THE POLITICAL DISCOURSE AND MATERIAL PRACTICE OF TECHNOLOGY ENHANCED LEARNING

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Thesis Summary

Technology discloses man's mode of dealing with Nature, the process of production by which he sustains his life, and thereby also lays bare the mode of formation of his social relations, and of the mental conceptions that flow from them (Marx, 1990: 372)

My thesis is a Sociological analysis of UK policy discourse for educational technology during the last 15 years. My framework is a dialogue between the Marxist-based critical social theory of Lieras and a corpus-based Critical Discourse Analysis (CDA) of UK policy for Technology Enhanced Learning (TEL) in higher education. Embedded in TEL is a presupposition: a deterministic assumption that technology has enhanced learning. This conceals a necessary debate that reminds us it is humans that design learning, not technology. By omitting people, TEL provides a vehicle for strong hierarchical or neoliberal, agendas to make simplified claims politically, in the name of technology. My research has two main aims: firstly, I share a replicable, mixed methodological approach for linguistic analysis of the *political discourse* of TEL. Quantitatively, I examine patterns in my corpus to question forms of 'use' around technology that structure a rigid basic argument which 'enframes' educational technology (Heidegger, 1977: 38). In a qualitative analysis of findings, I ask to what extent policy discourse evaluates technology in one way, to support a Knowledge Based Economy (KBE) in a political economy of neoliberalism (Jessop 2004, Fairclough 2006). If technology is commodified as an external enhancement, it is expected to provide an 'exchange value' for learners (Marx, 1867). I therefore examine more closely what is prioritised and devalued in these texts. Secondly, I disclose a form of austerity in the discourse where technology, as an abstract force, undertakes tasks usually ascribed to humans (Lieras, 1996, Brey, 2003:2). This risks desubjectivisation, loss of power and limits people's relationships with technology and with each other. A view of technology in political discourse as complete without people closes possibilities for broader dialectical (Fairclough, 2001, 2007) and 'convivial' (Illich, 1973) understandings of the intimate, material practice of engaging with technology in education. In opening the 'black box' of TEL via CDA I reveal talking points that are otherwise concealed. This allows me as to be reflexive and self-critical through praxis, to confront my own assumptions about what the discourse conceals and what forms of resistance might be required. In so doing, I contribute to ongoing debates about networked learning, providing a context to explore educational technology as a *technology, language* and *learning* nexus.

Keywords: Critical Discourse Analysis, educational technology, Technology Enhanced Learning, neoliberal policy, exchange value, technology-language-learning nexus

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Abbreviations

BECTA…………………………..British Educational Communications and Technology Agency
CDA……………………………………………………………………Critical Discourse Analysis
HEA……………………………………………………………..…Higher Education Academy
HEFCE…………………………………………..Higher Education Funding Council for England
ICT…………………………………………………Information and Communication Technologies
KBE…………………………………………………………………Knowledge Based Economy
LMS………………………………………………………………..Learning Management System
STS………………………………………………………………Science and Technology Studies
TEL………………………………………………………………Technology Enhanced Learning
VLE…………………………………………………………………Virtual Learning Environment

1 Introduction

The subject of my research is important because Technology Enhanced Learning, TEL hereafter, is now widely adopted in policy discourse to conceptualise links between digital technologies and learning (Price & Kirkwood, 2010; Bayne, 2014). However, in linking *technology* and *learning* through *language* (via the word 'enhanced'), TEL is deterministic in emphasising only positive outcomes. An expected economic 'exchange value' is assumed, where any use of technology is always presupposed to have enhanced learning (Marx, 1867). This has implications for the division of academic labour in higher education, if policy language foregrounds what technologies, not people, have enhanced in terms of learning. A wide adoption of this terminology suggests firstly, that there is a consensus of belief on this ideological position which is questionable. Secondly, there seem to be no attempts to justify why TEL should be adopted as a starting point for describing the broad and complex field of educational technology practice and research in higher education policy.

My conceptual framework for exploring TEL responds to an empirical crisis in Sociology through 'a radical mixture of methods coupled with renewed critical reflection' (Savage and Burrows, 2007: 13). In a trans-disciplinary approach I link a corpus-based Critical Discourse Analysis, CDA hereafter, of UK higher education policy with an exploration of three values related to technology, described by Lieras in 1996. The interrelated aspects of *externality, desubjectivisation* and *closure* were evidenced by Lieras as values in a political economy that contribute to workers having an oppressive relationship with technology, restricted to maximising productivity, but not 'the whole of human interests' (Lieras, 1996: 333). Lieras called for a different more emancipatory relationship between humans and technology, which I explore later through textual imaginaries of alternative policy discourses to TEL.

Perceptions of 'value' are essentially a function of language (Graham, 2001: 764). Language enables humans to communicate and so I define language in the first instance as a system of communication based on words and combinations of words into sentences. These patterns of words (whether spoken or written) enable 'exchanges' to take place in which values are present, for example, as forms of knowledge, opinions, beliefs and commands. However, language is much more than simply a channel for these expressions. Language is a systematic resource for expressing meaning in context. According to Halliday, linguistics is the study of how people exchange meanings through the use of language (Halliday, 1994: 15). Indeed 'language is a machine that generates, and as a result constitutes, the social world' (Jorgensen and Phillips, 2002: 9).

In my research, as language is enacted in this way, I refer to it as discourse. To distinguish discourse from language, I understand language as the system of patterns and rules which operate simultaneously, at for instance, grammatical or phonological levels, whilst discourse I treat as the instantiation of these in real social contexts of use (Simpson and Mayr, 2010: 5). As language is enacted through discourse, as social practice, it constructs and sustains particular values, in the form of ideologies that sustain dominant forms of power and authority. I refer to this in my thesis title as *political discourse.* I understand power in this context as two-way, involving both dominance and consent and I later discuss the role of 'hegemony' in persuading subordinate groups to accept certain opinions, beliefs, or ideologies (such as those presupposed within TEL, or in relation to the suggested requirements of a Knowledge Based Economy) as natural and even common sense (Gramsci, 1971). Naturalisation refers to the way that a contestable, ideological position is presented as if it were simply the way things are or ought to be (Simpson and Mayr, 2010: 55). I understand ideology as closely intersecting with power in such instances and, through Fairclough, I draw on a Marxist view of ideology which I discuss again in section 2.8.2, to suggest that policy texts can literally 'iron out' human contradictions (Chouliaraki and Fairclough, 1999: 26). By policy texts I refer to the UK government strategy documents aimed at higher education (1997 - 2012) that I have analysed for the purpose of my research. I understand all texts (whether written, spoken, or visual images), not as neutral or disinterested communications, but as able to carry political beliefs. I have therefore chosen to adopt a critical linguistic analysis within this Sociological project to reflexively observe the ideologies that sustain a discourse of TEL in the context of higher education, to coordinate and maintain a link between *technology* and *learning,* through a value judgement: *enhanced*.

Following Lieras, TEL preserves the idea that technology establishes a rigid relationship of 'externality' with people (Lieras, 1996: 333), suggesting it might be selected and objectively 'applied', inevitably resulting in enhanced learning. This rational approach in higher education policy discourse directs TEL practice along a narrow, performance-based route and 'is expressive of a more fundamental division of society from technology' (Bayne, 2014: 5). By a rational approach, I refer to the economic choices that underpin TEL based on rationalisation (Weber, 1905). Rationalisation extends the logic of economic resource allocation and choices about the 'means to achieve particular ends' into the social interactions of individuals within a neoliberal society. Neoliberalism is 'a theory of political economic practices that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets and free trade' (Harvey 2005:2).

This logic through TEL directs our choices related to learning to seek an exchange value, but omits other forms of human reasoning that relate to personal use values in the *material practice* of using technology, which I explain more fully in section 2.2.2. For example, opportunities to engage with decades of critical theory about technology from Science and Technology Studies, STS hereafter, are marginalised. 'STS has its origins in a belief that the content and direction of technological innovation are amenable to sociological analysis and explanation' (Wajcman, 2002: 351). STS scholars suggest technology is not only isolated objects (actual or virtual) but is also activities, knowledge, material structures and modes of organisation which take the form of 'sociotechnical systems' (Matthewman, 2011: 12). Like language, technology is never neutral or external, but instead has powerful implications for people that are unpredictable. It is a constitutive part of human labour, inseparable from politics and culture (Winner, 1980, Travers, 2001). Winner argues our artefacts contain sets of values that reflect the capitalist society we inhabit. These are supported in a policy discourse such as TEL which transfers only 'economically relevant' knowledge (as exchange value), and since the New Labour government, this perspective has supported a widespread conception of a Knowledge Based Economy, KBE hereafter. Decisions about teaching and learning are then subject to a single goal of economic rationality subordinated to a KBE, rather than a more emancipatory approach which would link with theory and the whole of human interests.

The exchange value approach risks alienating people from their more tacit understandings (or use values) for technology leading to a 'desubjectivisation', where 'the human being is constituted as an object not as a subject' (Lieras, 1996: 334). Later, in section 2.5.4 I draw links with Marxist theory about alienation in political economy, but here I focus on the self-defeating nature of rational discourse. Based on the Weberian theory of rationalisation (1864 - 1920), Ritzer described a continuation and acceleration of this process of efficiency and control which replaces people with nonhuman technologies, using the example of fast food businesses (Ritzer, 1998: 52). Yet, despite the economies achieved, ultimately a form of irrationality emerges from rationalisation (Ritzer, 1998: 54). The division of society from technology and severing of human labour from tools is a major obstacle for future advancement. In the context of higher education the rationality of exchange value on which TEL is based starts to create a restricted context of practice through policy discourse where lecturers and students eventually become less able to innovate. Given that the aspirations of a globalised KBE, which I return to in the context of the New Labour government in section 2.7.3, requires individuals to adopt neoliberal values such as entrepreneurism and innovation this becomes ultimately self defeating.

I suggest that our language about TEL, enacted as discourse, reflects a rational logic that can serve either hierarchical or neoliberal forms of policy as demonstrated in the UK in recent years, despite changes in government. I caution though that a rational logic may also reach a point of irrationality or desubjectivisation, if it becomes a 'dehumanising system' (Ritzer, 1998: 56). If higher education policy is written in such a way that documents inadvertently or deliberately 'write-out' human agency as an explicit and necessary resource then it does the opposite of what it seeks to create (Bartholomew and Hayes, 2015).

A focus on economic gain alone from technology treats people as if they were resources and obscures diverse ways humans might encounter technology as 'mutually constitutive' in their subjective material practices (Wajcman, 2002: 354). An implicit principle in TEL: *in exchange for use of technology learning will be enhanced* suggests no other frameworks are needed, leading to a sense of 'closure' to other conceptual routes for 'dialoguing with our form of thinking' (Lieras, 1996: 336). I thus argue that TEL limits a broader critical dialogue in the academic community about what more emancipatory approaches towards technology for learning might look like. The question of whether new technologies (including systems now widely adopted in contemporary universities) actually *enhance* effectiveness of education was always in doubt (Dillenbourg, Schneider, and Synteta, 2002). Taking the elements of technology, language and learning that constitute TEL, there are bodies of critical theory in relation to each of these.

Firstly, others have raised concerns about the terminology of TEL, suggesting there has been little critique of the assumptions embedded within this phrase (Price & Kirkwood, 2010, 2013; Noss, 2013; Bayne, 2014). They point to critical theory about *technology* to support these arguments (Latour, 1993; Badmington, 2003). Secondly, there has been much critique through political economy of commodified forms of *language* about education which emerged in particular through the New Labour period to support a KBE (Fairclough, 2000; 2004, 2007; Graham, 2001, 2002; Greener & Perriton, 2005; Jessop, 2008; Fairclough and Wodak, 2008; Mulderrig, 2011, 2012). Finally, in critical theory about *learning*, there are arguments against oppressive educational environments (Freire, 1972; McLaren, 2000). What has not been worked on though, in the emerging field of educational technology research and practice, is a synthesis of these critiques, drawing on critical theory from all of these areas to confront the starting point implied within TEL: *in exchange for use of technology learning will be enhanced*. Apple suggests, if our task is to seek understanding of both how domination works and the possibilities of interrupting it, then we need to learn from each other and combine our critical efforts (Apple, 2003: 24).

My corpus-based Critical Discourse Analysis of UK TEL policy between 1997– 2012 is intended to reveal what patterns of values support the world view through which we now approach educational technology in higher education and to interrogate these via critical theory about technology, language and learning - the essential elements that constitute TEL. The role of linguistic analysis within my sociological research is to make visible a problem which is not otherwise easy to detect and to interrogate my own position through 'praxis'. Praxis is the approach I take towards critique for this intervention into the established relations of power that TEL upholds. In my reflexive critique, I acknowledge my own close professional involvement through praxis as a self-critical mode of radical questioning, which draws on theory, but also takes action as a form of resistance. In a Marxist sense, as I explain in section 2.6.2, praxis is about intervention where people may be disempowered. Following Freire, my research is critical, not in a negative sense, but instead hopeful that in challenging the status quo linguistically I might encourage creative reflection on the discourse of TEL and thoughtful action on alternative understandings of the role of policy (Freire, 1972). Policy discourse may represent how things *are* and *have been*, but a close empirical analysis can also provide conceptual space to negotiate how things *could be*.

In the chapters to come, I contextualise TEL as it has developed in UK higher education, in relation to neoliberal policy and western world's concept of labour within capitalism (Lieras, 1996: 334). I explain how a critical analysis of language is a principal means by which to interrogate a political discourse that structures one approach towards the material practice of TEL. Firstly, in Chapter 2, I develop my conceptual framework, linking aspects discussed by Lieras of externality, desubjectivisation and closure with my methodology of corpus-based CDA. From a theoretical perspective of political economy, I clarify how the premise of 'exchange value' informs my analysis and critique, drawing on critical theory from the Frankfurt School and discussing the rise of neoliberal policy in UK higher education and my focus on the New Labour period in particular. In Chapter 3, I explain the research questions that focus my linguistic enquiry, linking these to my particular textual approaches in the coming chapters within my methodology of corpus-based CDA and my choice of data selection. In Chapter 4, I describe the steps I took in handling my data, through corpus linguistics, and the related terminology and findings. In Chapter 5, through appraisal analysis, I examine how educational technology is evaluated interpersonally. I notice what linguistic features appraise technology as if it were external to people, yielding only exchange value to support a competitive global economy. I place these observations within the contemporary university to consider whether the values of rational critical dialogue that have helped to generate 'supercomplexity' can also help us to keep it in its place (Barnett, 2000: 83).

In Chapter 6, through transitivity analysis I examine interpersonal perspectives alongside the experiential. I question how we might use the very political discourse that has disguised our material practices in new ways of resistance, to begin to restore our human visibility. When technology is discussed as if it is external to people it is 'weightless' and disconnected from people's social practices and labour. This makes it more easily manipulated in either hierarchical or neoliberal policy agendas, as an improvement or 'fix' for perceived inefficiencies. An analysis of appraisal alone could miss other ways that words can act on and relate to each other to alter how a reader might experience meaning. Therefore transitivity analysis helps us understand the 'goings on' in texts as a whole, through grammatical constructions. We can observe which processes are prioritised, who is doing these, and how texts create or disrupt human solidarity, leading to desubjectivisation. In Chapter 7, I reflect on how my analyses informed my research questions and what new spaces for dialogue are revealed. I examine forms of networked resistance and ways to rejoin people with the very elements that construct TEL, as active participants in a *technology-language-learning* nexus. Finally, in my conclusions I reflect on how developing a more emancipatory approach towards technology requires us to 'be there' as active participants in higher education policy discourse in order to resist the presupposition of an exchange value in TEL and not simply count on technology alone to enhance learning.

2 A critical framework to examine TEL in higher education

In this chapter I develop my conceptual framework, linking the concepts discussed by Lieras of externality, desubjectivisation and closure with my methodology of corpus-based CDA. I begin by briefly explaining the concerns raised by Lieras which I return to later. I then contextualise TEL within UK higher education, explaining connections to neoliberal policy. I proceed to comment on my understanding of political discourse and material practice. I then discuss the elements of *technology*, *language* and *learning* that constitute TEL firstly, as they are ordered in terms of a presupposed 'value' in the arrangement of the words themseves, then as broader interrelated elements, dialectically intertwined, to constitute what I refer to as, the broader field of 'educational technology'. I discuss claims that are repeatedly voiced in UK policy, alternative understandings and my own involved position in this research. Through the lens of political economy, I clarify how the premise of 'exchange value' informs my analysis and critique, citing critical theory from Marx and the Frankfurt School. The discourse of TEL serves either hierarchical or neoliberal forms of policy, effectively maintaining in the UK a continuity of values, despite changes of government. To disrupt and confront this thinking, my thesis links the oppressive aspects described by Lieras and his call to develop an emancipatory approach towards technology, with my interrogation of the language of TEL, through corpus-based CDA.

2.1 Externality, desubjectivisation and closure explored through CDA

My critical theoretical framework is a corpus-based CDA, which explores within the discourse of TEL, three principles drawn from the contemporary social theory of Lieras (1996). Lieras suggests our modern approach towards technology is evidenced as an oppressive force through the aspects of: externality, desubjectivisation and closure. In questioning how to develop a more emancipatory approach, Lieras suggested that these values in modern capitalist society communicate a limiting view of human tools and labour: 'constricted to exaction of productivity and not to the whole of human interests' (Lieras, 1996: 333). Firstly, an appraisal of technology as external alienates humans from their own practice. To value technology in this way, separates it from the human labour that brought it into being and the ongoing labour required to further activities with it. Externality implies machines have a logic of their own that people might simply harness as 'usefulness' for personal gain.

Secondly, the Western notion of labour power since the Industrial Revolution has been conceptualised as a form of punishment, rather than a personal realisation.

Marx described the need to sell human labour under capitalism as an 'activity of alienation' (Marx, 1970: 72). New forms of organisation of production have meant that labour no longer acts as a basis of self-definition for people, but instead has become something external to workers. Human labour becomes discussed as if it were a marketable item and people referred to as if they were objects, not subjects, through 'reification', which I return to later (Lukács, 1971). This form of expression of labour power leads to a desubjectivisation, which in the context of TEL, can be noticed in language when TEL is said to achieve things independently of humans. Though TEL is simply an idea, it holds certain assumptions and can become treated as if it were a fact we might refer to. Yet people may fail to recognise this predicament due to 'hegemony' (Gramsci, 1971), which I discuss again in more detail in relation to discourse.

This brings thirdly, a form of closure to imagining alternative conceptual learning spaces from TEL, through an 'enframing' master narrative (Heidegger, 1977: 38). This hinders people from envisioning broader approaches to work and learning. I therefore understand the policy discourse of TEL as able to enframe and restrict people's understanding of the broader field of educational technology through the aspects of externality, desubjectivisation and closure. At the end of this chapter I explain in detail how I link these three aspects from Lieras, with my analysis through a corpus-based CDA of educational technology policy texts.

2.2   Technology Enhanced Learning

In United Kingdom (UK) higher education policy documents (and by extrapolation more global ones too, as discussed in examples below), TEL as a concept, is often used to articulate a problematic presumption - that learning is (inevitably) enhanced, when mediated through the use of technology. There has been little critique in the literature of the fundamental assumptions embedded within the terminology of TEL (Bayne, 2014). Indeed, unlike some other previously adopted terminology such Information and Communication Technology, ICT hereafter, e-learning or networked learning, it seems to serve in policy as a form of 'shorthand' for what is in reality 'a complex and often problematic constellation of social, technological and educational change' (Bayne, 2014:1). The narrow and largely unconsidered use of TEL within higher education policy documents has led to a tacit acceptance of a discourse that is, I suggest, in modern neoliberal society, fundamentally based on the Marxist concept of exchange value (Marx, 1867). Technology, like any commodity, has 'value' which also represents a quantity of human labour. Marx distinguishes between 'use value' and 'exchange value'. I explain these terms more fully later, but 'use value' relates to subjective human social practices and needs that a technology might support, in conjunction with the labour involved. On the other hand, 'exchange value' is a

more objective value that takes the human labour involved for granted, to realise a profit in an economic market. This approach seems to be reflected in TEL as a guarantee that 'the use of technology' (as an external application) will automatically enhance learning as exchange value (profit). A repetition of this sort of pattern of expectation is shown below. These examples are taken from the large bank of data I have collected within my corpus:

5659	**the use of technology** <u>can increase</u>	*accessibility and flexibility of learning*
5660	**the use of technology** <u>to create</u>	*digital archives to improve practice*
5661	**the use of technology** <u>to enhance</u>	*front line productivity and management*

Following each mention of 'the use of technology' there is a positive evaluation which I have underlined. This suggests there will be an improvement of some sort to the aspect of learning or practice that follows. Through these, and many other examples I discuss later, I draw attention to a reiteration of a very narrow perception of educational technology. Whilst inferring technology always provides an economic 'fix' for perceived issues in higher education, at the same time, this conceals a multitude of important assumptions, as I will explain below. The discourse of TEL provides a vehicle for political economic agendas to make only simplified links between technology and productivity in learning, which can, according to Greener & Perriton (2005), distort the values of human learning communities.

Technology, as stated in the opening quotation from *Capital,* 'discloses' the process of production by which human life is sustained, laying bare both social relations and the mental conceptions that flow from these (Marx, 1867: 372). These are material practices that Marx describes and I suggest that in the broad field of practice and research that has become known as 'educational technology', we need to also examine how political discourse governs and controls this act of 'disclosure' for educational technology in higher education. As language is enacted through discourse, as social practice, it constructs and sustains particular ideological values. The discourse of TEL as a social practice in the context of higher education coordinates a link between *technology* and *learning,* through a value judgement: *enhanced.* I will therefore expand on the role of discourse through political economy to explain how CDA helps to shed light on what claims about TEL conceal. Embedded and ordered within TEL is a foregone conclusion (this takes the form of a presupposition as I discuss below) that technology has now enhanced learning and will continue to do so. Arguments that begin from this point of understanding effectively hide technology's politics and history. They postpone an urgent debate required to remind us that it is humans who engage in learning opportunities, not technology. TEL has become 'a widely accepted term in the UK and Europe for describing the interface between digital technology and higher education' (Bayne, 2014: 1).

Hierarchically, for example, as: 'a vision for the future, a paradigm shift where technology transforms *what* we learn and *how* we learn it' (European Commission, 2009), or more liberally: 'to support teaching and enhance the student experience' (An Agenda for Australian Higher Education, 2013). In other texts the 'international impact of Technology Enhanced Learning on roles and practices in higher education' is the focus (Price, 2005: 6). If this is the case, then we must be able to research the impact from this linguistic description of human practice with technology for learning. Yet research that does examine TEL in higher education tends mostly to look at either impact from new forms of technology, or to simply discuss methods of support to help staff implement these (Price, 2005: 4). In the UK, whilst there is a 'quarter of a century of existing research that underpins current practice' in educational technology (Oliver, 2003, Price, 2005: 19) this tends to be overlooked in policy in favour of more rational, technical and financial discourses that, under a managerial banner are used to justify changes to academic practice. Furthermore, attention shifts constantly to new technologies with little attempts to theorise practice. (Oliver, 2003; Price, 2005: 19). Such analysis of the relationship between policy and practice for educational technology in the UK is relatively rare (Price, 2005: 19). Therefore whilst there is research investigating TEL in the UK this tends to focus on the effect of technology on particular roles, or the technologies and their implementation in higher education. The impact from the political discourse, that positions technology in a particular worldview for learning within modern neoliberal society, tends not to be the main focus. Yet discourse can reveal things to people learning, or it may conceal alternative understandings.

2.2.1 Political discourse and presupposition

By 'political discourse', I mean what happens when language 'gets done' in social, political and cultural arenas (Simpson and Mayr, 2010: 5). However, I take the position that the 'political' encompasses the entire realm of the social, given that 'all events, processes and practices which occur within the social sphere have the potential to be political and hence to be amenable to political analysis' (Hay, 2002: 3). My political analysis through CDA draws attention to power relations enacted through policy discourse that might otherwise remain hidden. By power, I refer more specifically to the idea of 'hegemony' as it operates through forms of language that can appear to be 'common sense' when enacted as discourse (Gramsci, 1971). I discuss my specific approach towards analysis of discourse, following Fairclough in section 2.8, but for now I make the point that all patterns of discourse carry with them powerful frameworks of beliefs and interests. These may favour one particular ideological stance, but marginalize others.

Politicians and policy makers use mechanisms within discourse to pursuade readers of the validity of their claims. One such mechanism that might be noticed in TEL is the linguistic strategy of presupposition. A presupposition is an implicit assumption about the world, or some form of background belief taken for granted in discourse. A generic example might be: *Sarah no longer teaches in that university.* This implies that Sarah did at some point teach in the university that is referred to. If I write: *Technology Enhanced Learning was introduced successfully* I imply that we can presuppose (by the ordering of the first three words) that technology has enhanced learning in the first place before it was introduced successfully. A presupposition must be known, or at least assumed, by those writing or speaking. As it is enacted in statements it projects a particular belief. In the case of TEL this belief is framed in a choice and order of words that presupposes that: *in exchange for use of technology, learning has been enhanced.* In TEL therefore (unlike alternative terms such as e-learning or networked learning) a reader meets an embedded foregone conclusion and they must determine for themselves how, when and where learning was 'enhanced'. Whether the writer intends it or not, this embodies a deterministic assumption through *language* about what *technology* has achieved when applied in *learning.* The choice of the word *enhanced* is also an assessment, or appraisal, that invests technology with an exchange value for the improvement of learning.

The emphasis on transforming what has gone before also provides a starting point of 'failure' and at the same time removes impetus to examine any history of past struggles or insights. The taking for granted of this starting point assumes a general consensus that this is the premise we all begin from in educational technology practice. I will refer to 'educational technology' throughout my thesis as the broad study of facilitating learning through technology, where the focus is placed on the 'educative dimension' (Hlynka and Jacobsen, 2010). There are other terminologies that compete within this contested conceptual space, for example: ICT, e-learning, networked learning and TEL. In theory these 'are all terms that might further critical theoretical debate about the nature of educational technology. Yet in policy such terms have mostly served as static markers to maintain a particular and dominant, economically-based world view of educational technology' (Hayes, 2014b).

Policy is often linked to a notion of 'a problem' and the strategies needed to solve it (Harman, 1984). In the extremes of this 'problem-solving' definition of policy, we meet positivist ideals and objective world views (Conlon, 2000:111; Shulock, 1999; Denscombe, 2002; Neuman, 2004). Consequently, implementational, rather than fundamental issues, remain the focus (Clegg, 2003).

Problem solving is of course important, as a way to recognise issues, but it can tend firstly, towards a static model in policy, where a document provides a guide for all principles, actions and routines and a belief that, when strictly followed, this will bring about desired change (Trowler, 1998). In applying such principles to the fluid and dynamic field of educational technology this is bound to encounter some difficulties. Secondly it neglects the 'socio-cultural dynamism of policy processes' (Nudzor, 2009: 503). These are not constituted in isolation but comprised through many factors. Yet to consider on the other hand a 'process-based' definition of policy, which focuses on what policy actors do in response to policy formulation, articulation and interpretation may, in analysing the micro, risk forgetting 'it is the macro level actors who often set the ground rules for negotiations involved in the policy process' (Nudzor, 2009: 508). Therefore, understanding how policy is shaped more broadly, globally even, within the confines of dominant discourse about economic agendas is also needed. Nudzor concludes that policy is neither a problem-solving tool, nor a process, but *both* (Nudzor, 2009), citing Olssen et al (2004) who significantly, for my research, describes policy as fundamentally an exercise of power and language used to legitimate the process (Olssen, Codd, and O'Neill, 2004).

To briefly examine four rational claims within policy discourse that reinforce this position, firstly, the belief that technology is 'neutral' distinctly separates the *means* of technology from the *ends* of learning. TEL is stated as a set of external processes to be applied, as shown in this recent statement from HEFCE. Our approach to technology enhanced learning (TEL):

- efficiency (existing processes carried out in a more cost-effective, time-effective, sustainable or scalable manner)
- enhancement (improving existing processes & outcomes)
- transformation (radical, positive change in existing processes or introducing new processes)

(HEFCE, 2010)

Secondly, there are consequences for those involved in using technology in their learning, if they are positioned as at the receiving end of 'impact' from technology, as an external force:

The use of e-portfolios has been shown to have a direct impact on enriching the student experience over the long term.

(JISC, 2010)

In this statement, readers are not told *who* has shown the 'direct impact' but are required to understand that it has enriched 'the student experience'. Students are not discussed as the diverse and variable group of individuals that they are, with their own experience and attitudes towards technology, but as an object, or entity, that experience things equally.

Thirdly, the application of technology is expected to yield a more 'effective' use of staff and student time:

> The application of technology should deliver improved access to richer resources while contributing to more effective use of staff and student time.
>
> (Bedfordshire TEL Strategy 2008-11)

How this will happen, and whether in learning and teaching this is always appropriate, is less clear. It is also inferred that previous decades of teaching and learning have been less effective. If so, this positions students and teachers as somehow 'lacking' until an effective use of technology can be put into place. In the text below, 'emergent themes' seem to be acting to empower and equip staff to redesign their teaching, in a way that makes more 'effective' use of resources and technology:

> The emergent themes are now more focused on the empowerment of teaching staff, to equip them to redesign their teaching in a way that makes effective use of available resources, including technology
>
> (HEA, 2009)

Paradoxically, though whilst this text does acknowledge staff and discusses 'empowerment', it positions staff as subject to the 'emergent themes', rather than empowered to explore their own interpretations of using technology for teaching and learning.

Finally, a fourth claim is that a simple, direct link between technology and enhanced learning actually exists. A rational logic often communicated suggests, whether welfare, government or education is the 'issue', we might seek to use technology as the 'response', or 'technofix' (Clegg, 2003: 49). Whilst patients, constituents and students may occupy very different situational contexts, each may find they become 'objects' for policy makers attempting to apply 'technological solutions' to them. Technology is viewed as meeting a perceived need, which in itself, may be insufficiently explored (Clegg, 2003: 48). It may indeed not even exist for those at the receiving end. For example:

> Staff require support so they can effectively exploit the potential of these new technologies
>
> (Cooke, 2008)

The 'new technologies' are said to have 'potential' that can be effectively exploited but this discursively limits other opportunities to critically question what is even meant by 'educational technology' and to extend our knowledge of this complex field of political discourse and material practice.

2.2.2 Alienation from material practice

By material practice, I refer to the human labour process where, in personal engagement with technological objects, tacit 'use values' are produced (Marx, 1867). These are social encounters with technology where all manner of 'ontological exchanges' might be considered as significant parts of learning (Sezneva, 2007:21). Through critical theory from STS we can acknowledge the importance of technologies as material artefacts in people's lives. 'Things' of all types form repositories of, and for our learning, construct our social worlds and contain 'traces' of us (Lash, 2002). In turn we are influenced and constituted by our objects. New forms of mediation now exist via the mobile devices we carry and the online social media networks we communicate through. Rather than a means for conversation alone, devices such as mobile phones are 'actors' in our lives (Latour and Venn 2002). They hold our data, contribute to our goals and are 'relational' to other things, including ways in which we learn (Law, 2008). STS scholars have demonstrated that technologies contribute to people's practices in ways that are 'different from the expectations of their creators, implementers, users' (Sorensen, 2009: 7). If this is the case, then technology is unlikely to perform only to provide the 'enhancements' laid out in policy texts. Furthermore, a discourse that focuses *only* on what is objectively 'required' from any educational technology conceals other subjective possibilities for those learning. Sorensen provides the following examples: firstly, by not focusing only on what we want a technology to *do*, this acknowledges there may be broader ways technology can contribute to performing forms of learning that are unexpected but fruitful too. Secondly, even when technologies *do* support our educational aims they also always produce other effects. To treat technology as an instrument alone fails to engage with questions about its exact role in human learning situations. Finally, 'the emphasis on technology as a means to particular ends establishes an intellectual division of labour' (Sorensen, 2009: 7). This puts one version of educational technology theory and aims above a fuller understanding of technology as personally constructed in people's material practices.

2.2.3 Technology is not external

If technology means different things to different people in different situations, it cannot simply be assumed to be an external force with inherent positive qualities where learning is always enhanced. As mentioned above, technology, like any commodity has 'value', but the value also represents a quantity of human labour. When technology is discussed objectively as an external (or neutral) implement assumed to yield an 'exchange value', the subjective human labour or 'use value' involved is taken for granted to realise a profit in an economic market. What is actually meant by 'technology' in the context of TEL 'is rarely made explicit in the

documents which make use of the term: there appears to be a sense in which it is seen as needing no further qualification' (Bayne, 2014: 4). The idea that as humans we can apply technology and rationally control and contain its effects is of course appealing, as it keeps things simple. Yet in so doing, it hides bigger critical questions for learning about what constitutes technology as part of our social and political structures in society.

I therefore define technology more broadly than simply instruments to serve economic ends. Instead, I understand it in terms of sociotechnical systems, because items of technology do not operate in isolation. A car may be considered a technology and be thought of as an object, but it requires knowledge to drive it. The human activity of driving is subject to both material modes of organisation, such as roads, and political discursive ones, such as laws. The values of the law may be upheld through further material items such as speed bumps, traffic lights, and penalty stickers for offences committed by drivers. Equally, via the Internet I might simulate the action of driving virtually in a video game. Thus I argue technology is not only isolated objects (actual or virtual) but is also activities, knowledge, modes of organisation in the form of sociotechnical systems (Matthewman, 2011: 12). In STS theory technology has powerful implications for people that are unpredictable. Technology is everywhere, but it is not an 'extra' (Law, 1991; Netz, 2004). It is a constitutive part of human labour, inseparable from politics and culture (Travers, 2001). Yet it is frequently discussed as if it were a 'shadow constitution' (Winner, 1980:128).

These, and other desubjectivising effects of modernity, can be noticed through a close linguistic analysis of policy. They find an efficient mode of transport in texts about TEL which separate people and things from their material culture, history and indeed their own labour, to support the ethos of a market driven society. Whilst new forms of technological practice and exchange now take place in universities, to assume that technology has any direct link with enhancement of learning raises some further questions. How, for example, does technology build knowledge, as a process of inquiry and critique? Might enhancement itself mean more in a broader understanding of technology?

> Human enhancement refers to any attempt to temporarily or permanently overcome the current limitations of the human body through natural or artificial means

> (Wikipedia, 2009)

If this includes the human mind, as well as body we might say 'everything is technology' (Braudel, 1985: 334). All around us it shapes our history, knowledge and individual lives. We in turn shape it in multiple ways (Wajcman, 2002). Technologies *extend* us (McLuhan, 2005). Given these broader understandings, human pedagogical interactions with

technologies are far from simply enhanced, irrespective of claims from government policies. Even a pen has a material significance for each of us. It can run out of ink, and thus change a course of events. It is dialectical and mutually constitutive (Wajcman, 2002) with our practices, discourses, values, institutions, virtual environments, and all forms of apparatus (Simons and Masschelein, 2008) from which we draw meaning, when learning. Therefore a critical perspective is needed on these material interactions that dialectically relate to other social structures like language (Harvey 1996).

2.2.4 Language choices that lead to desubjectivisation

In learning situations material interactions with technology are closely linked to the language we use to discuss these. In Sociolinguistics, language has long been considered as intersecting with the social and political reflexes of power and social change, due to work by scholars in Linguistics, English Language, and related fields over the last 40 years (Simpson & Mayr, 2010: 2). Critical linguistics (Hodge and Kress, 1993), through CDA (Fairclough, 1989, 1995, 2004), provides a perspective on verbal interactions that affect people's understanding of social structures (Fairclough, 1995: 43). I understand power in this context as a two-way encounter that is dialectical (Fairclough, 2001) with other social entities (such as technology and learning). By dialectical, I mean jointly produced, but not necessarily evenly distributed.

Language, in the form of discourse, coordinates our social practices. However, rather than an obvious struggle where any coercion would be apparent power is more fluid than this and operates through consent. I explain my particular Marxist approach towards the functioning of ideology through Fairclough later and draw upon a 'disguised' form of power as hegemony, where power operates with the seeming concurrence of those affected (Gramsci, 1971). These powerful interactions may be examined as a broad social effect at the macro level, or scrutinised more closely at the micro level of language structure and use (Mesthrie, Swann, Deumert and Leap, 2009: 312). At the macro level a transdisciplinary, critical theoretical analysis enables many concepts to be linked to yield a better understanding of *technology*, *language* and *learning* and their interrelation in the field of educational technology. At the micro level a close linguistic analysis via CDA enables deconstruction of patterns of use that may have limiting tendencies. The discourse of TEL is effective in coordinating and maintaining a perception of educational technology as directly linked to 'performativity' (Ball, 1998). A dominant policy discourse of 'performativity' was developed through New Labour education policy, which I will return to later. Policy documents, through TEL, can 'reify' the human subject and their labour as an objective idea (Lukács, 1971).

The objective idea of TEL then becomes an entity that can be said to undertake activities, propose or believe things linked with improving human productivity. This makes it difficult to argue with texts where the agency (who is acting) is unclear, and peoples' understanding is mediated through a set of appraisals and judgements. Such discourse leads to a *desubjectivsation* which I later link with the concept of *alienation* from Marxist theory. For now I make the point that TEL predicts that a potential form of value exists from use of technology in learning spaces that is not really *knowable.* Those learning through technology are discussed as beginning from a pre-determined position that there is only *one* effective use of technology: *to enhance.*

2.2.5 A form of closure to other routes for learning

As capitalism has progressed, human learning activities have become more 'formally commodified' (Graham, 2002: 228). Terms such as Knowledge Based Economy (KBE) which became popular in UK higher education policy texts during the New Labour period of government are based on the presumption that knowledge is a tool to serve global capitalist competition (Jessop, 2008). Under New Labour, as I will discuss later: 'the economic rather than pedagogic significance of ICT was driving and shaping its implementation' (Selwyn, 2008: 708). This emphasis on economic gain, in terms of performativity, encourages professionals to take initiative to realise their potential, but it also marginalises less instrumental routes to knowledge (Ball, 1998). Such rhetoric is part of a continuity of UK policy, despite changes in government that has emphasised enhancement of 'quality' in higher education and other aspects of the public sector since the early 1980s. Quality formed 'part of a wider Conservative government-led ideological narrative and organisational strategy of "the enterprise culture" ' (Kirkpatrick and Martinez-Lucio, 1995). In the hands of New Labour educational technology then became established as a significant part of a policy narrative that took this culture forward in terms of: modernisation, standards, effectiveness and enhancement of the public sector to improve UK competitiveness in the global economy. The placing of value on *only* the aspects of education (and educational technology) believed to support such aspirations has implications, in terms of a separation of conscious human social activity (as use value) from activity seeking only economic gain (exchange value).

A growing commodification of knowledge in pursuit of individualistic goals can be heralded in policy as an emancipatory route, but curiously it has the effect of reinforcing human 'subordination to the treadmill of capitalist competition and unending pressure for economic growth' (Jessop, 2008). The discourse of performativity embedded in TEL effectively enframes human learning within a judgement. As economically useful knowledge is given priority there is a 'closure' to other varied routes of critical inquiry. The capitalist mode of

production enacted through neoliberal policy discourse leads to a reified interpretation of people's labour and social conditions as if these were relations of things with other things. In TEL there is a naturalising of this state of being. This presents an issue if, through forms of language, our technologies and material things begin to have a more noticeable presence in discourse than we do as humans. Ideas of a particular type can travel more quickly if they do not carry a human history or context with them. In this way conditions of ideological hegemony within capitalism can be more easily maintained and forms of social injustice more easily concealed. It is my opinion that educators in higher education have a responsibility to take a position on hegemonic discourse and provide students with opportunities to discuss and understand how politics and power in wider society can enframe their learning.

However, as Barnett (2000) has pointed out it is not easy to identify human responsibilities within higher education due to changes in modern capitalism. These have altered our very ideas of what the contemporary university provides and indeed who is really in charge (Hayes and Jandrić, 2015). Barnett describes university values in terms of 'reason', 'culture' and 'excellence', but discusses the latter as a conception where universities lose their way, for the idea of 'excellence' in terms of performativity has no content (Barnett, 2000: 2). I will pick up on this point in later analysis to link with the problems of a lack of 'human labour content' in the discourse of TEL. For now, in relation to the sections of this chapter to come, I highlight the notion of 'supercomplexity' referred to by Barnett where professional life now involves not only overwhelming amounts of data but also multiple frames of understanding, of action and of self-identity (Barnett, 2000: 2). By beginning from Marxist theory though, we can at least find a solid point of reference through political economy, where real people and their social relations and productive labour in specific historic periods are the focus.

The material labour of people and empowerment within their personal context of learning is important in Critical Pedagogy (Freire, 1972, Giroux, 1997). We understand that the terrain of the body is a significant site of resistance and change in education (Giroux and McLaren, 1989). Our bodies mediate both technology and language in our learning situations. If people cannot recognise themselves in language about their own learning then they lose a perception of their power to change a dominant learning culture. Yet learning involves change as people acquire new knowledge. In a critical approach towards pedagogy, people need to be empowered not only to interpret the world but also 'to change it' (Marx, 1990:84). Critical pedagogy has critiqued relations between teachers and students, students and other students and interactions in educational systems that promote and maintain false and misleading beliefs to help preserve unequal situations (Freire, 1972; Apple, 1979; McLaren,

1994). Yet critical pedagogical accounts of learning do not seem to have considered in detail how technology and language together are also actors in these unequal pedagogical relations. Critical pedagogical theory has not featured prominently in either educational technology literature or in theoretical texts about CDA.

The activities we undertake with technologies whilst learning may involve material production or linguistic communication. 'Knowledge is communicative thought incarnate in activities' (Lash, 2002: 177). Therefore the human labour of learning through educational technology is constituted by both actions and communications as people both produce and consume texts whilst developing their understanding. Habermas makes links between labour, linguistic communication, and power and domination as three sources of human action and knowledge (Habermas, 1968). People's learning is structured by these 'cognitive interests' and so, rather than develop extremes of these in isolation in modern capitalist society, we might consider how these relate to each other in educational technology practice. I explore such ideas later as I consider a *technology-language-learning* nexus as an alternative broader theoretical understanding of educational technology than the rhetoric of TEL where *learning* is based on a restricted set of values. These are values that emphasise a simplified form of collective improvement as performativity, but often ignore the diverse social and material contexts of those learning. The development of TEL takes place through political discourse which is enacted as social practice. One way in which this might be illustrated is through the hiring of particular individuals as learning technologists to further the TEL agenda. In the next section I explain this role with reflection from my own experience.

2.3   Positioning the Learning Technologist

I am positioned and involved in this research, as a lecturer who has worked for 16 years in higher education. Much of this time I have spent 'betwixt and between' (Garsten, 1999), at times in the role of a 'learning technologist' developing use of educational technologies with staff and students. At other times managing funded projects and lecturing in academic subjects related to this field. Learning technologists were discussed in the late 1990s as 'new professionals' within the field of educational technology (Gornall, 1999; Beetham et al., 2001; Oliver, 2002; Land, 2004; Dearing, 1997; Cox, 2007: 3). They were considered people likely to have an important role in change in UK Higher Education (Whyley and Callendar, 1997). Their position, though organisationally 'liminal', (Tempest and Starkey, 2004) is also powerful, due to an association with the changes desired by policy makers and senior managers (Gornall, 1999: 48; Oliver, 2002: 245). Yet 13 years after the Dearing Report:

> There remains a major gap in the literature concerning learning technology staff, their roles and positions, particularly in relation to their overall contribution to the learning experience.

> (Beetham and Browne, 2010: 29)

This would seem incongruous in any other academic field. However, learning technology staff, despite their close daily relationship with *learning*, can remain shackled to a dominant perception of *technology*. By this, I mean that the notion of technology as being neutral or a means to an end can be extended and applied also to the staff providing support for it. They become defined by the expectations applied to the job, such as the signifier of 'enhancement', which is now included within people's titles. Many UK universities now have TEL teams led by a TEL Team Leader, Head of TEL or Director of TEL. Those once called Learning Technologists may find themselves renamed as Faculty TEL Co-ordinators, TEL Advisors, or TEL Development Officers. Staff undertaking such roles are not expected to contest the written policy that defines or enframes what they do. If the experience of learning technologists has been constrained then perhaps their impact on learning may also be limited due to a mental representation transmitted via policy discourse.

In the Social Sciences, a commitment to researching and supporting diversity may have overlooked a large 'hybrid' group of people who are expected only to speak with one voice on the application of technology to enhance learning. A social engineering of this substantial group of staff has taken place in recent years via a combination of government initiatives linked with higher education bodies and key documents:

> Learning technologists have a unique role to play in bringing together the technical and the educational to underpin and drive the development of e-learning in higher education

> (Armitage and O'Leary, 2003)

The question of how 'the technical and the educational' are brought together though is a crucial question for us all and not one that should be determined by learning technologists alone within a narrow framework of TEL. In recent decades in the UK learning technologists have performed as a layer of meaning, between government policy and teaching with technology, in universities. It is a layer of meaning that has seen little contestation and whilst many institutional roles in HE may have limitations, the 'function' for which learning technologists were designed has very wide-reaching implications (Armitage and O'Leary, 2003). This is not to suggest that any individual technologists have deliberately misled staff or students but rather to point out that over time introducing people into such a role as a filter for government agendas for technology can change the nature of what knowledge relating to

technology is believed to be. During the New Labour period the rational logic of a KBE, as I will discuss a little later, defined and enframed the scope of the learning technologists role. A key feature of this logic within the broader, obsessive project of modernity (Elliot, 2009: 256) is to dispense with the tentacles of history of all manner of 'things' in a tireless series of 'makeovers' to improve and transform. Amid such programmes human individual connections with technology can become severed in documents and replaced with statements that attribute people's labour actions to relationships between things and other things. This is evident in terminology about educational technology, where one concept is said to have 'subsumed' another:

> E-learning is starting to subsume and replace a number of previously used terms such as communications and information technologies (C&IT or ICT), information and learning technologies (ILT), networked learning, telelearning or telematics and instructional technology (Edgehill Strategy, 2005)

> The concept of e-learning is thus becoming subsumed into a wider discussion of how learning can be enhanced by more effective and far-reaching uses of digital technologies (JISC, 2009)

> The move from 'e-learning' to 'enhancing learning through the use of technology' is now well embedded and recognised (JISC, 2012)

In these examples, as I will show in later analysis, there is no human involvement that is easily detected. Instead discussions focus on 'the' concept of e-learning becoming subsumed and 'the' move from 'e-learning' to 'enhancing learning through the use of technology', as if these are universal ideas we all recognise. Yet there is no concrete reason as to why any of these terms should actually absorb another anyway. They do not need to be considered either redundant or hostile, when differing perspectives on terminology and across subject disciplines may yield new understandings (Parchoma and Keefer, 2012).

