study is that whilst there may well be benefits to using TEL, the evidence supporting any benefit TEL brings to education is mixed as best. The historical analysis demonstrated the iterations of promise through learning technology over the last half a century, but the reality remains that TEL has delivered far less than imagined. The enduring fantasy allows us to explain how TEL, despite often contradictory experiences, continues to grip those invested in education. The hegemonic discourse constitutes the subject position of lecturers who engage with learning technology effectively, somehow unleashing the potential within, and for those lecturers, reaching an enhanced level of teaching. But this is the beatific fantasy, it is promissory, never coming to realisation – it is the threat or jouissance of the fantasmatic logics working to sustain the grip of TEL. Lecturers are unsure of the pedagogical rationale of learning technology, and whilst the discourse concerning potential is pervasive, they cannot reveal what the potential is beyond an enhancement of some form, attainable, but never achieved. The fantasy of potential is unyielding, with all participants stating that technology did enhance teaching and learning but standing in complete contrast to their descriptions of the best teaching and learning they have experienced. A range of actors sustain the fantasy, from universities promoting their TEL solutions, to learning technologists working to conceal the possibilities available to

students and lecturers, to the TECH conglomerate professing the impossible fullness through empty signifiers such as the ease of learning and personalisation.

Lecturers who are positioned as techno-optimists and exponents of learning technology necessarily look to the fantasy – the boon and enhancement that technology will offer to their current practice. Both lecturers and students construct a benefit of freedom and emancipation through learning technology. Arguably it does, but not ‘a freedom for learning’, rather it is freedom of time and space away from teaching and learning, with students still wanting to attend campus and have structured engagement. Students portray lecturers as wanting to utilise learning technology as it provides freedom for those lecturers, such as saving time. This is a fallacy, technology does not necessarily save time, using technology creates work. The social logic of freedom impels social actors to position themselves as techno-optimists. When lecturers frame learning technologies, rather than focusing on enhancement of pedagogy, they look to TEL as an enabler of engagement during teaching, or a method to be judged as “good” – despite the disjuncture between this, and the descriptions of good teaching from students centring on the human aspects of teaching. The common-sense belief of TEL as beneficent is dominant and resistant to change, and despite lecturers struggling to isolate any enhancement through TEL, they still utilised learning technology throughout their teaching practice. Through acquiescence, lecturers are bonded to learning technology, forcibly practicing through TEL. Ideological notions of potential, performativity and competence are constructed as a promise of what may be, both in the sense of beatific and horrific outcomes, with little awareness of what may be lost. Practices of TEL have gone through continual iterations, with learning technology and pedagogy linked through enhancement. However, the betterment is ephemeral, and remains largely unattainable by lecturers and students. The enhancement offered is always more and will continue to be so. To step outside of the dominant position, to offer resistance against the TEL orthodoxy is nigh on impossible.

### 9.6 Reflections

At the outset of this study I was developing an increasingly reflective attitude towards my personal teaching practice and that of my peers, which led to the beginnings of an appraisal of my use of learning technology in teaching and learning. I could see my organisation seemingly pushing the development and uptake of emerging learning technologies but felt an incongruence with my critical reflection and reduced use of technology in the classroom. For this study I initially wanted to explore the perturbance of lecturers based on their experiences of using learning technology, which I had been witness to for some time, and considered phenomenology as a method to explore these experiences. On reflection, the decision to move away from phenomenology was the right decision, as this methodology would have led me to a very different interpretation of the problem as I encountered it. Discourse analysis offered a method with a critical explanation for the burgeoning use of TEL in the context of nurse education, something I viewed as having greater utility. The problematisation identified the persistent TEL project based upon enduring rhetoric, a dominant common-sense of TEL, and acquiescence by lecturers and students, but largely based upon supporting evidence that is inconclusive.