The impulse to tidy and order ways of building knowledge as linear processes, detached chunks of learning and neat parcels of best practice is a common feature of UK policy discourse about educational technology. Such classifications may exclude important concepts linked to learning. New practices may be recommended in language people find difficult to argue with. People may not 'believe' these 'operational' concepts, but they can be justified in 'getting the job done' (Marcuse, 1991). In my roles over the years in different institutions I have been expected to gather and publish many isolated examples of practice, as case studies to encourage others to adopt ways of working. These are often decontextualised from people's circumstances but are always intended to display positive effects from innovative use of technology.

In principle it may appear that no harm can come from these initiatives but what they fail to do is disrupt or displace a way of thinking that always places *technology* as the driver of successful learning. The technological practice becomes a reified example to maintain a dominant culture. The impetus for staff and students to recognise ways they might change the educational context around them and reclaim conceptual spaces for new imaginings about technology in their learning is lost. The real labour actions of people can get pushed aside in a language of positive-sounding outcomes people should aspire to through the use of technology. Even if consciously constructed though, there is no guarantee that the 'signs' a government wishes to communicate through policy discourse will necessarily be 'read' as intended. An 'other' is always possible when meanings of words, concepts and signs are subject to historical change (Williams, 1976). Learning technologists therefore provide a layer of reinforcement for such messages. If they perpetuate the myth that technology determines learning this may speak to a preformed knowledge in people of technology as largely instrumental for yielding positive results. Or they might in an alternative more critical understanding of technology, language and learning take the powerful role they have been handed along a different trajectory.

2.4   Alternative educational technology meanings

During the 1960s and 1970s computer systems were largely considered deterministic entities (Luppicini, 2005: 106). In a later section below I discuss how new forms of technological domination began to emerge, referring to the famous speech given in 1963 by Harold Wilson at the Labour Party conference, where he warned Britain was experiencing a period of unprecedented technological change. His predictions of a 'new Britain' in the 'white heat' of a 'scientific revolution', though discussed by David Edgerton (1996) as something of an illusion, offer a point of reference for the later political narratives by Tony Benn during the 1970s, and Tony Blair and New Labour in the 1990s, around the theme of technological change. These narratives provide continuity across the decades, sharing the general premise that technology is a distinct force, able to 'act' independently of other social processes.

Yet in contrast to such rhetoric, as early as June 1973, scholars were carefully considering the use of computers in education as more than simply machines we use to extract economic value. At the start I mentioned that TEL is framed in a particular choice and order of words to state something that has already happened. It reflects a presupposition that use of technology has *enhanced* learning by increasing productivity. I call this a 'trouble free' discourse because it has the benefits of technology sewn up within language that stresses

exchange value. This serves the purposes of perpetual accumulation required to maintain neoliberal organisation but it does not serve humans to build new critical forms of knowledge. I contrast this trouble free discourse of enhancement with ideas about 'troublesome knowledge' (Mezirow, 1991; Meyer and Land, 2006) which is about building a critical conceptual space for personal, transformational knowledge through interaction with technology. Through Critical Pedagogy this would include critically questioning political and economic ways society is organised and seeking to change repressive environments.

In 1973 in memo (no: 298), from the Artificial Intelligence Laboratory of the Massachusetts Institute of Technology entitled *Uses of Technology to Enhance Education* we find a rather different approach to uses of technology to 'enhance':

> It is not sufficient merely to have a computer. It is necessary to develop contexts in which the computer can be used by a child to serve real personal purposes. Such a context needs to be both material and conceptual
>
> (Papert, 1973)

In this paper, using technology to 'enhance' is not simply about responding to the demands of a free market economy or industry. It is about the computer in a personal context of use value that is both material and conceptual. This relates to 'fashioning the computer into a convivial tool' (Illich, 1973; Papert, 1973: 10) which is hospitable. Technology in this vision is a welcoming place for people to inhabit. *In Tools for Conviviality* (1973), Ivan Illich draws a contrast between a 'convivial' approach and the previous hundred years of human technological development which has tried to fashion machines to work for us, and to 'school' us in their service (Illich, 1973: 16). He suggests we discard the hypothesis that machines can replace slaves because the result from this model in fact enslaves people. Here Illich considers the broader context of schooling around technology as a structure implicated in repeating a misuse of technology that has gone before. Enframing machines in a maximum-yield conception turns people into consumers which conceals alternative uses:

> As the power of machines increases, the role of persons more and more decreases to that of mere consumers
>
> (Illich, 1973:17)

Illich provides here a visionary concept for technology which in many ways now seems prophetic. His ideas that people 'need their tools to move and to dwell' (Illich, 1973: 17) seems to apply more than ever in modern society, where our lives are increasingly mobile and people now sleep with their phones. Illich coined the term 'conviviality' to designate the opposite of the use of technology for increasing industrial productivity alone.

He discussed objects, services and communication that varies from culture to culture, as an autonomous and creative association between people, but also between people and their subjective, material environment. As such 'conviviality' with our tools as humans, is representative of individual freedom, and personal interdependence. If 'conviviality is reduced below a certain level, no amount of industrial productivity can effectively satisfy the needs it creates among society's members' (Illich, 1973: 18). This vision of humans starved of creativity, on a treadmill to improve surplus value, yet never satisfied by the endless consumption it provides does not sound like a promising route to build a framework for educational technology research. Now, 30 years on from Illich's observations, if our current educational technology policy discourse is used as the measure, it seems we have not progressed far in realising conviviality in educational technology. Papert follows Dewey, to emphasise that 'knowing' is provisional. It must be founded on experience, not fixed absolutes (Dewey, 1938: 361). Educational technology was recognised by the AECT Definition Committee in 1972 to be about facilitating human learning:

> Educational Technology is a field involved in the facilitation of human learning through the systematic identification, development, organization, and utilization of learning resources and through the management of these processes
>
> (Luppicini, 2005: 106)

Just a few years later it was acknowledged serious conceptual work was needed in order to advance research, as demonstrated in the 1977 *AECT Definition of Educational Technology* publication quotation below:

> I firmly believe that the future of Educational Technology is now in the hands of the thinkers. What is needed is a handful of experienced people who have thought widely and deeply, and who are literally obsessed by the problems posed. These people must have the ability to analyze and synthesize, and, in effect, to invent whole new conceptual frameworks. If they do not have this latter ability, they will soon be reduced merely to improving what is
>
> (Luppicini, 2005: 103)

Here they appear to be having the necessary and ongoing educational conversation I mentioned at the start of my thesis. The one that reminds us that it is people that design learning not technology. The call for whole new conceptual frameworks requires stepping right back from the vision created by policy rhetoric of machines as tools that are used to extract an 'exchange value', to consider what processes are really prioritised, and in turn which others are de-valued. In these alternative policy frameworks to TEL there are striking contrasts to be noticed in the language.

For instance here in this text from the AECT (1977) people are visible and involved:

> Educational technology is a complex and integrated process, involving people, procedures, ideas, devices, and organization for analyzing problems and devising, implementing, evaluating, and managing solutions to those problems, involved in all aspects of human learning

(Luppicini, 2005: 106)

Despite such explicit concerns, research that followed in 1980s Instructional Design (ID) theories sought to break down the learning process into typical 'parts'. Based on psychology from the 1970s, instructional design theory (Reigeluth, 1999; Wilson, 1997) was applied as sets of procedures for generic, rather artificial situations (Wilson, 1997). These Conditions of Learning (CoL) models (Gagne, 1965; 1985; Merrill, 1991) were hard for practitioners to understand and relied on assumptions that skills could be rationally decomposed and technological instruction ordered and sequenced. As insights progressed to appreciate learning is a more fragmented and less clinical experience in practice, theories changed. They moved away from overly prescriptive recommendations alone, based on transmission models from teacher to learner. Amid critiques of 'technical rationality' (Schon, 1983), a 'new paradigm' was recommended by Reigeluth in 1999, where learners would appear at the top of the organisational chart, rather than at the bottom.

Yet the call to reconceptualise educational technology presents continual problems. A few of these are raised here by Luppicini: Is educational technology value-neutral, or is it value-laden with socio-cultural meaning? Is one theory of educational technology as good as the next? Should learning technologists be concerned with social change if the community is unjust? It is my personal belief that they should. Indeed the role of learning technologists though prescribed in narrow language is also inscribed for social change. We may ask to whom learning technologists are responsible (Luppicini, 2005)? I would suggest in reply that learning technologists might develop a critical awareness of what they were created for politically, but also an awareness of what the role might potentially become. These are questions that remain pertinent if technology is understood, not as a static instrument, but as an 'ongoing encounter' (Matthewman, 2011: 8). We now have an educational technology history we might reflect on and refer to, which is much longer than some policy texts would have us believe. We have a large body of cultivated professionals who during the last two decades have been enlisted to perform the embedding of use of new technologies in universities. We also have theoretical fields that can directly inform research into educational technology (STS, CDA, Political Economy and Critical Pedagogy). For too long these have existed in isolation from each other when they might contribute, together, to emerging

research into the relationship of technology to building knowledge. For a very long time now, people working in universities seem to have either accepted in principle, or appeared indifferent to, the linguistic structuring of arrangements for educational technology. This reinforces a model of technology installed purely to serve, save time and build in new efficiencies, supported by 'neutral' learning technology staff. Envisioning an educational technology future has been left in the hands of writers of policy who themselves have even delegated this responsibility, as I will later demonstrate linguistically, to texts that propose what should happen next.

Beatriz Fainholc claims educational technology is in deep crisis because an 'instrumental theory constitutes the dominant view of the scientific-technological policies of modern governments and organisations since the twentieth century' (Fainholc, 2008: 224). Yet there have been earlier attempts to define educational technology meaning (AECT, 1977; Gentry, 1995; AECT, 2004) that have not adopted an 'instrumental' model alone. Some definitions have pointed to the complex nature of linking technology with a creation of knowledge. Others simply demonstrate a fundamental truth, which in modern society has now been redirected:

> Instructional technology is made up of "the things of learning" the devices and
> the materials in the processes of learning and teaching
>
> (Armsey & Dahl, 1973: 7)

In fact current policy language is now made up only of 'things'. It is people that seem to be missing and their unique social relationships with their material 'things of learning', which have become reified and detached. Technologies bring change to learning in an ecological way, via networks of dependency, comprised of human, and non-human, material elements (Bennett, 2004). We cannot see the extent of these entanglements, yet paradoxically they are discussed in policy, as certainties we can control, exploit or ignore. I proceed to trace in the coming sections some background to the appropriation of educational technology to serve neoliberal policy within universities as engines of economic growth. I begin from the theoretical perspective of political economy which has its foundations in Marxist thought, making links through Jessop with the emphasis on a KBE and my analysis through CDA.

2.5   Political economy

In my earlier explanation of *political discourse*, I argued that the 'political' encompasses the 'social'.   My political economic analysis through CDA draws attention to a normalising of capitalist social relations (and neoliberal values) within the discourse of TEL in higher education policy in the UK. Later, I will discuss this in the light of rapid changes in the university system in recent decades which have politically

repositioned universities as engines of economic growth (Finlayson and Haywood, 2010: 1). Traditional academic values of research, teaching, learning and free inquiry have been eroded, as emphasis has been placed on getting value for money and improving efficiency. An audit culture and strong discourses around performativity have emerged as well as the specific production of intellectual property and the 'human capital required to drive the knowledge economy' (Finlayson and Haywood, 2010: 1). In order to contextualise the discourse of TEL within these changes, I will first examine political economy through Marx, acknowledging some broader historical and social changes and the concept of *modernity,* interpreted through critical social theory. I then provide a narrative below sketching the background to more recent neoliberal agendas, aimed at repositioning the UK in respect of the global economy. My later emphasis is on the explicit policy discourse around TEL since 1997 under New Labour. This is a discourse about technology that was recognised in 1996 as problematic by Lieras, in terms of *externality, desubjectivisation* and *closure* (Lieras, 1996). I will explain the links I have drawn theoretically between these concepts and my analysis through CDA of a political discourse that engineers a very specific role for educational technology, but overlooks the material practice of human labour involved.

2.5.1 Political economy and Marxist thought

The starting point for a Marxist analysis through political economy concerns people and their social relations in specific historic periods (Scott, 2012: 13). At around 1800 in the UK the majority of people were based in rural areas and living off the land. As a consequence of the Industrial Revolution, by 1900 large towns and cities had been developed and much of the population had moved to live in overcrowded and unsanitary conditions to work in the new industries. This removed control of the immediate production process from those who had once been direct producers:

> Where workers had once been in charge of tools, machines now took charge of them
>
> (Matthewman, 2011: 29)

Previously a craft worker had seen through the entire labour process of an article, subjectively, from start to finish. New manufacturing techniques now meant both a shift from subjective to objective technologies and the ability for machines to transcend human limitations (Marx, 1990: 506). For Marx, these objective machines helped to reproduce a social order that benefited the ruling class (those with control over the means of production) by exploiting the working class. More specifically, it was the capitalistic employment of machinery (to make profit for private owners) that

maintained worker domination (Sweezy, 1968: 115). It is these relations that divide people into two classes: the owners of the means of production and those with labour to sell. Whilst political economy originated as the study of how production and economies of states were organised, I use this term specifically with reference to Marxist analysis. Marx saw economic processes as entrenched within the wider social context and subject to historical changes. In any time period the fundamental social relations are the relations of production through which humans secure their means to survive. In this *materialist* conception of social change, as people secure their basic needs this ultimately leads to new needs. It is the creation of new needs which necessitates systems of production and distinct divisions of labour to satisfy these (Barron, 2013: 11). These new needs take the shape of 'commodities' which are things that satisfy human want and which I discuss below in terms of different forms of 'value' related to human labour. First I link the role of ideology into this process where people come to believe they have these new needs that particular commodities might satisfy.

2.5.2 Ideology and false consciousness

Marx contends that class conflict between the owners of the means of production and those with labour to sell (the bourgeosie and the proletariat respectively) has been a prime mover of social change. As modern capitalist society has developed from previous feudal society, such tensions have simply taken on a new form. This raises the question of why the proletariat at any point in history tolerate enslavement to a system where the bourgeosie are controlling production and trade. Marx analysed this in terms of an ideology which creates a 'false consciousness' amongst the proletariat. In *A Contribution to the Critique of Political Economy* (1859) Marx provides an explanation that the propertied class can translate their economic power into control over the political, cultural and social institutions, such as education, law and policy and use these institutions of the 'superstructure' to naturalise the nature of the economic 'base' of society (Barron, 2013: 13). By this account it is possible to see how capitalism presents itself as an endlessly perpetuating natural order (Williams, 1977: 93). This situation is maintained *materially*, to benefit a ruling bourgeois class, for example through structures such as palaces, schools and prisons that help support this social and political struggle (Williams, 1977: 93). It is also a state of affairs that is maintained discursively, through *political discourse.* By this I refer to the accompanying narratives that promote particular ideologies about capitalist and neoliberal forms of organisation within particular periods of history. These may relate to individual or collective aspirations. For example, Jessop (2008) describes the massive effect on human lives

of two very powerful economic narratives: 'globalisation' and 'competitiveness'. He links these with a 'taken for granted' position that a knowledge-based economy is critical in the struggle for long-term competitive advantage and sustained prosperity in the world market (Jessop, 2008). I will pick up these links to a KBE a little later through my approach to CDA, but there is still the question of why these class-based economic relations really need to be naturalised through such narratives. If the inequalities within the capitalist order are so apparent then why is there a need to legitimise this structure? Marx explains this through the central purpose of the capitalist enterprise, which is to yield a profit. Labourers appear to be working for themselves under an endlessly perpetuating capitalist structure but they are actually generating wealth for capitalist owners. I will come on to the relevance of individualism and related neoliberal goals in later sections, but I will now expand on the role of the 'commodity' and different forms of 'value', in terms of people's labour with technology.

2.5.3 Labour power as use value, exchange value and surplus value

In *Capital Volume 1* Marx draws attention to the distortion of technological development under capitalism impelled by the logics of profit and domination (Matthewman, 2011: 38). Whilst Marx understood technologies as 'neutral' (unlike scholars of STS who understand technologies as sociotechnical and co-constructing of political contexts) his arguments about the economic (and thus political) utilisation of machinery are central to my thesis. Marx suggests that to direct rage against instruments of production themselves is misguided. The way in which machinery is utilised is determined through the relations of our economic system (Marx, 1990: 554-5). Even though Marx saw this as distinct from machines themselves his analysis of how labour is socially organised underpins my argument, via CDA, that the discourse of TEL prioritises a logic of 'exchange value' in educational technology social practice. Marx drew on the fundamental priority of 'use value' from any technology that helps people to secure their subsistence through productive labour (Scott, 2012: 13). The social relations of production then are an important premise in the sociological study of modern capitalist society, discourse about human interaction with technology and related knowledge.

Marx described people's capacity to work as 'labour-power' (Marx, 1867). Under capitalism people have moved beyond the generation of personal use value from their labour power. As they now need to sell their labour to earn money to live, along with it, they sell also their intimate and personal creative strengths. This means they sell themselves as 'objects' which can generate a 'surplus value', or profit, beyond what

they can earn. This surplus value is 'capital', and it is freely available then for those managing it, to re-invest it, and repeat the process. Labour is the source of *all* value, but a strange metamorphosis takes place through the stages of the capitalist process. Labour power produces products, which, depending on the labour time needed to make these, are ascribed a rate of value. This value bears no relationship to a subjective human material use value, for personal subsistence. This rate of value, known as exchange value, is a quantitative and objective measure that relates simply to the necessary labour time needed to produce an object. It is through this rational and calculating judgement that the object become 'commodified' and at the same time, the human labour does too. Both assume the qualities that this form of labour (exchange value) has given them, as if they actually contained them in the first place (Matthewman, 2011: 36). In the discourse of TEL a rational calculation commodifies human engagement with technology. This is expressed as an exchange value where the use of technology (as an external tool) is said to yield an enhancement (a surplus in the form of profit) leading to a commodified form of learning to support a KBE.

2.5.4   Alienation leading to desubjectivisation

If teaching and learning are considered as labour, the subjective value of technology as a personal 'use value' to students and staff is obscured by the surplus (the enhancement) or 'exchange value' (Marx, 1867; Cremin, 2012: 47) that is required and fetishized in modern capitalist society to support a KBE. Marx argued that changes in the mode of production in capitalism can lead to 'alienation', where people do not recognise a society of their own making (Morrison, 2006: 120). In the shift from traditional to industrial society humans have become alienated from their work, its products and indeed other humans, due to labour being measured in monetary terms. This is because people enter into social relationships in order to subsist, but these are relations of production. As people develop their productive forces (using nature and tools to develop further resources) people reach the point where they can produce a surplus. This leads to a division between 'producers' and 'owners' and a seeking to maximise production. Labour and technological instruments are then no longer subjective, intimate sources of self-determination and affirmation but instead are something *external* to workers and simply a means to an end.

2.5.5   Reification of social relations

This brings a form of 'commodity fetishism' of products and money and a 'reification' of social relations. An ideological form of thinking: 'commodity fetishism', draws attention to

this transformation in subject/object relations, where humans, as creators and exchangers of objects for profit, come to be described in language, in terms of relations between 'things'. Fetishism was developed by Lukács in 1923 as a *specific* form of consciousness that arises under capitalist conditions of production, a 'phantom objectivity', or strict rational autonomy that conceals every trace of its fundamental nature: the relation between people (Lukács, 1971). Lukács saw this as a progressive elimination of the qualitative, human and individual attributes of the worker. This happens firstly, through a calculation of the work processes which changes work into an objective 'stint'. This 'externality' of a worker's tools and labour process from him is picked up later by Lieras (1996) in terms of the western world's concept of 'labour', where earnings are the reason for working and the workforce is sold in terms of time and ability. Work therefore becomes a punishment rather than personal realisation (Lieras, 1996). Secondly, fragmentation of the object of production fragments its subject. Lieras (1996) calls this a 'desubjectivisation' where human social practice (use value) is alienated from machines and the labour process. In this separation of the producer from the means of production (reification of work and also of the consciousness of the worker) the human qualities of labour are now merely sources of potential error. Thus in a constant drive for performativity, there is a loss of humanity.

This 'reification' requires that a society should learn to satisfy all its needs in terms of commodity exchange and is therefore a problem of our age, the age of modern capitalism (Lukács, 1971). Marx had predicted revolutionary action would follow the point where the forces of production cannot be further exploited. Through Lukács, we understand the possibility for revolutionary emancipation from this 'reified' state has lessoned, as human actors have sought to reproduce the capitalist mode of production, utilising machinery to serve the ultimate goal of productivity. As people who are politically implicated in capitalist culture, humans end up uncritically adopting this state of affairs through hegemony. To challenge the ideological and political dominance of the ruling class Gramsci (1929-35) stressed the need for the working class to construct a 'counter-hegemonic' organisation (Scott, 2012: 26).

Marx did not identify *technology* as a problem in itself, but rather the economic relations of production around it. Lukács developed this basic theory from Marx to show that a specific form of consciousness that arises under capitalist conditions carries a rational ideology where the social practice of human labour with technologies becomes reified as an exchange between 'things'. As the commodity becomes the 'universal category of society as a whole' (Lukács, 1971: 86) dominant reifying modes of thought can

permeate all spheres of life with economic processes of calculation. This spreads an instrumental thought and action from the economic into the social and essentially causes people to forget to recall what has gone before. Reification therefore has implications for people considering alternative ways to imagine educational technology when all around them policy discourse binds their practices in the here and now. This dominant logic can be found within a rational discourse about the role of technology (and related human labour), in supporting accumulation under the political economic system of capitalism. In the next section I explain how this has been critiqued.

2. 6 Modernity and critique through the Frankfurt School

In examining the role of discourse about TEL in modern society I make links with Enlightenment thought, which raised the ideas of rationalism and humanism. A new discourse of the 'individual' motivated by attainment is particularly relevant. Hobbes (1651) provided a model of political order as the product of the rational self-interested actions of individuals (Scott, 2012: 2). A commitment to these liberal 'rights' amongst humans highlighted a role and justification for government. The shift from 'traditional' to 'modern' society, from feudal to capitalist forms of production is understood through the concept of *modernity* to have affected most areas of human life. Modernity refers to the social and political relations associated with the structural rise of capitalism, specifically a commitment to the freedom and capacity of human beings to 'reason' which can be traced back to The *Declaration of the Rights of Man and of the Citizen* (1793). As an early policy, this is an application of the rational principles of modernity, in terms of 'individual and collective self-determination and in the expectation of ever-increasing mastery of nature and ever more reasonable interaction between human beings' (Wagner, 2012: 4). In seeing such principles as 'universal', there is an assumption that these are normative claims that will be endorsed by all of humanity. However, from the mid-nineteenth century to the mid-twentieth century early sociologists (some already discussed above) undertook major critical inquiries into the dynamics of modernity (Wagner, 2012: 17). The *critique of political economy* as developed by Karl Marx was the first of these. Marx first brought to light the concern that in economies based on market exchange and the forced sale of labour power, relations between human beings would change into relations between things, as they were mediated by commodities. Markets would transform phenomena with a use value into commodities where their main emphasis would become the monetary value for which they might be exchanged (Wagner, 2012: 17). Later, Weber sought to explain the origins of capitalism through cultural factors, as well as economic, in *The Protestant Ethic and the Spirit of Capitalism* (Weber, 1905).

This highlighted the necessity of human reinvestment, rather than merely consumption, to further capitalism. Weber suggested religious beliefs through Protestantism provided a motivation for this, the ethic of working hard, to gain an assurance of salvation (Edgar and Sedgwick, 2002: 236). However what started out as a religious ethic of ordering one's life rationally to serve God became, according the Weber, the 'spirit of capitalism'. Weber discussed the dehumanising effect of bureaucratic decision making (Weber, 1905). This is a rationality that transcends other forms of human action, because it is based on an impersonal application of the systemic principles of modernity. If results are not influenced by personal beliefs, but by administrative structures these are more 'efficient' in achieving collective political ends to further the greater good, so to speak. 'Rational domination suppresses individual freedom and spontaneity, and threatens to enclose society within an iron cage' (Edgar and Sedgwick, 2002: 224).

Taking forward ideas from the Weberian theory of rationalisation (1864 - 1920), Ritzer has since described a continuation and even acceleration of this process which he termed the 'McDonaldisation' of society (Ritzer, 1998: 42). In this essay Ritzer explained that the fast food restaurant represents the components of rationalisation such as efficiency, predicatabilty, quantification and control through the substitution of nonhuman for human technology and the ultimate irrationality that results from this formal rationality (Ritzer, 1998: 46). In later conclusions I explain the part that the rational policy discourse of TEL plays in replacing people with nonhuman technologies. Ultimately, there is an irrationality that emerges, because as greater control is exerted through the rational values on which TEL is based, this creates a context of practice within higher education where lecturers and students become less able to innovate. There are associated longer term risks also to introducing expensive technologies into universities if humans are sidelined in the ways in which these are discussed. For without the realisation in policy that technology-based solutions to emergent challenges require human agency to be actioned, investments in technology-enhanced learning systems may not yield hoped-for solutions (Hayes and Bartholomew, 2015).

The critique derived from Marx, whilst still based on Enlightenment principles of freedom and human autonomy, had pinpointed such fundamental flaws in an economy based on market exchange and forced sale of labour power. Marxist analysis showed there were 'behind the scenes effects' where a domination of nature and tools for maximising productivity also involves a domination of humans as they are mediated by commodities. These ideas were extended through interpretations provided by the scholars of the Frankfurt School.

2.6.1. Critical theory of the Frankfurt School

I draw on the Critical Theory of the *Frankfurt School* scholars (1923 – 1950) to support my critique through CDA. Theorists such as Adorno and Horkheimer (1944) extend Marxist theory by demonstrating how, under capitalism, technology becomes opposed to life, through commodification, fetishism and an unending quest for exchange values (Matthewman, 2011: 40). Fetishism was extended by Marcuse in the concept of the *one-dimensional man* (Marcuse, 1991) to show that far from retaining a convivial relationship with our environment, humans now lack concrete experience itself. This has been replaced by an 'administrative practice organised by technology' (Marcuse, 1989). Marcuse saw 'technological rationality as eliminating conscious human control over the development of modern society' (Marcuse, 1991; Scott, 2012:159).

In the changed social conditions between Marx and theory from the Frankfurt School historical events included both the First and Second World Wars, the rise of Russian Communism, Stalinism and Italian and German Fascism. Alongside these political and material changes, Adorno referred to the cultural effects from 'late capitalism' in terms of mass culture, consumer society and standardised products due to new manufacturing possibilities from the technical division of labour. In the *Dialectic of Enlightenment* in 1944, autonomous machines were new instruments of power 'intended to hold everyone in their grasp' (Horkheimer and Adorno, 2002: 29). Where once cultural products had an autonomy and originality (which might be thought of as personal use value) now they were considered as externally organised for mass consumption where 'pseudo-individuality reigns' (Horkheimer and Adorno, 2002:124 - 5).

The Frankfurt School theorists sought emancipation for people from such a 'domination of thought' through their own understandings and actions (Carr & Kemmis, 1986:130). Enlightenment and domination are discussed as intricately interwoven (Horkheimer and Adorno, 2002, Elliott, 2009: 20). It is this tapestry of reason and myth around the discourse of TEL that my corpus of policy text is intended to scrutinise. Reason, though necessary for human survival follows a pathway in modern capitalist ideology to an extreme where, in an effort to dispel myths, new myths are created. Increased productivity allows those with power to extend their control into the very depths of the human soul, yet humans may still (through hegemony) perceive themselves as having freedom to decide.

2.6.2 Praxis to interrupt a dominant rhetoric

Capitalism and the neoliberal form of this that I discuss in the next section 'provide' for people certain quantities of goods, but these can come at a price where peoples' intellect becomes sacrificed. Personal reasoning about our immediate context is no longer required, because 'culture' is provided for our consumption and amusement (Adorno and Horkheimer, 2002). Therefore links between media, technologies and the fundamental philosophical underpinnings of Western capitalist culture can be drawn (Taylor & Harris, 2008). A general concealing of actual relations of production might be observed in all aspects of modern culture. Even in music the labour that goes into the production of a particular sound is obscured, as a composer shapes a total effect for a reified audience (Adorno, 1981: 82). In language too this means that terms that once derived their meaning from reference to a human actor, speaker or thinker may be centred increasingly on non-speakers.

This is a form of reasoning and rationality that can also remove accountability and responsibility, because it conceals agency. I therefore draw on a commitment through CDA to interrogate the taken-for-granted assumptions around TEL, such as the *externality* of technology in neoliberal policy agendas and to interrogate my own approach through 'praxis'. I acknowledge that as a researcher I am not outside the structures I describe. Praxis is about intervention where people may be disempowered (even when this is not obvious) and taking thoughtful action in order to effect change. Though it may sound negative to undertake a *critical* approach, following the work of Freire, derived from Marx, my research is also hopeful, in that I seek to illuminate understanding and provoke dialogue about broader understandings of TEL beyond exchange value. Praxis can be traced back to ancient Greek philosophy, through Aristotle and reconceived, through philosophers such as Marx (1859), Labriola (1904), Arendt (1959), Gramsci (1971), Habermas (1973) and Freire (1972a) for example, demonstrating the extent to which praxis contributes to shared meanings across disciplines.

2.6.3 Human action and knowledge

Work by Habermas to extend the critique of positivism and extremes of rationality the Frankfurt theorists had uncovered is important for recognising a variety of knowledge forms through use of technology, rather than just one linear model. Through the critical theory of Habermas I draw on the links he makes between labour, linguistic communication and interaction, and power and domination, as three sources of human action and knowledge

(Habermas, 1971). Labour as a sphere of action leads us towards natural science and technology, interaction and language lead us towards interpretation, and domination raises issues of emancipation from oppression. Therefore people are not isolated in their acquisition of knowledge, but as social beings, their learning is structured by these 'cognitive interests'. Habermas provides the following 'knowledge-constitutive' interests that guide people's search for knowledge:

Table 1: Knowledge, action and interests (Habermas, 1968, Scott, 2012: 161)

Taking firstly the *empirical-analytical* form of knowledge, this relates to labour and technically useful knowledge that extends the power of people to control and manipulate. Whilst Habermas recognises the necessity of this, he rejects a distortion of it in a natural science model that separates human knowledge about the social world from the social world of human interests. Such a positivist approach serves the economic project of neoliberalism when it presents technology as a detached element of 'an inert external world, not as the conceptual construction of reality that it is' (Scott, 2012: 161). In chapter 4 I demonstrate ways in which policy discourse repeatedly structures human labour in a pattern Illich warned against. In this model technology is enframed as instrumentally controlled by people and put to work as an external technical solution. This approach keeps humans on a treadmill to constantly extract an exchange value, yet also never satisfied by the endless consumption it provides.

Secondly, the *historical-hermeneutic* form of knowledge relates to interaction within the cultural sphere and communicative ways people retain and extend mutual, practical understanding. In chapter 5, through *appraisal* analysis I show how interaction at this *interpersonal* level reveals neoliberal attitudes towards technology that reinforce a logic of continual betterment through the notion of 'enhancement'. In these practical understandings of technology there are only positive evaluations which enframe technology as always improving what is. The technical (*empirical-analytica*l) and practical (*historical-hermeneutic*) cognitive interests are primary bases of knowledge production.

The final category of emancipation (*critical-dialectical*) acknowledges that ideology can dominate the two primary cognitive interests. In chapter 6 I explore ways that domination is

revealed around 'the use of technology'. I examine how verbal processes are constructed through *transitivity* analysis at the experiential level of discourse. I question what activities are being undertaken in the text and how the participants in these activities are described and classified (Martin and Rose, 2003: 66). This is important to reveal what is prioritized and in turn devalued in policy discourses that govern educational technology development in universities. The critical-dialectical form of knowledge is therefore oriented towards liberation from domination and from simply understanding human life in terms of technical control and practical understanding alone (Scott, 2012: 162). Domination is a feature of the institutional framework of society but there are consequences if neoliberal relations of production restrict expression of human creativity. Exploitation results and communication is distorted as I discuss in later sections. One role of critical theory is to provide a critique of such ideology in language and to further emancipation by promoting human autonomy rather than a distorted version of this which emerges through neoliberalism as human performativity.

2.6.3 Policy from modernity to the age of neoliberalism

In terms of government, our modern neoliberal system of free enterprise and market-based economies has a long history, though my focus of analysis is on much more recent decades of UK educational technology policy discourse. The last 200 years, inclusive of the Industrial Revolution, have shaped the free market capitalism of our current society. Adam Smith (1776) suggested the route for maximum efficiency, through unrestricted manufacturing. Since then a new type of economy, where the value of goods and labour can change irrespective of their effects on social cohesion, has emerged to unite the thought of many political and economic figures.

In recent decades neoliberalism has dominated Western and increasingly global economic life (Giddens 1998; Chomsky 1999; Campbell and Pedersen 2001; Harvey 2005). Saad-Filho and Johnston (2005:1) suggest practical implementation of this complex economic and political ideology is 'shaping our world today'. David Harvey (2007) traces the development of neoliberalism from the ideas of a group of economists and historians, including Ludwig von Mises and and Milton Friedman who surrounded Friedrich von Hayek, in 1947, known as the Mont Pelerin Society (Barron, 2013: 128). Originally reflecting the principles of 'laissez faire' (let it be) capitalism, neoliberalism favours a minimal, or 'night watchman state' (Blomgren, 1997: 224). Whilst this arrangement of governance suggests a more emancipatory ideal of management than that of the class-based industrial society Marx critiqued, it is necessary to examine the underlying market-based logic on which this minimal state is based, and also how such values are reinforced politically, culturally and materially.

2.6.4 Transformation to a different kind of domination

Stephen Ball (1997) explains neoliberalism in terms of a transformation in the organising principles of social provision that have impacted on education and right across the public sector. Drawing on arguments from Jessop (1994), he discusses economic change through a move from the Keynsian Welfare State (KWS) to the Schumpeterian Workfare State (SWS) (Jessop, 1994; Ball, 1997). The KWS is described as having structurally supported a long post-war boom, with a national focus on the economy, to maintain full employment, welfare rights and norms of mass consumption. The SWS on the other hand, responding to a crisis in the KWS form of political and economic regulation, has completely re-shaped social policy. This is now subordinated to the demands of market innovation, and via open economies promotes global enhancement and reinforcement of norms of structural competitiveness (Jessop, 1994: 8). Ball (1997) describes these changes as 'a move from one state of affairs with a set of *dominant* characteristics, to a new state of affairs with a different, mutually exclusive set of dominant characteristics' (Ball, 1997: 263). In the UK, this restructuring process is cited as both an economic strategy and a hegemonic project, aimed at reinvigorating the nation through the ideological politics of Thatcherite neo-liberalism:

> In narrow economic terms, the neo-liberal strategy demands changes in the *regulation* (governance) of both the public and private sectors. For the public sector, it involves privatisation, liberalisation, and an imposition of commercial criteria in any residual state sector (Jessop, 1994: 30)

Ball suggests these changes are firstly, a change in the *mode of regulation* of public and private sectors and secondly, they involve the formation of new 'professional' *subjectivities* (Ball, 1997: 263). I return to this point shortly, in relation to New Labour rhetoric, but first I will provide some background to these changes in the UK linked with policy for higher education.

To briefly chart what had gone before, from the end of the nineteenth century until the early 1970s, effective systems of regulation were through Fordism, where mass produced and standardised products were based on large economies of scale in the car manufacturing plants of Henry Ford (Barron, 2013: 74). This had led to a 'golden age' of high production and consumption (Cohen and Kennedy, 2013). This uniformity also found routes into education in schools as a response to satisfy increasing demands for mass education, to meet the needs of the regulated work of new industries (Renner, 1995: 286). Amid accumulation existed alienation, given that work was fragmented and broken down, so that workers carried out repetitive and tedious tasks of assembly, rather than gaining satisfaction from completing an item from start to finish. With greater productivity, secure employment and better wages were more likely. As pay improved with increased production, so too did

the opportunity for people to buy cheaper goods, and an era of mass consumption (critiqued by the Frankfurt theorists) was realised. Advertising and marketing also expanded, along with new leisure and service industries.

In the 1960s this pace of change increased further, as technological developments were seen by the UK government as the way of the future and scientists were required to develop these to satisfy consumer demand. Harold Wilson gave his famous 'white heat' speech at the Labour Party conference on 1 October 1963, which Andrew Marr (2009) refers to as unanswerable, exciting and vague. Wilson promised that in the 'white heat' of scientific progress there would be 'no place for restricted practices or outdated methods…..those charged with the control of our affairs must be ready to think and speak in the language of our scientific age'. (Marr, 2009: 238). Over thirty years later, Tony Blair was taking a similar approach, when in 1997, his election manifesto was focused on 'realising the potential of new technology', particularly ICT within education (Selwyn, 2008: 701). Emphasis placed on speaking a new language for a scientific age by Wilson, is a discourse that, decades later, was literally put into practice by New Labour, under Tony Blair, for educational technology.

Wilson did set up a Ministry of Technology, following his election win in 1964, demonstrating his commitment to this new form of modernist state where investment in science and educational provision was intended to ensure the growth of the UK economy. Comprehensive schools were established and the Robbins Report on higher education in 1963 which had confirmed concerns that too few students were engaged in the study of science and technology, led to new universities being founded, increased student numbers and establishment of the Open University. However, research and development proved costly and the UK could not compete with the USA. By the late 1960s, with demand for higher wages, union activity and increasing worldwide competition, profits were falling and recession took hold. Fordist production had lost momentum and also its regulatory regime (Cohen and Kennedy, 2013: 72).

The UK had a declining position in world trade, its welfare system was proving expensive with people becoming dependent on the state, the pound was weak and devaluation took place. Wilson's 'white-hot' aspirations for technology were not realised after all and his attempts to resolve the country's economic problems had failed too. In 1970 a Conservative victory brought Edward Heath to power and the next few years were spent attempting to control industrial action and inflation. Studies of UK politics between the 1960s and 1990s have bemoaned the 'decline' of Britain (McCormick, 2012: 162). Margaret Thatcher supported this popular view of Britain in decline. In Harvey's interpretation of neoliberalism 1978-1980 are important years due to liberation of the Chinese economy, changes to

monetary policy in the United States and the election of Margaret Thatcher as UK Prime Minister in 1979. Margaret Thatcher was judicious in her application of Friedman's neoliberal principles (Wheen, 2004: 17). To address the problems in the UK she promoted an enterprise culture through a reduction in the size of the public sector, removal of government regulations on business, privatisation of previously state-owned industries and curbing of trade union power   (McCormick, 2012: 164). Her policies followed a trend in many Western post-industrial countries, since the early 1980s, to reduce government intervention in the marketplace, deregulating economic life, reducing the role of the state and opening trade to global market flows (Cohen and Kennedy, 2013: 72). Critics however drew attention to the ways this undermined the welfare state and ignored the underclass. The KWS approach was in decline, rapidly being replaced by the SWS. An increased importance of service industries and a knowledge economy, that I will discuss in more detail below, was soon supported by a revolution in Information Communication Technologies that heralded the rise of a 'network society' (Castells, 1996, Urry, 2003).

2.7   The rise of neoliberal policy for higher education

The historical changes in capitalism described above have been theorised then as an application of industrial economic techniques to methods of education. More recent 'new managerial' changes in economies and business that include the transition from Fordism to post-Fordism have been applied by theorists to higher education (Rustin, 1994, Deem, 1998). It is argued there has been a political repositioning of these institutions as engines of economic growth (Finlayson and Hayward, 2010: 1). This though is not simply a linear shift over a period of time, from an inflexible and differentiated use of labour under Fordism to a more flexible (and less visible) form of regulation under post-Fordist systems. Such changes are not inevitable or evolutionary (Renner, 1995: 298). Universities traditionally were not 'managed' in a Fordist sense, being instead communities of scholars and academic leaders. Universities have though experienced transformations that reflect the industrial production logic of Fordism in their material environments (huge lecture theatres for example) and also in economies of scale virtually (through online and distance provision that I discuss in the next section). Successive UK governments have also tried to rationalise higher education in ways that could be considered Fordist, introducing policies to improve quality. This has led to quality teams and managers existing alongside semi-autonomous academic departments, with related contradictions and inconsistencies. Thus a degree of hybridisation has taken place in university management, drawing on different managerial ideas, organisational types and forms (Deem, 1998: 50). Whose values though are to be taken into account when deciding what quality is? Ultimately, I would suggest exchange value, as a concept deeply embedded in wider neoliberal organisation, is likely to be the key driving value.

However, this need not assume that it will be obvious for people to see, particularly when shrouded in an ethos of competition. These are changes that might be described as 'post-Fordist', where rather than take control from academics through forms of regulation, academic heads of department take on much more of the academic labour production processes around teaching and research, to the extent that a once 'collegial' approach is replaced by rivalry between peers and mutual pressure.

Deem cites the role of 'hard' and 'soft' forms of management. A 'soft' approach involves recognition of inefficiency and ineffectiveness, and the invention of rational mechanisms for the improvement of university performance, with the explicit agreement and consent of all those involved. A 'hard' approach introduces discourses and techniques of reward and also punishment for employees considered by those in managerial positions to be unlikely to change. These forms of management involve different cultural assumptions about the nature of who or what is being managed and are also dependent on the values held by individual managers (Deem, 1998: 52). This has considerable significance in terms of power relations and how such managers then understand (and articulate within strategy) the role of educational technology to serve the aspirations of policy.

Links that might be drawn between changes in the UK university system and changes in the economy, particularly in relation to policy for TEL, are therefore not clear cut. Technology can be used to support agendas of 'performativity' in the management of academic labour in universities (Lyotard, 1979). Performativity describes a functionality, instrumentality and commodification of knowledge that might be attributed to modernist values (Lyotard, 1984). These legitimise *metanarratives,* or 'big stories' of how things are in the world. If modernity has required a systematic practical relationship to the world to achieve all it has achieved the price for this is a reduction of human relations to commodities and the harnessing of technology to support this. Developments in information technologies now interrelate with the expectations that have emerged for a KBE. A linked focus on quality inspections, audits and improvements competes with a discourse of more traditional cultural values of academia. Rather than simply constrain, new managerial approaches involve articulations of self-evaluation and appraisal. These support core neoliberal values of individual and collective performance and improvement, but may also be veiled in a hegemonic discourse that sounds empowering. Feenberg suggests through reification (Lukács, 1971) that the rational form of social objects becomes separated from their human contents in an attitude toward social processes that is 'unique to modern societies' (Feenberg, 2010:1). Firstly, people fail to see that certain social structures are sustained by their own actions (Latour, 1993: 41). Secondly, items produced by people are treated as if the social and material

relations (i.e. human labour) that brought them into being have gone, or were never there. These are complex dialectical relationships within both the political discourse and material practice of universities and the wider political economy.

2.7.1 A techno-economic paradigm shift from Fordism to post-Fordism

Jessop contextualises the replacement of a Fordist discourse of productivity and planning with a post-Fordist rhetoric of flexibility and entrepreneurialism within the changes from KWS to SWS. KWS was built on the premise of a technocratic elite educated to govern an unskilled labour force. The focus in KWS is on education at a national level to maintain this exclusive approach and the state influences supply and demand ensuring there is little alternative (Greener and Perriton, 2005: 70). In contrast, the SWS economic model is considered by Greener and Periton to be representative of a post-Fordist mode of educational provision (Greener and Perriton, 2005: 70). Discussed as 'Schumpeterian', in terms of a flexible, entrepreneurial and performance-driven approach, the rhetoric suggests education is analogous with any other market (Slaughter and Leslie, 1997). Jessop calls for closer examinations of a 'techno-economic paradigm shift from Fordism to post-Fordism' where close attention needs to be paid to factors such as new technologies amid an accelerated pace of internationalisation (Jessop, 1994: 10). This framework allows for analysis of post-Fordist tendencies when examining policy discourse for TEL through CDA. We can notice how extreme forms of values, whether hierarchical (KWS), or neoliberal (SWS), present themselves in discourse, serving to change or reinforce dominant ideologies mentioned above.

2.7.2 Discourse that serves hierarchical and neoliberal educational policy

Understanding how combinations of hierarchical or neoliberal managerial values have come to dominate higher education policy discourse in the UK about educational technology is developed by Greener and Perriton. Through Jessop's framework (1994), the economic models of KWS and SWS are applied to 'networked learning' communities (Greener and Perriton, 2005: 69). These include distance learning courses that have emerged in universities in response to competition in a global marketplace. Income from international students has been sought and technology enables learners to come together. Yet as distance learning courses are created by institutions with a global reach these can risk simply disseminating learning as a commodity (Jones and Steeples, 2002). Essentially, where technology could support critical pedagogic values of democratic and interactive debate across the globe for students undertaking online courses, there has been a distorted version of this that serves a KBE.

Alongside competitive agendas of internationalisation in universities there has been the technological development of Internet-based facilities, such as virtual learning environments (VLEs) or learning management systems (LMS). These are systems specifically designed to facilitate ways for lecturers to manage delivery of courses for their students. Providing places to upload information, together with choices of how groups might communicate to transfer knowledge these systems have been widely adopted by institutions during the last two decades. Whilst the Internet itself developed through several decades prior to 1997, with the first message exchanged between two computers over a distance taking place in 1969, it is really since the late 1990s that VLEs became refined enough to be widely purchased, encasing groups of people in online spaces for learning. Certainly many new possibilities arose from these arrangements but less attention has perhaps been focused on the practices that VLEs also restrict. An openness of practice, when staff simply placed teaching materials on web pages, was replaced by restricted access to examples of what colleagues were developing. I would argue that by isolating teaching practices in this way (through material systems) there is less resistance to a political discourse that simply calls for more effective practice from use of technology. However, the question of whether new technologies, including VLEs, actually *enhance* effectiveness of education was always in doubt, even as new systems emerged (Dillenbourg, Schneider, and Synteta, 2002).