This study has unveiled how learning technology has been moved through time from initially being the outlier and experiment within education targeted at tech-savvy educationalists and institutions, to becoming the ‘mundane-ubiquity’ we know it as today, targeted at individual social actors within education, the students and lecturers, as well as government and universities. The historical perspective has provided me with an insight not considered before, and one that is rarely discussed in the wider TEL literature. It is clear that the TEL discourse has functioned so successfully that there is little choice for organisations, students and lecturers but to yield to the TEL project. Even though there is a disjuncture between rhetoric and practice for students and lecturers, the logics outlined in this thesis function to create TEL as the accepted social norm, sustained by coalitions of social actors, and the

near sealed hegemonic structure. Personally, I am more aware of the TEL discourse surrounding higher and nurse education, and those actors who are positioned as part of that discourse. My teaching practice has continued to evolve both with and without the use of learning technology. My critical perspective has evolved further and has led me to widen my arguments still further, including taking them to conference and publication (Goodchild, 2018; Goodchild & Speed, 2019). This thesis has offered an explanation for the enduring nature of technology enhanced learning in the context of nurse education, the persistent presence of rhetoric, the enduring common-sense of TEL, and the acquiescence to its use, despite questionable evidence, and experiences that do not tally with the rhetoric. Whilst it is useful for lecturers to be critical and challenge the accepted norms of TEL, due to the prevailing strength of the hegemonic status of learning technology, the march of progress associated with TEL will undoubtedly continue for the foreseeable future. However, it is recommended for nursing teams to revisit the common acceptance of TEL in nurse education. To critically explore both the evidence supporting the use of learning technologies, and the rationale for what is gained, as well as what is lost for both students and lecturers.

### 9.7 Limitations

Logics of critical explanation (LCE) is by no means a simple methodology to utilise, and one that is rarely employed by nurse researchers. One example located is from Oute, Peterson & Huniche (2015) who explored the involvement of relatives in mental health settings. No research could be located in the academic field of educational technology which employed the LCE framework. However, other approaches to discourse analysis are well utilised in both nursing and educational research, particularly from a critical discourse analysis approach in both nursing (e.g. Loke, 2012; Jørgensen, Praestegaard, & Holen, 2020) and educational technology research (e.g. Rambe, 2012; Munro, 2018). The choice of LCE has been outlined in chapter 3, with the LCE approach identifying hegemony as a discursive

order where in the context of this study, the TEL project has acquired universal signification. Central to LCE and this representation of discourse is that subjects understanding is contingent, with competing discourses challenging perceptions. Knowledge and understanding are constructed through discourse and the historicity within which they exist. The LCE approach enabled TEL to be explored with regards to subject positions and the influence of politics and fantasy on how nursing students and academics construct TEL.

There are possible limitations concerning the nature of LCE as a methodology and also recruitment of participants. As a novice researcher, the theoretical underpinnings and terminology of LCE was a challenge, which led to anxieties in constructing a cogent approach with respect to data analysis. The framework as identified on page 61 added a logical progression through data analysis and helped to guide the analytical process. However, the analysis required when working with the data, in conjunction with the nature of the methodology, has meant that the findings from the study are open to interpretation and challenge. As with many studies, recruitment was a challenge. Despite trying to get 12 students and 12 lecturers, it was only possible to get 11 students with one lecturer being added to compensate. On reflection, the categorisation according to engagement with TEL was too simplistic and did not allow for nuances or changing perspectives. There were no participants who I would describe as a TEL “zealot”, and it would have added an interesting perspective to see how they framed and negotiated the contradictions which were uncovered in talk from other participants. It would also have been beneficial to address a more strategic overview of TEL within the university structure, either from a senior manager or learning technologist. It is also recognised that TEL practice and engagement varies from institution to institution, and that this university and experiences within may not be representative of universities elsewhere.

## ENDNOTE

As this endnote is written, the future is uncertain across societies throughout the world. Infections rates are rising, community lockdowns are widespread, personal tragedy is all too common and mass institutional closures, curriculum changes and workplace pressures have created a crisis throughout higher education and nurse education. Discussion and articles have been appearing since the early days of the COVID-19 pandemic providing overviews of the best ways for educationalists to respond to the emergency (Bezerra, 2020), or outlining probable futures that lay ahead (McCarty, 2020), although I would agree with Murphy (2020) in that it is still too early to offer predictions of what a post-pandemic future may hold for education. What can be done at this time, is to make tentative inferences concerning how the pandemic has had an impact in respect of the arguments presented within this study. The Nursing and Midwifery Council (NMC, 2020) enacted emergency educational standards in early 2020 which have allowed for temporary changes to the delivery of theoretical and practice learning for nursing students, in particular the move to allow up to an 80% theory / 20% practice split (previously 50/50). Lazenby et al. (2020) argued that it is urgent for nurse educationalists to consider how to deliver necessary education in the current climate. The advice offered seems to focus on learning technology that is currently available (Leigh et al., 2020), or through the marketing of technologies that may have lost their lustre, such as virtual reality (Lea, 2020). It is clear that the disruption afforded through the impact of the COVID-19 pandemic has ushered in an array of changes in the modality, instruments and timing of pedagogy. Discussion seems to focus on the need to engage with the opportunity presented by events to enable transformation in pedagogy (Carolan et al., 2020) and the modes of delivery of education as we look to the future (Blake & Renzenbrink, 2020). Discussion reflects arguments from Bezerra (2020), that the pandemic has offered realisation of the potential of learning technologies in the teaching and learning process, although this is highly doubtful in respect to the arguments in this thesis of the unattainability of the TEL fantasy.

Online teaching and learning methods have taken on a reinvigorated prominence since Spring 2020, and ‘pandemic pedagogies’ have been coined as a term which refers to teaching and educational practices which have ‘sprung-up’ since the beginnings of the pandemic (e.g. Smith & Hornsby, 2020; Supiano, 2020). However, the pedagogical approaches of synchronous and asynchronous online and remote learning are not a new mode of practice or method to deliver education, but rather technological solutions which have been employed both successfully and unsuccessfully for some time. This rise in importance of learning technology has reified the deterministic perspective with pronouncements of pedagogical transformation as driven by technology (Wheeler, 2020; Brooks and McCormack, 2020; DigitalEurope, 2020). Organisations are now promoting to students the idea of technology mediated learning, Zoom, VLE, discussion boards – they have all become legitimate, and consequently still harder to resist. However, learning technology is proffered to enable continuity of education, not for the enhancement of pedagogy. This enablement may be a short-term project, so it is important for the ‘TEL Alliance’ that the pedagogical value of TEL can be demonstrated through the pandemic. Zimmerman (2020) and Basilaia & Kvavadze (2020) ask educators to take advantage of the mass move to online education, to conduct research to finally establish evidence supporting the effectiveness of online learning in comparison to traditional methods.

Empty signifiers and fantasy have been used in abundance during the pandemic as educators have looked to explanation and solutions to the crisis. The familiar hype of anytime, anywhere learning (see page 141), has been used alongside ideals of remote and home learning (Frankfurt, 2020; Uraguchi, 2020). However, those who have experienced ‘at home’ learning throughout this pandemic may well argue that the learning is anything but remote, with homes having to dedicate environmental and social space to work and studies, offerings of face-to-face support within families and sharing of available screen time as allowed. This also calls to the empty promise of learning being easier through TEL,

experiences for many are that learning is harder, and for some on the wrong side of inequalities, non-existent. It is evident that there is variation in how students can access and use learning technologies with many who are excluded entirely (Williamson, Eynon & Potter, 2020), with the notion of broadband internet access becoming a human right, rather than a utility. One pedagogical term which has continued to blossom throughout the response is that of blended learning. Kim (2020) predicted that blended learning would dramatically increase at this time, pointing to students and lecturers returning to universities with a greater understanding of digital tools, and Mishra (2020) suggested that blended learning is the only realistic way forward after the pandemic crisis. Affordances that leave technology as part of any future movement in pedagogy. Whilst the forthcoming reality may offer continuing challenges for educators and students, *pandemic pedagogies* seemingly offer opportunities out of crisis for education institutions, learning technologists and the educational technology industry. Manfuso (2020) argues that the new reality will provide opportunities for learning technologists to guide "educators deeper into the era of online and remote learning". The four top technology stocks (Microsoft, Apple, Google's parent company Alphabet, and Amazon) gained $1.3tn in the first 6 months of 2020 despite (or because of) the pandemic (Field, 2020). Initiatives in the first half of 2020 include Google's (2020) "teach from home", Microsoft's (2020) increased focus on distance learning and BETT's (2020) community hub pandemic response. UNESCO launched the Global Education Coalition (UNESCO, 2020) with partners including Google, Microsoft, Facebook and Zoom which is an investment to "establish approaches to develop more open and flexible education systems for the future", and at a national level, and coalitions including government and the technology industry are promoting their own forms of remote learning (Williamson, Eynon & Potter, 2020). These are not new technologies or solutions being made available, but re-packaging of learning technology and support which has existed for a substantial amount of time (Greene, 2020). Technologies that will get another chance at temporary adoption and to fulfil their potential.