> The history of educational technology shows that every new technology (television, computers, hypertexts, multimedia, Internet, virtual reality, ...) raise a wave of naive expectations regarding to the intrinsic effects of these technologies

> (Dillenbourg, Schneider, and Synteta, 2002)

It is not hard to see how a neoliberal approach towards economic growth might then colonise naive expectations of technological systems within a 'Schumpeterian' rhetoric of flexible, entrepreneurial and performance-driven goals for higher education. Yet though Internet-based learning within VLEs offers potential for effects, the past tells us that it is very difficult to set up the precise conditions that turn such potential into actual effects. The issue is not then to prove the effects, but to understand them. (Dillenbourg, Schneider, and Synteta, 2002). To this I would add that CDA provides us with one way (through language) to shed light on what kinds of values are linking technology (in the form of material systems) with learning within policy discourse. Greener and Perriton suggest what has emerged is a 'new' economic model which also colonises discourses of democracy and student-centredness (Greener and Perriton, 2005: 67). This emphasises for students a freedom from the constraints of time and space, marketed as a desired alternative to KWS. In Jessop's framework, KWS as a conventional model is hierarchical, with experts at the centre of delivery and 'patriarchal' in nature.

In contrast, the SWS economic model is flexible, entrepreneurial and performance driven. What results for students is a fragmentary community which combines both hierarchical and neoliberal features which are demonstrated within conflicting discourses. Contradictory to the promise of flexibility, are pre-set, rigid learning outcomes, methods of surveillance and discipline and extreme challenges for tutors (Greener and Perriton, 2005: 77). The rise of a 'network' society and possibilities for networked learning via the Internet has thus opened as many avenues in the economics of education as it does in pedagogy. A key example of this during the New Labour period was the UK 'E-University' (UKeU). The government invested £55 million in 2000 in the UKeU, relying on the 'marketable' reputation of UK universities, but lacking a recognisable brand in a competitive market (Greener and Perriton, 2005: 68). Such schemes appropriate the values of networked learning to emphasise an exchange value from 'learning communities', which becomes distorted in a discourse of 'cyberlibertarian rhetoric' (Kelemen and Smith, 2001). The next section contextualises these developments within the New Labour ICT agenda (1997 - 2007) where an ideology of 'modernisation' for public sector institutions through technology was aimed at enhancing UK competitiveness in a global KBE.

2.7.3   Educational technology policy in UK Higher Education since 1997

In the late 1990s New Labour were able to take forward neoliberal arguments about competitiveness, from the previous Thatcher-Major years (1979-1997) of authoritative government and development of a free economy. During this time political discourse had been re-shaped to implicate ordinary people within nationalistic agendas. These included anti-union, pro-family, pro-property ownership in which articulation of such political elements led to novel restructurings of Thatcherite discourse (Fairclough, 1989: 177). Changes made during eighteen years of the Conservative Party in office had involved many changes in the *mode of regulation* of public and private sectors. Secondly, there was a shaping of new 'professional' *subjectivities* (Ball, 1997: 263). The new 'self-appraising individual' urged to notice where they might improve their performativity, was developed further under Tony Blair, as 'new' Labour took office. New Labour retained some key elements of the Thatcher programme (McCormick, 2012: 28) but combined these with much more material claims than had previously been stated: 'claims about the importance of information and communication technologies, the information economy, the culture industries, the knowledge base, and human capital, as the crucial foundations for competitiveness, in an irreversibly globalizing economy' (Jessop, 2000). The broader context around the UK higher education and UK e-government policy documents I have analysed in my corpus needs to be understood within what has been termed a wider 'epidemic of education policy' (Levin, 1998).

Stephen Ball has argued that the 'policy continuities' we have witnessed in the UK in recent decades between the Conservatives and Labour should also be viewed as a manifestation of 'global policy paradigms' (Ball, 1999). The Thatcher years had sought to restore wealth to the UK through conviction politics that a free enterprise economy is the only secure basis for individual freedom. Blair then propagated the view that Britain should be 'repackaged' as a society with deep roots in history and culture but that was also economically dynamic and forward thinking (McCormick, 2012: 28). The strong emphasis on the role of education (and in my research, the role of educational technology) in support of economic competitiveness meant people needed to commit themselves passionately to continuous learning and use of information technology to deliver the right skills. This may however have been ultimately 'self-defeating'. Stephen Ball suggests these goals are based on an 'impoverished view of learning' that in the long run will simply fail to meet the needs of a 'high skills' economy (Ball, 1999). Ball cites three 'untouched and unquestioned' principles carried across from Conservative to New Labour policy, and now more recently, since 2008, these can yet be noticed in coalition agendas:-

1. Choice and competition. The commodification and consumerisation of education
2. Autonomy and performativity. Managerialisation and commercialisation of education.
3. Centralisation and prescription. The imposition of centrally determined methods.

(Ball, 1999)

Though emphasis on this mix of hierarchical and neoliberal values varies at different points in time, the general 'make over' of education itself into a commodity form is a continuous theme which is 'framed and reframed' (Ball, 1999). Competing and contradictory discourses are 'stitched together' in the new policies (Taylor and Rizvi, 1997: 9). Though contested through different theories, this is described as a 'new capitalist' development of discourse (Fairclough, 2001, 2004; Sennett, 2006). With new global communications, it has important implications for how technologies are now perceived, both in broader society, and within universities to support learning.

Neil Selwyn refers to a sustained agenda of policymaking throughout the 1998 to 2007 period of New Labour government, where education was 'just one of many segments of the public sector which were subject to so-called 'information age' policymaking' (Selwyn, 2008: 702). This included 'e-government' services, health, welfare, and social security, to name just a few. The general tone underlying much of the reform I mention is negative, within a context of large-scale criticism (Levin, 1998: 132). Policy makers sought to transform (modernise) existing services through perceived positive effects from use of technology. Selwyn suggests from the outset that the economic rather than pedagogic significance of new technologies was driving its implementation in education. The constraining nature of our

current experience of 'educational technology' has resulted from the New Labour ICT agenda (Selwyn, 2008: 708). If this is the case, revealing what New Labour policy discourse has structured and transferred as TEL into universities is key to questioning how it might be otherwise.

In the UK, universities have been undergoing an extensive period of change in recent decades, including new kinds of leadership to direct strategy, new corporate policies and marketing techniques, with logos and straplines often consisting of 'buzz words' (Mautner, 2005). Within a culture of enterprise there has been much physical expansion too, since New Labour declared it the right of those who have potential, to go to university. Important goals of social justice have been shaped by priorities linked to the needs of big business. Major reconstruction in higher education has meant scholarly institutions have been changed into profit centres, in which universities, departments and individual academics are encouraged to compete with each other (Callinicos, 2006). In policy and strategy documents about educational technology these changes are reflected in an extremely positive claim about the promise of new systems, devices and practices and the inference that we are *all* part of radical changes to the ways in which we work and study. These are also claims that have swiftly flooded the most intimate spaces of people's lives, as the Internet and new mobile technologies have provided countless networks for these discourse types to spread across social and political domains.

As discussed already, it is impossible to separate the *economic* from the *social* and both (due to inherent power relations) are encompassed by the *political*. Free markets do not naturally occur, but need to be forced on people (Anup, 2010). These, when replaced with deregulated institutions, can operate freely and independently of other social needs (Gray, 1998:1). As these are deliberately engineered through neoliberal policy, they can disrupt socially-rooted markets that may have existed for centuries. Deliberately engineered policy changes in higher education can also disrupt the complex and deeply-rooted social practices of teaching and individual choices about what technology means in learning. An academic culture that once concentrated on: 'open intellectual enquiry and debate has been replaced with an institutional stress on performativity' (Olssen, M., & Peters, M. A., 2005). With the ascendancy of neoliberalism through the 1980s and 1990s, new forms of public management and discourse have emerged. Strong emphasis on benchmarks, regular audits, greater entrepreneurial skills and measures to enhance output and achieve targets have shifted the focus in higher education and also brought changes to academic language.

In educational technology policy for higher education the Higher Education Funding Council for England (HEFCE) has been responsible for university funding distribution since 1992. The Joint Information Systems Committee (JISC) was formed in 1993 to provide leadership in the use of ICT. By 1998 the British Educational Communications and Technology Agency (BECTA) took on a similar mediating role for schools. Quickly a range of other academic or voluntary and private sector organisations also began to emerge and reinforce the New Labour ICT agenda, by receiving allocations of substantial amounts of funding and writing their own policy documents. Through a variety of agencies forms of consensus around increasing use of technology for inevitable gain were emerging. It was though due to certain key HEFCE, JISC and Department for Trade and Industry (DfES) documents that I list in Chapter 3, that universities began to follow suit to produce their own e-learning and later, TEL strategies. The proliferation of these documents, which display a surprising consistency of opinion despite being written in different places and at different times, has perhaps not happened to quite the same extent in other countries. My research findings reveal a discourse across a range of institutions that seems to 'discursively construct consensus' (Crossouard, 2004).

For example, Crossouard observed, in the the e-learning strategy consultation (DfES, 2004) that this may be achieved in several different ways, such as: 'use of declarative statements throughout, with little use of modal verbs such as *may,* or *might* (Crossouard, 2004). There is nothing tentative included that leaves room for any doubt in a document that purports to be a 'consultation'. In my close analysis of the Wales Strategy (2008), in Chapter 4, I found too a distinct absence of affect, or emotion, in this regional strategy. Yet the Wales Strategy was written to encourage lecturers in universities in Wales to actively use technology within their learning and teaching activities. Universities are places where knowledge is constructed and questioned yet there seems to be very little debate from institutions that instead adopt policy without critique to produce similar documents of their own. In a different form of analysis in Chapter 5 of a range of examples from these strategies, I found faceless entities enacting the labour of humans. Entities like 'E-learning', and now more recently, Technology Enhanced Learning, are attributed with features, such as 'potential' to act and change things:

Elearning has the potential to revolutionise the way we work and the way we learn

(DfES, 2003)

In the Wales Strategy (HEFCW, 2008), though teachers and students are hardly mentioned, there are many references to 'we', suggesting a united approach. Others have noted the emphasis on the pronoun 'we' in political discourse from the New Labour period (Mulderrig, 2012) to discursively construct the illusion that 'policy represents the mental processes of us

all' (Mulderrig, 2012: 721). This is ambiguous given 'we' could either construe a logic of competitiveness between social groups, in terms of 'we' as opposed to 'you', or it may convey a shared vision of social and educational need (Mulderrig, 2012: 721).

I mentioned earlier the dissemination of 'nodal' discourses and re-contextualization in new social fields (Fairclough, 1995:11). In the e-government documents in my corpus there are repeated patterns that resemble those in the e-learning and TEL strategies and vice versa producing a cross-fertilisation of similar ideas about technology. These ideologies can cross material boundaries of organisations and business as political discourse in documents and via humans in the form of technologists and managers. As ideas are inculcated a need to critique these may not be immediately apparent to learners or teachers. It is though important to recognise the powerful broader, and local, contexts of the texts I have analysed in order to understand how they can unconsciously constrain people. Selwyn suggests the legacy of the New Labour ICT agenda has been to heighten the profile but also limit the scope of ICT in educational settings (Selwyn, 2008: 710)

Authors of policy documents tell people things for a purpose then to influence their attitudes or behaviour (Thompson, 2004: 45) but people are of course not completely constrained by discourse, which as it manifests in social practice in universities, may be opposed in different ways, or simply ignored. Lecturers, for example may perceive a strong directive about technological enhancement that uses unfamiliar terminology to be irrelevant to their teaching. Writers of policy may perceive such lecturers to be resistant, set in their ways and unwilling to change. In later analysis examples, I discuss how the phrase 'the appropriate use of technology' emerges as a repeated pattern in my corpus. I show through CDA that this too is a reified textual construction. It solidifies the active labour process of using technology appropriately into a form that acts on people's behalf, to say what this achieves. However I consider also, in a broader context of a large scale criticism of education and agenda to improve it, why a sudden emphasis on 'appropriate' appeared at all. This could represent a response in policy to resistance from within universities, perhaps a concession within policy discourse to tone down the language to be more digestible. Students too may seek other options to those voiced in a dominant rhetoric. They may use alternative software, or choose a different environment in which to study, or fail to attend a lecture if this restricts them in some way. Thus negotiation takes place at different levels, directly and indirectly, and through 'things' as well as language. I understand language as a 'principal means' (Mumby and Clair, 1997: 181) through which the social reality of TEL has been created, performed and enacted via discourse, but TEL is not constituted *only* by discourse.

2.8   A corpus-based CDA to examine the aspects discussed by Lieras

Which social practices come to inform policy for TEL can therefore be examined, as they are expressed as values, through discourse. In this section I explain in detail my particular approach towards CDA and its place within my critical sociological inquiry drawing on the aspects discussed by Lieras. Lieras suggests the oppressive values he described as: *externality, desubjectivisation* and *closure* cause our conceptions to be constricted to *only* value technology for an exaction of productivity. Discussed earlier as an emphasis in policy on academic performativity, this directs just one dominant role for technology within learning as a subsidiary to the requirements of a KBE. Though the idea of a KBE is contrived, and exchange value is simply a by-product of social relationships, due to a saturation of this logic in neoliberal society it can seem as if exchange value *is* the basic premise of all human activities (Graham, 2002: 231). As a result activities of human labour come to be referred to as reified commodities which enact processes on behalf of people. CDA can help to reveal ways that such discourse in policy reinforces and sustains this social status quo. It is important to emphasise that CDA does not provide a single theory. CDA is not considered to be a 'fixed' set of research methods, but rather:-

> a problem-oriented interdisciplinary research movement, subsuming a variety of approaches, each with different theoretical models, research methods and agenda
>
> (Fairclough, Mulderrig & Wodak, 2011)

The approach I have adopted is a corpus-based CDA following the Fairclough model shown in Figure 1. I will explain in Chapter 3 how my conceptual framework was operationalised and in Chapter 4 I will provide a step by step account of how my data was handled.

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Figure 1: Fairclough's three-dimensional model for CDA (Fairclough, 1992b: 73)

For now, I will explain why Fairclough's three-dimensional model for CDA is a helpful way to shed light on the reproduction of the oppressive values described by Lieras in texts that spread forms of 'calculative thinking' (Lieras, 1996: 336, Heidegger, 1966). Fairclough describes language use as multifunctional, both socially shaped and socially shaping:

> Language use is always simultaneously constitutive of (i) social identities, (ii) social relations and (iii) systems of knowledge and beliefs (Fairclough, 1995:134)

Earlier in this chapter I distinguished discourse from language. I now explain in more detail how I am interpreting the interconnected notions of *text*, *discursive practice* and *social practice*, in my specific approach to CDA, through Fairclough's model, as a simultaneous three-dimensional discursive event. Each discursive event is firstly a spoken or written text, secondly an instance of discursive practice that involves the production or interpretation of texts and thirdly it is a part of social practice. So my analysis involves:

1) description of the linguistic features of the text (*text*)
2) processes related to the production and consumption of the text (*discourse practice*)
3) the wider social practice to which the communicative event belongs (*sociocultural practice*)

(Phillips and Jorgensen, 2002:68).

2.8.1 Text, discursive practice and social practice

Text

Taking text firstly, in my introduction I explained that policy texts could literally smooth out human elements through choices of words. My linguistic analysis of texts refers to the documents and sections of documents I have analysed for the purpose of my research. I understand all texts (whether written, spoken or visual images), not as neutral or disinterested communications, but as able to carry political beliefs and ideologies.Though some analysis takes small units of text from within these documents, it is their xontribution to the meanings expressed by the total text in context that I discuss. The Fairclough model conceives text as either written, or spoken. Fairclough refers to texts as social spaces of cognition, representation and social interaction (Fairclough, 1995: 6). This means a multifunctional view of text is necessary. Fairclough follows Halliday (1994) who through systemic linguistics assumes that texts function ideationally in the representation of experience and the world, interpersonally to constitute social interaction between participants in discourse, and textually in tying texts to situational contexts. I explain how these concepts are operationalised in my methodology in the next chapter. It is this

multifunctionality of texts that can be linked with theoretical claims about the socially constitutive properties of discourse and text (Foucault, 1972). Text, in my research, refers to written policy and strategy documents. Whilst all texts may promote ideologies by constructing certain versions of reality the degree to which they might actually enframe a point of view could vary. Texts may for example include some participants, but exclude others, or link them in relationships based on the actions, or processes they are portrayed as taking part in. In the case of UK policy documents for educational technology development, technology is repeatedly discussed as a positive 'extra' people might apply in their teaching. This characteristic of constantly emphasising an exchange value from technology I would argue sets this type of text apart from others. The repetition of a simplistic view strongly enframes technology within one construction. Yet there is always an 'other' to the way in which ideas are expressed. Therefore in the textual dimension of analysis, I examine choices and patterns of words in my corpus, I look at how people and things are appraised and I examine grammatical structures. With reference to Lieras, an appraisal of technology which presupposes externality firstly alienates humans from their material practices with technologies for learning. Secondly grammatical formations that remove human agency can lead to desubjectivisation which finally brings a form of closure to imagining alternatives.

Discursive practice

Secondly, in the discursive practice dimension I consider the production, distribution and consumption of the policy texts. I draw attention to intertextuality, which refers to the way discourses are 'always connected to other discourses which were produced earlier as well as those produced synchronically or subsequently' (Fairclough and Wodak, 1997: 276). Now in a digital age of new capitalism there are many forms of 'discourse technologies' (Fairclough, 1992b: 215) and these have new ways to travel in terms of social practice as I discuss below. For example advertising and marketing in universities takes place through many forms of communication: posters, documents, websites, straplines on cars and vans, emails and blogs to further isolated ideas and forms of knowledge which are difficult to trace back to any human agency.

Social practice

Finally, in the social practice dimension I am concerned with issues such as ideology and power relations that manifest across the forms of communication mentioned above and can serve to reproduce the status quo. In the model in Figure 1, ideologies are constructions of practices from particular perspectives that can become recontextualised, as is demonstrated by similar words and phrases existing in both TEL and e-government contexts. The

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sociocultural practice of appropriation of certain phrases can be understood as verging on systematic through what Fairclough calls a 'technologisation of discourse' (Fairclough, 1992b: 215). This is a form of technical and instrumental rationality running through the design of semiotic objects in institutional contexts. Such configurations, whether entirely deliberate or not, in the context of TEL, might be understood as networks that embody an emphasis on performativity and represent technology as providing an exchange value to support this. I later seek ways to disrupt these networks by suggesting networked forms of resistance that draw on arguments from Ritzer about the irrationality of rationality (Ritzer, 1998: 54) and Barnett who suggests the idea of 'excellence' in terms of performativity simply has no content (Barnett, 2000: 2). Through such supercomplexity it deprives us of a 'value anchorage', yet the values of rationality that helped to generate supercomplexity, might also provide us with a way to 'keep it in its place' (Barnett, 2000: 83).

2.8.2 Ideology and power

Fairclough adopts a Marxist view of ideology where the contradictions we experience as humans are 'ironed out' in political discourse in accord with dominant projects (Chouliaraki and Faircough, 1999: 26). UK policy discourse for educational technology is detached from the realities of learning that subjectively involves creativity, disappointment, hard work and questioning. These become subsumed into 'buzz words' (Mautner, 2005) that can disguise these facets of labour and the subjectivity of individuals. Such transformations have been referred to as the language of 'new capitalism' where we have seen in recent decades a flood of contested buzz words like 'knowledge-based economy', 'lifelong learning', 'the student experience' and 'technology enhanced learning'. The dominant project of neoliberalism shapes through political discourse what we are all said to 'know' about educational technology. Buzz words and phrases gain a 'universal status' and come to represent a general vision of economic change (Fairclough, 2003: 45). This in turn marginalizes individual human experience. This can be noticed through patterns of discourse where technology is said to add value to student learning as an overall reified 'experience'. Here students are discussed in this way in two different university locations and strategies:-

> Raise the profile of examples of TEL for enhancement of the student experience and to save staff time.

> Increase staff development 'taster' courses in the use of TEL that leads to clearly identifiable enhancement of the student experience and manages expectation appropriately

> (Westminster TEL Strategy 2008-2011)

Provide a valid mechanism for the recognition of excellence in the use and implementation of e-learning to enhance the student experience.

The high quality of the student experience at the University of Huddersfield is well recognised.

<div align="right">(Huddersfield E-Learning Strategy 2008-2013)</div>

In these examples, whilst is it clearly important to have a focus on students in a university strategy, both of these institutions have, in the top line of text, identified the use of either TEL or e-learning as tools for 'enhancement' of 'the student experience'. These statements treat educational technology as something 'external' to be applied to an 'experience'. The plurality of the needs of different groups of students in different contexts and locations seems to dissolve into a reified commodity: 'the student experience'. Where staff are mentioned it is in terms of their 'development'. It is not easy to pinpoint who frames these views. Power is a central concept within CDA and researchers explore how it is enacted and negotiated. Here I am particularly interested the dialectical interplay of power between political discourse and material practices in higher education. Following Fairclough, I refer to Gramsci's concept of hegemony (1971) discussed earlier to account for ways that people become integrated to consent to dominant values. This links with the idea from Lieras of a form of *closure* of conceptual learning space through an 'enframing' master narrative that hinders people from imagining broader alternative approaches. Fairclough's three-dimensional model for Critical Discourse Analysis (1992b: 73) enables a conception of discursive practice and social structures, as fluid and variable across time. This broad conception of discourse is helpful in providing a multi-level approach through which philosophical theory about *technology, language* and *learning* might be linked with more concrete analysis of texts. Within this framework, textual analysis is just a part of the critical analysis of discourse. Textual and social analysis together help to provide an understanding of how: 'people actively create a rule-bound world in everyday practices' (Fairclough 1992b:73). This implies a powerful dialectical (two-way) relationship between a particular discursive event and all the other elements and social structures which frame it (Fairclough, Mulderrig & Wodak, 2011).

2.8.3   Discourse and non-discoursal elements

Relations between changes in discourse and changes in other, non-discoursal elements '(re)constructs' social life in processes of social change (Fairclough, 1995). Fairclough describes the idea that non-discoursal elements, such as those I described above as constituting technology: objects, activities, knowledge, modes of organisation, 'internalise' one another without being reducible to each other (Fairclough, 1995). This has implications for ways in which we might undertake transdisciplinary research on TEL as a dialogue with

other disciplines and theories which are addressing contemporary processes of social change (Fairclough, 1995). Working from the premise that texts are produced and consumed to either change or reproduce a particular meaning, policy texts interact with societal phenomena (e.g. technology, objects, people and institutions) that are therefore not all of a linguistic, discursive character (Phillips & Jorgensen, 2002:61). In this understanding, 'discourse is a form of social practice which both *constitutes* the social world and is *constituted* by other social practices' (Phillips & Jorgensen, 2002:61). This would suggest that discourse is constantly changing. Yet what seems to be particulary interesting about the texts I examined in my corpus is that for such a sustained period of time, across many different policy and strategy documents, similar statements reproduce one particular meaning.

We may not research technology in the same way as language, but in developing a theory and methodology through CDA we can give accounts of ways in which social changes are changes in discourse as it intersects with other non-discoursal elements. How people describe their interactions with technological knowledge in terms of *learning* reflects their values, and perceptions of value are essentially a function of language. Political economy is concerned with the production of values based on the exchangeability of products, activities and relations in human social systems. However, 'language is the ultimately coordinating element in human social systems and is thus the critical departure point for any social analysis' (Graham, 2001: 764).

3. From critical framework into empirical methodology

In Chapter 2 I explained that TEL has been widely adopted in policy discourse to conceptualise links between the use of digital technologies and enhanced learning. I will now proceed to explain how my conceptual framework I have described above was operationalised as an empirical project. In discuss my methodology, linguistic research questions, process of data selection and forms of textual analysis in the context of my thesis.

3.1 The problem and my research questions

I raised the problem that these 'connections' seem to be framed in terms of an assumed economic 'exchange value' (Marx, 1867). Given that perceptions of 'value' are essentially a function of language (Graham, 2001: 764), I understand the enactment of these through discourse as crucial in constructing and sustaining ideologies about technology in the context of higher education. I am therefore interested in shedding light on how this is done and spreading awareness of this aspect of language use in relation to perceptions of educational technology. By confronting dominant patterns of discourse that presuppose certain truths, I seek to encourage people to ask important ontological and epistemological questions about technology, language and learning, as dialectical in constituting educational technology.

The following four research questions are intended to focus my linguistic inquiry.

1. What are the dominant patterns of 'use' around 'technology' in policies about TEL?
2. To what extent does policy discourse evaluate educational technology in one way?
3. What processes are prioritised and de-valued for students' experiences of learning?
4. How might a plurality of material practice in educational technology be re-envisioned?

3.2 Corpus-based Critical Discourse Analysis

My methodology of corpus-based CDA brings together two ideas: the collecting and searching of corpora through corpus linguistics and the analysis of discourse through CDA. The former is to some extent quantitative, enabling a large amount of data to be handled. Whilst the latter takes the findings from corpus linguistics to look more closely at what these reveal to us. Corpus-based CDA is a relatively new field (Gee & Handford, 2013:179) and to some extent still a controversial one as it may appear that the CDA researcher is adopting an instrumental approach in the use of corpus tools whilst at the same time criticising political discourse for linearity. However, a corpus linguistics approach can be considered empirical in that 'it examines and draws conclusions from attested language use, rather than intuitions' (Aarts, Bas and McMahon, 2006: 34). In other words, the researcher rolls up their

sleeves and scrutinises a large amount of the texts in question rather than considering a few snippets of text out of context. This is an approach that is a relatively recent development (Mauntner, 2005, Mulderrig, 2008, 2011) in terms of educational research. I apply these techniques to educational technology research partly to show that they are replicable and repeatable. Even though I have declared my personal circumstances and interests and their relationship to my research, it is possible that without looking at a large amount of data I might select only biased examples. I also wanted to examine which patterns seem to be sustained over a period of time, despite changes in government. Recent funding of a new Centre for Corpus Approaches to Social Science (CASS), based at Lancaster University demonstrates increased interest in use of technologies to research language. In certain fields, through the aid of computers, it may even be possible to have captured a substantial amount of the entirety of all texts produced. If such data sets are made available for others to access then a new transparency to research becomes possible, with steps taken being retraceable.

3.2.1 Corpus linguistics

Corpus linguistics is 'the study of language based on examples of real life language use' (McEnery & Wilson, 1996:1). A corpus is a digitised collection of naturally-occurring language text, chosen to characterize a state or variety of a language (Sinclair, 1991:171). Corpus Linguistics, with the aid of computers, permits analysis of large collections of words, or *lexis*. Lexical items, or words and sequences of words, provide a lens through which some more common aspects of the policy texts might be noticed that could otherwise be missed. From here a deeper exploration might begin. In a large body of text, corpus linguistics techniques (Sinclair, 1991, Scott, 1997, Partington, 1998, Baker, 2006) can reveal if patterns exist that persistently construct certain versions of reality over time, but not others. I therefore address my first research question using this approach to ask:

1. What are the dominant patterns of 'use' around 'technology' in policies about TEL?

In the next chapter I explain my explicit step-by-step approach to arriving at and addressing this question. I discuss how I handled my data, the text analytic procedures I carried out, and why. For now I will describe how corpus linguistics fits into my broader methodology and define related terms. Corpus linguistics tends to be conceptualised as a quantitative method of analysis, which could be argued to be at odds with the more qualitative direction that social enquiry has taken since the 1980s (Baker, 2006: 8). It may be argued that this is simply another form of enframing, a biased representation also. However, corpus linguistics provides an initial way of examining whether a concern about a form of language merits

further qualitative investigation. It reveals constructions of language that would be hard to spot without the support of automated searches. I will explain in more detail later the software I used for this purpose and the data I collected. The results of searching a corpus can provide a point of entry, a route into conducting a more detailed, reflexive and contextual analysis with reference to critical social theory through CDA. Corpus linguistics is understood as an insistence on working only with real language data collected in a principled way and compiled into a corpus (Teubert, 2005: 4).

3.2.2 Corpus, corpora, wordlists and keywords

A corpus is the name given to the collection or bank of text which has been gathered for analysis. A corpus is a digitised collection of naturally-occurring language text, chosen to characterize a state or variety of a language (Sinclair, 1991:171). This provides a reference as a starting point for CDA because as researchers, it places 'a number of restrictions on our cognitive biases' (Baker, 2006: 12).

Corpora are usually large (consisting of thousands or millions of words) representative samples of a particular type of naturally occurring language (Baker, 2006: 2). This means corpora serve as a reference against which claims about language can be measured. Electronic searches help to uncover patterns and frequencies that would otherwise remain hidden without many days of examination by hand. Corpus linguistics therefore provides 'a starting point of linguistic description or as a means of verifying hypotheses about a language' (Crystal, 1991). The numerical sorting of words by frequencies of occurrence, or counts of words, offers a certain transparency by indicating what led to this choice of starting point. Word lists can be generated which show the frequencies of words that occur in documents and *keywords* can be established.

Keywords are words whose frequency is exceptionally high (positive keywords) or low (negative keywords) when compared with a reference corpus of texts, in my research, the British National Corpus, which I discuss later. Keywords help indicate the 'aboutness' (Scott 1997) of a particular text or corpus. The sample of language data selected through frequency counts and statistical measures provides a route for a researcher to explain the steps they have taken and for others to critique the decisions made. Whilst this helps anchor and explain some initial research choices it does not downplay the importance of further detailed qualitative interpretation of the data (Mair, 1991) to offer elucidation.

3.2.3 Concordance, collocation and colligation

The body of the text within a corpus, where line after line may display certain patterns is called a concordance. Concordance lines show how words in context are bound together.Relationships between words can be established through *collocation*, which refers to how words occur in and around each other in a broader concordance. In searching my corpus I have treated language as 'net-like' (Hoey, 1991) in its relations and sought to look at patterns of *collocation*, which occur when words habitually appear together and so convey meaning by association. I have also examined *colligation* which might be understood as the grammatical company a word keeps, or avoids (Hoey 2000:234). Where collocation shows how certain words co-occur, colligation demonstrates how particular grammatical choices co-occur. Noticing these can though only tell us so much. These are still observations confined to textual data and though a researcher can make sense of the patterns and offer interpretations these need to be considered in a wider social context.

3.3 Critical Discourse Analysis

Critical Discourse Analysis (CDA) as I explained earlier analyses the relation between language and society to study how ideologies are enacted and values are negotiated. CDA provides a set of varied approaches through which further explorations might be conducted to examine more qualitatively, the quantitative patterns revealed through corpus linguistics. With reference to critical social theory, questions can then be raised about how such textual constructions intersect with other objects, organisations and institutions within society. In the dialectical approach (Fairclough, 2001) ontologically, the social process is conceived as relations between 'moments', which internalise other 'moments' (Fairclough, 2007: 131). I will now explain how within CDA techniques from Systemic Functional Linguistics (SFL) (Halliday, 1994) provide a way of describing language. This is both in terms of its dialectical relationship to other social and cultural phenomenon and as an internal system for expressing meanings (Young, 2011: 627). In my CDA approach, I demonstrate how relations between people and things, as participants undertaking processes, might be understood as organised functionally in policy texts. A person who undertakes CDA: 'engages in concrete, linguistic textual analysis of language use in social interaction' (Phillips & Jorgensen, 2002:62). In my research, these concrete examples are drawn from patterns highlighted quantitatively through corpus linguistic analysis and then analysed qualitatively through Michael Halliday's multifunctional approach to language as *textual*, *interpersonal* and *ideational* (Halliday, 1994), which I discuss now in more detail.

3.3.1 Systemic Functional Linguistics (SFL)

Fairclough follows Halliday's Systemic Functional Linguistics (SFL), where each discursive interaction includes a *textual, interpersonal* and *ideational* level (Rodgers et al., 2005). Systemic Functional Linguistics (SFL) is a perspective where language is considered as a multifunctional system of choices that people make. This provides a way of describing language, both in terms of its dialectical relationship to other social and cultural phenomenon and as an internal system for expressing meanings (Young, 2011: 627). The assumption of a dialectical relationship between 'language use/cognition and social structure' (O'Halloran, 2003: 449) means relations between these may result in moments where combinations of aspects become internalised for people. I perceive there to be forms of separation in neoliberal policy discourse that can inhibit questions even being raised about broader forms of knowing technology in learning situations. This means that texts can do ideological work in reproducing inequitable discourses *and* inequitable social structures (O'Halloran, 2003: 449). In my research this supports my concerns that a persistent instrumental rhetoric over time, in altering *language*, may alter too people's perceptions of *technology* and *learning.* Dialectically, if meanings of technology and learning are altered, then the ways in which people describe these changes make their way back into language, to reinforce powerful values that may not be in the interests of the less powerful (O'Halloran, 2003: 5).

Systemic Functional Linguistics (SFL) can be traced back to the Prague School of Linguistics founded in the 1920s, in Czechoslovakia. Young defines four central tenets of this school that have provided roots for the work of Michael Halliday. I have considered and applied these to support my research. Firstly, the view that language is a network of relations, where different features and aspects are related to each other, and do not exist in isolation. This can be observed in my corpus through the company words keep across different documents and times. Secondly, in relation to this, language works at different levels, on which an analyst may focus. I have chosen three different forms of analysis. This leads into the third tenet, that language reveals the different meanings and the different purposes it serves. I explore these at both a micro level of analysis and a macro level through trans-disciplinary critical theory. Lastly, SFL is based on the view that language is structured to convey the meanings that people want others to take from what they write. (Young, 2011: 625). This indicates that people have a choice in how they express what they say to achieve certain outcomes and negotiation is also involved.

3.3.2 The textual, interpersonal and ideational

The Systemic Functional Linguistic (SFL) paradigm identifies three modes of meaning understood to operate simultaneously in all utterances: the *textual,* the *interpersonal* and the *ideational*. Any text can be regarded as interweaving *ideational, interpersonal* and *textual* meanings (Fairclough, 1995: 133). As shown below, the *ideational* refers to the representation and signification of the world and experience, the *interpersonal*, to the constitution, reproduction and negotiation of identities of participants and social relations between them, and the *textual* to the distribution of new, versus previously given, information - in a very broad sense (Fairclough, 1995: 133).

- *Textual meaning:* how texts are organised to carry different meanings
- *Interpersonal meaning:* how texts create social relationships between the writer and the reader to express judgments and attitudes of the writer
- *Ideational meaning*: how texts construct particular representations of people, events and ideas

On this basis the *textual* might be understood as the way in which messages are organised in a corpus, how they indicate that they fit in with other messages around them and the wider context in which they are written (Thompson, 2004: 30). In the next chapter *textual* arrangements within my corpus will be my main focus, with Chapter 5 examining *interpersonal* relations through *appraisal analysis* and Chapter 6 considering *ideational* meanings via *transitivity* analysis. At the start of this chapter I described my methodology of corpus-based CDA as bringing together two ideas: the collecting and searching of corpora through corpus linguistics and the analysis of discourse through CDA. I have explained my reasons for undertaking corpus linguistics and some related terminology above. I will now define and explain my choices of appraisal and transitivity analysis within my CDA approach.

3.3.3 Appraisal analysis

An analysis of *Appraisal* allows a closer look at the *Interpersonal* mode of meaning in the Hallidayan systemic framework discussed above (Halliday, 1994). How judgements and attitudes are expressed is the focus. *Appraisal* is described as an 'attitudinal colouring' (Eggins & Slade, 1997:124) of texts across a range of dimensions. One way this takes place in TEL discourse is through normative judgements which suggest only benefits from a use of technology. *Appraisal theory* is concerned with the 'subjective presence of writers in texts, as they adopt stances towards material they present and those with whom they communicate' (Martin and White, 2005:1). I therefore address my second research question using this approach to ask:

2. To what extent does policy discourse evaluate educational technology in one way?

The choice of this question links with my discovery in my corpus of many instances where mostly positive outcomes seem to be assumed as the result of use of technology. Appraisal analysis was developed by Martin (Martin & Rose, 2003) to help to identify the 'styles of stance' (Eggins & Slade, 1997: 125) in which writers express personal views, and react to the views of others. Interpersonal assessment was found to be under-researched in linguistics in the 1990s with little work done on the description of evaluative meanings (Eggins & Slade, 1997:124). The selection and repetition of some possibilities, which at the same time exclude others leads to a 'control of linguistic variability for particular areas of social life' (Fairclough, 2004: 16). I suggest that due to an enframing of a certain stance in policy discourse for higher education since 1997, this has contributed to educational technology becoming one of these areas of social life. I have chosen to undertake this form of analysis because rhetorical constructions in policy texts can align relations for a particular or intended audience or purpose. As mentioned earlier this audience may be managers or technologists who are expected to filter the ideas from strategies through their respective institutions. In so doing they may embed (not always consciously) certain relationships as alignments between people and other people, between people and things, or between things that may be said to be undertaking or achieving other things. This is important, in relation to how a neoliberal discourse that reifies people as if they were simply resources, or reifies resources to act as if they were people can be spread and remain uncontested. New forms of networked learning rely on multidirectional relationships and debates (Jones, 2012: 12), so any discourse that might close this down, by separating people from things, or from each other, merits careful attention. If *only* a technically utilisable knowledge is given conceptual space in the discourse to develop, this risks closing off more communicative, contextual and emancipatory forms of knowledge (Habermas, 1968).

Theoretically, appraisal analysis addresses interpersonal assessment, across *whole texts*, rather than individual clauses. This provides a framework to analyse evaluative devices in terms of different forms of 'intensifiers' (Labov, 1972) and to see how these build up in an ideological context to alter power relations in the ways described above. It is important to emphasise that although I will introduce a new set of terms with each form of linguistic analysis, beyond these categories there are some quite simple insights that are afforded greater clarity. Namely whether an author thinks something is either *good* or *bad*.

Three types of appraisal resources are identified by Martin and White (2005): *graduation, attitude*, and *engagement*. I have focused on *Attitude* in Chapter 5 which is concerned with the values used by speakers to pass judgements about whether something is good or bad.

Graduation is concerned with the resources writers use to alter the strength of their evaluation of something. Engagement is concerned with how much a writer endorses the statements of others. My choice of *Attitude* allows me to address my second research question about how educational technology is evaluated through the options policy makers select for positive or negative appraisal. *Attitude* is expressed through words of *affect* (the author's subjective evaluation) *judgement* (evaluation of the behaviour of people) or *appreciation* (evaluation of phenomena). My focus on *Attitude* is based on the discovery in my corpus, of repeated clusters of positive evaluations preceding 'use of' technology as the next chapter will illustrate.

3.3.4   Transitivity analysis

As well as using language to interact with people as described above in the *Interpersonal* mode of meaning, it is used to express propositions about the external world around us (things, events, qualities) or the internal world (thoughts, beliefs, feelings) in terms of who, did what to whom (Thomson, 2004: 87). This concerns the *Ideational,* or *experiential* mode of meaning in the Hallidayan systemic framework and how texts construct particular representations of people, events and ideas. This can be revealing in terms of how the natural contradictions we experience as humans when learning with technology are 'ironed out' in the language of 'new capitalism'. I therefore address my third research question using this approach to ask:

3. What processes are prioritised and de-valued for students' experiences of learning?

In Chapter 6, *transitivity* analysis provides a way to describe what is taking place across a whole clause.

Clauses

Texts can be broken down into clauses. A clause is a unit of meaning in which some form of statement or idea is expressed. A clause contains a verb (in transitivity, known as a process type and explained further in Chapter 6) and usually some other participant components. Given that a clause is a construal of a situation, where an event may be described or discussed as having been caused by someone or something, labelling the components within a clause can tell us a lot about what is going on. The following components are considered:

The process: this is a technical term for any actions realised by verbs (e.g. to use, say, think)
The participant: this concerns who is doing what to whom
The circumstances: concerns the time, place, or manner related to the process/participants

3.4 Data selection

For my data, I sought actually occurring texts about educational technology from original UK higher education policy reports and university strategies between 1997 and 2012. My choice of 1997 as a starting point to collect data was based on the pledge in the New Labour manifesto to: 'realise the potential of new technology' as part of their 'information age' policymaking' (Selwyn, 2008: 702). This was not aimed only at education but extended across the public sector in terms of improving skills and access to new Internet based facilities. Alongside the sustained agenda of policymaking for educational technology there were many reports focused on the development of Electronic Government, e-government hereafter. For this reason and to reduce bias I collected policy reports from both of these areas to form one corpus. Corpus building could appear to be a calculated construction of a mass of de-contextualised data (Baker, 2006: 25). To address possible criticisms of this nature, it is necessary to explain my own familiarity with many of the educational technology policy texts within my corpus. My own career in higher education has spanned the dates under scrutiny and this leads me to believe I have collected a substantial proportion of all there is to collect of this type of UK government policy report, from the period in focus. This familiarity may be considered both a good and a bad thing from the point of view of research. However including a second corpus of e-government policy with which I am not at all familiar, helps balance any pre-judgements on my part. It also provides a way to notice any patterns that occur across discourse from both of these areas. Furthermore my chosen texts have been compared against a very large reference corpus of British English language, the British National Corpus (BNC). Each corpus I created is over 1 million words in size and both of these were built from scratch. Together there are 2,558,992 'tokens' (individual words) in the overall word list for the whole corpus. The full list of policy documents and strategies included in the whole corpus is in Appendix 1.

3.4.1 Educational technology policy documents

In the period from 1997-2005 of New Labour office a substantial number of reports on e-learning for higher education were generated. These include directives published by the Higher Education Funding Council for England (HEFCE), The Joint Information Systems Committee (JISC) and the Higher Education Academy (HEA). The period following 2005 and up until 2012 has since seen the terminology of e-learning re-engineered into the concept of Technology Enhanced Learning (TEL).

3.4.2 E-government policy documents

In the same period, in parallel, reports on Modernising Government were also prolific. The New Labour 'modernising government' agenda referred to a large scale sense of change, development and transformation in the UK, that people were encouraged to see as different to what had gone before. This provided a way to introduce new technology to measure and improve the performance of local government, instil generic forms of best practice and involve citizens (OECD, 2004). The e-government agenda has since been critiqued for a use of ill-defined rhetoric where reified ideas such as even change itself quickly become expressed as facts of life and realities to accommodate to (Finlayson, 1998: 12). As mentioned earlier in section 2.7.3, the start of the New Labour government in 1997 had coincided with rapid developments in information technology and the 'dot-com' boom and 'realising a potential' from this had been central to the Blair administration in terms of 'information age' policymaking' across many segments of the public sector (Selwyn, 2008: 702). Whilst e-government is not the main focus of my research, building a corpus of both educational technology and electronic government policy texts has yielded some interesting parallel agendas. At times a surprisingly similar use of language can be noticed despite the different topics of focus. I perceive in the e-government reforms an unreflective approach where the push to 'modernise' and make use of technology as a tool for efficient administration (and to serve the perceived needs of a KBE) was based on service delivery and capacity. The focus on transformation through electronic change seems to overlook more fundamental human factors related to organisational change, within a context of large-scale criticism of much of what has gone before (Levin, 1998: 132).

3.4.3 The shared aim of transformation

Reading down the two lists of report titles below, even before looking at the texts themselves, it is clear to notice that there is a distinct reliance on technology and language to direct change, rather than on people themselves. The first group of reports advocate use of technology for learning. The second group of titles are about modernising government.

These are example titles from reports about educational technology I included in my corpus:

Embedding **Learning Technology** Institutionally (JISC, 2003)
Towards a Unified **E-Learning** Strategy (DfES, 2003)
Innovative Practice with **E-Learning** (JISC, 2005)
Great Expectations of **ICT** (JISC, 2008)
Effective Practice in a **Digital Age** (JISC, 2009)
Enhancing Learning through **Technology** (HEA/JISC, 2009)
Transformation through **Technology** (JISC, 2010)
Transforming Curriculum Delivery through **Technology** (JISC, 2011)

<u>Collaborate to Compete</u> (HEFCE, 2011)
Open Educational Resources: <u>the value of re-use in HE</u> (JISC, 2011).
Survey of **Technology Enhanced Learning** for higher education in the UK (UCISA, 2012)

The titles listed below are from reports on modernising government, over the same period:

<u>Successful</u> **IT**: Modernising Government in Action (Cabinet Office, 2000)
E-government strategy framework policy and guidelines (HM Government, 2001)
<u>Measuring the Expected Benefits</u> of **e-Government** (HM Government, 2003)
<u>Transformational</u> Government <u>Enabled</u> by **Technology** (HM Government, 2005)
<u>Transformational</u> Government <u>Enabled</u> by **Technology** (HM Government, 2006)
<u>Service transformation: a better service</u> for citizens and businesses (Cabinet Office, 2006)
<u>Transformational</u> Government – our progress in 2007 (HM Government, 2007)
<u>Transformational</u> Government – our progress in 2008 (HM Government, 2008)
<u>Transformational</u> Government (HM Government, 2008)
Open Source, Open Standards, Re-Use: Government Action Plan (HM Government, 2009)

In both of these lists technology is 'appraised' in different ways, and words, over time. As mentioned earlier, terms such as *Learning Technology, E-Learning, ICT, Technology Enhanced Learning* may be adopted in different documents. Such terms are shown in bold and the sorts of phrases that refer to forms of exchange value from these technologies are underlined. One persistently common theme is an emphasis on *transformation* through technology. These titles often follow the simple logic discussed in the previous chapter: if people *use the technology,* they get *something* back, as a form of 'exchange value' (Marx, 1867). It seems to take the shape of: *making things better, expected benefits, enhancing, transforming, effective* and *enabling*. A *use* of technology for automation of either government services, or educational technology in higher education seems to be viewed through a similar lens, mostly in terms of expected, positive outcomes, *through* technology. The inference is that technology solves a problem and yields improvements, whether in education or government. In both types of report there are also points when similar agendas coincide, for example, the open resources agendas. A similarly worded educational technology report seems to follow a similar e-government report at times, approximately two years later.

The majority of these UK government policy texts generated during the last two decades are now freely available via the Internet. Their existence, as digital objects in themselves, means that they can be continually and effortlessly referred to. Through hypertext, which refers to blocks of text and the electronic links that join these (Landow, 1992), they act as support systems for further policy decisions. They serve to reinforce a model of discourse of a particular type that people may now link with the field of educational technology, even if this is not actively questioned. In later chapters I discuss intertextuality (Kristeva, 1986) where texts are informed by other texts a reader has read, as well as the reader's own cultural

context. This holds increased significance in relation to digital media and the many networked routes that text can now travel via the Internet and mobile devices. I proceed now to explain the explicit steps I took to handling my data, the analytic procedures involved and why.