Universities have largely adopted the blended learning approach as the method for education through the pandemic with examples including the University of Aberdeen (2020) who are planning for the "return of universities with blended learning in place", the University of Bristol (2020) who will employ a "strong, research-rich blended learning curriculum" and Staffordshire University (2020) who state that "blended learning lies at the heart of Staffordshire University's transition out of lockdown". Barrow (cited in Razavi, 2020), pro-vice chancellor for arts and humanities at UEA stated that the pandemic represents a "revolutionary moment" and considers the current climate as a method to upskill employees whose jobs will become automated in the future. Ian Dunn, Coventry University provost (cited in Hall, 2020) stated that it was "never a great idea for one person to stand in lecture hall and transmit to 200-300 people and to expect them to receive and accept that information in one go", and that he has already said to his university that "we shouldn't go back to lectures". The alliance between university institutions, TEL Academics and TECH is mobilising with actions to promote learning technology as the route out of the pandemic crisis. This may usually be ascribed to excellence in teaching, but with the pandemic crisis the move to learning technology can be viewed as a necessity. The weak alliance between universities and lecturers (as witnessed through the *logic of hi-tech teaching*) is perhaps no longer required at this time, as lecturers have no choice but to "buy in" to the move to technology mediated teaching, and a lack of engagement with *pandemic pedagogies* may clearly risk individual lecturers being appraised negatively by students, peers and the university management – all at a time of increased pressure on funding in the sector. As this thesis is completed the return of students to higher education in 2020 has seemed chaotic at best, with unions, institutions, government and students all seemingly unsure of the steer through the ongoing crisis, but with technology mediated teaching and learning at the heart of any educational response. There are many questions which are arising from the first months of the COVID-19 pandemic which have no answers but need to be considered. Questions concerning the power of the organisation over the delivery methods of teaching and the lecturers who deliver that teaching, the ownership of the vast array of content now

being housed in virtual spaces, the evolving response of government to the higher education crisis, and the impact for students as they continue their studies. The biggest questions are concerning the future. As this is written it is wholly uncertain. Except perhaps for the increasing digitalisation of education and burgeoning in-roads that learning technology will make into nurse education.

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## Appendix 1

This revised extract is taken from a reflective piece of work from 2013 as I was preparing to undertake my PhD studies. Through this reflection I critically examined an incident from my teaching practice, and the subsequent actions I took stemming from the incident. As a framework for this I used the transformative learning theory of Jack Mezirow.

### Reflection

Mezirow's (1991) theory of transformative learning builds upon the critical theory of Jurgen Habermas. Habermas demonstrated in *Knowledge and Human Interests* (1968) how positivism had "limited our understanding of the natural and the social world and undermined the possibility of critique" (Outhwaite, 2008; p254). Mezirow in particular draws on Habermas' theory of communicative action. Solving problems instrumentally or via communicative learning leads us to critical reflection. For Mezirow, communication and dialogue are central to the notion of transformation via learning. This reflection addresses what Eraut (1994) calls propositional knowledge, the knowledge we have in professional practice based upon theories, codes and rules. For transformation to take place, the person must learn reflectively from their lived experiences. This reflective, experiential learning is where a practitioner actively brings their experiences to the forefront of their conscious deliberations about themselves and their actions. Experiences should be deconstructed, acted upon and then reconstructed, through critical reflection. To enable learning from this critical reflection we must examine the underlying beliefs and assumptions that affect how we make sense of our experiences, with reflection enabling us to correct distortions in our beliefs and the errors in our problem solving. It is 'premise' reflection which contributes to transformative learning, which is critically reflecting on the premises or deep held assumptions we have about our experiences.

**Disorientating Dilemma**

I have nearly always used PowerPoint in my teaching if there were more than a handful of students in a group and had received positive feedback on the quality of my presentations and teaching sessions from both students and staff. I have never previously questioned the use of PowerPoint as a tool, just seeing it as enhancing teaching practice for myself, and therefore my students. This reflection stems from an incident when I was due to teach a session to around 100 students consisting of mostly students whom I did not know well. I was in a room and building I was unfamiliar with, and arrived late due to an urgent call, but I knew that a pre-prepared PowerPoint presentation was available on the network PC. However, the PC failed, and it was well past the time to start the session. When this has happened previously, I have always had the technical know-how to remedy the technical problem and proceed, but not this time. I was presented with a clear choice: *Halt the session to get help or begin the session with no PowerPoint presentation*.

I decided that I would begin the session with no PowerPoint using my memory, and the pen and whiteboard as my only 'technological' tools. The destabilizing experience was whether to take what I saw as a risk and not use PowerPoint, or to delay a session to take what I perceived as a 'safe-option'. The question I reflect upon, is "am I so reliant upon PowerPoint that I cannot teach a large group successfully without it?".

**Critical Reflection**

Our lived experiences can be deconstructed, acted on and reconstructed, and for self-examination to take place, this experience needs to be looked at from various 'critical angles'. In the incident, the first decision to be encountered was one I have taken at leisure many times in my teaching career, but the pressure of time and perhaps other forces, made the decision to be taken quickly. In taking this decision I also brought this act (decision &

practice) into my consciousness. Decision making is a deliberative process which is at the heart of professional practice and requires a unique combination of propositional knowledge, situational knowledge and professional judgement. When there is time, and I have chosen to use PowerPoint, I believed this adds more certainty to the outcome of my actions, as often when professional decisions are made there may be an uncertainty about the outcome. Mezirow (1997) outlined 'meaning perspectives' which are structured ways of seeing our world leading to habitual ways of thinking, feeling and acting – they can be a set of codes (cultural, social, political, psychological), and they are articulated by us in our 'meaning schemes' with our personal point of view, and demonstrated by our attitudes, value judgements, beliefs and feelings. Meaning perspectives are far more durable then the meaning schemes we employ.

PowerPoint as a practical tool to use in the process of teaching was rarely if ever discussed during the PGC in Healthcare Education course I undertook in the formative stages of my lecturing career. PowerPoint is a ubiquitous tool in higher education and there is a tendency to follow customs and patterns of thinking. Every lecturer I know uses PowerPoint, and in the early stages of working as a lecturer, other lecturers would often pass a PowerPoint file as guidance/assistance on giving a session (not a lesson plan/outcomes). I was regarded as a technical expert by colleagues, and students commented in module feedback that I had 'excellent' PowerPoint's. This led to me hosting a personal website (2004 - 6) where I would store PowerPoint files for students as there was no institutional wide VLE, and the PowerPoint file became a central tool for me as a teacher. Reflecting upon these earlier presentations it is clear that they are content heavy, very long and encourage a didactic and controlling (safe) performance. They are also a product which I could give to the students (consumers).

More recently my PowerPoint presentations have evolved where I would use less "textual slides". This evolution stems from putting presentations as handouts on the institutional VLE,

and considering what students were actually using them for. It was apparent from discussions with students that some were using the presentations as a primary resource. I decided that if less information was given on the presentations themselves, students may be more inclined to seek out more worthwhile primary sources. I also reflected on what I was using presentation files for and viewed them as a structural asset for sessions, rather than as an aide to learning for students. In the incident under discussion, why was a path of greater risk taken and the other not? This situation had a pressure of time and student expectation, and my methods and process as a teacher was already under challenge from an internal dialogue I had been engaging with as shown above. It is this personal and situational context which led to the decision being made. At the time, I had to make a professional judgement, and the interpretative use of knowledge plays some part in this judgement.

It is pertinent at this time to consider my deeper held assumptions about my-self as a teacher which have become the bedrock of my practice, and also the wider context, and how it impacted on the decisions I made, and later consequences. If we are to reflect critically then we must reflect upon and examine the underlying beliefs and assumptions that affect how we make sense of our lived experiences. Mezirow expanded his discussion on critical reflection, and termed reflection on ourselves, as critical self-reflection on assumptions (CSRA) which emphasizes critical analysis of the psychological/cultural assumptions that are the specific reasons for our own conceptual limitations. Reflecting upon my unconscious assumptions about the use of PowerPoint, highlighted that I saw it as a method to attain positive feedback from students. This is via two processes; firstly, the PowerPoint adds to the entertainment factor of a teaching session, by giving the student group something to engage with. Secondly, by putting content on the PowerPoint, the student would feel that they got ‘value’ during the session, confirming the belief of education as filling an empty vessel with information and the product/consumer relationship. A further use of PowerPoint

was not for me to garner positive feedback, but to avoid failure. If I perceived a session as ‘dry’, ‘difficult’ or not successful, by having a jam-packed PowerPoint I always had ‘something more to go to’ or put theory on a slide as an aide memoire. Beneath these actions was the belief that I would be seen as a poor lecturer if a session was not interesting and full, and that students had not come away from my lecturers having had a fulfilling or ‘valuable’ experience. The meaning perspectives I have identified leading to these beliefs are:

| **Identified Meaning Perspective** |
| --- |
| *Using a successful PowerPoint makes people think I am a good teacher* |

| **Identified Meaning Schemes** |
| --- |
| *“Good lecturers always give engaging, full teaching sessions”*<br>*“The use of PowerPoint makes sessions more likely to be seen as enjoyable”*<br>*“PowerPoint enables me to deliver content I am not as knowledgeable about”,*<br>*“Negative student feedback means I am a bad teacher”*<br>*“Positive student feedback means I am a good teacher”* |