4. Counting on technology to enhance learning

In this chapter I first describe how the policy documents (the texts) I analysed were collected, converted into text files, and then imported into software called *Wordsmith.* As discussed in Chapter 3, my corpus is comprised of an equivalent balance of both educational technology and e-government documents (approximately one million words of each). This was a reflexive decision I made to deliberately avoid only looking at educational technology and to include something of a parallel agenda to see if the constructions of words differed. The e-government literature, as part of New Labour's aims to 'modernise', was intended to bring government services online and encourage the use of Internet-based technologies for citizens to interact with these. I explain below my use of *keywords* and *clusters* within Wordsmith, providing tables of the counts of similar words that appear in both forms of policy. The patterns of 'the use of technology' that emeged across both educational technology and e-government documents helped me to narrow my focus to conduct my analysis on a final concordance of approximately 8000 words.

4.1 Preparing the data to be imported into Wordsmith

The policy reports for both educational technology and e-government were sourced online with the aid of lists: government websites such as HEFCE Publications and reports from the Centre for Technology Policy Research (CTPR), such as 12 Years of e-Government (2009). Each report was downloaded, saved as a text file, using the program Notepad, and stored in a folder to be imported into Wordsmith (Scott, 1997). Wordsmith Tools is a linguistic software package developed by Dr Mike Scott in 1996. It enables the comparison of corpora as wordlists, which provide numerical counts of words. No texts were scanned, as all were available in electronic format online. This presented no need for prior permission or ethical clearance to be obtained but still a rigor needs to be maintained. To explain my rationale, I undertook a very thorough chronological selection process to ensure as many as possible of both educational technology and e-government reports from this period were included. As shown below in Table 2, the total number of words in each category is closely aligned.

Total no. of words in E-Govenment Policy documents	1,097,075
Total no. of words in HEFCE/JISC/HEA Policy documents	1,157,372

Table 2: Total number of words in E-government and TEL documents

4.1.1 Keywords

Following the example of others (Mulderrig, 2008), I sought to avoid undue bias through use of a reference corpus to perform the initial analysis through *keywords* (Scott, 1997).

Keywords are not simply 'key' in terms of individual cultural meaning (Firth, 1957, Williams, 1976), rather in Scott's interpretation of keywords, they are key within the bank of written text they appear in. Keywords are identified in a comparison of word frequencies within a large corpus which can reveal their 'aboutness' (Scott, 1997). Where frequency lists provide a first step to see words and clusters of words and reveal the presence of particular kinds of discourse (Baker, 2006: 121), *keyness* in Wordsmith compares the frequencies of my TEL and E-Government wordlists against the British National Corpus (BNC). This is a 100+ million word reference corpus of British English, collected mostly in the 1980s-1993, to determine which words occur *statistically* more, or less, often. The BNC consists of diverse contributions including: written extracts from newspapers, specialist periodicals and journals, academic books and popular fiction, letters and school and university essays, and language from different contexts, such as business or government meetings to radio programmes and phone-ins (Baker, 2006: 30).

	Key word	Frequency
1	**LEARNING**	**19,260**
2	E	13,752
3	#	97,571
4	JISC	5,253
5	SERVICES	8,830
6	UK	7,610
7	ONLINE	3,977
8	GOVERNMENT	11,246
9	TEACHING	5,773
10	WWW	3,124
11	**TECHNOLOGY**	**6,079**
12	INFORMATION	8,638
13	STRATEGY	4,697
14	S	6,920
15	LEARNERS	2,943
16	INTERNET	2,431
17	ACCESS	4,910
18	SECTOR	4,476
19	DIGITAL	3,020
20	UNIVERSITY	5,208
21	ICT	2,110
22	INSTITUTIONS	3,924
23	SUPPORT	6,600
24	SERVICE	6,454
25	STUDENTS	4,669
26	HTTP	1,804
27	DELIVERY	2,958
28	EDUCATION	5,522
29	**USE**	**8,131**
30	HEFCE	1,675

Table 3: The top 30 *keywords* from my entire corpus

In Table 3 above the top 30 keywords from my corpus are shown. *Learning* was the highest, and *technology* was also a high count. My first research question considers dominant patterns of use around technology. Whilst *use,* was not the highest keyword, clearer patterns of interest emerged via a cluster analysis, shown in Table 4. Wordsmith allows frequencies of clusters of words to be examined. In separate searches of *both* the TEL and e-government policy texts, 'use of technology' and 'the use of' were high scoring phrases.

	Educational technology policy	Count		e-government policy	Count
1	TECHNOLOGY ENHANCED LEARNING	267	1	**USE OF TECHNOLOGY**	65
2	**USE OF TECHNOLOGY**	224	2	DEAL WITH GOVERNMENT	51
3	**THE USE OF**	182	3	TO DEAL WITH	49
4	THROUGH TECHNOLOGY ENHANCED	150	4	TECHNOLOGY TO DEAL	47
5	HIGHER EDUCATION THROUGH	143	5	OF NEW TECHNOLOGY	41
6	EDUCATION THROUGH TECHNOLOGY	143	6	**THE USE OF**	39
7	TRANSFORMING HIGHER EDUCATION	142	7	ENABLED BY TECHNOLOGY	36
8	TEACHING AND LEARNING	106	8	TRANSFORMATIONAL GOVERNMENT ENABLED	35
9	TRANSFORMATION THROUGH TECHNOLOGY	84	9	GOVERNMENT ENABLED BY	34
10	AND LEARNING TECHNOLOGY	83	10	**USING TECHNOLOGY TO**	33
11	OF TECHNOLOGY TO	77	11	DEALING WITH GOVERNMENT	30
12	OF TECHNOLOGY IN	76	12	INFORMATION AND COMMUNICATIONS	27
13	THROUGH TECHNOLOGY ILLUSTRATING	74	13	AND COMMUNICATIONS TECHNOLOGY	27
14	JISCS IMPACT	72	14	INFORMATION AND COMMUNICATION	26
15	ILLUSTRATING JISC S	72	15	AND COMMUNICATION TECHNOLOGY	25
16	IMPACT ACROSS	72	16	NEW TECHNOLOGY TO	24
17	TECHNOLOGY ILLUSTRATING JISC	72	17	**TO USE TECHNOLOGY**	23
18	OF THE TECHNOLOGY	70	18	OF TECHNOLOGY AND	22
19	LEARNING AND TEACHING	56	19	**USING NEW TECHNOLOGY**	21
20	AND INFORMATION TECHNOLOGY	54	20	TECHNOLOGY STRATEGY BOARD	19
	Common themes to both corpus			**Common themes to both corpus**	
	Use of			Use of	
	Enhanced			Enabled by	
	Through technology			Technology to deal with	
	Transform			Transform	
	Technology to			Technology to	
	Of technology			Of technology	

Table 4: Clusters in both the e-government and TEL corpus

The clusters in Table 4 show that some of the common themes I already identified in the example titles of reports are conspicuous again in high counts in the texts themselves. For example, *transforming* and *transformational,* and a clearly instrumental emphasis on *through* technology, or *enabled by*, technology or *enhanced.* As mentioned in Chapter 2, policy for TEL proceeds from the 'fact' that technology has enhanced learning as a starting point. In New Labour's 1997 election manifesto 'realising the potential of new technology' was one of the central educational themes (Selwyn, 2008: 701). This relates to the 'externality' aspect identified by Lieras, where technology becomes separated from human labour and social practice and is discussed in terms of its own potential, as if it were a detached force that alone accomplishes transformation. These strong declarative statements of what happens *through* technology reveal in later analysis, very few instances of what happens *through* people. This observation relates to the 'desubjectivisation' aspect identified by Lieras, where people are literally bypassed and all discussion becomes objective rather than subjective. This brings a form of 'closure', as the possibilities within the discourse of encountering people and linking more plural activities with them becomes diminished. It is a rationality that becomes irrational, as it closes opportunities for more fundamental change, even in line with university aspirations. Where policy documents might engage and include within its writers those practitioners who will be subject to the policy these opportunities and diminished by an exclusively systems-focused language (Bartholomew and Hayes, 2015).

Therefore in selecting a concordance based on 'use' for closer scrutiny I was particularly interested therefore in ways that political discourse structures an impression of human material practice which appears to omit the very people who might be transformed through use. As my later analysis reveals, this practice is discussed without the people concerned, making it easier to demonstrate direct forms of profit. For example, the frequency of 'the use of technology and 'use of technology' structures an impression of an exchange value for learning much more than if people themselves had been described as lecturers or students who were 'using technology', 'engaging with technology' or 'encountering technology'. These phrases could suggest more active and mutually constitutive situations, where people might share a subjective relationship with technology in learning rather than a simple external use. However, including people invites questions, and questions can be avoided if people are simply 'missed out'. I am also mindful that technology takes many forms linguistically and so to focus only on technology might have missed these patterns around use, where technology is often described by many different words e.g. ICT, C & IT, e-learning, virtual learning environments, and so on.

4.1.2 Patterns of use revealed

In terms of my research question, in Table 3 the clusters reveal 'use of' in relation to both technology and other technological forms. 'The use of' demonstrated strong patterns in both the e-government and educational technology corpus, inviting a closer look.

In the full corpus (2,656,562 tokens of combined *e-learning* and *e-government* policy texts), there are 8131 tokens of 'use'. I created a concordance around 'use'. Compared against the BNC corpus, *Wordsmith* defined the following *keywords* and *clusters* shown in Table 5.

Keywords		Tokens			Clusters	
1	USE	8,131	1	THE USE OF	1770
2	OF	3,984	2	USE OF THE	459
3	THE	1,854	3	USE OF TECHNOLOGY	350
4	TO	1,323	4	TO USE THE	226
5	AND	425	5	OF C IT	223
6	IN	290	6	IN THE USE	217
7	FOR	210	7	USE OF C	205
8	A	179	8	AND USE OF	203
9	TECHNOLOGY	406	9	USE OF E	199
10	IT	264	10	EFFECTIVE USE OF	185
11	LEARNING	167	11	USE OF ICT	161
12	IS	116	12	THROUGH THE USE	149

Table 5: Keywords and clusters in the 'use' corpus

The patterns around 'use' in my corpus provided a sizeable sample of text (8131 tokens) to view as a *concordance*. A concordance shows the words and phrases, as concordance lines, in their immediate context, as they appeared in the policy document. What this enables is a much closer look at how the clusters in Table 5 materialise in the circumstances these were used in. Further searches can be performed to show which words appear to the left or right of 'use'. Reading concordance lines (which are numbered) allows analysis of patterns that are appearing across different reports written at different times. Corpus linguistic techniques (Sinclair, 1991, Crystal, 1991, Mc Enery and Wilson, 1996, Partington, 1998, Stubbs, 2001, Teubert, 2005) also enable an analyst to see how repetition of patterns of words around 'use' occur as *collocations*. Collocation shows lexical frequencies. This defines the sequences of words that occur together more often than by chance, when compared with the much larger corpus. These quantitative patterns can provide 'ways in' for a more detailed qualitative analysis to comment on ways that meaning might be derived.

Firstly, in Figure 2 below, patterns of collocation in my 'use' concordance show that 'technology' occurs often after 'use of'. I have placed rings around these counts to show this is one dominant pattern I identified, in terms of my research question.

N	Word	With	Relation	Texts	Total	Total Left	Total Right	L5	L4	L3	L2	L1	Centre	R1	R2	R3	R4	R5
1	USE	use	0.000	171	8,301	85	85	28	20	19	15	3	8,131	3	15	19	20	28
2	OF	use	0.000	169	5,683	1,073	4,610	248	210	187	231	197	0	3,984	60	213	187	166
3	THE	use	0.000	168	5,125	3,308	1,817	350	368	382	354	1,854	0	483	606	166	252	310
4	TO	use	0.000	165	3,543	2,453	1,090	243	225	380	282	1,323	0	87	152	364	270	217
5	AND	use	0.000	164	3,158	1,653	1,505	283	335	324	339	372	0	302	100	425	366	312
6	IN	use	0.000	160	1,690	757	933	112	121	109	290	125	0	199	78	226	276	154
7	FOR	use	0.000	149	1,290	788	502	98	122	161	210	197	0	63	67	153	128	91
8	A	use	0.000	136	929	317	612	132	87	76	19	3	0	152	179	58	108	115
9	TECHNOLOGY	use	0.000	118	827	84	743	18	17	13	15	21	0	104	406	135	35	63
10	IT	use	0.000	98	744	163	581	54	33	44	11	21	0	102	96	264	65	54

Figure 2: Patterns of collocation around USE and TECHNOLOGY

This is significant in terms of what this 'use of technology' is *for*. Therefore secondly, I noticed there are words like 'to' and 'for' among the top 10 collocates shown in Figure 3. Looking at clauses containing these could indicate, in a closer analysis, whether policy documents claim there is an expected 'exchange value' *for* learning from 'use of technology' *Do* people get *something* back, and if so, then what?

Thus far, the steps above have explained my rationale for looking more closely at 'use of' due to patterns of *words.* At the beginning of this chapter *corpus linguistics* was discussed as 'empirical' (McEnery and Gabrielatos, 2006:34), but frequencies of words are just a beginning and a corpus-based CDA depends on both quantitative *and* qualitative techniques. In a 'vertical' sense the Wordsmith software can quickly indicate frequencies of words and generate patterns of collocation (Tognini-Bonelli 2001: 89–90). Collocation shows the tendency of certain words to occur together. However, in the broader concordance, in a more 'horizontal' sense, repetition patterns operate within sentences, clauses, paragraphs and 'with other vertical chains of repetition to express propositions' (Scott & Thompson, 2001: 5).

In order to examine what patterns occur either side of 'use' the concordance was sorted, using the functions in Wordsmith, to show the words occurring directly to the *left* and to the *right* of 'use'. This is achieved using the Left 1 and Right 1 sort function in the Wordsmith software. This reorganises the concordance view as shown below in Figure 3 so that the words either side of use are highlighted.

that is central to the use of social media. Such scaffoldin

en observed that the use of ICT fosters a more "planful" a

are sceptical of the use of C&IT in teaching and learning

e UK to promote the use of C&IT in teaching and learning

earning settings; the use of technology to promote learne

ced for details of the use of virtual learning environments,

nilitates against the use of the Internet by businesses ar

itish Library into the use of technology for research in hig

y benefited from the use of collaborative, interactive techi

n be affected by the use of technology. How they are affe

ork, reflecting on the use of new technologies in teaching

ing that involves the use of technology. Terms relating to

Figure 3: Concordance rows 2556-2567

Figure 3 is a small, but fairly typical section of the concordance which illustrates what sorting the body of text in this way reveals. Following each instance of 'the use of' is a *type* of technology, beginning with *social media* on the first line. This is followed by *ICT, C & IT* and *technology*. Reading vertically down these concordance lines there are other terms, such as:- *virtual learning environments, the Internet, collaborative interactive technologies, new technologies.* With reference to my first research question, it is clear to see that one dominant pattern of language around *'technology'* in these policy texts is that it is often preceded by 'use of' or '*the* use of'. The movement from considering frequencies of words alone and collocation, into the density of the concordance sorted in this way, shows that 'technology' takes many forms in terminology, but has a preferred place here, following 'use of', in terms of the linguistic company it keeps. This demonstrates one route to revealing how an argument about use of technology might be ordered and repeated. Without viewing this structure through corpus linguistics it would be hard to know if this is a model often repeated. Therefore understanding the corpora as 'net-like' (Hoey, 1991) aids an appreciation of how certain terms, linked phrases, concepts and even broader events might be recalled and referenced in different ways, to provide a reader with a feel for what these texts are about. The 'concerns of the society which produces the texts' (Hunston, 2002:13) are reflected in the corpus and furthermore, the 'constant exposure to ways of saying things we experience in the 'society' in question, shapes the way we ourselves use the language' (Hunston, 2002:13). This necessitates examination of *colligation* as well as *collocation.* 'Colligation' (Firth, 1957) refers to grammatical patterning that sequences some words to be in a certain place within a clause, or to appear in some contexts, but not others. Colligation represents a 'step in abstraction' (Tognini-Bonelli 2001: 89–90) as a word's *colligations* describe what it typically does grammatically (Hoey 2000:234) supporting the choice I made to conduct a *transitivity analysis* in chapter 6.

This broader view of the findings from a corpus leads quite naturally into a more qualitative analysis, to consider also concepts such as *semantic prosody,* which occurs as a result of the repeated use of some words and phrases within mainly positive, or negative, contexts. To give an example, to say something is 'over' may suggest a negative meaning if it carries hidden associations of something coming to an end (e.g. a holiday). Yet it could be applied to mean a period of illness is over. Depending on how we have experienced them, words can suggest connotations to us as readers. Through corpus linguistics these patterns of use can be discovered and different relationships noticed. I will return to this in more detail in chapter 5, when I undertake an *Appraisal* analysis to examine production of certain values related to TEL. These discussions underline a necessity to move from the initial quantitative findings of corpus linguistic analysis using software, into 'a qualitative interpretation as an essential step in any corpus-based analysis' (Biber, 1998:4). For CDA, understanding the texts examined firstly through corpus linguistics as 'organic' in the ways described above, is helpful in order to visualise the fluid interplay of the elements of *technology* and *learning* within the *language* of policy. For example, below in Figure 4 a few lines of the concordance indicate an '*effective* use of technology' is required. In questioning what this is stressed *for*, reading along each line, a repetition can be observed.

Figure 4: Concordance lines showing examples of '*effective* use of technology'

The 'effective use of technology', in the first line, in the context of educational technology, is '<u>to</u> enable and support work-based learning'. There is an 'exchange value' also to be noticed in the second line, in the context of E-Government: an *effective use of technology* '<u>can </u>help deliver more secure and more joined-up public services'. Moving to the third line, this pattern continues. Someone is 'helping institutions 'make' *effective use of technology* '<u>for</u> teaching and learning, research, administration, marketing'. On the fourth line, 'resources that were identified confirm that the' *effective use of technology* '<u>to</u> enhance assessment for learning' will be the assumed answer to a perceived problem in the education system. Each time the *effective use of technology* is mentioned, the assumption seems to be that a reward or something 'extra', in terms of learning and teaching, will ensue. This indication of a predicted 'exchange value' can be observed again on the fifth line, where 'making efficient and' *effective use of technology* '<u>to</u> support academic, social and pastoral activity' is the

suggested outcome. On the sixth line, 'JISC has an important role in promoting the' *effective use of technology* 'in the area of staff development' suggests a situation where JISC's approach towards technology use is required to improve on the current situation. On the final line, the exchange value from the *effective use of technology* is perceived to be 'in curriculum and delivery processes'.

Such statements may not be particularly unusual, when policy is a problem solving process (Nudzor, 2009) but as an exercise of power and language (Olssen, Codd, and O'Neill, 2004) it is important to consider what processes this is really legitimating through these repeated grammatical constructions that claim only positive outcomes from technology. Who for example decides what an 'effective' use is?

Whilst these seven concordance lines represent only a very small section of the corpus, this broader patterning can be noticed as occurring 'horizontally' across many clauses. It seems to be the case that after (but sometimes before) the *effective*, *innovative* or *better* 'use of' a particular technology is mentioned, an assured, positive outcome for learning and teaching activities in the form of an exchange value follows. It may however be at the end of a particularly long clause that the actual, material, learning and teaching activities are finally mentioned. I discuss the significance of such grammatical patterns in more detail in Chapter 6 on *Transitivity* analysis. A general message in a large corpus that 'use of' technology, as an external instrument to be applied in a particular way delivers additional benefits repeatedly emphasises just *one* state of affairs. The power relations (Gee & Handford: 178) that stem from many directions in this *language,* to dialectically shape reader understanding of *technology* for and in *learning,* are interlinked both across and down the corpus. The 'use' concordance provides a large sample of policy language *in use* as discourses. In a critical practice of 'unveiling' (Mautner, 2009b: 124), this can be examined to question what values are attributed to using technology, as a *means,* and to whose *ends*?

5. The production of values that enframe TEL

In section 2.2.5 I discussed the kinds of values that have been prioritised as capitalism has progressed. A political emphasis on economic gain, in terms of performativity, has encouraged professionals to compete to 'realise their potential', but this approach also marginalises less instrumental routes to knowledge in higher education. Barnett, in raising the concept of 'supercomplexity' points to the problem of universities losing their way, as enormous amounts of data on performance are generated, but much of the language of 'excellence' has little real content (Barnett, 2000: 2). In UK policy, despite changes in government, educational technology has continually been included as a significant part of policy narratives of, for example: modernisation, standards, effectiveness and enhancement of the public sector to improve UK competitiveness in the global economy. Value has been focused on *only* the aspects of education (and educational technology) believed to support these aspirations. This links with points from Ritzer that this form of rationalising eventually moves humans towards irrationality, serving to limit and compromise their actions (Ritzer, 1998: 55). The production of policy that is aiming for actively engaged high performing staff who utilise technology to innovate instead separates conscious human social activity (as use value) in a discourse about technology that seeks only economic gain (exchange value). If economically-based values are attributed to technology in language to extract a maximum quantitative return, this can colonise other more developmental discourses about technological learning that rely on debate. Furthermore, from the point of academic practice and development more widely this creates a detachment from policy, where lecturers and students can fail to recognise themselves in it. If there are apparently only positive outcomes from a use of technology, as a means to an end in a neoliberal economy, then it would seem there is little left *for* people to debate. Yet debate is crucial if educational technology is to engage with research agendas in academic subjects and not be detached from people as only a simple external fix to improve learning. In this chapter I discuss these concerns in terms of an 'appraisal' of technology as having 'enhanced' learning, which is expressed through TEL. I address my second research question: *to what extent does policy discourse evaluate educational technology in one way?*

5.1   Appraisal analysis to examine normative statements of value

An *appraisal* analysis allows a researcher to 'map' values in our culture (Thompson, 2004: 76). This is significant when neoliberal domination of culture and education leads us to rethink questions of cultural value (Stevenson, 2010: 344). The election of New Labour in 1997 marked both an abandonement of traditional class-based politics for a KBE. The traditional notion of 'bettering yourself' in a democratic socialist tradition was linked with an

individual becoming educated to access a previously inaccessible high culture (Stevenson, 2010: 345). In the KBE however, the idea of becoming educated is instead closely linked to being entrepreneurial. New Labour's education agenda relied on emerging technologies which meant storing, distributing and using knowledge more effectively. Where for Marx, material practices with large machinery had their place in an analysis of how forces of industrial capitalism brought alienation for people from society and themselves, in a KBE, there is a much greater reliance on political discourse, enacted as 'cultural' communications, through software and image in a virtual economy (Stevenson, 2010: 345). I understand the role of discourse in spreading these new cultural and political values to be key to the widespread understanding of educational technology in terms of exchange value. At the time of Marx, immense bulky machines provided a daily reminder of the oppressive side of capitalism, but also tangible evidence that humans were labouring alongside these. Taking the idea of a 'weightless economy' as described by Leadbetter (1999), as such values have since been enacted through New Labour policy, there are no such aide memoires. In Chapter 6 I argue that there is now a 'lightness' in these policy texts, where humans have been 'liquified' (Hayes, 2015). Our material practices are no longer visible and so political discourse can make flexible claims that require us to work harder than ever on a treadmill of improvement. Particular textual formations in educational technology policy documents have enabled one idea about technology for enhancement of learning to 'flow', 'spill' and 'flood' through universities, its 'lightness' or 'weightlessness' making it easier for it to travel at speed (Bauman, 2000; Hayes, 2015).

Such a re-shaping of what is meant by knowledge in the new economy therefore requires linguistic as well as technological support through learning technologists. There was a strong repetition in my corpus of many normative judgements that stated what ought to be the case. Normative opinions may judge right from wrong, distinguish good practice from bad practice or say what is, or is not, of benefit to people. Whilst such judgements may be commonly found in policy texts, in the data I collected, most assessments tended towards the positive in their appraisal of any form of technology. Value judgements may explicitly name *who* makes the assertion, or this may only be implicit and not be directly stated. In my corpus the person making a judgement was rarely explicitly stated. In order to explore these patterns further, in this chapter, I examine a substantial section of continuous text within a policy document from my corpus to analyse the values that appear to be applied to technology. The Fairclough approach to CDA provides multiple points of analytic entry to examine textual interactions. Exactly where one begins is not really an issue, if in the end, forms of analyses undertaken can be shown to be mutually explanatory (Janks, 1997). Indeed one aim of my thesis is to indicate how varied forms of analysis might support each another, through

heterogeneous methods and transdisciplinary literature. This is intended to 'maintain a dialogue' (Fairclough, 2004: 21) between social, cultural and theoretical perspectives about educational technology and practical textual analysis of policy discourse for it. Appraisal analysis helps examine the textual resources used by policy writers to evaluate technological phenomena for learning as either negative, or positive. These are used to build relationships with readers of the texts generated. Appraisal analysis explores how values are sourced and readers are aligned in interpersonal processes (Martin and Rose, 2003: 25). People assume roles as they argue about information, or transfer goods and services. However, if there is no identifiable human being or group in the discourse to argue with and few noticeable problems to argue about, then a particular or dominant world view is more easily maintained. Certain forms of thinking, being and acting may be presented, appraised and delivered for people to privatise and own.

5.1.1 How is educational technology appraised in policy discourse?

In my corpus I found dominant patterns of words that suggested a particular *kind* of use of technology yields an exchange value for learning. These texts do not simply *describe* a view of reality in terms of what *is,* the view projected is also *evaluated*. By recommending: *better, best*, *efficient*, *effective, enhanced* and *innovative* 'use' this creates a 'cumulative effect' (Hoey, 2005, Baker, 2006: 13), through language that seems *only* to discuss 'benefits' in exchange for the use of technology. Such repeated patterns can become 'widely shared in a discourse community' (Stubbs, 2001: 215). This means a skewed impression of educational technology, as a material practice with only positive outcomes, may develop. An engineering of consent (Gramsci, 1971) can take place through discourse that sounds as if it is in the public interest. Below I have underlined some words and phrases where evaluations are made in this statement from the Wales Strategy (HEFCW, 2008)

> **We** anticipate that institutions will engage with this strategy and collaborate to share current and good practice for the benefit of the whole sector

Here a group of people who believe in this statement is implied through 'we' which is shown in bold. This choice of the collective pronoun 'we', whilst semantically complex, given that it could be 'inclusive' or 'exclusive', provides an important mechanism for building 'collective identities' in the New Labour mode of governance (Mulderrig, 2011: 566). Beyond this initial observation, the author's attitude towards what is being discussed is revealed through a series of appraisals. These are all positive judgements of what the writer anticipates will be the case. There is little room here for a debate about why institutions may not engage with the strategy. A strong expectation is predicted about what will happen and the outcome of these activities is also evaluated as of benefit to the whole sector. However, constant

exposure to narrowly focused statements of this nature can fail to reflect the diversity and complexity found in real lives (Selwyn, 2003), or the need to question what actually constitutes 'good practice'. This is a statement that frames 'how' a strategy will deliver specific benefits for personal or economic growth but elevates this over questions of 'why', or the constraints imposed by social or political economy (Hall, 2010:2). In my experience, having worked as both a learning technologist and a lecturer in higher education, there has been a widespread discourse of 'collective improvement' (Stevenson, 2010: 344) underpinning educational technology policy. Selwyn points to the DfES e-learning strategy as just one example of a use of ICT for 'modernisation' as 'an ideological vehicle for the reform of the education system' (Selwyn, 2008: 708). I link these ideas with recommendations that lecturers collaborate to share case studies of 'good practice' that have dominated this discourse. However, collaboration of a particular *type* is also recommended. Practice described as 'good' or 'best' emphasises the aspects of exchange value from technology as an 'external' application. Presentations I have attended that focus on 'best practice' tend to suggest there are benefits for all to seek in the same way. This risks a 'regulation of innovation within traditional safe paradigms' (Hall, 2010:2). Subjective opportunities for change that arise through uncertainty, debate and diversity of experience are hidden, or desubjectivised. As a result the possibility that we might talk and write about technology in other more democratic or personally meaningful ways is driven out. Policy thus assumes a stability that technology cannot promise and common goals and circumstances that, for individuals, rarely exist. Furthermore, there is an inference that before the use of technology, the existing teaching practice was somehow 'lacking'. Those teaching are said therefore to need 'support' and 'encouragement' to do better.

5.2   Appraisal analysis of attitudes to technology

Recalling Greener and Perriton's suggestion, following Jessop, that what has emerged is a 'new' economic model which colonises discourses of democracy and student-centredness (Greener and Perriton, 2005: 67). I suggested earlier that this presents students with a fragmentary community of conflicting hierarchical and neoliberal features within the discourse. This can also be noticed in relation to policy discourse that combines hierarchical and neoliberal features aimed at developing university staff. Both strong patriarchal tones that urge staff to engage with a strategy are combined with suggestions of flexibility and opportunity. These contradictory elements of what is 'expected' present extreme challenges for tutors (Greener and Perriton, 2005: 77). It is also difficult to imagine how certain attitudes might be renegotiated when they seem to be advocating positive improvements.

Appraisal theory is a development of the Hallidayan systemic framework (Halliday, 1994). This operates simultaneously in all utterances to construe textual, interpersonal and experiential meaning. Focusing now on the interpersonal, appraisal, is concerned with the 'subjective presence of writers in texts, as they adopt stances towards material they present and those with whom they communicate' (Martin and White, 2005:1). Interpersonal assessment was found to be under-researched in linguistics in the 1990s with little work done on the description of evaluative meanings (Eggins & Slade, 1997:124). Appraisal analysis (Martin & Rose, 2003) was developed to help to identify the 'styles of stance' in which writers express personal views, and react to the views of others (Eggins & Slade, 1997: 125). The selection and repetition of some possibilities, which at the same time exclude others leads to a 'control of linguistic variability for particular areas of social life' (Fairclough, 2004: 16). I suggest that due to an enframing of a certain stance in policy discourse for higher education since 1997, this has contributed to educational technology becoming one of these areas of social life. I have chosen to undertake this form of analysis because rhetorical constructions in policy texts can align relations for a particular or intended audience or purpose. As mentioned earlier, this audience may be managers or technologists who are expected to filter the ideas from strategies through their respective institutions. In doing so, not necessarily consciously, they embed the sorts of relationships that policy texts set up, as alignments between people and other people, between people and things, or between things that may be said to be undertaking or achieving other things. This is important, in relation to how a neoliberal discourse that reifies people as if they were simply resources, or reifies resources to act as if they were people, can be spread and remain uncontested. New forms of networked learning rely on multidirectional relationships and debates (Jones, 2012: 12), so any discourse that might close this down, by separating people from things, or from each other, merits careful attention. If *only* a technically utilisable knowledge is given conceptual space in the discourse to develop, this risks closing off more communicative, contextual and emancipatory routes (Habermas, 1968).

Theoretically, appraisal analysis addresses interpersonal assessment, across whole texts, rather than individual clauses. This provides a framework to analyse evaluative devices in terms of different forms of 'intensifiers' and to see how these build up in an ideological context to alter power relations (Labov, 1972). It is important to emphasise that although I introduce a new set of terms with each form of linguistic analysis, beyond these categories there are some quite simple insights that are afforded greater clarity. Namely whether an author thinks something is either *good* or *bad*. Three types of appraisal resources are identified by Martin and White (2005): *graduation, attitude*, and *engagement*. I have focused on *attitude,* which is concerned with the values used by speakers to pass judgements about

whether something is good or bad. *Graduation* is concerned with the resources writers use to alter the strength of their evaluation of something. *Engagement* is concerned with how much a writer endorses the statements of others. My choice of *attitude* allows me to address my second research question about how educational technology is evaluated through the options policy makers select for positive or negative appraisal. *Attitude* is expressed through words of *affect* (the author's subjective evaluation) *judgement* (evaluation of the behaviour of people) or *appreciation* (evaluation of phenomena). My focus on *attitude* is based on the discovery in my corpus, of repeated clusters of positive evaluations preceding 'use of' technology. The regular positioning of greater yielding words and phrases, that indicate expressions of exchange value, in close relation to 'use of technology', were noted in Chapter 4. Some repeated patterns of 'make best use of' are shown in these concordance lines below in Figure 5 for which I have provided a colour key:

Colour Key

🟩	**A form of technology**
🟥	**A form of exchange value**
🟦	**A form of use**

686   leaders and managers who are able to plan to **make best use of new technology**
687   modes of delivery that **make best use of new and emerging technologies**
690   skills needed to evaluate and **make** the **best use of open source solutions**
695   curricula that **make** the **best use of technology**
696   institutions and individual curriculum areas can **make best use of technology** to
697   for the public sector to **make** the **best use of technology** in delivering better public
698   in the public sector involves **making best use of the resources** available for the
699   position to **make best use of the opportunities presented by the technologies**

Figure 5: Concordance lines showing examples of 'best use of'

In these examples, *colligation* draws attention to the recalling and referencing of certain words, despite the different contexts these chunks of text originate from. *Make* or *making* precedes each instance of 'best use of', which is then followed by technology, or a form of technological solution. 'Best' is an appraisal or evaluation of the *kind* of use of technology. *Best* can be categorised in terms of *appraisal* depending on whether this is a direct expression of an author's feelings (known as *affect*), or a judgement of people's behaviour (considered a *judgement*) or perhaps an assessment of the value of an object (known as *appreciation*). As an example, in concordance line 686 a *judgement* is made about 'leaders and managers'. In line 699, to make best use of 'the opportunities presented by technologies', discusses a phenomenon that would be categorised as *appreciation.*

In the tables below, the categories of *Attitude* (*affect, judgement* and *appreciation*) are explained. I have allocated colours in the key below to distinguish more easily between these.

Colour Key for appraisals of Attitude

Affect
Judgement
Appreciation

5.2.1 Affect

Emotional Categories	Examples
Happiness (positive)	happy, laugh, love, hug
Unhappiness (negative)	Sadly, misery, dislike; abuse
Security (positive)	Reassure, trusting, together
Insecurity (negative)	Frighten, tremble, fearful
Satisfaction (positive)	Engaged, attentive, impressed
Dissatisfaction (negative)	to bore, empty, to enrage

Table 6: **Affect categories:** express the **author's feelings**

Affect categories shown in Table 6 might be considered the most 'natural' way of talking about how people feel about people, or other things (Thompson, 2004: 76). The categories listed characterise phenomena by reference to an emotion that is either positive or negative about the topic under discussion. In Table 6 an expression of happiness, for example, could be in terms of *love*, whilst unhappiness may be expressed as *hate* of something. Below I show these in possible statements with the instances of affect highlighted in blue:

I *love* to watch a film [Happiness (positive)]
We *hate* waiting [Unhappiness (negative)]

To apply this form of analysis of *affect* to policy texts about educational technology:

We welcomed the change in terminology [Happiness (positive)]
We do not believe e-learning should be tied to proprietary systems [Unhappiness (negative)]

Some relevant observations for my research, in terms of the values of affect, are that whilst the emotion expressed is the one categorised (e.g. welcomed is classed as Happiness and positive), an analyst can also observe the significance of those who are expressing the attitude and who, or what, is singled out as the target.

5.2.2 Judgement

SOCIAL ESTEEM (Personal/psychological)	POSITIVE (admire)	NEGATIVE (criticise)
Normality (fate) Is s/he special?	Lucky, fashionable, normal	Unfortunate, odd, weird
Capacity Is s/he capable?	Powerful, intelligent, skilled	Weak, insane, stupid
Tenacity (resolve) Is s/he dependable?	Brave, tireless	Rash, cowardly

SOCIAL SANCTION (Moral and legal)	POSITIVE (praise)	NEGATIVE (condemn)
Veracity (truth)	Truthful, genuine, frank	Dishonest, manipulative
Propriety (ethics)	Good, just, kind	Bad, corrupt, cruel, evil

Table 7: **Judgement** categories: express **moral judgement** of a person or their behaviour.

Judgement categories are shown in Table 7. Judgement is less direct than affect, as the source of the appraisal is not always made explicit. Judgement refers to an evaluation of the ethics, morality or values of other people with respect to social norms. I provide some examples below in which I have highlighted instances of judgement in yellow. The examples are broken down into sub categories of Social Esteem and Social Sanction. Social Esteem is concerned with the judgement of personal things such as competence. This may be admired or criticised. Social Sanction is concerned with whether rules in a culture have been upheld or breached. This situation may be praised or in turn condemned. A negative example of Social Esteem might be:

He is *mad* [Capacity (negative)]

A positive example of Social Sanction might say:

Jane *can be trusted* [Veracity (positive)]

To apply this form of analysis of *judgement* to policy texts about educational technology:

Institutions can *maximise* their use of technology [Capacity (positive)]
We anticipate institutions will *engage with* this strategy [Tenacity (positive)]
We support universities to share current and good practice [Propriety (positive)]

Some relevant observations for my research, in terms of the values of judgement are that where these are expressed as Social Esteem the admiration or criticism may not appear to be as forceful as the praise or condemnation related to Social Sanction. However, as these play out in educational technology discourse within the substantial section of the Wales Strategy (HEFCW, 2008) I have analysed in this chapter, there are many more instances of

positive Social Esteem than of Social Sanction. This form of judgement is consistent with a very positive encouragement of institutions to adopt the ideas in the strategy. They are pledged support to engage, to increase and maximise good practice and to benefit.

5.2.3 Appreciation

CATEGORY	POSITIVE (praise)	NEGATIVE. (criticise)
Reaction Did it grab me? Did I like it?	Arresting, captivating, lovely, splendid	Dull, boring, tedious, plain, repulsive
Composition . Did it hang together? Was it hard to follow?	Balanced, unified, simple, intricate	Distorted, unbalanced, simplistic, extravagant
Valuation Was it worthwhile?	challenging, unique, profound	shallow, insignificant, reactionary

Table 8: **Appreciation categories:** express **assessments of things, actions, or an event**.

Appreciation values are shown in Table 8. These may vary according to what is being appraised. How people describe 'things' may be different to how they appraise a person through *Judgement*. Appreciation is broken down into sub categories of either positive or negative forms of Reaction, Composition and Valuation of things such as for example, artefacts, processes, states of affairs or technologies. In terms of my research question the appreciation category offers scope to examine if educational technology is persistently evaluated in one way. Appreciation examples could be:

That book is *a good read* [Reaction (positive)]
The opinion in the report was *biased* [Composition (negative)]

To apply this form of analysis of *appreciation* to policy texts about educational technology:

It aims to accelerate the mainstreaming of technology enhanced learning
[Reaction (positive)]   [Composition (positive)]   [Valuation] (positive)]

In this example discussing Technology Enhanced Learning all three of the sub categories of appreciation are represented. In fact the appreciation category held the most examples of appraisal in my analysis of the Wales Strategy (HEFCW, 2008). The appraisals of technology itself included *enhancement, mainstreaming, accelerate, embracing, normalise, extensively* and *achieving*. Through these appraisal categories, it is possible to gain an impression of the way in which human beings, but also things and events, are being evaluated. An appraisal may also be evoked, rather than explicitly inscribed. In such cases the writer may not directly evaluate, but instead tell the reader something which evokes in them, a particular 'attitude' (Thompson, 2004: 77). In my research, this has significance in

demonstrating a two-way negotiation of power, which when taking the example of 'best practice', may evoke a type of reaction. Close textual analysis of these appraisals can bring to the forefront a more explicit account. This does not eliminate the implicit, but it could 'displace it' (Savage, 2013: 17). Such a displacement offers new conceptual space to re-imagine alternatives to certain knowledge claims, such as the validity of 'best practice', or TEL. I will proceed to explain my analysis of a substantial passage from the Wales Strategy (HEFCW, 2008) and my findings in terms of appraisal.

5.3 Appraisal analysis of the Wales Strategy (HEFCW, 2008)

The Wales Strategy: *Enhancing Learning and Teaching through Technology: a Strategy for Higher Education in Wales* (HEFCW, 2008) provides an illustration of how this discourse works. I chose this document for appraisal analysis, as its title contains Technology, Enhancing and Learning (the lexical items that form TEL) and so it provides material to see how these words, and this phrase, play out in context. It is a substantial document (7702 tokens) and therefore only the first section of approximately 1200 words (18 paragraphs) has been analysed below. This provides a way to appreciate 'how the textual voice positions itself, with respect to other voices and other positions' (Martin and White, 2005:2) and is intended as an analytic point of entry to examine, in whole paragraphs, what is either left open to negotiation, or evaluated in one way, and therefore treated as unquestionable. The word counts for *Technology*, *Enhanced* and *Learning* in the strategy document as a whole are shown in Table 9 below, and in Table 10 the counts of these in the first 1200 words I analysed.

Entire Strategy		TOTAL WORDS (TOKENS)	7702
LEARNING	186	ENHANCE	28
TECHNOLOGY	119	ENHANCING	15
ENHANCED	47	ENHANCEMENT	13

Table 9: word counts in the entire Wales strategy.

Excerpt that was analysed		TOTAL WORDS (TOKENS)	1197
LEARNING	33	ENHANCE	3
TECHNOLOGY	23	ENHANCING	2
ENHANCED	11	ENHANCEMENT	7

Table 10: word counts for the first 1200 words which were analysed.

The concordance lines in Figures 6 – 8 show how these counts look in context and I have provided a colour key below.

Colour Key

🟩	**A form of technology**
🟥	**A form of exchange value**
🟦	**A form of learning**

49 capacity and capability to support and **enhance** **learning** and teaching using **technology**
50 **technology** should be designed to develop, support and **enhance** **learning** and the
51 on how **technology** can **enhance** **learning**, teaching and the overall student experience
52 new **technologies** and identifying how their application can **enhance** **learning**

Figure 6: Concordance lines showing examples of 'enhance learning' in the Wales Strategy

Again I use colour to show how the words that constitute technology enhanced learning are positioned. Whilst Figure 6 shows only four example corpus lines from the Wales strategy, I chose these because they clearly illustrate within a single strategy how patterns I identified in my corpus play out. I noticed a repeated promise of technology as able to provide an exchange value for learning. This assumed relationship is preceded each time by an appraisal: *enhance*. The indication in row 49 is that technology provides the capacity and capability to support and *enhance* learning and teaching. In 50 it is said technology should be designed for this, in 51 that technology can *enhance*, learning, teaching and the overall student experience, and in 52 there is a comment on embracing and identifying how the application of technologies can *enhance* learning. Through *enhance* there is simultaneously both an appraisal of how technology can improve learning, and a 'material process' (which I return to in my transitivity analysis in Chapter 6, which is brought about through the verb 'to enhance'. This is an example of the *interpersonal* and the *ideational* acting together in a text to determine how meaning is experienced. The evaluative and material flavour of *enhance* means it straddles both *appraisal* and *transitivity* analysis, to act upon *learning*.

82 share <u>innovation</u>, <u>best practice</u> and research to <u>drive</u> **technology** **enhanced** **learning**
83 provided specifically to <u>support</u> **technology** **enhanced** **learning**
84 the <u>impact attributable</u> to **technology** **enhanced** **learning**
85 we recognise the <u>drivers for</u> and <u>barriers to</u> **technology** **enhanced** **learning** that you

Figure 7: Concordance lines showing appraisals and technology enhanced learning

Above, in Figure 7, *technology enhanced learning* is now a nominalization where the labour process represented in the verb 'to enhance' has now been solidified into part of a noun, as 'enhanced'. This demonstrates how CDA allows a range of observations to be made through different forms of analysis. In written policy, 'enhanced' is an evaluation that 'colours' peoples' impression of what technology has delivered for learning: something 'better', 'improved' or 'superior' to what *was*. This is an opinion, though it may frequently be expressed as a fact. Further appraisals I underlined suggest how people are expected to

react to this phenomenon of *technology enhanced learning*: to *drive* it forward, to *support* it, recognise *impact attributable* to it, and *drivers for,* and *barriers to* it. A position is being negotiated then for the topic of *technology enhanced learning*.

88 aims to <u>accelerate</u> the <u>mainstreaming of</u> **technology enhanced learning** and teaching
89 and that these <u>impact on</u> the <u>mainstreaming of</u> **technology enhanced learning**
90 we recognise <u>the resource required to support</u> **technology enhanced learning**
91 carried out on **technology enhanced learning** <u>particularly where it supports</u>
92 in which **technology enhanced learning** is considered a <u>normal</u> part of <u>mainstream</u>
94 <u>welcomed</u> the change in terminology from e-learning to **technology enhanced learning**

Figure 8: Concordance lines showing accelerate, mainstreaming and normal

I have underlined some further appraisals above in Figure 8 that demonstrate some different choices of the actual words of 'evaluation', such as *accelerate*, *mainstreaming* and *normal*. Some of these words, though not exactly the same, share similar meanings, particularly if they refer to the same sort of person, or object under discussion. For example: *normal* and *mainstream* are both used in relation to the phenomenon of 'provision'. They are therefore categorised as *appreciation* and could be said to be referring to something 'balanced'. As shown in Tables 6, 7 and 8 these can be grouped in the sub category of *appreciation*: as *composition*. Both *normal* and *mainstream* are considered to be positive assessments in this context, so the allocated appraisal sub category would be: appreciation/composition + where the + indicates a positive appraisal. Whilst these corpus lines from the Wales strategy serve to demonstrate some repeated clusters of forms of evaluation, they do not give a feel for how technology is assessed in positive, or negative, ways to support learning *throughout* the whole text. Having explained the appraisal categories of *affect judgement* or *appreciation* in earlier tables, Tables 11 – 13 below provide my findings from analysis of eighteen paragraphs (the first 1200 words) of the Wales Strategy (2008). In marking these appraisals up, my intention was to consider the type of scale that is used to evaluate learning and teaching through technology. I am interested in how a substantial and continuous policy text evaluates educational technology meaning and to what extent this reinforces the ideological values of a neoliberal discourse.