**Table (b). Identified Meaning Perspective & Schemes**

I wanted to be thought of as a good lecturer, and PowerPoint was a tool to achieve this. I believed that I could employ PowerPoint well to enable my sessions to be enjoyable, to avoid not knowing an answer, and to garner positive feedback. These autobiographical assumptions put pressure on me as a teacher, as it does not allow room to perform at less than a high level which I am setting for myself in the classroom – I viewed it as unacceptable to let students think you are not an expert in the subject, or that you cannot always teach with aplomb. Is it plausible to always have the answer to every question, to always be entertaining, to please every student? Despite always saying “no” to these questions, if asked I still could not be seen as not having the answer, as my assumptions were forcing me to employ methods to prevent that situation – avoiding ambiguity, uncertainty and risk. My growing disquiet at my, and even others use of PowerPoint did not come to the fore of my

practice, but rather insidiously began to impact upon some of my practice. I was constrained by my underlying assumptions about what it means to be a good lecturer, to be freed from the use of PowerPoint – I was caught within my constructed and narrowly constraining paradigm. I was not taking risks but was using PowerPoint for my own safety which in all probability stilted my professional development as a teacher. If I opened myself up to risk, then I was not conforming to my assumptions. PowerPoint can be viewed as a safety device for lecturers as it brings structure for teaching, can hold content as an aide-memoire, and perhaps enhances perception of a lecture. With time, the decisions I was making concerning PowerPoint were part of my self-identity of who I was as a (technical-expert/good) lecturer, and also helped provide me with the protective cocoon of dependence and familiarity (Giddens, 1991).

I have outlined some of the autobiographical and narrative CSRA that has taken place. Organizational CSRA examines assumptions embedded in the culture and history of the workplace, and the consequent impact on thoughts and actions. There are variations in how lecturers utilise PowerPoint in their teaching practice, and technologies such as PowerPoint do not exist in isolation apart from people and organisations. Rather, they are embedded within them, with intrinsic values and power relations shaping technology, its use and the wider society. The shifting societal technological paradigms give rise to paradoxical debates and concerns in relation to teaching and learning and in relation to changing professional expectations. For example, the higher education institution where I practice has buildings which came into operation in 2008 and were designed with modern higher education teaching needs at the forefront of their conception. Most teaching rooms have large modern immovable lecterns in front of a large screen for projection. The students being ‘taught’ are distant and the lecturer has little choice but to stand near or behind the lectern, often as a physical barrier reinforcing the distance between lecturer and student.  PowerPoint is used as a vehicle for transmitting knowledge, but also as a node of connections, where a student

can access links to knowledge and ideas. However, should presentations be used for this – or is this not the role of a handout or note taking? Adding to this cross-over between handout and presentation material is the legal implications of the Disability and Discrimination Act (2005) and the Equality Act (2010), where institutions have a legal obligation regarding reasonable adjustments for students. Here is a quote from an email I received this year by the professional lead on a course I teach on, advising us of our obligations:

> *EMAIL: "Please remember the reasonable adjustments when teaching. There are several which are generic and good practice such as; taking a handful of hard copy handouts with you (all students are aware to come and ask if they have a need), to put presentations on [the VLE] in advance so students can access and print if required on coloured paper, to leave slides up long enough, to avoid over use of italics or underlining as this is hard to read."*

It is clear that PowerPoint and handouts are seen as one and the same by many if not all, and there is an acceptance or anticipation that PowerPoint presentations will be used when teaching. Students have an expectation of PowerPoint being used by the setup of the teaching room, and by the need and want for a PowerPoint based handout. I have now made a conscious decision to move away from PowerPoint in teaching or use only image based presentations, however, I have received negative comments from students who expect and usually receive a PowerPoint based handout. There is a tension between what is required by the organisation, expected by the student, and what I perceive is actually needed for successful teaching and learning.

Should we use PowerPoint as a tool to deliver so much content? It is clear that students today in the UK are consumers more than ever before, and as part of that, universities provide a product with perceived value and quality. The organisation places value on the educational product, and PowerPoint presentations are an abundant visible addition to this product. But, despite student, organisational, structural and cultural expectations of PowerPoint use, it can be argued that morally, lecturers should turn away from the

presentations as so often used. Aristotlean virtue ethics argues for cultivating ‘the virtues’ and refers to the idea of eudaimonia, which is usually translated today as ‘flourishing’ or helping others to flourish. By not prescribing to a pedagogy of ‘filling empty vessels with content’, the virtue of ‘critical thinking’ may be facilitated by me as a lecturer. To be a virtuous lecturer, and to attain virtues for myself and assist others in attaining them, I should ‘empower’ them as persons. By moving away from content delivery by PowerPoint to a pedagogy where students are in an open dialogue, perhaps feeling more uncertain about a teaching session and the potential outcomes, I can then become more responsible for their potential transformation, but also potentially at odds with the ‘values’ of the organisation.

As stated earlier, central to the notion of transformation via learning are communication and dialogue. I was becoming more aware when having discussions with my academic peers that there was a wider unease with the use of PowerPoint as a teaching tool. This was either a recognition that it may be over relied upon as a tool for the lecturer rather than the student, it being overused in general. I recognised that discontent I felt with PowerPoint was shared with other people in the institution . This communicative component to my development after the incident I see as essential in offering a different perspective for me to consider, facilitating me in challenging long-held assumptions, and enabling closer reflection of my teaching process. The meaning perspective identified earlier was that to be seen as a good lecturer, I had to entertain groups of students with full PowerPoint based teaching sessions. The disorientating dilemma was the culminating development which led me to challenge this and my related assumptions around the process of teaching in higher education. Turning again to the steps of transformational learning as offered by Mezirow, it is interesting to note that for my transformation, the disorientating dilemma was the initial incident, but as argued by some theorists (Brock, 2010), my transformation occurred through time, with the incident forcing it into my consciousness, providing me with a ‘reckoning’ to confront. I did self-reflect and assess my assumptions, as well as recognize the shared nature of my perspectives.

## Reflective conclusions

Through critical reflection of assumptions of both myself and the wider context of the organisation, my meaning perspectives and the resulting meaning schemes have been challenged. I believe my meaning perspective with respect to my teaching practice with groups has evolved (see Table below).

| **Previous Meaning Perspective** |
| --- |
| *Using a successful PowerPoint makes people think I am a good teacher.* |

| **Transformed Meaning Perspective** |
| --- |
| *PowerPoint can disempower students and decrease ability to learn.* |

| **Previous Meaning Schemes** |
| --- |
| *"Good lecturers always give engaging, full teaching sessions"*<br>*"The use of PowerPoint makes sessions more likely to be seen as enjoyable" "PowerPoint enables me to deliver content I am not as knowledgeable about",*<br>*"Negative student feedback means I am a bad teacher"*<br>*"Positive student feedback means I am a good teacher"* |

| **Transformed Meaning Schemes** |
| --- |
| *"You do not need PowerPoint to give an engaging teaching session".*<br>*"I do not need to know the answer – I can help students explore".*<br>*"Challenging students and helping them learn means I am a good lecturer".* |

**Table (c). Transformed Meaning Perspectives & Schemes**

Transformation for me is about communication with others, and an ongoing perspective evolution, rather than a seismic event which shifts your fundamental ways of being. Communication is at the heart of transformation, and only by working with others both in a collegiate and a supervisory way will my development continue. Having a dialogue with people with different perspectives, whilst being open to your own perspectives, can enable long held assumptions to be challenged, although the destabilizing event may be needed as it brings reflections to the clarity of consciousness. Assumptions and meaning perspectives

are not “right” or “wrong”, but rather suited to that time and in that particular context, but they should always be open to challenge and change. Even though I feel my perspective has transformed, I have only created new assumptions about the world. Perhaps being a professional is recognizing that we should shift our perspectives when necessary and be open to that shift, but also recognizing that neither perspective is right or wrong. Rather, developing an attitude of openness to shifting paradigms, ways of seeing and accepting and yet holding open to challenge our own presuppositions, seems to me fundamental to being a forward thinking professional.