Emotional Categories	POSITIVE	NEGATIVE
Happiness /Unhappiness	like (2)	
Security/Insecurity	emphasised	
	broad perspective	
	accelerate	
	believe	
	informed by	
Satisfaction/Dissatisfaction	grateful	impossible

Table 11: Analysis of **Affect** categories that express the author's feelings

SOCIAL ESTEEM	POSITIVE (admire)	NEGATIVE (criticise)
Normality	benefit	increasingly diverse
	potential	
	accustomed to	
	overall	
Capacity	invaluable	meet the needs of
	flexibly	
	good practice (2)	
	enhanced	
	innovation, 'pockets of innovation'	
	drive (2)	
	increase	
	maximise	
Tenacity	support (4)	
	of necessity at a high level	
	overarching	
	encourages (2), encouraging	
	engage with, engagement	
	demands and expectations	

SOCIAL SANCTION	POSITIVE (praise)	NEGATIVE (condemn)
Veracity	effective collaboration	
Propriety	help (3)	
	responded	
	sharing	
	collaborate	

Table 12: Analysis of ==Judgement== categories that express moral judgement of a person

CATEGORY	POSITIVE (praise)	NEGATIVE. (criticise)
Reaction	accelerate (3)	
	embracing (2)	
	opportunities	
Composition	mainstreaming (5), mainstream (2)	alter the 'shape' of
	take account	substantially
	relevant	
	facilitated (2), facilitating	
	supported (2), supporting	
	normal, normalise, normalisation	
	normalising	
	informed by	
	increased flexibility (2)	
	accessibility of provision (2)	
	organic	
	at the forefront	
	taking full account of	
	sustainable	
Valuation	enhancement (6), enhanced (10)	unthought-of (2)
	enhance (3), enhancing (2)	could not have been developed
	challenge	Solely

	impact (2)	
	extensively	
	harnessing	
	achieving	
	robust	
	requiring investment and time	

Table 13: Analysis of **Appreciation** categories that assess things

In observing these categories, there is a distinct absence of 'negative' evaluations across the *affect, judgement* and *appreciation* groups. There are very few instances of *affect* anyway, with much more emphasis on effects, and only one negative appraisal in present in the *affect* group. This absence of emotion is not necessarily that surprising, as *affect* relates to expressions of the author's feelings, and this document is a formal strategy. It is though a strategy about learning and teaching through technology, and so the appraisals that fall instead into the categories of judgement of people (*judgement*), or assessment of things (*appreciation*), are likely to be revealing of the attitude of the authors towards people, teaching practice, and technology.

Amongst the *judgement* categories it is now possible to notice in these appraisals the negotiation of identities of participants and the social relations between them. For example, in terms of *normality*, the positive evaluations are in relation to *benefit*, the *overall* student experience, which is treated in terms of what students, as one defined group, are already accustomed to. People such as lecturers and students are rarely mentioned and instead nominalizations such as 'mainstreaming' and 'provision' are discussed.

In terms of *capacity* the contributions from institutions to the strategy is discussed as *invaluable* and that institutions may work *flexibly,* is stressed. The sharing of *good practice* is a further feature in the context of institutional expectations and the progression from *'pockets of innovation'*. To *increase* competitiveness and *maximise* contribution as well as *drive* agendas for *enhanced* learning are the requirements of institutions, in terms of *capacity*. Moving onto the final *judgement* category of *tenacity, support* is a dominant term which is attributed to the strategy, which seeks to support Welsh higher education institutions that innovate, or in embracing new technology. *Encouraging* is another prevailing term that is linked with what the strategy is said to do for institutions. In the *judgement* categories of *veracity* and *propriety* the emphasis is on *collaboration, sharing* and *help,* again in relation to institutions. The repetition of certain terms, linked phrases, concepts, through colligation, as mentioned in Chapter 3 can therefore be observed in action in these paragraphs of the strategy. They position institutions and students in particular roles. For example, in P13 'We expect that the experience of students in higher education will be <u>enhanced</u>' locates

students as passively awaiting enhancement from technologies that have been harnessed for this purpose. This makes assumptions too about the nature of experience and technology within learning.

Finally in the *appreciation* categories the expectations and assumptions about technology, in the context of learning, can be observed. In the *reaction* group of *appreciation*, a key aim of the strategy is to *accelerate* the *mainstreaming* of 'technology enhanced learning and teaching provision, processes and practice'. There is no space for uncertainty, as the phrase suggests the strategy will accelerate the mainstreaming of something we are all already expected to be aware of: not merely 'technology enhanced learning', but 'technology enhanced learning and teaching provision, processes and practice'.

The notion of *mainstreaming* has been placed in the *composition* category because it expresses an attitude that appreciates a balanced, unified approach. This is further emphasised in the *normal, normalise, normalisation* and *normalising* references that occur mostly in paragraph 10. Here it can be observed that *mainstream* has taken up position in front of provision, processes, and practices: 'enhancing learning and teaching through the use of technology should be considered a normal part of mainstream provision, processes and practices'. Again there is the assumption of a unified approach to provision, processes and practices'. There is a sense therefore across the different paragraphs of trying to simplify, and streamline a single approach across not only institutions, but across processes and practices. The emphasis on 'we' as a repeated narrative in paragraphs 10 and 11: 'we recognise that', 'we anticipate that', 'we expect your development of', links with observations discussed earlier by Mulderrig on the 'hegemony of inclusion' (Mulderrig, 2012). The pronoun *we* is discussed as an important rhetorical tool used by New Labour to legitimate policy decisions through the idea of a neoliberal 'consensus' on the context of education (Mulderrig, 2012). In my research the focus is on how such discourse distorts people's impression of technology into something we can collectively exploit systematically. A reader is given to believe we are all in the business of: 'enhancing learning and teaching through the use of technology'.

In the *valuation* group of *appreciation*, normalising is presented as a challenge *requiring investment and time.* Also in this category are the many references to *enhancement, enhance, enhanced* and *enhancing,* as shown in sections of the corpus above. Readers repeatedly encounter the message that learning has been enhanced through technology and technology seems to be presented only within this narrow appraisal.

Since analysing this passage from the Wales Strategy (HEFCW, 2008), a revised version has been released called: *Revised Enhancing Learning and Teaching through Technology (ELTT) strategy.* This new circular provides 'a further scheduled refresh of the ten year Strategy for Enhancing Learning and Teaching through Technology (ELTT) from 2007/08 to 2016/17' (HEFCW, 2014). In a section called 'updates to the objectives of the strategy' on page 3 of this new document the changes are summarised. A focus on 'mainstreaming the role of technology in enhancing learning, teaching and assessment' remains the same, but students are brought into the text more noticeably:

> The emphasis should remain on how technology enables, and is embedded in, the enhancement of the student experience (HEFCW, 2014)

Whilst there is clear acknowledgement of students, they continue to be discussed in terms of 'the student experience'. An emphasis on 'maintaining continuous improvement' includes:

> Determining how learning, teaching and staff development may be enhanced through the use of technology (HEFCW, 2014)

Whilst there is also continuation of the use of 'we' to suggest collective opinion such as:

> We recognise the continued role of technology in addressing the needs of diverse learners, facilitating continuous learning, and ensuring parity of learning experience
>
> (HEFCW, 2014)

there is a new use of 'you', which is addressed towards staff who are urged to undertake many activities simultaneously:

> **You** need to consider possibilities for shared teaching, and informing scholarly activity and research, as well as for cross-functional collaboration. **You** also need to address the fact that library and information services, student services and other academic and professional services may need to support different types of collaborative partnerships in the future. **You** need to consider how to make examples of collaboration more visible and to extend them.
>
> (HEFCW, 2014)

In the following statement both 'we' and 'you' are combined:

> We confirm that we expect you to continue to engage with this strategy
>
> (HEFCW, 2014)

Thus in the revised version the combination of both hierarchical expectation and neoliberal encouragement to engage with policy agendas continues to be intertwined. In conclusion, these linguistic patterns, repeatedly reinforced, tend to portray technology in a relationship of 'externality' (Lieras, 1996:333) to people, as a means to 'apply' in a 'weightless economy'

(Leadbetter, 1999), where we should always expect a dividend. I began this chapter with reference to New Labour's education agenda, which relied on technology for using knowledge more effectively in a competitive global economy. If technology is discussed only in terms of its potential to support the prevailing economic model, such values may frame technology for learning as always enhancing, never failing. Global neoliberal capitalism has strongly territorialised the contemporary university (Hayes & Jandric, 2015). Yet, there are also oppositional cultures in tension with the kinds of appraisals I have demonstrated above and therefore this 'territory' is always subject to dispute. Whether such disputes occur, depends partly on whether academics continue to ignore the wider political and social context of information and communication technologies and let the discourse of only positive gain, from external instruments, remain dominant. A cautionary note, as Hayes & Jandric (2015) point out, is that even if academics do fail to question this logic, in neoliberal society, 'information and communication technologies will never ignore academics' (Hayes & Jandric, 2015). Recalling the ideas of Barnett, we can place this observation, and my appraisal analysis, in the wider context of examining the role and values of contemporary universities. Changes in modern capitalism, such as KBE, have altered our very ideas of what the values of the University are. Barnett however, provides us with the notion of 'supercomplexity', which refers to multiple frames of understanding, of action and of self-identity (Barnett, 2000: 77). Barnett suggests a triple role for the university where firstly, in part, it actually generates supercomplexity, secondly this disturbs the whole person, and therefore finally the university has responsibility to help us cope with this situation and make reflexive interventions in the world (Barnett, 2000: 79). Academia therefore plays an important role in either reproducing or challenging these power relationships. Barnett suggests that whilst supercomplexity deprives us of a 'value anchorage', the values of rational critical dialogue that helped to generate supercomplexity can also help to keep it in its place (Barnett, 2000: 83). This provides us with the possibility of using the very political discourse that has disguised our material practices in new ways to begin to restore our human visibility. Therefore, in the next chapter I consider these interpersonal perspectives alongside the experiential, so that these combined analyses might illuminate further what is prioritised, and in turn devalued, in the political discourse of TEL.

6. Consumption of space for alternatives to TEL

6.1 Transitivity analysis of how language is experienced

In Chapter 5, I undertook an appraisal analysis to illustrate some of the ways in which technology is evaluated on an interpersonal level in policy discourse through attitude. Via a consistent approach of labelling the ways that technology and learning are evaluated, appraisal theory provides ways to notice what is at stake and how a text is unfolding cumulatively. In the Wales Strategy (HEFCW, 2008) there were often positive evaluations, relating to enhancement of learning and teaching through technology within a framework of collective improvement and performance. This reinforced a pattern of assumptions already identified in my corpus examples in Chapter 4, where a use of technology was frequently followed by an assured positive outcome in terms of a perceived exchange value for learning. Appraisal theory therefore relates to the linguistic resources used by writers in text to express and negotiate their intersubjective and ultimately ideological stances. Ideological, because our opinions are invested with our moral, social, economic and political values about labour, as these intersect with the broader power structure of society. Recalling theory from Marx, ideology is a means for powerful ruling groups in society to maintain dominance. The ideas of a ruling group become in each successive time period the 'ruling ideas' (Marx and Engels, 1965: 61). As language is conducted, through discourse as social practice, ideas about the governance of human labour can travel. Examining the language of emotion, ethics and aesthetics, appraisal theory is concerned with what constitutes social bonds between people, enacts power and creates solidarity (Martin and White, 2005).

Marx provides us with a solid basis for thinking about human labour and contemplating how constructions of texts might create, or even disrupt, human 'solidarity' is a useful point at which to begin examining the policy discourse from an experiential point of view. I mentioned earlier a 'weightlessness' or liquifying of people in this policy discourse. Recalling the aspects discussed by Lieras, it was possible through appraisal analysis to notice the treatment of technology as an external 'fix', which often omits human social contexts. However, to concentrate analysis on aspects of appraisal alone, risks missing other ways that words can act on and relate to each other, in terms of the *ideational* function of language. This has two modes: the *logical* and the *experiential*. The *logical* is concerned with the links between components in language that are brought together to describe something, whilst the *experiential,* which manifests in the system of *transitivity,* is about understanding these constructions as a whole. In other words about construing the 'goings on' (Martin, Matthiessen & Painter, 1997: 100) within each clause or unit of language as it may be experienced. So whilst countless things are happening within language, a focus on

grammar, through *transitivity,* enables categorisation of a number of distinct *process types* with their own particular characteristics (Martin, Matthiessen & Painter, 1997: 100). Process types are verbs that have been labelled according to the processes they enact. Again recalling the aspects of desubjectivisation and closure discussed by Lieras, this enables us to label the grammatical patterns of verbs to reveal what *processes* are prioritised and who/what is actually 'doing' these. So taking the components that constitute TEL, we might consider: what is the role of *technology*, of *language* and of *learning*? Extending and expanding TEL provides a reminder of the elements (of technology and learning interlinked by language) contained within. This is necessary when this term is frequently condensed into an acronym and its key constituents may be easily forgotten. Whether these constituents act to undertake tasks, or are acted upon by other constituents can alter the way in which a reader might experience meaning and perhaps in turn apply this knowledge into practice.

6.2   Defining processes, participants and circumstances

Halliday suggests that in understanding grammar as a principle of social action this 'makes meaning possible but also sets limits on what can be meant' (Halliday, 2003: 145). Rather than 'given', if we understand the concepts of our material existence as construed by language, where the material intersects with the symbolic (Halliday, 2003: 145), this provides a more performative and enabling view. In this conceptualisation 'grammar creates the potential within which we act and enact our cultural being' (Halliday, 2003: 145). We can examine 'how events and processes are connected (or not connected) with subjects and objects' in clauses through *transitivity* (Phillips & Jorgensen, 2002). As discussed earlier, a clause is understood as a group of related words, containing a subject (participant) and a verb (process). An analysis of *transitivity* in policy statements about learning through technology helps to identify the actors, and those acted upon, and the processes involved. *Transitivity* helps us map the 'circumstances of place and time within which events occur' (Fowler 1986:156) and the *participants, processes* and *circumstances* involved. This is important because it allows a closer analysis of repeated patterns noticed in my corpus to explain where actions are attributed to forms of technology or to strategy documents and not to people who are teaching or learning. It enables identification of power relations and clarification of where material processes that are normally related to people's labour seem to concentrated. In my transitivity analysis I address my third research question:-

3. What processes are prioritised and de-valued for students' experience of learning?

I will first use a generic example to help explain how a transitivity analysis is undertaken. Taking this example clause: *a student is learning at university* the grammatical elements can be located, and named in this way:

Example 6.2.1

A student	is learning	at university
Participant	Process	Circumstance

In Example 6.2.1 above a reader can be quite clear about the participant (a student) who is undertaking the process (is learning) and in what circumstance (at university) this is taking place. In Example 6.2.2 below these elements are not so apparent:

Example 6.2.2

Universities	are	places of learning (for students)
Participant	Process	Participant

This statement now foregrounds 'universities', not 'a student' as the main (first) participant. The process: 'are' creates an indisputable relationship between 'universities' and 'places of learning'. 'Universities' are being identified as 'places of learning' and if 'for students' is not actually added into this text, a meaning will be taken from it that emphasises the place or location where students learn, rather than the students themselves. In this configuration students are easily missed out. In the first statement *a student* was the main *theme*, because it was located at the beginning. In the second text *Universities* has taken this spot. Whilst these can appear to be small changes, as the positioning of words changes, so may the emphasis and perhaps also the ideological standpoint. The way in which the second statement is worded means not only do the individuals involved (the students) move further away from a reader's view, 'universities' is now the main participant that is undertaking the process. This can have implications when *things* undertake *actions* rather than people, as I will discuss in more detail later on.

Grammar, though a structural foundation for our expression, does not stand alone. It cannot be divorced from its relationship with meaning (semantics), or from its effects when used in real situations (pragmatics) (Crystal, 2004: 27). Each grammatical construction has a meaning that is applied in a social and political context, and is governed by choices, of even the order in which something is said. Semantic categories are groupings of vocabulary within a language which organise words that are interrelated. The concepts of *process, participant* and *circumstance* are semantic categories that explain how these phenomena of the real world are represented as linguistic structure (Halliday, 1994: 109). 'To do a transitivity analysis it is necessary to identify every verb and its associated process. It is then necessary to identify patterns in the use of these processes' (Janks, 1997). As shown below in Table 14, these are realised in texts, by nouns, verbs and adverbs.

Element	Realised by
The participants (*who, whom)*	Noun
The processes (*what*)	Verb
The circumstances *(how, where, when*)	Adverb

Table 14: Participant, processes and circumstances in transitivity analysis

In policy texts people may express the way things 'ought to be'. This may be through a series of nouns that, as *participants*, pinpoint *who* is involved. Those writing may prioritise one agenda over another, emphasising particular *processes*, as they use verbs that emphasise '*who* did *what* to *whom*' (Thompson, 2004:86). *Circumstances* may then further reveal, *how, where* and *when* these events happened.

Returning to the examples from earlier, nouns and verbs are now indicated in Example 6.2.3

Example 6.2.3

A student	is learning	at university
Participant (noun)	Process (verb)	Circumstance (adverb)

Universities	are	places of learning (for students)
Participant (noun)	Process (verb)	Participant (noun)

Using Halliday's functional typology, we can refine these categories of Participant (noun) and Process (verb) even further, depending on the *process type* each verb describes. Six broad categories of process type are identified (Halliday, 1994:109-43) as shown in Table 15.

Aston University

Illustration removed for copyright restrictions

Table 15: Process types and their participants (Martin, Matthiessen & Painter, 1997: 103)

So returning once more to the examples, when labelled in a transitivity analysis using Halliday's categories they would look like this:-

Example 6.2.4

A student	is learning	at university
Senser	Process: Mental	Circumstance

In Example 6.2.4, the process: *is learning* has been identified as a Mental process, as *is learning* involves a meaning related to thinking and use of the senses. The participant: *a student* has been identified as a Senser who is undertaking the Mental process. We are not told *what* the student is learning, but if this information were actually available in the clause then we could label it as a Phenomenon.

Example 6.2.5

Universities	are	places of learning (for students)
Token	Process: Relational/identifying	Value

In Example 6.2.5, the process: *are* has been identified as a Relational process. This is because a relationship has been established between *universities* and *places of learning* through *are.* Strictly speaking *are* is not the sort of process where 'something is happening' as such. However, *are* provides a link between these two concepts, and in this case one that identifies *universities* as *places of learning*. There are two types of Relational process: *attributive* and *identifying*. In this example of a *Relational/identifying* process, *universities* is labelled as Token, and *places of learning* as Value. The Token refers to the participant in the clause that embodies the other concept, or represents it. The other concept may be something more general and therefore is labelled as Value. A *Relational/identifying* process is also reversible and as such is rather like placing an equals sign between two concepts. We could write: u*niversities= places of learning* or *places of learning*= u*niversities.* The Value reveals what values a writer is using to categorise the Token. In some cases this may support investigation of what ideological values are actually being applied to the participants we can label as Tokens.

The evaluative and *interpersonal*, as discussed in Chapter 5, can overlap with the *ideational*, or experiential, which is the focus of this chapter. A significant point to note is that where overlap and re-arrangements of words occur these often depend upon an 'intertextual knowledge' (Simpson & Mayr, 2010:53) on the part of the reader. Intertextuality refers to the broader social history contained within a text (Kristeva, 1986: 39) that people respond to and accentuate or rework to shape subsequent texts and ultimately contribute to wider processes of change, or reinforce the status quo. With reference to Fairclough's three-dimensional model, these are elements of 'discourse practice' where the production, distribution and consumption of text (Fairclough, 1992b: 73) also draws upon other texts, expecting readers to 'expand' what is implied (Lemke, 1998: 43). I will now proceed to demonstrate in the next few sections of this chapter how e*xternality*, *desubjectivisation* and *closure* occur through nominalisation.

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6.3 Nominalisation

Nominalisation is a linguistic feature where nouns can affect meaning when they stand in for verbs (Phillips & Jorgensen, 2002: 83). There are different ways this may happen but a common effect is a reduction in human or even non-human agency. It becomes hard to detect who exactly a statement refers to, or who has declared it to be so (Lemke, 1990). As an example, 'the wounded' may take the place of '*those* who were wounded'. 'The wounded' removes people and also a sense of place or time from a statement. Or 'the introduction of a new tax' fails to state *who* introduced it and *when*. In this way information becomes presented within a text as if it were a fact. It also relies on presupposition by a reader. For example, to say 'the introduction of a new tax' indicates to a reader that supposedly there was previously an old tax. Through nominalisaion people's actions can become separated from the original context in which they occurred. A general statement about 'the use of technology to enhance productivity' implies productivity needs to be improved but does not indicate *whose* productivity or *who* should undertake the use of technology. Here I draw links with reification, discussed earlier through Marx and Lukács, as a distinct feature of modern capitalist economic values that manifests in language. People can come to discuss human relations (such as people's productivity) as if they were 'things', and in turn describe things (the use of technology) as if they might achieve actions (to enhance productivity).

Reification is though a multidimensional concept with a range of interpretations. As such my CDA is not simply intended to point out a deliberate and systematic distortion by policy makers, as if this were a purely manufactured way of writing imposed from outside on those teaching and learning in universities. Instrumental and marketised forms of discourse have already been much researched. Many linguists have studied the written language of science (Lemke, 1990) and also policy language for Higher Education (Mautner, 2005, Fairclough, 2007, Mulderrig, 2011). Instead, in my preliminary analysis of some distinct patterns where reified relations are communicated via nominalisation, I will point out ways that human action seems to be persistently obscured. Humans, who would normally undertake many forms of labour in using technology for learning, are noticeably absent in nominalised policy statements. These initial observations are intended to invoke discussion of the wider social relations around technology, language and learning as they link dialectically with modern capitalist economic values within the field of educational technology.

Nominalisations can therefore transmit a particular ideology as events are literally taken out of the world of the specific and concrete, and placed in the world of the general and abstract (Kress, 1983: 77). Of course Nominalisations are also ubiquitous in many types of formal text (Van Dijk, 2008: 822). It is therefore not the use of nominalizations in isolation but a

systematic and repeated use (or abuse) of these structures in educational technology policy that I seek to question. Whether intentional or not, I will ask why clauses are constructed in this way and not others and what this language prioritises and simultaneously marginalizes for those who are learning. A conscious decision to *avoid* writing in a nominalised form would though involve extra effort. Concrete social relations around the topic people describe would need to be considered and included (Billig, 2008: 797). Nominalisation creates a problem in discourse about educational technology whenever statements become so 'fixed' in structure that possibilities for negotiation are diminished and there is no space for dialogue (Lemke, 1990). Nominalisation has been identified both through analysis, to expose problematic discourse, and has also been debated as a problematic concept (Billig, 2008). However, if nominalisation is widespread in a particular context we can question its links to manipulation and ask whose interests a repetition of this style of writing serves. My analysis may seem to offer mainly negative interpretations at first. However, as mentioned in my Introduction, critically confronting these structures is not considered to be a negative activity. Whilst deterministic policy discourse may leave people unconsciously restricted I argue that via a close analysis of these concrete examples we might re-open space for debate about the wider social context of educational technology, as a trans-disciplinary concern. I have grouped the examples from my 'use' corpus under sections entitled *externality, desubjectivisation* and *closure.* All of the examples I discuss display characteristics of nominalisation and so these sections are not distinct categories but reveal overlapping concerns.

6.4 Externality

In earlier chapters I expressed concern that political discourse about educational technology seems to embody an assumption that by simply implementing technologies we might determine learning. This can now be examined more closely through transitivity analysis. In Chapter 4, Table 4, I identified keywords and clusters of words through corpus linguistics. The word 'use' appeared 8,131 times, 'the use of' 1770 times and 'use of technology' 350 times. On this basis, in this section I consider which verbs or process types are prioritised around 'the use of technology' and with what promises of value for learning. In my corpus lines there seemed to be an ordering where 'the use of technology' was frequently discussed as if it might be simply added into learning situations to provide some form of improvement or assumed exchange value for learning. This repeated pattern seemed to treat technology, not as an inherent part of human activity, but rather as something separate, external and neutral that might be applied. Furthermore, there seemed to be an absence of students or lecturers in many clauses, or indeed any humans at all, with agency often being ascribed to 'the use of technology' rather than to people.

Relational, attributive	Relational, identifying	Verbal	Mental	Material
8	19	15	18	99

Table 16: Process types totals from corpus examples around 'the use of technology'

Table 16 shows the totals for the different process types I identified in my transitivity analysis of this section of my corpus, which referred repeatedly to 'the use of technology' (rows 5659 – 5849). 70 worked example clauses can be found in the first section of Appendix 3, entitled *externality*. Where some corpus lines have not been included, this decision was made because these were titles, incomplete clauses, or references. Due to constraints of space, only some examples can be discussed more fully within this chapter. It is clear to see that Material processes were the most common within this section with a total of 99. Of this total, 20 of these referred to either 'enhancing' or the use of technology 'to enhance'. Amongst the other Material processes were many other positive actions, such as: 'to increase', 'improve', 'support' and 'ensure'. As shown in Table 15, Material processes construe 'doings' and 'happenings' such as concrete changes in the material world (she *pushed* the door open). However, they may also represent more abstract ideas (He *froze* in terror). The main participant in a Material process is referred to as an Actor. It is here that more reference to people might be expected because a person or persons are often the 'doers' of material actions. The Material process the Actor participates in may or may not extend to affect (or do something to) another participant: the Goal. The Goal therefore is the label given to the participant the Material process is aimed at. Example 6.4.1 shows a Material process:

Example 6.4.1

A student	shut	the door
Actor	Process: Material	Goal

Here 'a student' is the Actor who, in a Material process, performed the material action of shutting the door. 'The door' is labelled as Goal because it is the participant affected by the Material process a student undertook. Material processes are often undertaken by people as human actions in this way. Yet in the examples below it is frequently 'the use of technology', not the labour of students or teachers that undertakes a Material process to *improve, support, enhance, enable* or *facilitate* some form of learning activity. Whilst Material processes were by far the most common process type, Table 16 shows 15 Verbal processes. Verbal processes are about saying or commanding (she *explained* the idea). However, they too may express semiotic processes that are not entirely verbal (he *indicated*

what was needed). Like Material processes, Verbal processes may also be undertaken by humans or sometimes by non-humans (the newspaper *says*) or in this example by a descriptive statement (the singing of the band *raised* the roof). In a Verbal process the main participant is the Sayer who participates in the Verbal process which may, or may not, affect another participant. This participant may be the actual message that the Sayer is transmitting via the Verbal process, in which case this would be labelled as the Verbiage. Or it may be something the Verbal process is directed at, in which case it would be labelled as the Target. The Receiver may also be used as a label for another human participant a Verbal process is addressed to. Example 6.4.2 shows a Verbal process:

Example 6.4.2

The student	repeated	the question
Sayer	Process: Verbal	Verbiage

Dr Hall	explained	to her	what it meant
Sayer	Process: Verbal	Receiver	Verbiage

The report	discussed	Dr Hall's research
Sayer	Process: Verbal	Target

I will now proceed to discuss some examples from my corpus. A combination of Material and Verbal processes are present in Example 6.4.3

Example 6.4.3

The use of technology	can increase	accessibility and flexibility of learning
Actor	Proc: Material	Goal

and	support	resources,	address	equality and diversity issues,
	Proc: Material	Goal	Proc: Verbal	Verbiage

and	foster	lifelong learning
	Proc: Material	Goal

Example 6.4.3 is from the Wales Strategy, 2008 (row 5659). The writer has chosen to discuss 'the use of technology' rather than explain who used technology, in terms of lecturers or students. In deciding to use a noun 'the use of technology' is therefore treated as an external entity, not as an active labour process, where 'using' technology would normally involve people and so would have been expressed through a verb. The text could have said for example: 'when a student is using technology…'. Yet as a noun, 'the use of technology' becomes more easily interchangeable, as something generic and commodified that might be easily slotted into many statements. As a noun undertaking a Material process, we can label

'the use of technology' as an Actor. If repeatedly mentioned it may become a recognised idea, so much so, that people may not inquire as to *whose* 'use' this refers to. In the Material process 'can increase' 'the use of technology' is ascribed an exchange value for the Goal of 'accessibility and flexibility of learning'. Furthermore, as the text proceeds there are additional surplus values: 'support resources', 'address equality and diversity issues' and 'foster lifelong learning'. These entirely positive outcomes are unlikely to be questioned, even if we recall that it is still simply an idea: 'the use of technology', that readers are asked to believe can 'increase', 'support', 'address' and 'foster', all of the things that follow.

Example 6.4.4

The use of technology	to create	digital archives
Actor	Proc: Material	Goal

to improve	documentation of practice	and
Proc: Material	Goal	

to support	curricular developments	as well as more effective use of technology
Proc: Material	Goal	Circ

Example 6.4.4 is from an entirely different report, from 2011, The Summative Evaluation of the Centres for Excellence in Teaching and Learning (CETL) Programme (row, 5660). The structure of the clause is though quite similar to Example 6.4.3, with 'the use of technology' again positioned as an Actor undertaking a Material process, which this time is 'to create'. The material processes that follow 'digital archives' are positive concrete outcomes: 'to improve' and again 'to support' but these relate to Goals such as 'documentation of practice' and 'curricular developments' that would normally involve the labour of university staff. Instead they are undertaken by the 'use of technology' which divides people from their material labour and gives the impression of guaranteed positive results from 'the use of technology', regardless of context. The circumstance at the end of the clause even oddly re-iterates 'more effective use of technology' as a circular outcome from 'the use of technology'. Not only does this underline an instrumental approach already discussed, where technology is treated as external to add in to yield a guaranteed exchange value of these Goals, it also removes for the reader any option to consider a more negative, or even neutral stance, towards what is being discussed.

Example 6.4.5

We	support	the use of technology	to enhance	the student
Actor	Proc: Material	Goal	Proc: Material	Goal

learning experience,	regardless of location of delivery,	but	designed
	Circ		Proc: Material

with delivery location in mind	including	campus, home and the workplace
Goal		Circ

In Example 6.4.5, which is from the Wales Strategy, 2008 (row 5707) the Actor is now human but it is not easy to establish exactly who 'we' includes. The Material process is 'support' and 'the use of technology' has now become a Goal, which is expected 'to enhance' another Goal: 'the student learning experience'. Through nominalisation the process of student learning has been translated into a noun. This not only renders static an active process of learning it also objectifies a diverse group of people as if their experience were singular and shared, rather than plural and diverse. The message that is transmitted is that technology is 'to enhance' in all cases and locations. Below in Example 6.4.6 a similar structure is followed.

Example 6.4.6

The use of technology	to enhance	front line productivity and management reform
Actor	Proc: Material	Goal

and	sharing	best practice
	Proc: Material	Goal

Example 6.4.6 is not though an extract from an educational technology policy text but from a Government Commerce Report: the Gershon Review, 2004, (row, 5661). This report sought to reduce government department budgets and automate work patterns. In this text Material processes repeatedly strengthen and reinforce a message of exchange value from 'the use of technology' for 'front line productivity and management reform', yet in 6.4.7. we find similar patterns applied to learning. If 'the use of technology is simply a proposal, that as an Actor is able to achieve many things, Technology Enhanced Learning can also be said to perform a similar function in example 6.4.7 where 'best practice' is part of the Goal.

Example 6.4.7

Develop/use	best practice models for the use of TEL	to transform	teaching and learning
Proc: Material	Goal	Proc: Material	Goal

In Example 6.4.7 which is from the Westminster, 2008 TEL Strategy (row 5849) the advice is to develop/use 'best practice models for the use of TEL'. This statement assumes firstly that the reader is familiar with the abbreviation of TEL as an acronym for Technology Enhanced Learning. If this strategy speaks mainly to technologists then they may know what such terminology means but this also raises the question of how mediated these messages may be if they are not immediately apparent to lecturers and students also. The labour process

of 'enhancing' learning through the use of technology is now hidden within the rearranged terminology of Technology Enhanced Learning, which assumes technology has enhanced learning and will continue to do so. There is an assumption too that best practice models can indeed exist in this field, and that it is possible to develop these cases for 'the use of TEL'. There is further conjecture that these models can be used 'to transform' teaching and learning. If 'to transform' infers change, then this relies not on the internal discovery processes of students and teachers using technology, but rather on a choice by policy makers that best practice models can exist for something that, in itself, is just an idea: the use of TEL, or Technology Enhanced Learning. The use of TEL suggests once more an externality of technology to humans. The multi-layered nature of these statements means that it is not easy for people to deconstruct them, but through transitivity analysis it is possible to detect who is said to undertake what and whether repeated claims are made about 'the use of technology' in terms of expected exchange values.

Example 6.4.8

The case studies illustrated here	all provide testimony	of discernible pedagogies
Sayer	Proc: Verbal	Verbiage

emerging	which	incorporate	the use of technology
Proc: Material	Actor	Proc: Material	Goal

seamlessly and selectively into practice	– where it will provide the greatest benefit
	Circ

In example 6.4.8 which is from Effective Practice with e-Learning: A good practice guide in designing for learning written in 2004 (Row, 5703), a Verbal process firstly leads us to believe that case studies are able to 'provide testimony' 'of discernible pedagogies'. These are said to be 'emerging' via a Material process and, through another Material process, are said to 'incorporate' the Goal of 'the use of technology seamlessly and selectively into practice'. At no point is it possible to detect whose pedagogies or whose use of technology provides the human labour, but it is made clear that the use of technology is incorporated for an exchange value: 'where it will provide the greatest benefit'.

6.5   Desubjectivisation

Focusing now on some ways these texts can seem to bring about a *desubjectivisation,* the examples that follow discuss nominalised entities that are said to perform processes that would usually be attributed to humans. Instead, the 'self' is removed as we read that 'this strategy', or 'the university' or even an abstract concept or idea has undertaken our labour for us. From Marx we are to understand that humans define themselves largely through their

labouring activities and thus experience a sense of self-worth that is tied up with labour (Morrison, 2006: 121). As we labour in our learning activities our position within the division of labour gives us our identity. These textual changes in the mode of production e.g. who controls our tools, labour and outputs may lead to a perception of new identities (May, 2013: 13). In this way political discourse about material practices within learning may alter our epistemological understandings about the role of technology. If policy texts represent non-human actors performing processes to impact on a universal overall experience, then this reified one-dimensional approach detracts from diverse individual student experiences with technology within their learning contexts.

Relational, attributive	Relational, identifying	Verbal	Mental	Material
6	6	20	28	74

Table 17: Process types totals for sections about 'this strategy', and 'appropriate use'

In Table 17 the process totals are shown for the 70 worked examples I analysed under the section of Appendix 3 which I have called Desubjectivisation. Once more the majority of these process types are Material processes which total 74, but there are also 20 Verbal processes and 28 Mental processes. It can be revealing to notice which participants enact these practices and if human beings, or other things, are attributed with processes related to student learning. The word 'this' appeared 276 times in my use corpus and 'appropriate' 112 times. Of the 53 corpus lines I analysed, in the first set of examples under 'this strategy', there were in fact 15 participants named 'this strategy' who acted to perform the main Material, Verbal or Mental processes that followed. Some of the other participants also enacting such processes were 'the Joint Information Systems Committee', 'the University' or 'e-learning'. Few human actors were to be found in either this section or in the one I have called 'appropriate use of'.

Example 6.5.1

This strategy	focuses	on how technology can enhance learning, teaching
Senser	Proc: Mental	Phenomenon

and the overall student experience

In Example 6.5.1, which is from the Wales Strategy, 2008 (row 5701) 'this strategy' has been labelled as the Senser. In a Mental process 'the strategy', not a person or people, 'focuses' on 'how technology can enhance learning, teaching and the overall student experience'. This language provokes a desubjectivisation for students, who are right at the end of the clause. They are discussed as an objective group who are assumed to encounter 'the overall

student experience', as if they were one being, rather than develop their subjective individual identities in their relationships with technology in learning. There is nothing natural or inevitable though about technology when it is experienced by people learning. People have their own identities, values and concepts concerning technology therefore one 'overall student experience' simply does not make sense. There is no room for doubt in this text about whether technology *can* enhance, just a focus from 'this strategy' on h*ow*. In the next example (6.5.2), which is from an entirely different strategy and year, a similar wording can be observed.

Example 6.5.2

This strategy for e-learning	strives	to realise the following vision:
Senser	Proc: Mental	Phenomenon

to use	e-learning	to enhance	the student learning experience
Proc: Material	Goal	Proc: Material	Goal

In Example 6.5.2, which is from the Reading University E-Learning Strategy, 2005 (Row, 5224), it is 'this strategy for e-learning' that again undertakes a Mental process: 'strives'. This too is using a form of technology, e-learning this time, to enhance 'the student experience' but in both this case and in Example 6.5.1 we find it is 'this strategy' that is undertaking the Mental process on behalf of human beings. Whilst we know a document itself cannot actually focus or strive as such this knowledge may be overlooked if such statements form a common pattern. In examples 6.5.1 and 6.6.2 'this strategy' is the *Theme.* Here *Theme* and *Rheme* are linguistic indicators that can add further insights to the workings of these texts. Thematic choices made by a writer can signal how a text is organised and therefore directly affect the structure of a clause and ultimately how it may be understood. In these declarative statements the *Theme* of the clause is the first constituent (Thompson, 2004: 142) 'this strategy'. The *Theme:* 'this strategy' is a taken for granted point of departure and the *Rheme* which refers to what follows the *Theme* is the focal or arguable part of the message. In both of these cases, it is significant that reference to student experience lies at the end and does not occupy the *Theme*. The *Theme* of 'this strategy' undertakes a Verbal process: 'emphasises' in the next example below.

Example 6.5.3

This strategy	emphasises	enhancement	and	mainstreaming	and
Sayer	Proc: Verbal	Target		Target	

we	believe	these concepts are sustainable over its ten-year span,
Senser	Proc: Mental	Phenomenon

even given the rapid pace of development of technology and its applications.

In Example 6.5.3 which is from the Wales Strategy, 2008 (row 5074), the *appraisals* of 'enhancement' and 'mainstreaming' discussed in Chapter 5 can now be considered in their simultaneous, ideational role. 'This strategy' is the non-human actor that is the *Sayer* in a *Verbal* process that 'emphasises' both 'enhancement' and 'mainstreaming' as *Targets*. These words are condensed as participants (nouns), though they would be experienced more naturally as verbal processes involving people who are actually enhancing or mainstreaming something. Understanding this clause depends then on an 'intertextual knowledge' as discussed earlier. If people reading this text had not already been exposed to an emphasis on 'enhancement' and 'mainstreaming' in other documents and contexts it would seem puzzling. This raises the question of what audience such strategy documents really seek to reach. In my experience, the substantial layer of learning technology support staff that have been present in many universities for well over a decade now are more likely to have been exposed to such language and to perceive how they are expected to act, in accordance with it, and encourage others to do so. The reader is expected to pick up on the significance of these *Targets*, and to recall that 'enhancement' was in reference to 'learning through use of technology' in the full strategy, and 'mainstreaming' was in relation to 'technology-enhanced learning and teaching, process and practice'. Whilst the role of technologists to support learning has never been hidden, the use of this exclusive language emphasises their role as a powerful filter for managerial agendas of a particular kind, that claim to support learning but actually emphasise simply 'enhancement' and 'mainstreaming'. The next part of the clause suggests a more human dimension through the *Senser* 'we'. There is an indication that a group of people are actually behind the strategy. Whilst the *Mental* process 'believe' suggests the targets are sustainable, even given the circumstances, where technology is seen as developing at a rapid pace, along with its 'applications', the word 'believe' leaves some room for alternative views. There is still though an impression that people's labour, or 'applications' of technology will be constrained within 'these concepts' during the next 10 years.

Example 6.5.4

The Strategy	proposes	to enhance	the learning opportunities
Sayer	Proc: Verbal	Proc: Material	Goal

of all learners	through the **appropriate use of** elearning
	Circ

Example 6.5.4 is from the Paisley University Strategy 2004 – 2007, (Row, 588). Once more the *Theme* is 'The Strategy'. This is the starting point for the message which follows, which in a *Verbal* process, 'proposes' to enhance the learning opportunities of all learners as part of the *Rheme*. This provides a very clear indication of an exchange value presumed by 'the

strategy', that via the Circumstance of 'through the appropriate use of elearning' the learning opportunities of all learners might be enhanced. We are not told who decides the meaning of 'appropriate use of e-learning'. The construction of *Theme* and *Rheme*, as indicated in Example 6.5.5 below means there is no room to negotiate any other possible meanings. 'The strategy', once presented as *Theme*, is a point of departure to be picked up on, developed, and referred to in the rest of the message, as new or old information about what the strategy proposes emerges through the *Rheme*.

Example 6.5.5 Theme and Rheme

The Strategy	proposes to enhance the learning opportunities of all learners through the **appropriate use of** elearning
Theme	Rheme

To understand how choices of Theme and Rheme can alter the way in which a clause is experienced Example 6.5.6 shows an alternative way that Example 5.4.5 might be worded:

Example 6.5.6 now reworded to change the *Theme* to 'all learners'

All learners	*may* have enhanced learning opportunities in a strategy for **appropriate use of** elearning
Theme	Rheme

Rearranging the order of certain words within this clause, as above, puts those learning or the opportunities for those learning, at the beginning. By placing 'all learners' as the *Theme* it is necessary then to decide if 'all learners' *may, will*, or *could* have 'enhanced learning opportunities'. In a sense, as it forces a choice to be made by the writer, this provides some conceptual space where the position of learners is given some actual thought. In the statement where 'The Strategy proposes' there is no space to consider any alternatives other than the positive outcome for all learners that is put forward.

Example 6.5.7

Appropriate use of e-learning approaches	can enhance	the teaching
Actor	Proc: Material	Goal

and learning activities	which	the university	already	undertakes
		Actor	Circ	Process: Material

In Example 6.5.7 which is from the University of Warwick Strategy, 2002 (Row 581) the *Theme* is now 'appropriate use of e-learning approaches'. The *Rheme* is all the rest of the clause. The *Theme* is essentially an evaluation of people's practice. As an Actor, 'appropriate use of e-learning approaches' contains an *appraisal*, through the emphasis on 'appropriate', but it is now also a combined human practice through 'use of e-learning approaches' that has been solidified into a noun. This nominalised idea has consumed what

lecturers or students do into a commodified package that suggests firstly, that there *is* a set of 'e-learning approaches' and secondly, an 'appropriate use of' these. Furthermore, as an Actor, this evaluation of people's practice is discussed as if it were an entity that 'can enhance'. Critically, in such a cultural representation we might question what is the 'other' to this assumption and who would judge 'inappropriate' use of e-learning approaches that may not enhance teaching and learning activities? There seems to be no acknowledgement that inappropriate use of e-learning approaches may actually damage or obstruct teaching and learning activities. By suggesting something that 'can enhance' the teaching and learning activities which the university already undertakes this infers that in the current approach there is something lacking or in need of enhancement.

Example 6.5.8

The University College	believes	that	the **appropriate use of** e-learning
Senser	Proc: Mental	Phenomenon	Actor

can enhance	the learning and teaching activities	in which
Process: Material	Goal	Circ

the University College	already	engages
Actor	Circ	Process: Material

Example 6.5.8 is from Stranmillis University College in Belfast, appearing in their 2005 strategy (Row, 583). Whilst Examples 6.5.7 and 6.5.8 are close to each other in my corpus they are from entirely different university strategies. Example 6.5.7 originates from a University of Warwick Strategy, from 2002 and 6.5.8 from the Stranmillis 2005 strategy. In both cases 'appropriate use of e-learning' takes the role of participant, it is an Actor. It is also formed as if it were a 'thing', or a fact. In 6.5.8 'the appropriate use of e-learning' could have been expressed differently, e.g. as 'lecturers who are using e-learning appropriately'. In the latter version the Material process: 'using' is restored and it is clearer to appreciate that real people and activities are involved. In Example 6.5.7 'appropriate use of e-learning approaches' is acting upon a Goal of 'the teaching and learning activities', through a *Material* process: 'can enhance'. In Example 6.5.8 'the appropriate use of e-learning' is acting upon a Goal of 'the learning and teaching activities', via the Material process: 'can enhance'. Again an 'intertextual' knowledge of what 'the appropriate use of e-learning' means is drawn upon, but this time, not just within one document, but across more than one report and indeed across time. Thus repetition of similarly worded statements can solidify ideas so that they become an accepted part of the discourse, inviting reuse and reinforcing ideas.

Example 6.5.9

The University College	believes that the **appropriate use of** e-learning can enhance the learning and teaching activities in which the University College already engages
Theme	Rheme

Example 6.5.10

Appropriate use of e-learning approaches	can enhance the teaching and learning activities which the university already undertakes
Theme	Rheme

In Example 6.5.9 the *Theme* is 'The University College'. This is identified as a *Senser* in the earlier *transitivity* analysis, because 'believes' is a *Mental* process and the *Phenomenon* serves to signpost what is believed. The *Rheme* is all of the rest of the clause beyond the subject of The University College. The analysis provides some concrete points from which to question what is prioritised, and in turn de-valued. Whether, for example, 'The University College' can be capable of 'believing' the *Rheme* is one question that might be raised. Either the 'non-human' entity of a building has the capacity to 'believe', or if this refers to all staff within the institution of the college then this suggests they all hold the same understanding of what 'the appropriate use of e-learning' is. In both of these strategies the mention of what already happens comes later, with the main focus on how this can be enhanced enacted in a Material process that is undertaken by an 'appropriate use of e-learning'.

In Appendix 3 there are more examples of how 'appropriate use of' is positioned within clauses. It occurs 38 times in the use corpus but this observation may have gone unnoticed in my analysis without the aid of corpus linguistics. Of these 38, 12 instances of 'appropriate use of' occur within a range of different university strategies across a number of years, rather than in government policy documents. The university staff writing these strategies may have felt a need to include this phrase. The other 26 instances are all within government policy reports. The use of the word 'appropriate' as a pre-modifier to 'use of', in other words as a term introduced before a noun to modify it, may perhaps have been initiated into strategy documents for a particular reason. One possibility is that due to some resistance from academic staff to agendas for use of new technology in teaching a term needed to be sought that would allow some negotiation. The word 'appropriate' suggests that someone gets to make a choice about what 'appropriate' is in terms of 'use of' whatever form of technology follows. Here it occurs in Example 6.5.11 in an early educational technology policy document from HEFCE.

Example 6.5.11

In general	the assumption that	**appropriate use of** ICT
Circumstances	Goal	Actor

could enhance	aspects of student learning	was supported
Proc: Material	Goal	Proc: Material

Example 6.5.11 is from HEFCE Report 98/47: An evaluation of the Computers in Teaching Initiative and Teaching and Learning Technology Support Network, written in 1998 (row, 590). It is interesting to compare the wording of this example with the earlier Example 6.5.4 from Paisley's University Strategy 2004 – 2007 where 'the strategy' proposed 'to enhance the learning opportunities of all learners' through appropriate use. Here in 6.5.11 there is a reference to 'the assumption that' appropriate use of ICT *could* enhance. This rare acknowledgement that an 'assumption' may be involved concerning appropriate use of ICT, the gentler wording of 'could' occurring before enhance, and 'aspects of' preceding student learning all serve together, to read more tentatively than many later closed declarations. In policy for e-government agendas we can also find this phrase 'appropriate use of'.

Example 6.5.12

Government	is	better able to deliver public services
Carrier	Proc: rel, attrib	Attribute

through the **appropriate use of** ICT
Circ

Example 6.5.13

Government	is	better able to deliver public services
Carrier	Proc: rel, attrib	Attribute

through the **appropriate use of** information and communication technology (ICT)
Circ

The wording in Examples 6.5.12 and 6.5.13 seems to be very similar to each other, but these are from two separate policy documents that on this occasion are about e-government agendas. They are reports that discuss the development of digital interactions between the UK government and citizens, businesses and other agencies where information related to provision of services is moved around and needs to be delivered or shared. This is a rather different context to that of Higher Education where knowledge construction has a larger role to play. Both reports were written during 2007, and so in their similarity, provide an example of *intertextuality*, where discourses are 'always connected to other discourses which were produced earlier as well as those which are produced synchronically or subsequently'

(Fairclough and Wodak, 1997: 276). Example 6.5.12 is from A National Information Assurance Strategy (Row, 591). Example 6.5.13 is from Transformational Government Annual Report (Row, 598). Both examples still refer to 'appropriate use of' but their grammatical structure is somewhat different to those discussed so far. In both row 6.5.12 and 6.5.13, the main process of *is* sets up a relationship between the two concepts that are either side of it. 'Government' is the object that is being linked in a relationship through *is* with a quality: 'better able to deliver public services'. This process type is labelled as *Relational Attributive.* 'Government' is labelled as Carrier because it has a quality accredited to it. Ascribed to the Carrier is the Attribute: 'better able to deliver public services'. This main clause therefore tells us something about the state of *being* of government, or about something government *has.* Reading on, 'through the appropriate use of ICT' provides the circumstances (the means) through which this state of government is achieved. Here we find an *appraisal* amongst the Circumstance in each example: 'appropriate', but what further questioning, or acceptance this evokes in the reader, may depend on their exposure to other instances of the idea of 'appropriate use of ICT'. It may merely have become adopted now as a manner of acting and therefore is unlikely to be interrogated further.

Moving back into the field of educational technology strategy for universities, there are statements that closely resemble the same grammatical structure of those made about e-government above, such as in Example 6.5.14.

Example 6.5.14

The University	is	committed to student-centred, resource-based, flexible
Carrier	Proc: rel, attrib	Attribute

learning systems,	which	emphasise	**appropriate use of** technology
	Sayer	Proc: Verbal	Target

In Example 6.5.14, which comes from a JISC report: Innovating e-Learning, written in 2006 (Row 609) the main process type is again *Relational,* and *Attributive*: 'The University' this time is the object that is being linked in a relationship through *is* with a quality: 'committed to student-centred, resource-based, flexible learning systems'. 'The University' is therefore labelled as the *Carrier*. The *Attribute*: 'committed to student-centred, resource-based, flexible learning systems' in this case is extended through 'which'. As a Sayer 'which' then undertakes a Verbal process to 'emphasise' a Target: 'appropriate use of technology'.

In reconsidering my research question: *What processes are prioritised and de-valued for students' experience of learning,* the examples I have grouped under desubjectivisation in this section have indicated that most Material, Verbal and Mental processes were enacted

by objects, not people. In undertaking actions that would normally be carried out by people 'this strategy' was said to 'focus', 'strive' or 'emphasise' enhancement, or at other times was ascribed an ability in the discourse to 'propose' to enhance 'the learning opportunities of all learners'. 'Appropriate use of e-learning approaches', which is essentially an evaluation of lecturer and student practice, was also able to act as a force to enhance learning and teaching activities or other aspects of student learning. Furthermore similar relationship patterns were found to be present in e-government policy texts for the delivery of public services and government reports for university learning. The voices of lecturers and students seem virtually inaudible in these texts and their actions hard to detect also. As such they may fail to recognise themselves in these representations of their material practice that are rationally distributed through political discourse in a reified form, to nominalised entities deemed able to perform on their behalf. In separating people from things and indeed people from people, this leaves only relationships between things. In the next section I will explore how relationships between things can be closely observed through transitivity analysis. Again in reference to my research question, I will consider what processes are prioritised and what this in turn may de-value for students' experience of learning.

6.6 Closure

People may experience a sense of *closure* when relationships are firmly established between two concepts within a text. If this is a persistent pattern an impression of finality can be communicated that contributes to a loss of conceptual space for other ideas to progress. For instance, if a relationship is set up between two things in a text there may be a participant that is linked with a particular quality, or value. These two concepts might be bound together by, for example, words like 'is', or 'was' which mark this relationship. This could simply tell the reader what is happening and who is involved, or it may conceal some other elements, such as the material actions of people's labour, by bringing a relationship to the forefront, to tell us what a state of being *is*. This establishes a form of reality that may reproduce or change meaning. As mentioned earlier, there are two different types of Relational process in *transitivity* analysis: *Relational, attributive* and *Relational, identifying* processes. The following two examples are not from my corpus, but they show how these two different types of relational process might be analysed.

This student is *a quick learner*

There will always be two concepts, one on either side of the relationship, which here is signalled by 'is'. In the table below, 'this student' has been ascribed the attribute of being 'a quick learner'. In a transitivity analysis the example looks like this:

Example 6.6.1

This student	is	a quick learner
Carrier	Proc: rel, attrib	Attribute

In an attributive relational process, the two participants are the Carrier (the entity which carries the attribute) and the Attribute. In the first example 'this student' is the Carrier and 'a quick learner' is the Attribute.

However, another way of expressing such a relationship might be to say:-

The objective was *to learn quickly*

Here the relationship is one of identity, rather than attribution. A relationship of identity has been set up between 'the objective' and 'to learn quickly', signalled by 'was'. In a transitivity analysis it looks like this:

Example 6.6.2

The objective	was	to learn quickly
Value	Proc: rel, ident	Token

In an identifying relational process, the two participants are the Identified and the Identifier. The Identified here is the 'the objective' which is labelled as the Value. 'The objective' is identified by an Identifier which is 'to learn quickly'. This is labelled as the Token. The Value might be considered the more general category, and its specific embodiment, is the Token. However, a key point is that *Relational, identifying* processes (unlike *Relational, attributive* ones) are reversible. The second example could have read:

Example 6.6.3

to learn quickly	was	the objective
Token	Proc: rel, ident	Value

Something to emphasise at this point is that each of the sections of this chapter should be understood in relation to a whole context of language use. The different perspectives I have raised on choices of nominalisations in certain policy clauses and ways these might be experienced are not distinct from each other but interlinked. In the section on *externality* I looked at nominalised structures that separate technology from people. In the section on *desubjectivisation* I looked at how nominalised structures seem to speak and think on our behalf and enact our tasks with technology for learning. In this section called *closure* I will discuss the relationships that are set up to link nominalised inanimate objects and concepts

to each other. These statements seem to reassure us of a state of play. They tell us *what* is equivalent to *what*. They may therefore also help to shed light on some examples already discussed, as a new perspective is presented on how, for example, e-learning or technology enhanced learning is said to be defined. How these clauses function therefore, in relation to other clauses, is an important question to bear in mind when considering what is reinforced by what and as one process is prioritised what in turn may be marginalised.

Relational, attributive	Relational identifying	Verbal	Mental	Material
40	26	3	11	120

Table 18 the process type totals for Closure

In Table 18 the process totals are shown for the 70 worked examples I analysed under the section of Appendix 3 which I have called Closure. Once more the majority of these process types are Material processes which total 120, but there are also 40 Relational attributive and 26 Relational identifying processes. It is likely that so many relational attributive processes can tell us something too about the conditions that are being described. The relational identifying processes, though fewer, may also reveal certain links that are recognised. My choice of examples for analysis in this section was based on the frequency of 'effective use of', which was a dominant cluster appearing 185 times (Rows 1382 – 1585) and also 'the use of', which appeared 1770 times (Rows 3556 –5650). In this part of the corpus 'the use of' preceded technologies by other names such as 'the use of C & IT or 'the use of digital technologies and media'. In terms of relational processes the word 'is' appeared 116 times in the corpus. Below in Example 6.6.4 'is' links the Attribute to the Carrier in a relational attributive process.

Example 6.6.4

Systematic high quality teaching	is	dependent on the **effective use**
Carrier	Proc: Relational, attrib	Attribute

of technology	to develop	students' skills	support	different learning styles
	Proc: Material	Goal	Proc: Material	Goal

enable	flexibility of access	provide	formative feedback
Proc: Material	Goal	Proc: Material	Goal

capture	student learning	encourage	reflective processes
Proc: Material	Goal	Proc: Material	Goal

and	enable	the effective deployment of staff resources
	Proc: Material	Goal

Example 6.6.4 is from the University of Bedfordshire Technology-Enhanced Learning Strategy 2008 – 2011 (Row, 1530). The main process in this clause is relational attributive, with the concept of 'Systematic high quality teaching' being the Carrier of an Attribute: 'dependent on the effective use of technology'. These two ideas are linked by the relational, attributive process: 'is'. This is a declaration that could exist independently of any other further comments because it serves as a complete and non-negotiable assertion of what value 'systematic high quality teaching' is dependent on or embodies. We may disagree with it, but within this grammatical structure there is no room for doubt and nor can we establish who believes this to be so. Yet whilst this first part of the clause could end at this point it proceeds to underline a number of further Material processes that we are to understand are generated through this state of being. We are told that 'systematic high quality teaching' is 'dependent on the effective use of technology' for the next seven Material processes: 'to develop' the Goal of 'students' skills', 'support' the Goal of 'different learning styles', 'enable' the Goal of 'flexibility of access', provide the Goal of 'formative feedback', 'capture' the Goal of 'student learning', 'encourage' the Goal of 'reflective processes' and 'enable' the Goal of 'the effective deployment of staff resources'. All of these Material processes would normally be undertaken by students and lecturers, but in this claim due to a closed declaration where a relationship establishes 'systematic high quality teaching' is 'dependent on the effective use of technology' the Material processes that follow just move further and further out of view along this line of text. Once more the labour of lecturers and students is not attributed in any way to acknowledge the human activity involved.

Example 6.6.5

e-learning	will be	firmly embedded in the curriculum	
Carrier	Proc: rel, attrib	Attribute	

as a means of	enhancing	the quality of teaching	meeting
Circ	Proc: Material	Goal	Proc: Material

students' expectations	and	responding to	the needs of the workplace
Goal		Proc: Mental	Phenomenon

In Example 6.6.5 which is from the Aberystwyth e-learning strategy 2005-2009 (Row, 1423) the main process is again a relational attributive one. This time e-learning is the Carrier and the Attribute embodied by e-learning is 'firmly embedded in the curriculum'. The relational attributive process 'will be' links these two concepts and once more this is a closed declaration that could end at this point. In the context of my research question 3 the discourse prioritises the relationship between the objects of 'e-learning' and 'firmly embedded in the curriculum'. It is this state of being that is considered 'as a means of'

enacting the Material processes that follow: 'enhancing' the Goal of 'the quality of teaching' and 'meeting' the Goal of 'students' expectations'. Furthermore e-learning is also credited, in a Mental process, with 'responding to' the Phenomenon of 'the needs of the workplace'. These processes would again normally be undertaken by students and lecturers, but in this claim, due to an early closed declaration where a relationship establishes that e-learning will be firmly embedded in the curriculum, these Goals are further away from a reader's view and literally severed from the humans who would usually perform them.

Example 6.6.6

The team	is	responsible for	promoting	**the effective**
Carrier	Proc: relational, attrib	Attribute	Proc: Material	Goal

and efficient use of corporate e-learning applications;	providing	frontline support
	Proc: Material	Goal

to academics (and others	who	teach/support	student learning),
	Actor	Proc: Material	Goal

in use of the core University e-learning systems, tools and services;	undertaking
Circumstances	Proc: Material

development work	to ascertain	the benefits and applications of emerging technologies
Goal	Proc: Mental	Phenomenon

Example 6.6.6 is from the Loughborough University E-Learning Strategy, 2011 (Row, 1585) and suggests some human involvement now, through the Carrier: 'the team', In a Relational attributive process via 'is' the team embodies the Attribute: 'responsible for'. The Material process that follows: 'promoting' has the Goal of 'the effective and efficient use of corporate e-learning applications'. This quickly establishes a set of instrumental responsibilities that the team are responsible for. In assigning this quality of *being* to 'the team' this overshadows the considerable amount of *doing* in other non-finite clauses that follow.   These non-finite clauses are in fact where most of the labour actions take place, but which are again displaced from primary attention, due to a positioning far away from the main relational clause relating to 'the team'. The relational process construes what the reality *is,* but this obscures the different forms of use and activity that follow. The numerous *material* and *mental* processes that follow 'providing' are likely to be of more importance to academics, students and support staff than 'the effective and efficient use of corporate e-learning applications. In a sense these seem swallowed up by the all consuming role of 'the team' at the beginning and also by the Mental process at the end: 'to ascertain' the benefits and applications of emerging technologies'. The teaching, learning and support activities, that

involve real people are thus enframed firstly by a team responsible for 'effective and efficient use' of only certain corporate applications and at the end by 'development work' said 'to ascertain' the benefits and applications of emerging technologies. There is even a disconcerting use of brackets around 'others who teach/support student learning' which marginalizes this group even more. In this representation through political discourse, the material practice of staff and students would seem to be profoundly constrained. Looking now at some of the examples that included 'the use of' some form of technology or system the next four examples are Relational identifying. They also reveal some close similarities to each other in their declarative structure and the pattern of Material processes that follows this. Taking firstly the two where the Theme is e-learning Examples 6.6.7 and 6.6.8 are from different university e-learning strategies, though both written in the same year.

Example 6.6.7

E-learning	can be defined as	the use of digital technologies and media	to deliver
Value	Proc: rel, ident	Token	Proc: Material

support	and	enhance	teaching, learning, assessment and evaluation
Proc: Material		Proc: Material	Goal

Example 6.6.7 is from the University of Paisley eLearning Strategy 2004 (Row, 5100). Here 'e-learning' has been labelled as the Value in a Relational identifying process. The Value is identified in terms of an identifier, otherwise known as a Token. The Token provides the answer to the question of what E-learning is understood to be: 'the use of digital technologies and media'. However, this is a particular kind of 'use', which is further defined through a set of non-finite clauses that follow. As these are labelled as Material processes a logic unfolds that reveals what 'the use of digital technologies and media' is expected to do: 'to deliver', 'support' and 'enhance' a stated Goal: 'teaching, learning, assessment and evaluation'. It is significant to notice that once more that we find the actual activities that involve teaching staff and students right at the end of this clause. Whilst they are deemed to be the Goal, it is E-learning, defined through the main relational clause, which is expected 'to deliver', 'support' and 'enhance' this Goal, not human beings.

Example 6.6.8

E-learning	may be defined as	the use of new multimedia technologies
Value	Relational, ident	Token

and the internet	to structure	the delivery	and
	Proc: Material	Goal	

improve	the quality of learning and teaching
Proc: Material	Goal

In Example 6.6.8 which is from a different document: the University of Dundee E-learning Strategy 2004 (Row, 5332) a similar pattern unfolds. Here 'e-learning' is also the Theme which has been labelled as the Value in a Relational identifying process. The Value is identified in terms of the Token provides the answer to the question of what E-learning is understood to be: 'the use of new multimedia technologies and the internet'. This definition is further refined through a set of non-finite clauses that follow. As these are labelled as Material processes, 'e-learning', which has been identified as: 'the use of new multimedia technologies and the internet' is expected to do: 'structure' a Goal of 'the delivery', and 'improve' a Goal of: 'the quality of learning and teaching'. It is significant to notice that here too we find the actual activities that involve teaching staff and students (learning and teaching) right at the end of this clause. Whilst 'the quality of learning and teaching' is deemed to be the Goal, it is E-learning, defined through the main relational clause, which is expected 'to deliver', 'structure' and 'improve' this Goal, not human beings.

Example 6.6.9

Technology Enhanced Learning (TEL)	is defined as	the use of information and
Value	Proc: rel, ident	Token

communication technologies (ICTs)	to support	and	deliver
	Proc: Material		Proc: Material

learning and teaching
Goal

Example 6.6.9 was written four years later than the two previous examples where e-learning was the focus. Here Technology Enhanced Learning is now the Theme in the University of Westminster Technology Enhanced Learning Strategy 2008 – 2011 (Row, 5110). Technology Enhanced Learning (TEL) is the collective noun labelled as the Value. Via the Relational identifying process the Token provides the answer to the question of what Technology Enhanced Learning (TEL) is defined as: 'the use of information and communication technologies (ICTs)'. There is no indication as to *who* defined TEL in this way. Again, there is a particular kind of 'use' which is further defined by the non-finite clauses that follow. When these are labelled as Material processes a logic unfolds that reveals what the use of ICTs is expected to do, 'to support' and 'deliver' the Goal of 'learning and teaching', which, as in the previous two examples is mentioned right at the end. In all three of these examples the Relational process makes a declaration that first asserts how the educational technology terminology is defined. The clause then proceeds to explain through Material processes the exchange value that this use of technology will bring about for learning and teaching. In each case there seems no space left available for human labour

to play a part. What is described is simply a relationship between objects that in a series of only positive material actions, execute the Goal related to learning and teaching. In the final of these four examples, there is one difference in that e-Administration is the Theme.

Example 6.6.10

e-Administration	is	the use of technology	to support	and
Value	Proc: rel, ident	Token	Proc: Material	

enhance	the business and management functions of educational institutions
Proc: Material	Goal

Example 6.6.10 is from the Joint Information Systems Committee Annual Review 2004-2005 (Row 5767). The Theme is now quite clearly about e-Administration and not Technology Enhanced Learning and so is more closely linked with the effective operation of business functions. However, given this distinction, it is interesting to note how closely texts about the business management functions of e-Government resemble those about e-learning and Technology Enhanced Learning, which do not have simply administrative functions, but are expected to assist humans in building personal knowledge. In 5.5.10 e-Administration is labelled as the Value in a Relational identifying process. The Value is identified in terms of the Token which answers the question of what e-Administration is understood to be: 'the use of technology'. However, this is further defined by a set of non-finite clauses that follow in a similar pattern to that observed in the previous examples. When these are labelled as Material processes this reveals what technology is expected to do: 'to support' and 'enhance' a stated Goal: 'the business and management functions of educational institutions'. A form of online administration and how it functions has therefore been described in much the same way as a form of technology that might extend the human practices of teaching and learning. In all of these examples the main relational clause overshadows the later Material actions.

A Relational identifying clause then gives a 'comforting feeling of resolution' (Thompson, 2004: 242) as a clear answer is provided to explain what e-learning, e-Administration or Technology Enhanced Learning represent in terms of 'the use of' a form of technology. Each of these terms acquires an upfront objective identity or value about what they are used for. This overshadows and hides the material, subjective, contextual elements of human interaction with technology that follow on in the clause. We can only retrieve these forms of labour, so to speak, by labelling the Material processes that follow. This helps bring back into view what has been condensed into terms like e-learning, TEL or e- Administration. As process types and participants were coded in my analysis, this repeated pattern where many labour actions had moved further and further away from the main process was revealed. These Material processes tend to reveal the 'small print'. Students and staff are not often

explicitly mentioned, but the Goal this particular use of technology is expected to provide for them, in terms of 'exchange value', is frequently located right at the end. The next two examples discuss engagement with strategy.

Example 6.6.11

The final objective	is	to encourage institutions	to engage
Value	Proc: rel, ident	Token	Proc: Material

with this strategy	to drive	the mainstreaming of the use and application of
Circ	Proc: Material	Goal

technology	to enhance	learning and teaching
	Proc: Material	Goal

Example 6.6.11 is from the Wales Strategy (Row, 4288). The Value is a concept: 'the final objective' which is identified in terms of the specific entity that realises it: 'to encourage institutions' which is labelled as the Token. The detail of what this encouragement entails is expanded through a series of Material processes that follow: 'to engage' with this strategy, 'to drive' the mainstreaming of the use and application of technology, 'to enhance' learning and teaching. These Material actions are somewhat displaced from our immediate view, by the main relational identifying objective, which is supposedly about encouraging institutions. Phrases such as 'to drive the mainstreaming' suggest that readers of this text will need to have been exposed to such terminology before if they are to understand what is required.

Example 6.6.12

The key aims of the TEL Strategy	are	to ensure that technology is used
Value	Relational, ident	Token

appropriately, effectively and efficiently	to support	student learning and development
	Proc: Material	Goal

support	staff in the delivery of the curriculum;	prepare	students
Proc: Material	Goal	Proc: Material	Goal

to function	in a technologically-rich and changing world	enhance
Proc: Material	Goal	Proc: Material

existing provision	exploit	new market opportunities
Goal	Proc: Material	Goal

Example 6.6.12 is from the University of Bedfordshire Technology-Enhanced Learning Strategy 2008 – 2011(Row, 5650). The Value is once more a concept: 'the key aims of the TEL strategy' which is linked through a Relational identifying process: 'are' with the Token: 'to ensure that technology is used appropriately, effectively and efficiently'. Technology

Enhanced Learning is not mentioned. Instead a TEL Strategy condenses this meaning. However, the key aims are clearly linked to a belief by policy makers that this is what a Strategy for TEL represents. There are six Material processes that follow and five of these contain the real labour of lecturers and students, but they are all displaced by the key aims that technology is used 'appropriately, effectively and efficiently'. Essentially this clause reproduces others I have already analysed by picking up on the acronym TEL and expecting that those who read this will know what it stands for and to understand the references to 'appropriately', 'effectively' and 'efficiently'. These ideas about technology were present in some of my earlier examples as were Material processes such as 'to support' and 'enhance'. The relationship identified at the beginning of this clause and the final Material process at the end: 'exploit' the Goal of 'new market opportunities' seem to complete an enframing of student learning and staff delivery of the curriculum. At the beginning people's activities are overshadowed by the key aims of a TEL Strategy, to ensure that technology is used appropriately, effectively and efficiently. At the end this existing provision must be enhanced to exploit new market opportunities. This links intertextually with other policy texts that seek to maintain a market driven, economically based approach. In other words the pre-requisites to support a neoliberal knowledge economy can be quite clearly (and narrowly) defined through repeated Material structures.

Of particular interest in my findings in this section was the wordy and often overly verbose account of procedures or activities that follow each Relational process, as a set of conditions. These manifest frequently as Material processes and sometimes as Verbal or Mental ones, tagged on at the end. This was a pattern often repeated in my corpus and further examples can be found in Appendix 3. The material practices of human learning and doing are de-valued by a political discourse that has pre-determined and identified the expected 'return' from technology and labour, as commodities. Technology is discussed as *external* to people and applicable without the 'weight' of social context. People are removed from clauses where they would naturally be mentioned as undertaking a task. Instead they are replaced by entities who perform processes for them like 'evidence' that 'suggests' or 'this strategy' that 'focuses'. Nominalised claims make it hard to detect agency, to know who makes these choices. People can find their own labour actions being subsumed into propositions like: 'appropriate use of e-learning approaches'. As these concepts 'act' on behalf of lecturers to 'enhance' the activities of their students this can contribute to a *desubjectivisation* for those involved. The processes that are prioritised are said to have positive effects on 'the student experience' of learning, but this is treated as a reified universal encounter, not an intimate, subjective, mutually constitutive relationship, where *technology, language* and *learning* intertwine.

Patterns of words in these policy statements, many of which originate from the 1997 - 2007 period of New Labour, therefore alter perceptions of the way in which labour is organised. Indeed in the many Material processes in each of the sections of this chapter are concrete promises that prioritise an economic gain from technology, when applied in learning and teaching situations. Technology itself is assumed to have 'complete immunity from inspection' (McLuhan, 1968:335), enabling writers of policy to make choices about the ways in which it is said to determine change through exchange value. These statements cannot be verified easily, because technology has been separated in the discourse from its social and political contexts, from power and from culture. As a 'neutral' external agent, technology is imbued with a calculating political reasoning and thus it becomes a vehicle for fetishism and reification (Matthewman, 2011: 172). Olsen suggests that in the 'noise of discourse' the material things can be left out (Olsen, 2003: 100). Yet I would argue that in this policy discourse, rather than omitted, material things, systems and technologies are very much present. In rational relationships with each other they are attributed responsibilities and abilities, to think, speak and act on behalf of people. It is us that are not present in this discourse. Humans are removed from their own teaching and learning contexts, from their relationships with technology and even with other human beings. It is necessary to critically question how such accounts of practice are constituted. If we treat higher education policy as something that simply emerges, then we risk it developing an agency of its own. As these documents multiply and spread through many technological routes humans lose a powerful voice within them to effect change. If the political discourse of TEL reduces spaces to conceive of our own material practice, then we as practitioners need to seek new forms of representation and resistance. We have been absent for too long - and it is time for us to reoccupy the language.

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7. Opening space for reoccupation

In this chapter, I will firstly reflect on how my analyses have informed my research questions, bringing to light examples of how the political discourse around use of TEL structures a limited understanding of the material practice of learning through technology. It orders and embodies a deterministic assumption in TEL through *language* about what *technology* has achieved for *learning*. This 'trouble free' discourse is easily manipulated to serve neoliberal policy but it conceals other more emancipatory if also more troublesome visions of what technological learning might mean as a 'convivial' partner (Illich, 1973). The choice of *enhanced* suggests a foregone conclusion of endless positive gain but this excludes the humans involved. Through empirical analysis, I have sought to unpack TEL from its tightly compressed state as an acronym which enframes educational technology practice to serve narrow economic purposes, as predicted by Marx through commodity fetishism (Marx, 1867). My approach was in part a response to what Savage and Burrows (2007) have identified as a crisis in empirical Sociology where 'the role of sociologists in generating data is now unclear' (Savage and Burrows, 2007: 4, Savage, 2013). It is suggested by these authors that, as circuits of information have become embedded in numerous kinds of information technologies within capitalism (Thrift, 2005), Sociologists have not responded that quickly to renew their interests in methodological innovation to report critically on new digitalisations (Savage and Burrows, 2007). In reply to such concerns I chose to undertake a trans-disciplinary corpus-based CDA which I combined with critical social theory. This supports a call by Savage and Burrows for Sociologists to 'abandon a sole focus on causality' and embrace an interest in description and classification through 'a radical mixture of methods coupled with renewed critical reflection' (Savage and Burrows, 2007: 13). My empirical approach provides a way to expose choices in language and describe and classify these (Halliday, 1994). In so doing, new spaces for dialogue and networked resistance are revealed that in neoliberal policy discourse might otherwise remain concealed. In a spirit of 'reoccupation', I now invite readers to explore how we might rejoin people with the elements that construct TEL, not as passive participants, but as active human constituents who labour with *technology, language* and *learning*.

7.1 Implications I draw from my analysis of the political discourse

Recalling the steps in my research methodology, in Chapter 4, quantitatively, through corpus linguistics, I considered the textual implications of the company some words keep with other words and phrases in my corpus of higher education policy texts. Corpus linguistics can support the initial description stage of the Fairclough model with a strong foundational support for what is to come in terms of more detailed analyses. Critiques of CDA have

suggested researchers, through their own political bias, might select isolated examples in a form of 'cherry picking' (Billig, 2003; Blommaert, 2005; O'Halloran, 2009). I therefore examined *keywords* in two million tokens of educational technology and e-government policy texts to demonstrate quantitatively the density from which my qualitative examples are drawn. This revealed some distinct patterns around 'the use of technology' from which I formed my 'use' concordance. I then conducted my CDA to classify some examples through two different approaches. Firstly, in Chapter 5, I undertook an *appraisal* analysis of 'attitude' on a substantial section of *Enhancing Learning and Teaching through Technology: a Strategy for Higher Education in Wales* (HEFCW, 2008). This was an example strategy I selected to examine how educational technology meaning is evaluated in a more sequential extract of policy focusing on TEL. Secondly, in Chapter 6 I undertook a *transitivity* analysis to consider what processes are prioritised or de-valued through grammatical choices. At times some processes seem to palpably enact features of neoliberal policy for use of technology in higher education. However, rather than a purely negative interpretation, I hope that in demonstrating these empirical instances, I might open new discursive spaces for a dialogue that could otherwise appear closed to further debate. An already condensed form of meaning in Technology Enhanced Learning is further abbreviated to TEL where just one version of reality is revealed, concealing others. It is important to remember that there are other ways to enact social relationships that link technology with the actual staff and students who are teaching and learning. My final research question asks *how might a plurality of material practice in educational technology be re-envisioned?*

In choosing CDA I have sought to achieve some 'appliable' descriptions and classifications in order to demonstrate the enabling power of language (Halliday and Webster, 2009:1), both for manipulation in policy, but also to consider more plural meanings for TEL, where human agency is clearly present. In a spirited approach I put forward the idea of 'reoccupation'. By this I mean taking concrete actions to begin to re-write policy for TEL in higher education, beginning with a confrontation and reassessment of the institutional processes through which humans are consulted, involved and active in these procedures and in the writing and evaluation of policy texts themselves. Before returning to this topic, I will review my research questions and summarise my findings for the first three and then proceed to discuss how my analysis informs my fourth question.

1. What are the dominant patterns of 'use' around 'technology' in policies about TEL?

Through corpus linguistics I discovered a dominant pattern of 'use of technology'. This was repeatedly structured to yield a particular return, or 'exchange value' for learning. Certain words were shown to occupy a preferred place within clauses which duplicates and reflects

the concerns of the authors of these policies. Furthermore such patterns were seen to be occuring over a sustained period of time. They could be found in both e-learning and e-government policy documents and indeed in university strategies and therefore were unlikely to be written by the same author, but nevertheless these merge to reinforce a dominant view. For example, an *effective* or *better* use of technology was emphasised and followed by an account of the expected rewards. In terms of intertextuality (Kristeva 1986) such wishful thinking might be said to have a 'dialogic' (Bakhtin, 1981) relationship to other utterances within the social, cultural and political context of this discourse. Implications are that people meet such discourse at many points and through a range of media. The 'net-like' (Hoey, 1991) corpora therefore aid appreciation of how certain terms, linked phrases, concepts and even broader events are recalled and referenced. Multimodal linguistic encounters accumulate to underline a certain inevitability of market-defined lifestyles and learning through technology in this way. The dissemination of these 'nodal' discourses like KBE, across structures that are material and discursive are re-contextualized in new social fields (Fairclough, 1995: 11). Through hegemony (Gramci, 1971), ideological advice in policy masquerades as simply practical solutions to common problems (Simpson and Mayr, 2009: 41).

2. To what extent does policy discourse evaluate educational technology in one way?

Through appraisal analysis an 'attitudinal colouring' (Eggins & Slade, 1997: 124) of these texts was examined to consider how use of technology for learning is repeatedly evaluated as able to 'enhance'. The perceived exchange value that using technology, as an external application, should yield became visible on an interpersonal level. In the Wales strategy, intertextual links could be observed, as words such as *normal, normalise* and *mainstreaming* coloured the impression of how technology should be perceived for learning. Existing teaching practice and learning was expressed in terms of a criticism, as having 'needs' to be met. Those teaching were said to require *support* and *encouragement* to do better. Students were portrayed as passively awaiting *enhancement* from technologies *harnessed* for this purpose. Yet technology was only appraised in positive terms of what it, not humans, has achieved in terms of effects. A distinct lack of emotion, or affect, further underlined the absence of human teachers and students in a strategy about their own activities. Emphasis on 'we' as a repeated narrative suggested that, as a unified group, humans are collectively able to exploit technology to systematically improve and enhance learning. Emphaisis on 'you' in the revised version of this strategy demonstrated that both hierarchical and neoliberal forms of control were present. My findings therefore demonstrated ways that policy documents tell people things for a purpose, to influence their attitudes or behaviour.

3. What processes are prioritised and de-valued for students' experience of learning?

Through transitivity analysis, I considered the different ways *nominalisation* reifies relations between humans and technologies in their learning situations, to prioritise or devalue certain processes. Under sections I called externality, de-subjectivisation and closure, I categorised the process types (Halliday, 1994) in 70 worked examples from the use concordance for each of these themes. This revealed in each case that there were many more Material processes present than any of the other process types. How these Material actions played out under each theme revealed different views on the ambiguities that nominalisation creates. Marx offered a 'material narrative of people making their own history' (Matthewman, 2011: 30). This seems particularly important as a solid value and starting point for human learning. Yet the interactions are not enacted by humans. The suggestion that capitalism presents itself as an endlessly perpetuating, materially produced order to the benefit of a ruling class rather than the majority has been discussed by Williams as 'the direct material production of politics' (Williams, 1977: 93). Whilst Williams described the production of visible structures such as palaces, churches and schools as manifestations of the materiality of power, in my research there are strong *textual* manifestations to notice. Yet these textual Material processes are not so easily attributed to people as examples of structures in the built world.

Under my theme of externality I noticed that Material processes served to stress positive ways that technology is perceived: 'to enhance', 'to create', 'to improve' or 'to support' a form of learning which was believed to require reform. Under my theme of de-subjectivisation I found that the Material, Verbal and Mental processes that would usually be performed by humans were frequently enacted by strategies, institutions or technologies, but rarely by people. Under the theme of closure, I discovered a repeated structure where Relational processes made a clear case for what *is.* Beyond these closed statements of being, where habitually a non-human entity was linked with an instrumental idea, there was often a series of Material processes of human labour that moved further and further away from a reader's view. The main clause, in stating what *is*, concealed important aspects of learning and teaching which became neatly packed away within the broader statement of instrumental use. Or, in other examples a declaration of what TEL or e-learning was defined to be was followed by some narrow, explicit conditions of use, such as where it: 'adds value', 'builds efficiencies' and 'provides expertise, skills, knowledge and a competitive edge'. Through these analyses as a whole I observed an interplay of production and consumption where human occupation was minimal and resistance therefore problematic. What is prioritised can firmly push human interests out of view with the material acts of labour that once involved humans severed from their relationships with technology.

Whilst language is understood as a 'principal means' (Mumby and Clair, 1997: 181) through which the social reality of Technology Enhanced Learning has been created and enacted via discourse, TEL is not constituted *only* by discourse. Political discourse can 'desubjectify' our material encounters with technology. Examples revealed how 'an appropriate use of technology' was said to 'act' to enhance, as if it were a tangible entity, rather than just an idea. Such nominalisations can delete agency and reify processes through a choice of noun phrases over verbs (Fowler et al, 1979). This creates an assumed existence of entities like TEL and human labour processes are consumed within this entity which is said to act.

Fundamentally, the transitivity examples demonstrate how policy discourse can limit people's choice resulting in a loss of power to change their own learning situations. Policy provides both hierarchical representations of what *should* happen in learning encounters with technology, rather than what *does.* Or it pretends to create a neoliberal empowering environment, but one where human social relations have no real place. Rather than acknowledge the 'things' that are encountered by people in real, material, learning situations, technology is treated as an 'external' means to deploy for efficient processes. Yet social relations are discussed as 'things', e.g. 'the systems shall improve….' or 'solutions should exploit…' and human agency becomes hidden from view. This is a curious reversal, where reification Lukács (1971) means that human relations become traded objects, through commodity fetishism (Marx, 1867). The natural activities of people learning using technology become separated from their original context. They are given new generalised attributes which in reality in numerous contexts they cannot possibly have. The paradox is that these rules dictate how people should learn using technology in a KBE, yet limit what might actually be envisioned. Such textual arrangements need not be intentional. However, collectively and globally, they build a 'fixed' impression of educational technology through policy of which people need to ask critical questions. If they do not, implications are that students come to learn that technology is a predictable tool they can master to serve their needs. Yet as this narrow view of technology takes over it 'leads to a new kind of serfdom' (Illich, 1973: 2) because a rational approach towards technology can only go so far before it begins to enslave people as they become subservient to it. Or in the texts I have analysed they can disappear altogether. This summary of observations from my first three research questions leads into my final research question of how TEL might be re-imagined. In the rest of this chapter I present some possibilities in response to this question to provoke further discussion.

4. How might a plurality of material practice in educational technology be re-envisioned?

TEL, as a terminology, connects *learning*, with *technology* through *language*. My analysis has demonstrated through *corpus linguistics* that it is firstly a *textual* arrangement, in which the order of the words matters, because they state what technology has *done*. Secondly, through CDA I showed TEL as an *interpersonal* appraisal of how learning has been 'enhanced'. Thirdly I demonstrated TEL as an *ideational* encounter where an active process of learning becomes reified as a noun through nominalisation. The 'doing' of learning is sealed in a conclusion that suggests a form of 'closure' to all other possible approaches. To reopen the conversation a radical re-envisioning of TEL is recommended.

Whilst it takes time and effort to identify and describe these examples empirically they offer another route to opening conversations about the materialisation of forms of capitalist control and alternative forms of networked resistance. The rational expressions of what technology has achieved in my examples omits human contradictions. Here we might recall Ritzer's assertion that the components of rationalisation such as efficiency, quantification and control are achieved through the substitution of nonhuman for human technology. My analysis therefore provides another approach through which the arguments of Ritzer might be reconsidered as these are enacted through policy discourse. Ritzer reminds us that the rational structures described by Weber are alive and well in modern society, even if they take on different forms. In the form of discourse they can travel unnoticed as humans are replaced by non-human technology. Barnett urges us to consider whether the values of rational critical dialogue that have helped to generate a 'supercomplexity' in university life can also help us to keep it in its place (Barnett, 2000: 83). Ritzer proposes that 'rational systems inevitably spawn a series of irrationalities that serve to limit, ultimately compromise, and perhaps even defeat, their rationality' (Ritzer, 1998: 55). It is to these subversive theoretical spaces that I bring concrete empirical examples for us to confront within policy. We now need to find a route into some necessary and practical forms of networked resistance in higher education. They may not seem that revolutionary as they unfold, but they are important if we are to change imaginaries of alternative discourses into reality.

Currently, the focus remains on technologies, as opposed to the powerful social and political forces that surround them. The policy texts I have analysed reinforce this position and the trend for ever-more technologies to intervene between people or even to replace them (Matthewman, 2011). The questions about why policy is written with such a focus though, rather than constructed based on decades of critical theory about the politics of technology and theories about how students actually learn, remain under-examined. I therefore recommend that higher education institutions that are actively progressing agendas in other

areas such as 'equality and diversity' and 'widening participation' turn the spotlight also onto the processes through which they initiate the writing of policy. Whilst the course of action described below is focused on policy about educational technology, this issue is likely to be widespread and pervasive across other areas in the university too. Therefore the following simple steps are proposed as a course of action to begin to manage how policy is created and maintained within an institution.

When policy is first developed in universities, we can adopt a transparent process where we avoid assumptions of what is rational and 'common sense' about *technology*. This requires a re-engagement with the theory from STS already discussed to remind ourselves that technology takes many material and discursive forms. In seeking to imagine a more emancipatory approach for technological learning, theories from STS have shown that values and morals can be implicit in technological design and processes (Winner, 1980, Verbeek, 2006). I have taken this further to suggest ways these might materialise in discourse about technology too. Therefore we need to scrutinise the *language* we adopt as we create policy texts, to ask reflexively if there are discernible human voices within and if labour has been attributed to the people who will really enact the tasks described. We can draw attention to the crucial nature of human labour within in the production of both policy and practice and insist on knowing how the topic of *learning* has been approached to include human interactions and links with theories about how people learn. Finally, the policy itself needs to be understood, not as a stand-alone document, but as a material and discursive 'hybrid agent – a co-agent comprising document and writers' (Bartholomew and Hayes, 2015). We can constantly ask ourselves who these writers should be and how the process of writing higher education policy might be more inclusive and also open to positive and productive forms of critique. In creating policy texts that are more dialectical with our practice we increase the possibilities of dialogue and innovative interpretations. In turn we avoid the risks of stifling innovation through oppressive texts that effectively exclude human labour, if we proactively include names of the authors, the date of last authoring and the mechanism through which the policy can be challenged or modified (Bartholomew and Hayes, 2015).

7.2 Re-envisioning the material practice of Technology Enhanced Learning

I now link the practical suggestions above for new plural approaches to policy discourse in universities to a re-envisioning of the material practice of TEL. I suggest new possible approaches towards technology, language and learning that could support the course of action described above for rewriting policy.

7.2.1 Conviviality

Firstly, recalling theoretical insights from Illich about a more 'convivial' way to conceive of *technology* in the context of learning. In Illich's argument it is the human use of technology for increasing industrial productivity alone, as exchange value, that prevents people from re-envisioning their tools as part of a 'multidimensional balance of human life' (Illich, 1973:2). This is important, not only to reconnect human labour with our tools, but also to draw attention to the role of policy discourse where it persistently removes this intimate relationship. In doing so, a profound isolation is generated as people lose contact with material things and also with each other in a wasteland of objective expectations, without subjects present to perform these. Barnett suggests the idea of 'excellence' in terms of performativity simply has no content (Barnett, 2000: 2). On the other hand, 'conviviality' welcomes a critical individual freedom and personal interdependence and as such offers a more promising plural route than TEL to build a framework for educational technology practice and research. With reference to literature from STS that supports an envisioning of technology as 'posthuman' (Barad, 2003, Badmington, 2003) there is a point of reconnection with the theory of Marx which might also be grasped. This is the reminder that people realise themselves in their material objects. Humans therefore need to have content. In an extreme neoliberal 'enframing' (Heidegger, 1977) people are locked in a state where they also have become a resource, reified to serve as a means to an end. They then lose sight of an important truth from the *Economic and Philosophic Manuscripts* of Marx (1844) that it is our relationship to objects that confirm and even realise our individuality in learning situations because 'man is affirmed in the objective world' (Marx, 1844, Matthewman, 2010: 170). To understand all technological objects as there to extract the maximum quantitative value is only to presence them as a resource to set 'to work' (Heidegger, 1977, Richardson, 2012: 327), but even as people explain this in a framework of modern intentionality (Richardson, 2012: 328), they each lose something of their own identity.

7.2.2 Networked resistance

With these ideas in mind we might consider secondly, that networks offer us a less linear approach in *language* than TEL as a form of resistance to a route based on exchange value. Networks suggest an open and organic model through which conviviality might be developed and mutually constitutive connections between technology, language and learning might be explored. Networks have been discussed more broadly in terms of social settings without reference to technology and applied to organisations in particular (Jones and Steeples, 2002: 2). Networks might be distinguished from both hierarchical forms of organisation and from the liberal anarchy of the market (Thompson *et al*, 1991). This argument provides a

helpful distinction to step back from both of these forms of policy discourse and to consider a more organic, networked approach. If networks represent a conscious political choice, as an alternative to state-driven or neoliberal forms of economic organisation then applied in language about educational technology, power shifts in favour of personal autonomy. The more inclusive approach towards policy development I described above would be enabled within such a networked understanding.

The concept of 'networked learning' (Jones and Steeples, 2002; Goodyear, Banks, Hodgson, and McConnell, 2004) has been in circulation for a long time but it has not been closely linked with insights from CDA in relation to policy. Networked learning offers a different, less loaded perspective to one of technology as enhancement alone and as such helps envisage a convergence of technology, language and learning in new media, but dialectically linked with ideology and power. I have argued that as TEL presents in language as a *fait accompli*, an established fact, people tend not to question a hegemonic choice of words that declares a concrete connection has been established where technology has *enhanced* learning. The closed declarations about what TEL *is*, then affect the human relationship between thinking and being, as modern neoliberal logic floods understandings of technology, language and learning. Yet different words could have been selected. *Enhanced* brings a particular form of assumed value that firstly declares improvement is needed and then assures us of an expected and ongoing gain from educational technology. It also implies there is no longer an active place for humans in the conversation. We are to understand this communication is something finished and complete. Yet education is an ongoing enquiry and people's relationships with technologies and language are ongoing encounters and not simply a reinforcement of what *is.* Policy language matters therefore because it changes the way we identify ourselves with educational technology.

7.2.3 Subjective not objective identities

Thirdly, in order for humans to reoccupy the spaces for *learning* that rhetoric closes, they need to recognise their personal identity in their encounters with educational technology rather than an identity that language imposes on them. Theoretical insight from Habermas provides knowledge constitutive interests that reveal a critical emancipatory route. In a critique of positivism Habermas links human labour, linguistic interaction, and power and domination, as three sources of human action and knowledge (Habermas, 1971). People's learning is structured by these 'cognitive interests' but it is the critical-dialectical form of knowledge that liberates people because this is where they are actively involved bodies with power to change their context. This is extended through a critical pedagogy (Freire, 1972) that places humans as politically interrelated individuals (Illich, 1973: 3) at the centre of their

own learning. It involves recognising the limits built into all discourse and challenging boundaries of knowledge as well as engaging in ways to re-map it and re-write the borders (Giroux, 1991: 53) for new identities.

7.3 Embodied histories and new identities

Having explored some ways to think about how *technology, language* and *learning*, as separate fields of research that each contribute to how people identify themselves in relation to educational technology, I now examine how these could also interconnect to support new ways of thinking. In earlier arguments I raised the problem that policy language sheds the history and social connections that relate to educational technology in a personal context and present it as a neutral tool for exchange value. This was demonstrated in different forms of nominalised discourse. One way to counteract a meaningless representation of educational technology in terms of fuelling endless productivity is to re-establish the idea of embodied histories, both in people and things, and then to also re-open some pedagogical borders to redefine language, space and possibility (Giroux, 1991, 2004). Firstly, for understanding *language*, humans have developed terms to distinguish different aspects. Language refers to the grammatical, semantic and phonological levels of the field (Simpson & Mayr, 2010: 5), whilst *discourse* is the 'in use' element of language. Halliday (2010) breaks down the history of language into three distinct histories:-

1. History of language as system
2. History of the individual speaker
3. History for each instance of language use, e.g. the text

These follow 3 different trajectories. Whilst language as a system *evolves,* the history of an individual speaker *develops* and follows the course of their life, and in each instance of language use, meaning accumulates and *unfolds*, as each moment re-shapes the text with what is to come. If language is organised differently at different levels (Droga & Humphrey, 2002: 1) these are instantiated, through discourse, in *real* contexts of use (Simpson & Mayr, 2010: 5). The wider concept of discourse captures the idea that what is written and said is framed by people's beliefs and values. From these concepts I consider how, in broader society, discourse intersects with political ideals, sociocultural practices and material structures, such as technology. If meaning accumulates with each instance of language use, to re-shape the text with what is to come, I question whether persistent patterns of a particular type of discourse can squeeze out alternative meanings over time.

For *technology*, there are less adequate terms for its heterogeneous and temporal qualities and our own levels of understanding. Similar histories to those defined by Halliday might be

applied also to *technology*. For example, the history of our technologies as systems *evolves.* Individuals have their own history in which technology *develops* as personal knowledge during the course of their lives, and in each instance of use of technology, meaning *unfolds.* Technology carries a designer's beliefs and values for intended 'use'. It may be deployed by others for a different use, at different times, and in different contexts and cultures. The technology itself may break, and therefore interrupt use. Whilst people know these things through their interactions with technology, with greater critical awareness they might ask: What really constitutes 'technology'? It includes objects, activities and knowledge as basic elements. However, the complexity increases as we contemplate a move from 'individual tools and objects to machines, buildings, sociotechnical systems and modes of organisation (Matthewman, 2011:2).