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## APPENDIX 2:

## INTERVIEW GUIDE: NURSING LECTURERS

**Introduction**

Outline the purpose of the interview & that it is being recorded.
Clarify participant can stop the interview at any time.
State - not wanting to hear what I want, rather their thoughts and beliefs. No wrong answer.
Are you happy for the interview to go ahead?

**Q. IN THE CONTEXT OF EDUCATION WHAT IS MEANT BY THE TERM TECHNOLOGY?**

- Do you use technology in your teaching?
    - Examples...
    - Why use it?

**Q. WHAT DOES THE TERM TECHNOLOGY ENHANCED LEARNING MEAN FOR YOU?**

- Do you think that technology enhances teaching and learning?
    - What evidence do you have for that?
    - PUSH EVIDENCE
    - PUSH HOW MAKES IT EASIER

**Q. CAN YOU EXPLAIN HOW TECHNOLOGY IS USED IN HEALTHCARE EDUCATION?**

- Do you think we use technology differently in nurse education?
    - CAN YOU EXPLAIN THAT
- Does technology ENHANCE nurse education?
    - WHAT DOES IT CONTRIBUTE TO NURSE EDUCATION?
    - PUSH THEM ON THAT
- WHY DO YOU USE TECHNOLOGY IN YOUR TEACHING?
    - CHALLENGE VIA MY SIDE …. EVENTUALLY

**Q. ARE THERE DRIVERS FOR YOU TO USE TECHNOLOGY?**

- WHAT DO THEY SAY?
  Organisation
  Elevate
  Students
  Peers

**Q. DO YOU THINK TECHNOLOGY ADDS ANYTHING IN TERMS OF PEDAGOGY?**

**PROMPTS**

- *Can you explain how you came to that view?*
- *Why do you think that?*
- *Can you explain to me how you came to that understanding?*

## INTERVIEW GUIDE: FOR NURSING STUDENTS

Outline the purpose of the interview & that it is being recorded.
Clarify participant can stop the interview at any time.
State - not wanting to hear what I want, rather their thoughts and beliefs. No wrong answer.
Are you happy for the interview to go ahead?

**Q. WHEN YOU THINK ABOUT "YOUR LEARNING", WHAT IS MEANT BY THE TERM TECHNOLOGY?**

**Q. IS TECHNOLOGY USED TO TEACH YOU?**

- Examples ...
- Why do you think it is used?

**Q. WHAT DOES THE TERM 'TECHNOLOGY ENHANCED LEARNING' MEAN FOR YOU?**

- Do you think that technology enables teaching to be better?
  - Do you have any evidence for that?
  - How does it make it better?

**Q. CAN YOU EXPLAIN HOW TECHNOLOGY IS USED ON YOUR COURSE?**

- Do you think NURSES use technology differently?
  - CAN YOU EXPLAIN THAT

**Q. CAN YOU EXPLAIN HOW THE LEARNUCS (VLE) IS USED IN YOUR EDUCATION?**

- Does the VLE make teaching better for you?
  - CAN YOU EXPLAIN THAT

**Q. WHAT ARE SOME OF THE BEST TEACHING SESSIONS YOU HAVE HAS?**

- CAN YOU EXPLAIN THAT

**Q. WHAT IS THE BEST WAY TO TEACH "CORE" NURSING SUBJECTS**

- CAN YOU EXPLAIN THAT

**Q. WHY DO YOU THINK NURSE LECTURERS WANT TO USE TECHNOLOGY SUCH AS THE VLE?**

- Why is that so?
- Do you think there is a push to use technology on your course?
- Do lecturers talk about the way they teach?

**PROMPTS**

- *Can you explain how you came to that view?*
- *Why do you think that?*
- *Can you explain to me how you came to that understanding?*

## APPENDIX 3

### TEACHING OBSERVATION GUIDE

**YEAR:** **GROUP:** **LECTURER CODE:**
**GROUP SIZE:**
**SUBJECT TAUGHT:**

1. DESCRIPTION OF ROOM LAYOUT:

2. TECHNOLOGY IN ROOM:

3. LECTURER DISCUSS PEDAGOGY/TEACHING STYLE?

4. LECTURE USE OF TECHNOLOGY:

5. OBSERVED USE STUDENT USE OF TECHNOLOGY:

6. QUESTION TO LECTURER: HOW DID YOU USE TECHNOLOGY IN YOUR SESSION?