The same may be said about *learning,* which as an art and science of how something is taught or learned, and a craft that might be developed, both practical and theoretical elements are dynamically connected. In the practice of learning people use language, and now increasingly technology, to interact with other people. They may discuss the external world, such as things, events, qualities, or their internal worlds, such as thoughts, beliefs and feelings. In *learning*, we might think then of the way in which systems and theories have *evolved* about how knowledge is acquired. Individuals learning have a personal history which *develops* and follows the course of their lives, and in each instance of learning a meaning from language and technology together unfolds.

In establishing different levels at which *technology, language* and *learning* might operate and constitute each other, this acknowledges these elements are much more complex than a discourse about TEL would have people believe. All are subject to constant change, interaction with each other, and with other aspects of society. From such ideas it is possible to consider how, in broader society, technology intersects with political ideals, socio-cultural practices, and is discussed for the purpose of learning, through discourse. In discussing the practical and theoretical elements of *technology, language* and *learning* it soon becomes clear that, even as we separate these, we must immediately acknowledge that they are inextricably intertwined. I therefore contribute to broader, alternative ways of thinking about educational technology as an interconnected *technology-language-learning* nexus.

7.4   TEL re-envisioned as a *technology–language-learning* nexus

My thesis develops the idea of a *technology–language-learning* nexus, as a contribution to new ways of thinking critically about educational technology, as multi-dimensional across the networked elements that constitute TEL. I link this theoretically with a relational view of the

self (Simmel, 1950, May, 2013: 4) where learning, identification and understanding of ourselves is always connected to other people through language and material things. Human interactions, language and material things interwine through education and technology, to constantly recreate the social order and context around us. My conception of a *technology–language-learning* nexus emphasises the place of critical connections between these rather than a separation that takes place through reification in modernity. In UK policy discourse how terminology positions these elements changes the meaning. Below, in Table 19 at temporal intervals the titles of some example policy documents demonstrate this in the choices and order of words:

October 1999	***Communications and information technology*** materials for learning and teaching in UK higher and further education	HEFCE 1999/60
March 2005	HEFCE strategy for ***e-learning*** 2005/12	HEFCE 2005/12
April 2008	***Enhancing Learning and Teaching through Technology:*** a Strategy for Higher Education in Wales	HEFCW 2008
March 2009	A revised approach to HEFCE's strategy for e-learning: ***Enhancing learning and teaching through the use of technology*** 2009/12	HEFCE 2009/12
July 2014	***Revised Enhancing Learning and Teaching through Technology*** (ELTT) strategy 2007/08 to 2016/17.	HEFCW 2014

Table 19 Terminology changes in UK policy at four year intervals

In 1999 Communication and Information Technology suggests there are communicative elements involved in educational technology. By 2005 e-learning emphasises the online element of learning and by 2009-14 this has been revised to emphasise the enhancement of learning and teaching through the use of technology.

Technology, language and *learning* are dynamic and critical fields of learning in themselves and people are dynamic beings. A traditional epistemological base as a 'technical scientific rationality' is insufficient and needs to be reconceptualised (Fainholc, 2008). Therefore a *technology–language-learning* nexus is intended to provide a basis for a wider critical discussion of how power and ideology intertwine with the key epistemological and ontological elements that constitute a phrase like TEL to shape educational technology meaning. As each of these three elements come into play in people's lives, as they learn through interaction with technology, and describe and experience meaning through language, I imagine a multi-directional intermediation (Hayles, 2005, 7). This is a concept from Hayles that acknowledges the 'complex transactions between bodies and texts as well

as between different forms of media' (Hayles, 2005, 7). Hayles describes a state where 'meaning and significance, must be located within an embodied human world' (Hayles, 2005, 7). Instead of a political discourse where strategies undertake tasks to enhance and transform, or a 'use of technology' is credited with activities of human labour, the dynamic fields of technology, language and learning can be re-envisioned as converging via intermediation. This presents both possibilities and also problems, as people experience rich cultural texts that constitute traces of *language, technology* and *learning* that are not easily separated. It allows troublesome knowledge (Meyer & Land, 2006) to be reconnected with the trouble free language of TEL.

As immersed as people may be now within networks of learning possibilities through new media, policy language for educational technology does not yet reflect a diverse participatory culture. My research has shown from different angles that people are not easily identified in the political discourse for educational technology. A deceptively spacious policy discourse implies people make their own choices in their use of educational technology, but this discourse conceals an ongoing, basic assumption that implementing new technologies as external applications in themselves, determines learning. People's material and local worlds and indeed their labour have been left out. Perhaps this is a language people have become used to not belonging in, but I would argue desubjectivisation in this policy is often hard to detect. Confronting a large volume of this discourse is necessary in order to notice humans actually don't belong there. Who can belong anywhere is always linked to power and inequality (May, 2013: 154). Belonging focuses on what connects people to one another and to different dimensions of their surrounding world that helps them create a sense of self (May, 2013: 9) within their learning contexts. In considering how a plurality of material practice in learning technology could be re-envisioned I would suggest that a conscious political choice is necessary for people to re-occupy the language of policy.

A *technology–language-learning* nexus can only contribute to a more diverse participatory culture in educational technology if humans make a choice to be present in higher education policy language that has currently replaced them with technology. This choice could be to meet educational technology within an organic, networked approach rather than a market-driven or hierarchical strategy. Networks might be distinguished from both hierarchical forms of organisation and from the anarchy of the market (Thompson *et al*, 1991). This avoids a linear route of technology as enhancement alone and helps people envisage a convergence (Jones, 2001) of technology, language and learning in new media, but also dialectically linked with ideology and power. For people to appreciate educational technology as *both* a political discourse and a material practice, it is necessary to understand technology and

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language as embodied and not 'external' to them. This critical awareness provides a form of resistance to desubjectivisation in political rhetoric that has attributed people's labour and thus their identities also to technology to act on their behalf. Critical awareness of belonging in a *technology–language-learning* nexus helps people avoid alienation from closed relationships in policy discourse and offers conceptual space in an individual context for a broader personal perception of educational technology.

7.5   What would an emancipatory discourse for TEL look like?

Little of the critique of modern capital that is offered through critical pedagogy (Freire, 1972, McLaren, 1994) can be found in UK post-Internet educational technology literature. There are some exceptions more recently, but most of the literature has concentrated on more practical applications of technology, in terms of generic case studies and facilitation of practice. Equally, more critical linguistic accounts of educational discourse (Hasan, 1998) have not necessarily pinpointed the policy discourse in which we discuss educational technology as problematic. This reveals the paradox that whilst humans intimately connect to technology they may yet fail to recognise the politics and social interests that technology embodies. If the political choices that drive agendas for technology in higher education are not recognised, this makes it challenging to imagine an alternative emancipatory discourse. Policy discourse provides a compressed version of how students might experience technology, language and learning, confining these elements along a very narrow TEL route. Understanding the relationship between *language* and power which is constituent with all it touches including *technology* and *learning* is one way to re-envision the TEL discourse.

In my corpus-based CDA I demonstrated some linguistic choices that position people and technologies to maintain a restricted version of practice where one model might be repeated anywhere. Yet, any *technology* might evolve differently (Matthewman, 2011:27), *language* varies according to location and the semiotics of each culture and *learning* too is situated. Whilst policy may refer to improvement of 'the student experience' as an objective there are many student experiences and all of these are subjective. Such language reduces our tangible human presence in these texts, classifying the diverse practices of many individual students as a single entity.

Given these points, a critical awareness of the convergence of *technology, language* and *learning* within the interdisciplinary field of educational technology supports movement from one-dimensional discourse towards a multi-dimensional approach. If educational technology has been enframed in policy texts, through an ideology of false consciousness or a hegemony of 'common sense' (Gramsci, 1971) then, through CDA, I have attempted to

demonstrate these restrictions. This can however lead to a point where it is hard to move forward beyond having identified what seems to be 'going on'. I have exposed an ideology, now what can be done? I link this endeavour with the concept of praxis as a cultural form of resistance developed through critical theory. In praxis, our contemplation in language would not neglect the active life which I understand to be intimately connected with the things around us. How people talk about these things holds the key to re-establishing their place within the discourse used to discuss technology. Ideologies that are general and abstract can be more useful to maintain a dominant neoliberal discourse therefore I suggest people might actively choose to write more specific representations about their material encounters into higher education policy. Below I provide an example, urging others also to further this research to seek concrete textual imaginaries of alternative discourses to TEL:

> The people who have written this university policy to support students in their learning and staff in their teaching are listed below with their contact details. As a group we present this document to our colleagues for ongoing discussions and development. We each hope that you will find the recommendations and ideas we have shared to be relevant. These are based on feedback from our own students, the literature we have listed and our own individual practices. However, we understand technology to be experienced by people in diverse ways and varied contexts of practice. We therefore hope that you will approach us through our contact details to provide your own suggestions and feedback that we might integrate into the next version of this developing framework to support our collaborative and individual engagement with technologies for learning.

This is one suggested approach to begin to write humans back into the script of higher education policy. Through praxis, the active lives and labour of the writers and audience have been considered and referred to. Hopefully their presence in the text can be appreciated along with references to their practice. This form of writing takes time and a conscious effort to avoid the aspects of externality, desubjectivisation and closure and to consider instead the whole of human interests. Reoccupation of the language may not be swift, but I will be bold enough to suggest we might each take some responsibility to actively write in our own form of networked resistance. Seeking an emancipatory route to reconnect ourselves to the policy discourse is a pressing educational technology project.

8 Conclusions

In 1968 McLuhan observed that 'all our technologies in the Western world are built on the assumption that they have complete immunity from inspection' (McLuhan, 1968: 335). In 1992 Postman in *Technopoly* declared technology to be both 'friend and enemy' to humanity (Postman, 1992: 13). It has a 'lengthy, intimate and inevitable relationship with culture' to such an extent that it does not invite a close examination of its consequences (Postman, 1992: 13). In the same year, Latour declared technologies to be the 'missing masses' of social theory (Latour, 1992). Sociological literature for too long has been 'without object' (Matthewman, 2011: 172). Yet curiously, my analysis has shown a rather different situation in policy literature for educational technology. Here, staff and students are absent, not technology. Technology is discussed as a neutral, external agent imbued with a calculating political rationality related to value. Writers of policy for higher education make choices about what human labour gets attributed to technology, rather than to the people who enact the tasks of teaching and learning. These policy statements cannot be verified easily either, because technology has been separated in the discourse from its social and political contexts, from power and from culture.

Lieras evidenced the aspects of externality, desubjectivisation and closure as indications of an oppressive conception of technology. Through a corpus-based CDA it was possible to reveal how policy discourse that focuses on productivity alone omits other human interests, even humans themselves. Ritzer cited a form of increased control from nonhuman technologies over the very people who are served by the system of fast food (Ritzer, 1998: 52). This irrationality of rational systems based on a maximum-yield approach was pointed out too by Illich too who noted that as the power of machines increases, the role of people decreases to mere consumers (Illich, 1973:17). This is ironic when more than ever before we now labour with and within our devices and technological tools day and night. An uncontrolled growth of technology destroys vital sources of humanity, as it creates a culture that 'undermines certain mental processes and social relations that make human life worth living' (Postman, 1992: 13). By these accounts, educational technologies are destined for failure as an emancipatory concept, if people constantly enframe them in discourse of exchange value where they, as humans, are no longer present. In the two decades since Postman's observations, educational technology has gone online with the spread of the Internet. The UK policy for TEL that is the focus of my research now has new global dimensions to support a KBE. Dialectically intertwined with powerful ideals, within neoliberal economies, *technology, language* and *learning* perform crucial coordinating functions.

When learning is broken down into processes, these exist independently of the people who make use of them and the discourse practices about them are then context free. Such 'expert systems' (Giddens, 1991:18) now shape people's lives through diverse media, yet paradoxically, in policy texts we are still told we can control technology. Fairclough's observations about 'technologization of discourse' (Fairclough, 1992) described free floating forms of knowledge that serve to support a wide variety of strategies in diverse contexts. My analysis has demonstrated that similar structures of language have been applied across TEL and e-government policy agendas. These are fluid in nature and able to cross other fields and organisations. In theory, wherever there are possibilities for humans to learn from the multi-faceted concept of what material technologies are in our lives, neoliberal language also has the potential to conceal these opportunities.

In order to sustain a dialogue about TEL, and reinforce the ideological 'script' that technology can mechanically 'add value', participants must keep negotiating. I have examined these negotiations firstly, as texts through *corpus linguistics*, to look at frequencies of *keywords*, *collocation* and *colligation*. Rather than a biased selection of a few texts this brought to light some distinct quantitative patterns enabling me to focus more closely on what emerged around 'the use of technology'. Through CDA I then undertook an *appraisal* analysis to explore 'the kinds of attitudes that are negotiated in these texts, the strength of the feelings involved and the ways in which values are sourced and readers aligned' (Martin and Rose, 2003: 25). In such *interpersonal* processes people exchange commodities (Marx, 1867), assume roles of demander, or responder, as they argue about information, or transfer goods and services. Yet often there is no identifiable human being or group that might be argued with. I noticed a distinct absence of *affect* which was later shown to be consistent with absence of humans. Instead strategies, concepts and technological systems enact labour on people's behalf and at times even tell us what emotions to have. I explored these nominalisations through *transitivity* analysis which realises experiential meaning (Droga & Humphreys, 2002) to examine 'who does what to whom' (Thompson, 2004) within texts about TEL. This illustrated the interplay of economic, social and political elements, in discourse about educational technology helping to reveal interactions that would otherwise remain concealed.

I have argued that the discursive construction of UK policy texts has shaped the way educational technology in higher education has been represented, constructing reality in *one* way, but not others (Pearce, 2004). This has advantages for those who see the discipline of educational technology as literally a way to 'discipline' (Nicoll, 2008), in a managerial context through hierarchical agendas of performativity. It does not though provide an open and

emancipatory dialogue through which students and lecturers might build new knowledge about technology, as well as learn with it. Even when discourse describes a more liberal approach this reflects a form of austerity as an impoverished whole where individual contributions to the common good cannot be detected. This lacks linguistic diversity as a reified, ungraspable state and also impacts on people's identity and sense of worth tied up in their material labour. Marx argued changes in the mode of production in capitalism can lead to alienation where people do not recognise a society of their own making (Morrison, 2006: 120). These policy texts seem to have evicted people altogether now, leaving *only* a collective identity, but one that is unlikely to stage a revolution.

Material semiotics implies that knowledge traditions are performative helping to create the realities that they describe (Law, 2008). However, there are other realities and ways of thinking critically about what constitutes educational technology. My research offers one route for a re-conceptualisation of value in educational technology policy discourse. Other possible choices as a researcher could have involved interviewing or surveying colleagues. However, it is my personal perception that it would be hard for those interviewed to articulate specific linguistic concerns due to complex layers of hegemony. Over the years scrutinised, the documents I have analysed, though now freely available on the internet, have travelled into university practice via various intermediaries, support and managerial staff and through universities own strategies and staff development programmes. The many human and non-human actors involved across time makes a choice of who to interview for this topic a problematic selection. I chose instead to interrogate the policy discourse itself and to use several forms of analysis to shed light on how technology is evaluated and what processes are prioritised or marginalized. TEL is built upon a set of assumptions which are rarely questioned. A wide adoption of this terminology suggests there is a consensus of belief on this ideological position which is questionable. It is now time for us to justify why TEL should be adopted as a starting point for describing the broad and complex field of educational technology in higher education policy. If we cannot do this we need instead to seek a new emancipatory discourse.

In seeking a new plurality for educational technology policy discourse in higher education it is necessary to revisit what policy is and what it does, for staff and students, within higher education institutions. The course of actions suggested in section 7.1 and the concrete textual imaginary of an alternative discourse to TEL in Section 7.5 are intended as starting points for such a project. The policy context includes the challenges higher education institutions face in terms of uncertainty and supercomplexity but solutions are possible to avoid the simplified and linear basis of exchange value. As institutions seek to grow student

numbers and respond to economic challenges, simply buying new technologies and writing about an expected transformation wrought by the use of these is not enough. This simply foregrounds technology and is counterproductive as it in turn limits the involvement of staff and students to socially construct effective and transformative learning environments. We do though have a real opportunity in universities to respond to economic challenges through active reoccupation of the policy writing process. Staff and students need to own this as a socially constructed context that is a key part of their engagement with educational technology. By drawing attention to the important part policy texts play in defining limited institutional contexts for the design and implementation of TEL my thesis exposes a responsibility that institutions need to take in relation to their agendas for inclusivity, diversity and equality. Universities need to be transparent about which human beings are involved in their policy creation and review processes and we all need to actively write-in human agency to facilitate more emancipatory learning opportunities.

I conclude with the observation that to move from a vision where people are simply counting on technology to enhance learning it is necessary to re-do the simple calculation of exchange value within neoliberal political discourse and to include a greater complexity that humans bring. The missing variable of human material practice needs to rejoin the political discourse. This would actively empower people, not technologies, to make changes to policy processes. Rather than accept a discourse of what technology simply *adds* to learning we might consider also what it *subtracts, divides or multiplies*. The neoliberal policy discourse of TEL repeatedly reveals to us what technology *adds* as an *external* application that provides an exchange value for learning. Yet the language also neatly conceals what this approach *subtracts*, through *desubjectivisation*, which is the powerful presence of humans to make changes to their learning environments. The discourse *divides* the technology from society, removing humans from their material practice with technological objects and from their relationships with other people leading to a sense of closure to alternative conceptual routes. Yet by introducing a radical, trans-disciplinary method and critical reflection (Savage and Burrows, 2007: 896), a confrontation becomes possible. Analysis provides a deceptively spacious 'clearing' (Heidegger, 1977) where in a spirit of networked resistance people might actively reoccupy language as a *technology-language-learning* nexus. This then *multiplies* the possibilities for new multi-directional dialogues in educational technology as a network of autonomous choice. In policy people are often told how things *should* be through choices of words that fix arguments. Discourses represent how things *are* and *have been*, but they can also provide space for negotiation of how things *could be*. By critically owning policy discourse and considering how we each write about technology in language for learning humans have the potential to actively create a reality and not merely passively reflect it.

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Appendix 1

List of policy documents and strategies included in the whole corpus

E-Govenment Policy Documents

Date	Title	Words	Bodies
1998	Electronic Government: the view from the queue: *Comprehensive research into potential customer take-up of on-line government services*(Central IT Unit)	50,303	CITU Cabinet Office BMRB Social Research
1999	Professional Policy Making for the Twenty First Century	22,772	Strategic Policy Making Team Cabinet Office
1999	Portal Feasibility Study (Central IT Unit)	16,515	Modernising Government CITU Portal Feasibility Study. PA Consulting Group
1999	Modernising Government	23,698	White paper Cabinet Office
1999	e-commerce@its.best.uk	61,230	Cabinet Office: (performance and innovation unit) Modernising Government
1999	Electronic Service Delivery of Government Services, progress report	11,133	Cabinet Office (information age government) Modernising Government
2000	Wiring it up. Whitehall's Management of Cross-cutting Policies and Services (a performance and innovation unit report)	35,611	Cabinet Office PIU
2000	e.gov. Electronic Government Services for the 21st Century (a Performance and Innovation Unit report)	50,798	Cabinet Office PIU
2000	e-Government. A strategic framework for public services in the information age (Central IT Unit)	10,835	Cabinet Office Modernising Government CITU
2000	e-Government Authentication Framework The office of the e-envoy (Central IT Unit)	6,096	Cabinet Office CITU
2000	UK Government Portal: Change of Address Demonstrator Design	3,891	Compaq Computer Limited for Cabinet Office CITU
2000	CITU Portal Demonstrator: Lessons learned for future portal project phases	531	
2000	Counter Revolution: Modernising the Post Office Network (a Performance and Innovation Unit report)	41,655	Cabinet Office Modernising Government PIU

2000	UK Online Annual Report	31,828	
2000	Successful IT: Modernising Government in Action. REVIEW OF MAJOR GOVERNMENT IT PROJECTS	40,500	Cabinet Office Modernising Government CITU
2000	Framework for Information Age Government. Privacy and data sharing	741	Cabinet Office Modernising Government CITU
2000	Framework for Information Age Government. Security	9,800	Cabinet Office Modernising Government
2000	Modernising Government First Annual Report	14,716	Cabinet Office: Modernising Government CM 4310
2001	Wiring it up. Progress Report. Whitehall's Management of Cross-cutting Policies and Services	17,787	Cabinet Office Modernising Government PIU
2001	E-Government strategy framework policy and guidelines: Registration and Authentication, Version 2.1	14,907	Cabinet Office: Modernising Government
2001	UK Online Broadband Strategy	7,538	Office of the e-envoy First annual report of the BSG(Broadband Stakeholder Group)
2002	BSG Second Annual Report and Strategic Recommendations	27,514	BSG(Broadband Stakeholder Group)
2002	BSG Second Annual Reportand Strategic Recommendations Wireless Report	11,380	BSG(Broadband Stakeholder Group)
2002	Assurance e-Government Strategy Framework Policy and Guidelines Version 2.0	4,429	Cabinet Office: Office of the e-envoy: leading the drive to get the UK online
2002	Security. e-Government Strategy Framework Policy and Guidelines, Version 4.0	16,743	Cabinet Office: Office of the e-envoy: leading the drive to get the UK online
2002	Channels framework Delivering government services in the new economy	12,759	Cabinet Office: Office of the e-envoy: leading the drive to get the UK online
2002	Digital television A policy framework for delivering e-governmentservices to the home	9,578	Cabinet Office: Office of the e-envoy: leading the drive to get the UK online
2002	e-Government Strategy Framework Policy and Guidelines. Registration and Authentication, Version 3.0	9,450	Cabinet Office: Modernising Government
2002	Confidentiality e-Government Strategy Framework Policy andGuidelines, Version 3.0	5,840	Cabinet Office: Office of the e-envoy

2002	OPEN SOURCE SOFTWARE USE WITHIN UK GOVERNMENT, Version 1	995	Cabinet Office: Office of the e-envoy
2002	Privacy and data-sharing: The way forward for public services	53,463	Cabinet Office PIU
2003	BSG Education Report	9,088	BSG(Broadband Stakeholder Group)
2003	Digital television A policy framework for accessing e-government services	8,797	Cabinet Office: Office of the e-envoy: leading the drive to get the UK online
2003	MEASURING THE EXPECTED BENEFITS OF E-GOVERNMENT. Version 1.4	14,996	
2003	UK Online Annual Report	22,564	Cabinet Office: Office of the e-envoy
2003	Policy Framework for a mixed economy in thesupply of e-government services A consultation document	9,678	Cabinet Office: Office of the e-envoy UK Online
2004	The three E"s: efficient, effective and electronic	1,558	Ian Watmore
2004	Improving IT procurement: The impact of the Office of Government Commerce"s initiatives on departments and suppliers in the delivery of major IT-enabled projects REPORT BY THE COMPTROLLER AND AUDITOR GENERAL	5,673	Ordered by the House of Commons HC 877 Session 2003-2004 5 November 2004
2004	OPEN SOURCE SOFTWARE Use within UK Government, Version 2	1,094	Cabinet Office e-Government Unit OGC (Office of Government Commerce)
2004	Releasing resources to the front line Independent Review of Public Sector Efficiency, Sir Peter Gershon, CBE	22,395	Crown copyright HM Gov Cabinet Office
2005	Transformational Government: Enabled by Technology	7,172	Crown copyright HM Gov Cabinet Office CM 6683
2006	Varney Review: Service Transformation: A better service for citizens and businesses, a better deal for the taxpayer	36,708	Crown copyright HM Treasury HMSO
2006	Transformational Government Annual Report	14,491	Crown copyright HM Gov CM 6970
2006	e-Government Metadata Standard Version 3.1	15,257	Cabinet Office e-Government Unit
2007	Transformational Government Annual Report	29,727	Crown copyright HM Gov HMSO
2007	A National Information Assurance Strategy	5,822	HM Gov Cabinet Office CSIA (Central Sponsor for Information Assurance)

2008	Transformational Government Annual Report– our progress in 2008 Delivering better, more efficient services for everyone	1,840	HM Gov Cabinet Office
2008	Transformational Government Annual Report– our progress in 2008 Part 1	11,733	HM Gov Cabinet Office
2008	Transformational Government Annual Report– our progress in 2008 Part 2 Contributions from public sector providers	16,067	HM Gov Cabinet Office
2008	Data Handling Procedures in Government: Final Report	16,817	Cabinet Office: Making Government work better
2008	Review of information security at HM Revenue and Customs. Final report. Kieran Poynter	40,140	Crown copyright HMSO
2009	Open Source, Open Standards and Re-Use: Government Action Plan	2,645	
2009	Government ICT Strategy. Smarter Cheaper Greener	17,971	Crown copyright HMSO
2009	Digital Britain report (Sept 2009)	95,965	BIS: Dept for Business Innovation and Skills CM 7650
2009	Putting the Frontline First: smarter government	23,463	Crown copyright Cm 7753
2010	Conservative technology manifesto	3,165	Conservative Party
2011	The UK Cyber Security Strategy Protecting and promoting the UK in a digital world	13,849	Cabinet Office
2011	HC 715-I Government and IT — "a recipe for rip-offs": time for a new approach	23,364	The Public Administration Select Committee PASC

Total no. of words in E-Govenment Policy corpus	1,097,075

HEFCE/JISC/HEA Policy Documents

Date	Title	Words	Bodies
July 1997	Information Technology Assisted Teaching and Learning in UK Higher Education*	4,415	HEFCE ref M 11/97
July 1997	Teaching and Learning Technology Programme Phase 3: Invitation to bid*	3,070	HEFCE ref C 14/97
January 1998	Use of TLTP materials in UK higher education - executive Summary HEFCE TLTP STUDY – Haywood, Anderson, Day, Land, Macleod & Haywood, 1999	23,929	HEFCE

September 1998	Information Systems and Technology Management Value (VFM) for Money Study	19,378	HEFCE ref 98/42
September 1998	An evaluation of the Computers in Teaching Initiative and Teaching and Learning Technology Support Network	14,112	HEFCE ref 98/47
1999	Circular 5/99: Developing the DNER (Distributed National Electronic Resource) for Learning and Teaching	7,176	JISC 5/99
	Use of TLTP materials in UK HE	2,174	HEFCE 99/39
May 1999	On-Line Teaching: Tools and Projects Stuart Lee Paul Groves Chris Stephens Susan Armitage Oxford University Report: 28 JISC Technology Applications Programme	27,850	JTAP (JISC Technology Applications)
June 1999	Teaching at a Distance: Building a Virtual Learning Environment Maria Lee Randall Thompson Queen's University of Belfast Report 33: JISC Technology Applications Programme	12,788	JTAP (JISC Technology Applications)
October 1999	A Framework for Pedagogical Evaluation of Virtual Learning Environments, Sandy Britain Oleg Liber University of Wales – Bangor	17,288	JTAP (JISC Technology Applications)
October 1999	Communications and information technology materials for learning and teaching in UK higher and further education	5831 80295	HEFCE ref -Summary 99/60 - In Full 99/60a
1999	Centre for Higher Education Practice, The Open University Institutional learning and teaching strategies: A guide to good practice	25,127	**HEFCE 99/55**
1999	Teaching Quality Enhancement Fund: funding arrangements. Section B, 28. Institutional learning and teaching strategies	2,066	HEFCE Invitation 99/48
2000	Business model for the e-University	20,946	HEFCE 00/44a
2000	Annex 1 Examples of e-initiatives in higher education	1,092	HEFCE 00/44a
2000	Annex 2 Options for the corporate structure	3,083	HEFCE 00/44a
2000	Annex 3 Learning products and services	13,522	HEFCE 00/44a
2000	Annex 4 Technology aspects	12,766	HEFCE 00/44a

2001	Strategies for learning and teaching in higher education A guide to good practice	19,866	HEFCE 01/37 June Guide
2002	Funding Innovation and Disseminating New Teaching Practices – a guide to good practice Teaching Quality Enhancement Fund-National Co-ordination team	16,985	TQEF National Co-ordination Team Centre for HE Practice The Open University
2002	Implementing Learning and Teaching Strategies - Teaching Quality Enhancement Fund- National Co-ordination team	13,412	TQEF National Co-ordination Team
2003	Senior Management Briefing Paper - key issues series	1,448	JISC
2003	Managing the future with MLEs	6,257	JISC
2003	Towards a unified e-learning strategy Dept for Education & Skills		DFES Consultation document
2004	Effective Practice with e-Learning	15,121	HEFCE/JISC
March 2005	HEFCE strategy for e-learning 2005/12	6286	HEFCE JISC & HEA
2005	UKeU	109,803	House of Commons
2005	Innovative Practice with e-Learning A good practice guide to embedding mobile and wireless technologies into everyday practice	19,063	HEFCE/JISC
2005	JISC Value for Money Report	6,295	JISC
2006	Good practice Guidance for senior managers Intellectual property rights in e-learning programmes	31,153	HEFCE 06/20
2006	Designing for Learning The proceedings of Theme 1 of the JISC Online Conference: Innovating e-Learning	19,253	HEFCE/JISC
2006	Learner Experiences of e-Learning The proceedings of Theme 2 of the JISC Online Conference: Innovating e-Learning	32,444	HEFCE/JISC
2006	Innovating e-Learning Practice The proceedings of Theme 3 of the JISC Online Conference: Innovating e-Learning	31,076	HEFCE/JISC
2006	Improving the Quality of e-learning	1,469	HEFCE/JISC

2006	Effective Practice with e-learning evaluation report	6,400	HEFCE/JISC
2006	JISC Value for Money Report	15,960	JISC
2006	Designing Spaces for Effective Learning. A guide to 21st century learning space design	8,856	HEFCE/JISC
2007	Institutional Transformation	17,424	HEFCE/JISC
2007	Supporting Lifelong Learning	13,989	HEFCE/JISC
2007	Effective Practice with e-Assessment An overview of technologies, policies and practice in further and higher education	18,667	HEFCE/JISC
2007	In Their Own Words: Exploring the learner's perspective on e-learning	13,337	HEFCE/JISC
2007	Value of JISC update	5,586	JISC
2008	A study for the JISC into the integration of technology into institutional strategies. Undertaken on behalf of the JISC *By Jon Duke, Andy Jordan and Bob Powell for Duke & Jordan Ltd*	20,006	JISC
June 2008	Great Expectations of ICT how Higher Education Institutions are measuring up. Research Study for the Joint Information Systems Committee (JISC) - Report June 2008	17,632	JISC
2008	Effective Practice with e-Portfolios	15,612	JISC/HEFCE
March 2009	A revised approach to HEFCE's strategy for e-learning: Enhancing learning and teaching through the use of technology 2009/12	5,672	HEFCE
2009	Effective Practice in a Digital Age	19,433	HEFCE/JISC
2009	Enhancing learning through technology	9,019	HEA
2009	Transforming Higher Education through Technology Enhanced Learning	101,045	HEA
2009	From inputs to impact. A study of the impact of JISC funding on universities	11,939	Commissioned by million+ and funded by JISC.
2010	Transformation Through Technology Illustrating JISC's impact across two decades	28,444	JISC
2010	Study of UK Online Learning	30,995	Report to HEFCE by the Dept for Continuing Education, University of Oxford

January 2011	Collaborate to Compete: seizing the opportunity of online learning for UK HE	6,426	OLTF to HEFCE
2011	Transforming Curriculum Delivery through Technology Stories of challenge, benefit and change	4,551	HEFCE/JISC
2011	Jorum Learning to Share	18,515	JISC
2011	Emerging Practice in a Digital Age	20,071	HEFCE/JISC
2011	Report to HEFCE by the JISC Review Group	10,848	HEFCE
November 2011	HEFCE business plan 2011-2015 Principles, priorities and practices	16.611	HEFCE 2011/34 Guide
2011	Summative evaluation of the CETL programme Final report by SQW to HEFCE and DEL	69,783	HEFCE

JISC Strategy Documents

Date	Title	Words	Bodies
1996 - 2001	Five Year Strategy	23,324	JISC
2001-2005	JISC Strategy	4,075	JISC
2004–2006	JISC strategy	9,147	JISC
2007-2009	Strategy	10,580	JISC
2010-2012	Strategy	18,083	JISC
2010-2012	Strategy – consultation and responses	15,713	JISC

JISC Annual Reviews

Date	Title	Words	Bodies
2001	A far-reaching vision	7,966	JISC
2003	Annual Review 2003	4,389	JISC
2004	Annual Review 2004	7,841	JISC
2006	Annual Review 2006	7,660	JISC

Total no. of words in HEFCE/JISC/HEA Policy corpus   **1,157,372**

University E-Learning and Technology Enhanced Learning (TEL) Strategies

Date	Title	Words
2002	Warwick	6928
2004	Dundee	2891
2004-2007	Paisley	1160
2005	Edgehill	5744
2005	Glasgow Caledonian	4812
2005	Ulster	2984
2005-08	Birbeck	5929
2005-09	Aberystwyth	1594
2005	Bristol	3628
2005	Reading	3186
2005	Leicester	9607
2005	Stranmills	2735
2006	Swansea	1171
2006	Greenwich	2663
2006	Nottingham	2184
2006	Southampton	2597
2006	Stafford	14846
2007	Kent	4649
2007	Liverpool	3277
2007	Oxford	42772
2007	DeMontfort	1564
2007	Manchester	2257
2008	University of East London (UEL)	2939
2008	Westminster	6177
2008	Bedfordshire	3480
2008	Huddersfield	3192
2008	Wales	8052
2008	London International	4449
2010	UWIC	5625
2011	Dundee	2530

Appendix 2

An Appraisal analysis of Attitude in the first 1200 words of the Wales Strategy

Colour Key for appraisals of Attitude

Affect
Judgement
Appreciation

In the following paragraphs (P1, P2, P3 and so on) each appraisal, in terms of *attitude,* has been underlined and categorised as either *affect judgement* or *appreciation*. The + or – denotes if the category is *positive* or *negative*.

P1
This circular provides a ten year strategy for the enhancement [appreciation/valuation +] of learning and teaching through technology for higher education (HE) in Wales from 2007/08 to 2016/17. It aims to accelerate [appreciation/reaction +] the mainstreaming [appreciation/composition+] of technology enhanced [appreciation/valuation +] learning and teaching provision, processes and practice. It seeks to support [judgement/tenacity +] Welsh higher education institutions in embracing [appreciation/reaction +] new technologies and identifying how their application can enhance [appreciation/valuation +] learning, teaching and the overall [judgement/normality +] student experience.

P2
The aim of this strategy is to accelerate [appreciation/reaction +] the mainstreaming [appreciation/composition+] of technology-enhanced [appreciation/valuation +] learning and teaching provision, processes and practice in Higher Education in Wales. In the ten year period covered by the strategy there will be developments that are as yet unthought-of [appreciation/valuation -]. This has made the development of this strategy a real challenge [appreciation/valuation +]. We will review the strategy regularly to take account [appreciation/composition+] of these new developments and to ensure that it remains relevant [appreciation/composition+] to higher education in Wales.

P3
This strategy could not have been developed [appreciation/valuation -] without help [judgement/propriety+] from many individuals and organisations. I would particularly like [affect/happiness+] to thank our E-learning sub-group, chaired by Professor Robert Pearce. I would also like [affect/happiness+] to thank our Learning and Teaching Committee, Higher Education Wales, the Higher Education Academy and the Joint Information Systems Committee Regional Support Centre Wales for their help [judgement/propriety +]. I am also grateful [affect/satisfaction +] to all those institutions, organisations and individuals who responded [judgement/propriety +] to the consultation on the strategy and on the statement of position of e-learning in higher education in Wales. Their contributions have been invaluable [judgement/capacity +] in the development of this document.

P4
This document outlines a ten year strategy for the enhancement [appreciation/valuation +] of learning and teaching through technology for higher education (HE) in Wales from 2007/08 to 2016/17. It will be reviewed at regular intervals throughout its lifespan. It is of necessity at a high level [judgement/tenacity +] to provide an overarching [judgement/tenacity +] framework within which institutions may work flexibly [judgement/capacity +]

P5
Rather than refer to e-learning, we have emphasised [affect/security +] the enhancement [appreciation/valuation +] of learning and teaching facilitated [appreciation/composition+] and supported [appreciation/composition+] by the use of information and communications technology (ICT). We will refer to this as *technology-enhanced* [appreciation/valuation +] *learning*.

P6
This strategy aims to accelerate [appreciation/reaction +] the mainstreaming [appreciation/composition+] of technology-enhanced [appreciation/valuation +] learning and teaching provision, processes and practice. It therefore seeks to support [judgement/tenacity +] Welsh higher education institutions (HEIs) in embracing [appreciation/reaction +] new technologies and identifying how their application can enhance [appreciation/valuation +] learning, teaching and the overall student experience. It will also impact [appreciation/valuation +] on the provision of HE in further education institutions.

P7
It is impossible [affect/dissatisfaction -] to imagine all the ways in which technology will impact [appreciation/reaction +] on learning and teaching over the coming decade. This strategy therefore encourages [judgement/tenacity +] institutions to consider how they can plan for change in the lifetime of this strategy.

P8
In January 2007 we consulted on a Statement of the Position of E-Learning in Higher Education in Wales. This was developed in consultation with our E-learning subgroup (ELSG), membership of which is available at Annex A. That consultation provided us with a broad perspective [affect/security +] on issues facing the HE sector in Wales regarding enhancement [appreciation/valuation +] of learning through use of technology.

P9
We then published a draft Technology-Enhanced [appreciation/valuation +] Learning Strategy for consultation, with the help [judgement/propriety +] of the ELSG2. We also held a consultation conference in association with the Joint Information Systems Committee Regional Support Centre Wales (JISC RSC Wales) and the Higher Education Academy (HE Academy), in November 2007. The outcomes of the consultation are available at **Annex B**.

P10
Our vision is that enhancing [appreciation/valuation +] learning and teaching through the use of technology should be considered a normal [appreciation/composition+] part of mainstream [appreciation/composition+] provision, processes and practices. This means institutions should seek to normalise [appreciation/composition+] the use of technology within learning, teaching and assessment, and core processes. We recognise that normalisation [appreciation/composition+] is a process requiring investment and time [appreciation/valuation +], rather than solely [appreciation/valuation -] a policy outcome.

P11
We anticipate that institutions will engage with [judgement/tenacity +] this strategy and collaborate [judgement/propriety +] to share current and good practice [judgement/capacity +] for the benefit [judgement/normality +] of the whole sector.

P12
We expect your development of technology-enhanced [appreciation/valuation +] learning will be informed by [appreciation/composition +] the learning and teaching strategy of your institution and will be subject to mainstream [appreciation/composition+] quality assurance

procedures
P13
Most potential [judgement/normality +] students are already accustomed to [judgement/normality +] using technology extensively [appreciation/valuation +] in their everyday lives. We expect that the experience of students in higher education will be enhanced [judgement/capacity +] over the duration of this strategy through the harnessing [appreciation/valuation +] of these technologies where possible. This will include increased flexibility [appreciation/composition +] and accessibility of provision [appreciation/composition +] to meet the needs of [judgement/capacity -] individual learners within an increasingly diverse [judgement/normality -] student body
P14
In the ten year period covered by the strategy there will be developments that are as yet unthought-of [appreciation/valuation -]. Technology will therefore alter the 'shape' of [appreciation/composition -] learning and teaching substantially [appreciation/composition -] over the period of this strategy, including learner demands and expectations [judgement/tenacity +]. For this reason the strategy will be an organic [appreciation/composition +] document and will be reviewed at regular intervals over its lifespan.
P15
Through this strategy we aim to accelerate [affect/security +]the shift from 'pockets of innovation' [judgement/capacity +] to the mainstreaming [appreciation/composition+] of technology-enhanced [appreciation/valuation +] learning and teaching, process and practice. We also aim to support [judgement/tenacity +] institutions at the forefront of such innovation [judgement/capacity +] in maintaining their momentum, so that Wales may help drive [judgement/capacity +] the agenda to enhance [appreciation/valuation +] learning and teaching through the use of technology.
P16

This strategy therefore supports [judgement/tenacity +] and encourages [judgement/tenacity +] institutions in taking up and normalising [appreciation/composition+] the opportunities [appreciation/reaction+] provided by technology and helps create the conditions for achieving [appreciation/valuation +] the following objectives:
 	
• the enhancement [appreciation/valuation +] of learning, teaching and assessment, and of core processes;
• an enhanced [appreciation/valuation +] student learning experience based on robust [appreciation/valuation +] technology, including encouraging [judgement/tenacity +] developments at the forefront [appreciation/composition +] of this provision;
• increased flexibility [appreciation/composition +] and accessibility [appreciation/composition +] of provision, including facilitating [appreciation/composition +] Welsh medium education and taking full account of [appreciation/composition +] equality and diversity;
• effective collaboration [judgement/veracity+] and sharing [judgement/propriety +] of current and good practice [judgement/capacity +] within Wales, the UK, Europe and globally, and at all levels, to:
  • drive [judgement/capacity +] Wales ahead in the enhancement [appreciation/valuation +] of learning;
  • increase [judgement/capacity +] the competitiveness of Welsh institutions;
  • maximise [judgement/capacity +] the contribution of Welsh HEIs to

	the knowledge economy; and <u>engagement</u> <mark style="background-color: yellow">[judgement/tenacity +]</mark> of the sector with the strategy.
P17	
	This strategy emphasises <u>enhancement</u> <mark style="background-color: lime">[appreciation/valuation +]</mark> and <u>mainstreaming</u> <mark style="background-color: lime">[appreciation/composition +]</mark> and we <u>believe</u> <mark style="background-color: cyan">[affect/security +]</mark> these concepts are <u>sustainable</u> <mark style="background-color: lime">[appreciation/composition +]</mark> over its ten-year span, even given the rapid pace of development of technology and its applications.
P18	
	Our focus has been <u>informed by</u> <mark style="background-color: cyan">[affect/security +]</mark> extending the Joint Information Systems Committee (JISC) definition of e-learning to read '*learning <u>facilitated</u>,* <mark style="background-color: lime">[appreciation/composition +]</mark> *supported* <mark style="background-color: lime">[appreciation/composition +]</mark> *and enhanced* <mark style="background-color: lime">[appreciation/valuation +]</mark> *through the use of information and communications technology (ICT)*'3 which places emphasis on <u>supporting</u> <mark style="background-color: lime">[appreciation/composition +]</mark> and <u>enhancing</u> <mark style="background-color: lime">[appreciation/valuation +]</mark> learning rather than on technology. It also avoids the word 'deliver', which might lead to perceptions that the strategy refers only to distance learning. We recognise that you may wish to use other definitions, or no definition, to fit your mission and application of technology-enhanced <mark style="background-color: lime">[appreciation/valuation +]</mark> learning.

Appendix 3

Examples from the USE concordance: transitivity analysis of the non-finite clauses to the right of 'use of'

Transitivity rationale: the main process in each clause was located to examine how technology and pedagogy are linked around USE OF. The non-finite clauses that follow were labelled in terms of processes, participants and circumstances. This was to examine if an assumed exchange value, in relation to use of technology can be seen, and to notice if processes related to learning seem to move further to the right

Colour Key

	A use of technology
	A form of exchange value
	A type of learning

1) **Externality:** is the way I have described **the use of technology** as it is discussed in these examples as external for people to apply, with an assumed exchange value. For example: to 'increase', 'create', 'improve', 'support', 'enhance', 'ensure', 'add value'. Learning-related labour actions seem pushed to the right with emphasis often on what the use of technology not people's actions achieves.

5659   **the use of technology can increase** accessibility and flexibility of **learning** and support
5660   **the use of technology to create** digital archives **to improve** documentation of **practice**
5661`   **the use of technology to enhance front line productivity** and management and sharing
5665   help drive the agenda **to enhance learning and teaching** through **the use of technology**
5667   Developing strategies through **the use of technology to overcome problems, circumvent disability**
5668   **the use of technology offers an opportunity** of small businesses exchanging ideas and experiences via email or Internet
5669   need for an overarching approach to **the use of technology in support of core activities**
5670   TechDis offers particular advice **on support** through **the use of technology**
5674   The University of Southampton has a reputation for and a long history of innovation, in **the use of technology to enhance learning**
5675   **The use of technology** in some CETLs **has enabled** students to take a more hands-on and **interactive approach to learning**
5677   to produce resources and advice on **the use of technology to enhance assessment**
5678   His research focuses on **the use of technology in higher education**
5680   and **enhancing** their skills and confidence in **the use of technology enhanced learning**
5681   **to enhance the use of technology** in **learning and teaching** and **to facilitate** a more
5682   to share information and drive **the use of technology to enhance learning**
5683   **to improve the student learning experience** through **the use of technology**

5684 Use of 'best practice' in innovation in **the use of technology to achieve novel and effective learning experiences**

5686 management support for **use of technology to enhance** the **learning and teaching experience**

5688 much of the evidence which **supports the use of technology assisted learning and teaching**

5689 [the project] focused on **the use of technology to improve teaching quality**

5690 academic staff with clear guidance on **the use of technology** for **formative and summative assessment**

5691 Education practitioners can **more easily tailor learning materials and activities** to individuals through **the use of technology**

5692 focusing **support** and development on **the use of technology to ensure better delivery to the most excluded**

5694 our approach to understanding and developing **the use of technology** in **higher education**

5696 a view on best practice of **the use of technology in teaching**

5698 **to enhance** core processes such as **student selection, enrolment, and assessment** through **the use of technology**

5699 **the use of technology can enhance** their **learning and teaching experiences**

5701 We aim **to support** and enable you **to enhance learning** through **the use of technology**

5702 the importance of **the use of technology to provide** flexibility and access, eg in the context of **work-based learning**

5703 the case studies illustrated here all provide testimony of **discernible pedagogies** emerging which incorporate **the use of technology**

5704 you may wish to consider how you may best raise the internal profile of **the use of technology to enhance learning and teaching**

5705 consider **the use of technology** in a holistic manner **to facilitate understanding** of the strategic interconnections between **classroom**

5707 We support **the use of technology to enhance the student learning experience**, regardless of location of delivery

5708 It aims to **optimise the use of technology** resources across the public sector, aligning organisation and technology strategies

5709 Her research interests focus upon **the use of technology to create, sustain and develop reflective learning communities**

5711 **shifts in pedagogic approach** and in the learner–tutor relationship can result from **the use of technology in everyday practice**

5716 language, and the strategic focus, from "embedding e-learning" to "**enhancing learning and teaching** through **the use of technology**"

5717 Our vision is that **enhancing learning and teaching** through **the use of technology** should be considered

5733 e-Learning includes a number of case studies exploring **the use of technology to enhance the student learning experience**

5734 the **use of technology to support work-place learning** and the transitions between institutions, as well as **the use of technology** to

5750 highly significant in taking the HE and FE sectors forward in **the use of technology to improve core business activities**

5752 It is therefore appropriate for our revised framework to focus on the **broader opportunities** offered through **the use of technology**

5754 responds to the support needs of managers and practitioners in **the use of technology to enhance assessment**

5756 JISC's role is to champion **the use of technology** where it **adds value** and **builds efficiencies**

5758 widen participation in education by **the use of technology to encourage** non-traditional groups of students, engage employers

5762 the move from 'e-learning' to '**enhancing learning** through **the use of technology** is now well embedded and recognised

5764 resources from the Academy and JISC relating to **the use of technology to enhance learning, teaching and assessment**

5765 the resources they provide **to support** the sector in **the use of technology to enhance learning, teaching and assessment**.

5767 **the use of technology to support and enhance** the business and management functions of **educational institutions**

5774 of the rich and varied UK literature on 'innovative **assessment**' which includes **the use of technology to enhance assessment**

5777 **enhancement** of **learning, teaching and assessment**, and the mainstreaming of **the use of technology** in all aspects of **higher**

5779 the use of technology to promote efficiency and effectiveness through shared public services has shifted to a focus on the

5780 is significant in its advocacy of the use of technology to support radical change in institutional processes

5794 have all informed our revised approach to enhancing learning, teaching and assessment through the use of technology

5795 developing and implementing their own strategies for enhancing learning, teaching and assessment through the use of technology

5798 attention on the use of technology to enhance learning and teaching, to support all aspects of the institution's business

5800 This strategy highlights the government's overall priorities for enhancing education through the use of technology

5801 The Academy provides links to a range of assessment resources focusing on the use of technology to address plagiarism

5805 e learning towards an appreciation of the potential use of technology to address the key challenges facing higher education

5806 the use of technology can help make curriculum design processes more agile and responsive and the experience of learning more

5809 published in March 2005 and focuses on enhancing learning, teaching and assessment through the use of technology

5810 Evidence suggests that the use of technology can improve recruitment and retention

5812 to synthesise evidence of effective practice in the use of technology to enhance learning, teaching and assessment

5815 Develop the effective use of technology to enable and support work-based learning

5818 the use of technology and the ensuing updated Statement of Policy on enhancing learning, teaching and assessment

5822 strategic focus, from "embedding e-learning" to "enhancing learning and teaching through the use of technology

5830 All staff have opportunities to develop and practise skills for enhancing learning through the use of technology

5832 e-learning' (HEFCE 2005/12) and focuses on enhancing learning, teaching and assessment through the use of technology

5842 enhancing learning, teaching and assessment through the use of technology is one of a number of ways in which institutions can

5844 updated in march 2009 with a new emphasis on how learning and teaching could be enhanced by the use of technology

5849 Develop/use best practice models for the use of TEL to transform teaching and learning

THE USE OF TECHNOLOGY or a form of technology (Row 5659– Row 5849)

5659 Transitivity=Material, Verbal, Material

The use of technology	can increase	accessibility and flexibility of learning and support resources,
Actor	Proc: Material	Goal

address	equality and diversity issues,	and	foster	lifelong learning.
Proc: Verbal	Verbiage		Proc: Material	Goal

5660 Transitivity = Material, Material, Material

The use of technology	to create	digital archives	to improve	documentation of practice	and
Actor	Proc: Material	Goal	Proc: Material	Goal	

to support	curricular developments	as well as more effective use of technology
Proc: Material	Goal	Circumstances

5661 Transitivity = Material, Material

The use of technology	to enhance	front line productivity and management reform	and	sharing	best practice
Actor	Proc: Material	Goal		Proc: Material	Goal

5665 Transitivity=Material, Material, Material

Wales	may help	drive	the agenda	to enhance	learning and teaching	through **the use of technology**.
Actor	Proc: Material	Proc: Material	Goal	Proc: Material	Goal	Circ

5667 Transitivity = Material, Material, Material, Material

Developing	strategies	through **the use of technology**	to overcome	problems,	circumvent	disability,
Proc: Material	Goal	Circumstance	Proc: Material	Goal	Proc: Material	Goal

or	finding	alternatives	where a barrier to learning exists
	Proc: Material	Goal	Circumstance

5668 Transitivity = Material

The use of technology	offers	an opportunity of small businesses exchanging ideas and experiences via email or Internet
Actor	Proc: Material	Goal

5669 Transitivity=Relational, identifying

The Academy's work on enhancing learning and teaching	reflects	a growing awareness in institutions of the need for
Token	Proc: rel, ident	Value

an overarching approach to **the use of technology** in support of core activities

5670 Transitivity=Verbal

TechDis	offers	particular advice on support through **the use of technology**
Sayer	Proc: Verbal	Verbiage

5674 Transitivity= Relational, attributive

The University of Southampton	has	a reputation for and a long history of innovation, in **the use of technology** to enhance learning
Carrier	Proc: rel, attrib	Attribute

5675 Transitivity= Material, Material

The use of technology	in some CETLs	has enabled	students
Actor	Circumstance	Proc: Material	Actor

to take	a more hands-on and interactive approach to learning
Proc: Material	Goal

5677 Transitivity=Material, Material, Material

Many of the Subject Centres	have collaborated	with their discipline communities	to produce
Actor	Proc: Material	Goal	Proc: Material

resources and advice on **the use of technology**	to enhance	assessment
Goal	Proc: Material	Goal

5678 Transitivity=Mental

His research	focuses on	**the use of technology** in higher education
Senser	Proc: Mental	Phenomenon

5680 Transitivity=Material, Material, Material

Staff	must be (equally)	supported	in developing	and	enhancing
Actor	Circ	Proc: Material	Proc: Material		Proc: Material

their skills and confidence in **the use of technology** enhanced learning.
Goal

5681 Transitivity=Relational, identifying, Material, Material

Each faculty	is assigned	a specific Learning Technologist	whose responsibility will be	to enhance
Token	Proc:rel, ident	Value	Circ	Proc: Material

the use of technology in learning and teaching	and	to facilitate	a more learner-centric approach	within their faculty.
Goal		Proc: Material	Goal	Circ

5682 Transitivity= Verbal, Material, Material, Material, Material

We	will encourage	you	to work	with existing groups and networks	as appropriate	to share
Sayer	Proc: Verbal	Phenomenon	Proc: Material	Goal	Circ	Proc: Material

information	and	drive	**the use of technology**	to enhance	learning
Goal		Proc: Material	Actor	Proc: Material	Goal

5683 Transitivity= Material, Material

We	will also	work	with you	(progressively)	to improve	the student learning experience	through **the use of technology**
Actor	Circ	Proc: Material	Goal	Circ	Proc: Material	Goal	Circ

5684   Transitivity= Material

Use of 'best practice' in innovation in **the use of technology**	to achieve	novel and effective learning experiences
Actor	Proc: Material	Goal

5686 Transitivity=Relational, identifying

Senior management support for **use of technology** to enhance the learning and teaching experience	is	evident
Value	Proc: rel, ident	Token

5688 Transitivity=Relational, identifying

Furthermore,	much of the evidence which supports **the use of technology** assisted teaching and learning	is	either diffuse or anecdotal.
Circ	Value	Proc: rel, ident	Token

5689   Transitivity= Mental, Material

[The project] focused on	**the use of technology**	to improve	teaching quality
Proc: Mental	Phenomenon	Proc: Material	Goal

5690 Transitivity= Material, Material

Provide	academic staff with clear guidance on **the use of technology** for formative and summative assessment	and
Proc: Material	Goal	

facilitate	the sharing of best practice	among the staff community
Proc: Material	Goal	Circ

5691 Transitivity= Material

Education practitioners	can more easily	tailor	learning materials and activities to individuals	through **the use of technology**
Actor	Circ	Proc: Material	Goal	Circ

5692 Transitivity=Relational, attrib, Mental, Material

A digital inclusion team	has	been established	with the key objectives of	focusing
Attribute	Proc: rel, attrib	Carrier	Circ	Proc: Mental

support and development on **the use of technology**	to ensure	better delivery to the most excluded
Phenomenon	Proc: Material	Goal

5694 Transitivity=Relational, identifying

As well as being learner-centred,	our approach to understanding and developing **the use of technology** in higher education	is	research-informed
Circ	Token	Proc: rel, ident	Value

5696 Transitivity= Material

The Subject Centres	(may thus)	develop	a view on best practice of **the use of technology** in teaching.
Actor	Circ	Proc: Material	Goal

5698 Transitivity= Mental, Material, Material, Material

We	wish	to support	you	in achieving	a position where it is unremarkable	to enhance
Senser	Proc: Mental	Proc: Material	Goal	Proc: Material	Goal	Proc: Material

core processes such as student selection, enrolment, and assessment	through **the use of technology**.
Goal	Circ

5699 Transitivity= Mental, Material

We	also	recognise	the diversity of the student and staff populations	and that	**the use of technology**
Senser	Circ	Proc: Mental	Phenomenon		Actor

can enhance	their learning and teaching experiences.
Proc: Material	Goal

5701   Transitivity=Mental, Material, Material, Material

We	aim	to support	and	enable	you	to enhance	learning	through **the use of technology**
Senser	Proc: Mental	Proc: Material		Proc: Material	Goal	Proc: Material	Goal	Circ

5702 Transitivity=Verbal, Material

They	cited	the importance of **the use of technology**	to provide	flexibility and access, eg in the context of work-based learning
Sayer	Proc: Verbal	Verbiage	Proc: Material	Goal

5703 Transitivity=Verbal, Material, Material

The case studies illustrated here	all provide testimony	of discernible pedagogies	emerging
Sayer	Proc: Verbal	Verbiage	Proc: Material

which	incorporate	**the use of technology** seamlessly and selectively into practice	– where it will provide the greatest benefit
Actor	Proc: Material	Goal	Circ

5704 Transitivity=Mental, Material

You	(may wish to)	consider	how	you	(may best)	raise
Senser	Circ	Proc: Mental	Phenomenon	Actor	Circ	Proc: Material

the internal profile of **the use of technology** to enhance learning and teaching
Goal

5705 Transitivity=Mental, Mental, Material

We	anticipate	that	you	(will wish)	to consider	**the use of technology** in a holistic manner
Senser	Proc: Mental	Phenomenon	Senser	Circ	Proc: Mental	Phenomenon

to facilitate	understanding of the strategic interconnections between classroom activity and management requirements.
Proc: Material	Goal

5707 Transitivity=Material, Material, Material

We	support	**the use of technology**	to enhance	the student learning experience,	regardless of location of delivery,
Actor	Proc: Material	Goal	Proc: Material	Goal	Circ

but	designed	with delivery location in mind	including	campus, home and the workplace
	Proc: Material	Goal		Circ

5708 Transitivity=Mental, Material, Material, Mental

It [this cross-government Enterprise Architecture]	aims	to optimise	**the use of technology** resources across the public sector
Senser	Proc: Mental	Proc: Material	Goal

aligning	organisation and technology strategies	to realise	the Transformational Government strategy and personalised public services
Proc: Material		Proc: Mental	Phenomenon

5709 Transitivity= Mental, Material, Material,Material

Her research interests	focus upon	**the use of technology**	to create,	sustain	and	develop
Senser	Proc: Mental	Phenomenon	Proc: Material	Proc: Material		Proc: Material

reflective learning communities from foundation degree level through to mentoring colleagues in HE
Goal

5711 Transitivity= Relational, identifying

Fundamental shifts in pedagogic approach and in the learner–tutor relationship	can result from	**the use of technology** in everyday practice
Value	Proc: rel, ident	Token

5716 Transitivity= Relational, identifying

This document	represents	a subtle but important shift in the language, and the strategic focus	from
Token	Proc: rel, ident	Value	

"embedding	e-learning"	to	"enhancing	learning and teaching	through **the use of technology**"
Proc: Material	Goal		Proc: Material	Goal	Circ

5717 Transitivity= Relational, identifying

Our vision	is	that enhancing learning and teaching through **the use of technology** should be considered
Token	Proc: rel, ident	Value

a normal part of mainstream provision, processes and practices.

5733 Transitivity= Relational, identifying, Mental, Material

Exploring Tangible Benefits of e-Learning	includes	a number of case studies	exploring	**the use of technology**
Token	Proc: rel, ident	Value	Proc: Mental	Phenomenon

to enhance	the student learning experience
Proc: Material	Goal

5734 Transitivity= Verbal, Material, Material

Several papers	addressed	issues around **the use of technology**	to support	work-place learning and the transitions between
Sayer	Proc: Verbal	Verbiage	Proc: Material	Goal

institutions, as well as **the use of technology**	to support	the discovery of progression routes
	Proc: Material	Goal

5750 Transitivity= Relational, attributive

The programme	has been	substantive, far-reaching and highly significant	in taking
Carrier	Proc: rel, attrib	Attribute	Proc: Material

the HE and FE sectors forward in **the use of technology** to improve core business activities.
Goal

5752 Transitivity=Mental

It is therefore appropriate for	our revised framework	to focus on	the broader opportunities offered through **the use of technology**
Circ	Senser	Proc: Mental	Phenomenon

5754 Transitivity= Verbal, Material

The Academy	responds	to the support needs of managers and practitioners	in **the use of technology**	to enhance	assessment and the provision of feedback
Sayer	Proc: Verbal	Receiver	Verbiage	Proc: Material	Goal

5756 Transitivity= Relational, identifying, Material, Material, Material

JISC's role	is	to champion **the use of technology**	where	it	adds
Token	Proc: rel, ident	Value	Circ	Actor	Proc: Material

value	and	builds	efficiencies,	provides	expertise, skills, knowledge and a competitive edge.
Goal		Proc: Material	Goal	Proc: Material	Goal

5758 Transitivity= Material, Material, Material, Material

JISC's capital-funded projects	are helping	to widen	participation in education by **the use of technology**
Actor	Proc: Material	Proc: Material	Goal

to encourage	non-traditional groups of students	engage	employers	and	support	lifelong learning.
Proc: Material	Goal	Proc: Material	Goal		Proc: Material	Goal

5762 Transitivity= Relational, identifying

The move from 'e-learning' to 'enhancing learning through **the use of technology**'	is	now well embedded and recognised
Token	Proc: rel, ident	Value

5764 Transitivity=Material, Material, Material, Material

The campaigns	helped	to raise	the profile of existing resources	from the Academy and JISC
Actor	Proc: Material	Proc: Material	Goal	Circ

relating to	**the use of technology**	to enhance	learning, teaching and assessment.
Proc: Material	Goal	Proc: Material	Goal

5765 Transitivity= Relational, attrib, Material, Material

The Network organisations	are	constantly adding to and developing the resources they provide	to support
Carrier	Proc: rel, attrib	Attribute	Proc: Material

the sector in **the use of technology**	to enhance	learning, teaching and assessment
Goal	Proc: Material	Goal

5767 Transitivity= Relational, identifying, Material, Material

e-Administration	is	**the use of technology**	to support	and	enhance
Token	Proc: rel, ident	Value	Proc: Material		Proc: Material

the business and management functions of educational institutions
Goal

5774 Transitivity= Verbal, Material

The Academy	has commissioned	an analytical review of the rich and varied UK literature on 'innovative assessment'
Sayer	Proc: Verbal	Target

which includes **the use of technology**	to enhance	assessment
Circ	Proc: Material	Goal

5777 Transitivity= Relational, attributive

The emphasis in the heFcW strategy	is	on the enhancement of learning, teaching and assessment and
Carrier	Proc: rel, attrib	Attribute

the mainstreaming of **the use of technology** in all aspects of higher education in Wales

5779 Transitivity= Relational, identifying,

The emphasis on **the use of technology** to promote efficiency and effectiveness through shared public services	has shifted to
Token	Proc: rel, ident

a focus on the enhancement of learning and teaching, and core institutional processes.
Value

5780 Transitivity= Relational, identifying, Material

This definition of transformation	is	significant in its advocacy of **the use of technology**	to support
Token	Proc: rel, ident	Value	Proc: Material

radical change in institutional processes
Goal

5793 Transitivity=Verbal, Verbal

The 2005 heFce strategy	outlined	a number of key aims and objectives, the first of which echoes the policy context
Sayer	Proc: Verbal	Goal

for transformation	in emphasising	**the use of technology** to transform higher education
	Proc: Verbal	Verbiage

5794 Transitivity=Verbal,

These areas of work	have all	informed	our revised approach to enhancing learning, teaching and assessment through **the use of technology**
Sayer	Circ	Proc: Verbal	Target

5795 Transitivity= Relational, identifying, Material, Material, Material, Material

An important step change with the 2009 strategy	is	the emphasis on the role of this policy	in supporting
Token	Proc: rel, ident	Value	Proc: Material

institutions	in developing	and	implementing	their own strategies	for
Goal	Proc: Material		Proc: Material	Goal	

enhancing	learning, teaching and assessment	through **the use of technology**
Proc: Material	Goal	Circ

5798 Transitivity= Mental, Material, Material

Participating institutions	have moved on from discussions about e-learning	and	focused	their attention on **the use of technology**
Senser	Circ		Proc: Mental	Phenomenon

to enhance	learning and teaching	to support	all aspects of the institution's business
Proc: Material	Goal	Proc: Material	Goal

5800 Transitivity=Verbal

This strategy	highlights	the government's overall priorities for enhancing education	through **the use of technology**
Sayer	Process: Verbal	Target	Circ

5801 Transitivity=Material, Material**,** Verbal, Verbal

The Academy	provides	links to a range of assessment resources	focusing on
Actor	Proc: Material	Goal	Proc: Mental

the use of technology	to address	plagiarism	and	promote	academic integrity
Phenomenon	Proc: Verbal	Verbiage		Proc: Verbal	Verbiage

5805 Transitivity=Verbal, Verbal

It [the strategy]	recommended	a bolder and more outward-looking approach	with particular reference to a shift in the strategic emphasis
Sayer	Process: Verbal	Target	Circ

from embedding e learning towards an appreciation of the potential **use of technology**	to address	the key challenges facing higher education
	Proc:Verbal	Target

5806 Transitivity= Relational, attrib, Material

JISC	is	funding 27 projects under two major programmes of research	investigating	how **the use of technology**
Carrier	Proc: rel, attrib	Attribute	Proc: Material	Goal

can help make curriculum design processes more agile and responsive and the experience of learning more engaging, inclusive and rewarding

5809 Transitivity=Material, Material

This document	builds on	'HEFCE strategy for e-learning' (HEFCE 2005/12),	published in March 2005,	and
Actor	Proc: Material	Goal	Circ	

focuses on	enhancing learning, teaching and assessment through **the use of technology**
Proc: Mental	Phenomenon

5810 Transitivity=Verbal

Evidence	suggests	that **the use of technology** can improve recruitment and retention
Sayer	Proc: Verbal	Target

5812 Transitivity= Relational, identifying, Material, Material

The programme of activities	includes	the commissioning of three new Learning Technology specialists	one for each area
Value	Proc: rel, ident	Token	Circ

to synthesise	evidence of effective practice in **the use of technology**	to enhance	learning, teaching and assessment
Proc: Material	Goal	Proc: Material	Goal

5815 Transitivity=Material, Material, Material

Develop	the effective **use of technology**	to enable	and	support	work-based learning
Proc: Material	Goal	Proc: Material		Proc: Material	Goal

5818 Transitivity= Relational, identifying

JISC activities	have been influential in developing	national policies and strategies related to technology and teaching and learning,
Token	Proc: rel, ident	Value

such as the review of HEFCE's strategy for 'Enhancing learning and teaching through **the use of technology'** and the ensuing updated

Statement of Policy on enhancing learning, teaching and assessment using technology

5822 Transitivity= Relational, identifying

This document	represents	a subtle but important shift in the language, and the strategic focus, from "embedding e-learning"
Token	Proc: rel, ident	Value

to "enhancing learning and teaching through **the use of technology**

5830 Transitivity= Relational, attrib, Material, Material

All staff	have	opportunities	to develop	and	practise	skills for enhancing learning through **the use of technology**
Carrier	Proc: rel, attrib	Attribute	Proc: Material		Proc: Material	Goal

5832 Transitivity=Material, Mental

This document	builds on	'HEFCE strategy for e-learning' (HEFCE 2005/12),	and	focuses on
Actor	Proc: Material	Goal		Proc: Mental

enhancing learning, teaching and assessment through **the use of technology**
Phenomenon

5842 Transitivity=Relational, identifying

Enhancing learning, teaching and assessment through **the use of technology**	is	one of a number of ways in which
Value	Proc: rel, ident	Token

institutions can address their own strategic missions

5844 Transitivity= Relational, attrib, Material

The heFce strategy	was	updated in march 2009	with a new	emphasis on
Carrier	Proc: rel, attrib	Attribute	Circ	Proc: Material

how learning and teaching could be enhanced by **the use of technology**
Goal

5849 Transitivity= Material, Material

Develop/use	best practice models for the use of TEL	to transform	teaching and learning
Proc: Material	Goal	Proc: Material	Goal

PROCESS TOTALS from corpus examples around 'the use of technology'

Relational, attributive	Relational, identifying	Verbal	Mental	Material
8	19	15	18	99

2) **Desubjectivisation:** is the way I have described these groups of examples, where again a form of nominalisation can be noticed as nouns enact processes to speak and act on behalf of people. This time it is not 'the use of technology' that acts or speaks, but other concepts that take the place of humans to undertake the main process in each clause. For example: 'this strategy' is the participant that 'emphasises', 'focuses', 'provides', 'describes', 'highlights', or 'appropriate use of' something is said to 'enhance'. I have also indicated in colour across the corpus lines where forms of technology, exchange value or learning are mentioned, to show these observations are not easily separated from the first group. References to these elements are forms of intertextuality where links might made by readers between concepts across clauses and indeed between whole documents.

THIS STRATEGY (examples from rows 5046-5777)

Colour Key

■	**The concept that undertakes the main process**
■	**A form of technology**
■	**A form of exchange value**
■	**A type of learning**

5046 **This strategy provides** the flexibility for **new technology developments** and **sector-specific requirements** to be incorporated
5047 **This programme will expand** the use of ICT learning centres and train individuals to use **ICT** as a tool to develop their communities
5049 **The project will enhance** the access of farmers to **ICT** and the provision electronically of **high quality business support information**
5050 **The case study and review in this chapter suggest** that **the use of mcnay's taxonomy provides** a useful framework for analysing
5051 **All of government has adopted** a common approach to identity management which also supports the use of identity cards
5055 **Such training** will use on-line technologies where appropriate and aims to be **an exemplar** in **the use of the Internet** to deliver
5064 **Its strategy places** great emphasis on an integrated approach to link **further education courses to higher education courses**
5067 **A formal process sees** the heads of school review **the use of information and learning technology (ILT)**
5074 **This strategy emphasises enhancement** and **mainstreaming** and we believe these concepts are sustainable over
5075 **The University seeks to support the development of e-learning** and to embed this into its **learning and teaching policy**
5077 **Great Expectations of ICT explores** the expectations of a cohort of students before they came to university
5080 **The JISC will promote the use of information learning technologies for distance and flexible learning**
5081 **The study raises** a number of important issues concerning the international market for **UK HE and FE programmes** using **C&IT**
5093 **The data collected to date by the CITADEL website confirms** the findings of the recent review of **TLTP**
5094 **JISC will develop** market intelligence capacity to enable it to gather, synthesise and understand requirements and priorities of
5095 **The same institution highlights** the need to consider **the use of information technology** in the context of the wider needs

5096   **The Joint Information Systems Committee defines eLearning** as **'learning facilitated and supported** through the use of

5097   **This Strategy describes** the steps the JISC plans to take in helping **to drive forward** the **use of information systems (IS) in higher**

5098   **heFcW opted to emphasise the enhancement of learning and teaching facilitated and supported by the use of information**

5099   **The University will establish** effective ways to encourage and promote **the use of Information and Communication Technologies**

5102   **The JISC will promote** training in **the effective use of the Internet for finding, accessing and using high quality educational**

5110   **Technology Enhanced Learning (TEL) is defined as the use of information and communication technologies (ICTs) to support**

5111   **e-Learning is defined as** "**learning facilitated and supported** through **the use of information and communication technologies**"

5113   **This strategy aims to accelerate the mainstreaming of technology-enhanced learning** and **teaching provision**

5114   **For the purposes of this strategy e-learning is defined as** "**learning facilitated and supported** through **the use of information**

5116   **This report reviews** the development and **use of communications and information technology (C&IT) materials** in **UK higher**

5118   **For the purpose of this strategy e-learning is defined as** "**learning facilitated and supported** through **the use of information**

5119   **This strategy will focus on five key benefit areas**: a single patient record; workforce empowerment; patient and carer empowerment;

5121   **E-learning, is defined** for the purposes of this document as **learning facilitated and supported** through **the use of information**

5126   **The widespread availability of wireless networking and the use of 'instant-on' or 'always-on' handheld devices raises** new

5134   **The use of new technology will enable** different business models to be developed for the procurement, use and reuse of applications

5139   **The previous channels framework focused on the electronic delivery of services** and the use of intermediaries.

5140   **This report also established** that a key strand in the strategy for e-government should be to create a mixed economy for the delivery

5146   **E-learning has the potential to** underpin a paradigm shift that could **transform learning and teaching across all levels**

5174   **The need to transform services is implied** in a Public Accounts Committee (28 August 2002) report**,** which calls for "services the

5178   **The Modernising Government agenda call for** much greater working across traditional departmental boundaries which demands

5183   **Massive increases in the use of IT for teaching and learning has led to** growing awareness of the potential **use of computer**

5186   **The government is determined** to reform the **use of IT to deliver better services and reduce costs**

5222   **The use of learning technologies can contribute to efficiencies in teaching-related activity**

5224   **This strategy for e-learning strives to realise** the following vision: to **use e-learning to enhance the student learning experience**

5225   **This strategy therefore seeks to ensure** that this **infrastructure, support and resources** are in place in order to maintain

5230   **The new JISC publication explores how technologies can transform the use of learning spaces**

5231   **Designing Spaces for Effective Learning synthesises** a range of JISC work, highlighting current thinking about the use of learning

5244   **Numerous responses collected for this study acknowledge** that considerable work needs to be done in encouraging transferability

5283   **This strategy should release** savings of at least £250-300 million a year by the third year of the 2007 Comprehensive Spending

5372   **This Strategy does not propose** that **e-learning** replaces face to face models of learning but argues for a blended learning model

5436   **This report aims** to set out a new strategic approach to the **use of personal data** held by the public sector

5437   **The ability of the public sector to deliver** high quality services, develop well-targeted policies and ensure efficient government

5460   **The University commits to** expanding **the use of plagiarism detection and awareness software** and to **use the technology** as a

5665   **This strategy therefore supports and encourages** institutions in taking up and normalising the opportunities provided by **technology**

5694   **This strategy is informed by** engagement in national research projects

5701 **This strategy focuses** on how **technology can enhance** **learning, teaching and the overall student experience**

5753 **This strategy highlights** the government's overall priorities for **enhancing** **education** through **the use of technology**

5777 **This strategy aims** to support and encourage institutions in taking up the **opportunities provided by** **technology**

5046 Transitivity= Material

This strategy	provides	the flexibility for new technology developments and sector-specific requirements to be incorporated as they arise
Actor	Proc: Material	Goal

5047 Transitivity= Material

This programme	will expand	the use of ICT learning centres and train individuals to use ICT as a tool to develop their communities
Actor	Proc: Material	Goal

5049 Transitivity= Material

The project	will enhance	the access of farmers to ICT and the provision electronically of high quality business support information to help them manage their businesses.
Actor	Proc: Material	Goal

5050 Transitivity= Verbal, Material

The case study and review in this chapter	suggest	that	the use of Mcnay's taxonomy	provides
Sayer	Proc: Verbal	Verbiage	Actor	Proc: Material

a useful framework for analysing the relationship between policy, culture and the use of ICTs.
Goal

5051 Transitivity= Mental, Material

All of government	has adopted	a common approach to identity management	which	(also) supports	the use of identity cards
Senser	Proc: Mental	Phenomenon	Actor	Proc: Material	Goal

5055 Transitivity= Material, Mental

Such training	will use	on-line technologies	where appropriate	and	aims
Actor	Proc: Material	Goal	Circ		Proc: Mental

to be an exemplar in the use of the Internet to deliver effective flexible learning.
Phenomenon

5064 Transitivity= Material

Its strategy	places	great emphasis on an integrated approach to link further education courses to higher education courses
Actor	Proc: Material	Goal

5067 Transitivity=Mental

A formal process	sees	the heads of school review the use of information and learning technology (ILT)
Senser	Proc: Mental	Phenomenon

5074 Transitivity= Verbal, Mental

This strategy	emphasises	enhancement	and	mainstreaming	and	we	believe
Sayer	Proc: Verbal	Target		Target		Senser	Proc: Mental

these concepts are sustainable over its ten-year span,	even given the rapid pace of development of technology and its applications.
Phenomenon	Circ

5075 Transitivity=Mental, Material, Material, Material

The University	seeks	to support the development of e-learning	and	to embed	this
Senser	Proc: Mental	Phenomenon		Proc: Material	Goal

into its learning and teaching policy and practice	to support	students	and	improve	the management of learning
Circ	Proc: Material	Goal		Proc: Material	Goal

5077 Transitivity=Mental

Great Expectations of ICT	explores	the expectations of a cohort of students before they came to university
Senser	Proc: Mental	Phenomenon

5080 Transitivity= Material

The JISC	will promote	the use of information learning technologies for distance and flexible learning
Actor	Proc: Material	Goal

5081 Transitivity= Verbal

The study	raises	a number of important issues concerning the international market for UK HE and FE programmes using C&IT
Sayer	Proc: Verbal	Verbiage

5093 Transitivity= Verbal

The data collected to date by the CITADEL website	confirms	the findings of the recent review of TLTP
Sayer	Proc: Verbal	Verbiage

5094 Transitivity= Material, Material, Material, Material, Mental, Material, Material,

JISC	will develop	market intelligence capacity	to enable	it	to gather
Actor	Proc: Material	Goal	Proc: Material	Actor	Proc: Material

synthesise	and	understand	requirements and priorities of education	to (better) target	and
Proc: Material		Proc: Mental	Phenomenon	Proc: Material	

maximise	the value of its future investments.
Proc: Material	Goal

5095 Transitivity= Verbal

The same institution	highlights	the need to consider the use of information technology in the context of the wider needs of the institution
Sayer	Proc: Verbal	Verbiage

5096 Transitivity= Verbal

The Joint Information Systems Committee	defines	eLearning as 'learning facilitated and supported through the use of information and communications technology
Sayer	Proc: Verbal	Verbiage

5097 Transitivity= Verbal

This Strategy	describes	the steps the JISC plans to take in helping to drive forward the use of information systems (IS) in higher education (HE) into the next century
Sayer	Proc: Verbal	Verbiage

5098 Transitivity= Verbal, Material, Material

heFcW	opted to emphasise	the enhancement of learning and teaching	facilitated	and	supported
Sayer	Proc: Verbal	Verbiage	Proc: Material		Proc: Material

by the use of information and communications technology
Goal

5099 Transitivity= Material, Material

The University	will establish	effective ways to encourage and promote the use of Information and Communication Technologies (ICTs)	to enhance	learning, teaching and assessment
Actor	Proc: Material	Goal	Proc: Material	Goal

5102 Transitivity= Material

The JISC	will promote	training in the effective use of the Internet for finding, accessing and using high quality educational information
Actor	Proc: Material	Goal

5110 Transitivity= Relational, identifying, Material, Material

Technology Enhanced Learning (TEL)	is defined as	the use of information and communication technologies (ICTs)
Token	Proc: rel, ident	Value

to support	and	deliver	learning and teaching
Proc: Material		Proc: Material	Goal

5111 Transitivity= Relational, identifying

e-Learning	is defined as	"learning facilitated and supported through the use of information and communication technologies"
Token	Proc: rel, ident	Value

5113 Transitivity= Material

This strategy	aims	to accelerate the mainstreaming of technology-enhanced learning and teaching provision, processes and practice
Actor	Proc: Material	Goal

5114 Transitivity= Relational, identifying

For the purposes of this strategy	e-Learning	is defined as	"learning facilitated and supported through the use of information and communication technologies"
Circ	Token	Proc: rel, ident	Value

5116 Transitivity= Mental

This report	reviews	the development and use of communications and information technology (C&IT) materials in UK higher and further education
Senser	Proc: Mental	Phenomenon

5118 Transitivity= Relational, identifying

For the purpose of this strategy	e-Learning	is defined as	"learning facilitated and supported through the use of information and communication technologies"
Circ	Token	Proc: rel, ident	Value

5119 Transitivity= Mental

This strategy	will focus on	five key benefit areas: a single patient record; workforce empowerment; patient and carer empowerment; service improvement; and knowledge and information management.
Senser	Proc: Mental	Phenomenon

5121 Transitivity= Relational, identifying

e-Learning	is defined (for the purposes of this document) as	"learning facilitated and supported through the use of information and communication technologies"
Token	Proc: rel, ident	Value

5126 Transitivity=Verbal

The widespread availability of wireless networking and the use of 'instant-on' or 'always-on' handheld devices	raises	new questions about where and how learning might take place.
Sayer	Proc: Verbal	Target

5134 Transitivity=Material

The use of new technology	will enable	different business models to be developed for the procurement, use and reuse of applications
Actor	Proc: Material	Goal

5139 Transitivity= Mental

The previous channels framework	focused on	the electronic delivery of services and the use of intermediaries.
Senser	Proc: Mental	Phenomenon

5140 Transitivity= Mental

This report	(also) established	that a key strand in the strategy for e-government should be to create a mixed economy for the delivery of services through the use of intermediaries from the private and voluntary sectors
Senser	Proc: Mental	Phenomenon

5146 Transitivity=Relational attributive

E-learning	has the potential to	underpin a paradigm shift that could transform learning and teaching across all levels and disciplines
Carrier	Proc: rel, attrib	Attribute

5174 Transitivity=Verbal, Verbal,

The need to transform services	is implied	in a Public Accounts Committee (28 August 2002) report	which	calls
Verbiage	Proc: Verbal	Sayer	Sayer	Proc: Verbal

for "services the public want to use", and the "use of IT	to enhance	and	improve	services	and not just to convert existing services"
Verbiage	Proc: Material		Proc: Material	Goal	Circ

5178 Transitivity=Verbal, Verbal

The Modernising Government agenda	calls for	much greater working across traditional departmental boundaries which	demands	the use of IT
Sayer	Proc: Verbal	Verbiage	Proc: Verbal	Verbiage

.
5183   Transitivity=Relational, identifying

Massive increases in the use of IT for teaching and learning	has led to	growing awareness of the potential use of computer-assisted methods in this core activity of universities
Token	Proc: rel, ident	Value

5186   Transitivity= Mental

The Government	is determined	to reform the use of IT to deliver better services and reduce costs
Senser	Proc: Mental	Phenomenon

5222   Transitivity= Material

The use of learning technologies	can contribute to	efficiencies in teaching-related activity
Actor	Proc: Material	Goal

5224 Transitivity= Mental, Material, Material

This strategy for e-learning	strives to realise	the following vision:	to use	e-learning
Senser	Proc: Mental	Phenomenon	Proc: Material	Goal

to enhance	the student learning experience
Proc: Material	Goal

5225 Transitivity= Mental

This strategy	therefore	seeks	to ensure that this infrastructure, support and resources are in place in order to maintain and
Senser		Proc: Mental	Phenomenon

develop an environment which fosters the ability to innovate and move teaching and learning forward

5230 Transitivity= Mental, Material

The new JISC publication	explores	how technologies	can transform	the use of learning spaces
Senser	Proc: Mental	Phenomenon	Proc: Material	Goal

5231 Transitivity= Mental, Verbal

Designing Spaces for Effective Learning	synthesises	a range of JISC work	highlighting
Senser	Proc: Mental	Phenomenon	Proc: Verbal

current thinking about the use of learning technologies in both new and refurbished spaces
Verbiage

5244 Transitivity= Verbal

Numerous responses collected for this study	acknowledge	that considerable work needs to be done in encouraging transferability and implementation of C&IT materials
Sayer	Proc: Verbal	Verbiage

5283 Transitivity= Material

This strategy	should release	savings of at least £250-300 million a year	by the third year of the 2007 Comprehensive Spending Review
Actor	Proc: Material	Goal	Circ

5372 Transitivity= Verbal, Material**,** Verbal

This Strategy	does not propose	that	e-learning	replaces
Sayer	Proc: Verbal	Verbiage	Actor	Proc: Material

face to face models of learning	but		argues for	a blended learning model
Goal			Proc: Verbal	Verbiage

5436 Transitivity=Mental

This report	aims	to set out a new strategic approach to the use of personal data	held by the public sector
Senser	Proc: Mental	Phenomenon	Circ

5437 Transitivity= Material**,** Material, Material, Mental

The ability of	the public sector	to deliver	high quality services	develop	well-targeted policies	and	ensure
	Actor	Proc: Material	Goal	Proc: Material	Goal		Proc: Material

efficient government	depends on	the effective use of knowledge and information – including personal data about citizens
Goal	Proc: Mental	Phenomenon

5460 Transitivity= Mental, Material**,** Material

The University	commits to	expanding	the use of plagiarism detection and awareness software	and
Senser	Proc: Mental	Proc: Material	Goal	

to use	the technology as a driver towards plagiarism enlightenment rather than discipline
Proc: Material	Goal

5665 Transitivity= Material**,** Material

This strategy	therefore	supports	and	encourages	institutions in taking up and normalising the opportunities provided by technology
Actor		Proc: Material		Proc: Material	Goal

5694 Transitivity= Verbal

This strategy	is informed by	engagement in national research projects
Verbiage	Proc: Verbal	Sayer

5701 Transitivity= Mental, Material

This strategy	focuses on	how	technology	can enhance
Senser	Proc: Mental	Phenomenon	Actor	Proc: Material

learning, teaching and the overall student experience
Goal

5753 Transitivity =Verbal, Material

This strategy	highlights	the government's overall priorities for	enhancing	education	through the use of technology.
Sayer	Proc: Verbal	Verbiage	Proc: Material	Goal	Circ

5777 Transitivity =Mental, Material, Material, Material, Material

This strategy	aims	to support	and	encourage	institutions
Senser	Proc: Mental	Proc: Material		Proc: Material	Goal

in taking up	the opportunities	provided by	technology
Proc: Material	Goal	Proc: Material	Actor

APPROPRIATE USE OF (examples from rows 581-614)

Colour Key

⬛	**The concept that undertakes the main process**
🟩	**A form of technology**
🟥	**A form of exchange value**
🟦	**A type of learning**
🟪	**Appropriate use of**

581   Appropriate use of e-learning approaches can enhance the teaching and learning activities which the university already

583   The University College believes that the appropriate use of e-learning can enhance the learning and teaching activities in

585   JISC's e-Learning Programme is working with universities and colleges, and other support organisations, towards greater uptake of

586   if the University supports the development of its alumni relations through the appropriate use of e-learning to enhance these

587   their e-learning developments including the appropriate use of educational technologies, instructional / learning design

588   The strategy proposes to enhance the learning opportunities of all learners through the appropriate use of elearning

590   In general, the assumption that appropriate use of ICT could enhance aspects of student learning was supported

591   Government is better able to deliver public services through the appropriate use of ICT

597   to support and encourage the appropriate use of information and communications technologies (ICT) in learning and teaching

598   Government is better able to deliver public services through the appropriate use of information and communication technology

606   The University will promote the appropriate use of technologies for efficient and effective forms of both formative and

607   the appropriate use of technology is leading to significant improvements in learning, teaching and assessment across the sector

608   a better understanding of pedagogical approaches can help practitioners in making appropriate use of technology

609   The University is committed to student-centred, resource-based, flexible learning systems, which emphasise appropriate use of tech

610   to encourage other institutions to develop learner-centred visions (enhanced by the appropriate use of technology)

613   development areas: flexible course delivery, support for diversity of students and appropriate use of technology to facilitate learning

614   BECTA has estimated very significant savings nationally through appropriate use of technology

581 Transitivity=Material, Material, Material, Material

Appropriate use of e-learning approaches	can enhance	the teaching and learning activities	which	the university	already
Actor	Proc: Material	Goal		Actor	Circ

undertakes	can enable	activities not previously possible	and may potentially	increase
Process: Material	Proc: Material	Goal		Proc: Material

the efficiency both of interactions between staff and students and of the administrative arrangements essential to support effective teaching
Goal

583 Transitivity=Mental, Material, Material

The University College	believes	that	the **appropriate use of** e-learning	can enhance
Senser	Proc: Mental	Phenomenon	Actor	Process: Material

the learning and teaching activities	in which	the University College	already	engages
Goal	Circ	Actor	Circ	Process: Material

585 Transitivity=Material

JISC's e-Learning Programme	is working	with universities and colleges, and other support organisations, towards greater
Actor	Proc: Material	Goal

uptake of **appropriate use of** e-learning by learners, practitioners and institutions.

586 Transitivity=Material, Material

This aim can only be achieved if	the University	supports	the development of its alumni relations	through
Circumstance	Actor	Proc: Material	Goal	Circ

the **appropriate use of** e-learning	to enhance	these activities
Goal	Proc: Material	Goal

587 Transitivity= Material, Material, Material, Mental, Material, Material, Mental, Material, Mental

The University	will provide	and fully	support	a range of core technologies	and	assist with	evaluating
Actor	Proc: Material	Circ	Proc: Material	Goal		Proc: Material	Proc: Mental

peripheral technologies	provide	information and support to academic departments	to help	them
Phenomenon	Proc: Material	Goal	Proc: Material	Senser

decide on	implement	and	evaluate	their e-learning developments including
Proc: Mental	Proc: Material		Proc: Mental	Phenomenon

the **appropriate use of** educational technologies, instructional / learning design, quality considerations and staff development needs

588 Transitivity=Verbal, Material

The Strategy	proposes	to enhance	the learning opportunities of all learners	through the **appropriate use of** elearning
Sayer	Proc: Verbal	Proc: Material	Goal	Circ

590 Transitivity= Material, Material

In general	the assumption that	**appropriate use of** ICT	could enhance	aspects of student learning	was supported
Circumstances	Goal	Actor	Proc: Material	Goal	Proc: Material

591 Transitivity=Relational, attributive

Government	is	better able to deliver public services	through the **appropriate use of** ICT
Carrier	Proc: rel, attrib	Attribute	Circ

597 Transitivity= Material, Material, Verbal

Through this e-Learning Strategy	it [the University]	seeks	actively	to support	and	encourage
Circ	Actor	Proc: Material	Circ	Proc: Material		Proc: Verbal

the **appropriate use of** information and communications technologies (ICT)	in learning and teaching at all levels
Target	Circ

598 Transitivity=Relational, attributive,

Government	is	better able to deliver public services	through the **appropriate use of** information and communication technology (ICT)
Carrier	Proc: rel, attrib	Attribute	Circ

606 Transitivity= Material

The University	will promote	the **appropriate use of** technologies for efficient and effective forms of both formative and summative assessments
Actor	Proc: Material	Goal

607 Transitivity= Mental, Material, Relational, attributive,

The JISC InfoNet report 'Exploring the Tangible Benefits of e-Learning'	found	that	the **appropriate use of** technology
Senser	Proc: Mental	Phenomenon	Actor

is leading	to significant improvements in learning, teaching and assessment across the sector	and	that	this
Proc: Material	Circ			Carrier

is	translating into improved satisfaction, retention and achievement
Proc: rel, attrib	Attribute

608 Transitivity= Material, Material, Mental, Material, Material

The e-Learning and Pedagogy strand of the Programme	aims	to contribute	to this change process	by	focusing
Actor	Proc: Material	Proc: Material	Circ		Proc: Mental

on the ways in which	a better understanding of pedagogical approaches	can help	practitioners
Phenomenon	Actor	Proc: Material	Goal

in	making	**appropriate use of** technology
	Proc: Material	Goal

609 Transitivity= Relational, attributive, Verbal

The University	is	committed to student-centred, resource-based, flexible learning systems,	which	emphasise
Carrier	Proc: rel, attrib	Attribute	Sayer	Proc: Verbal

appropriate use of technology
Target

610 Transitivity= Mental, Verbal, Material, Material

What support	is needed	to encourage	other institutions	to develop	learner-centred visions	(enhanced	by the **appropriate use of** technology)
Phenomenon	Proc: Mental	Proc: Verbal	Target	Proc: Material	Goal	Proc: Material	Circ

613 Transitivity= Relational, attributive, Verbal, Material, Material

Each School	has	its own learning, teaching and assessment strategy	which	addresses
Carrier	Proc: rel, attrib	Attribute	Sayer	Proc: Verbal

the university's three priority development	areas: flexible course delivery,	support for	diversity of students,	and
Verbiage		Proc: Material	Goal	

appropriate use of technology	to facilitate	learning
Actor	Proc: Material	Goal

614 Transitivity=Mental

BECTA	has estimated	very significant savings nationally	through **appropriate use of** technology
Senser	Proc: Mental	Phenomenon	Circ

PROCESS TOTALS

Relational, attributive	Relational, identifying	Verbal	Mental	Material
6	6	20	28	74

3) **Closure:** is the way I have described this group of examples which often relate one concept to another via relational processes that give an impression of finality or completeness. Many of these statements tell us what 'is' or what 'continues to be'. E.g. statements where e-learning is ___ or where JISC will ___ are then followed at times by many more material processes representing people's labour or learning which become overshadowed by the first dominant clause.

EFFECTIVE USE (examples from Rows 1382 – 1585)

Colour Key

⬛	**Relational process**
🟩	**A form of technology**
🟥	**A form of exchange value**
🟦	**A type of learning**

1382   At the heart of the strategy **will be** the aim to realise the **full potential** of **digital technology** through its **effective use**
1383   JISC's vision underlying the JISC Strategy 2007-2009 **continues to be** one of ubiquitous (i.e. anywhere and anytime) and reliable
1393   The emergent themes **are** now more focused on the **empowerment of teaching staff**, to equip them to **redesign their teaching**
1394   staff responsible for implementing the IS/IT strategy, **are** directly responsible for ensuring the most efficient and effective use of
1421   **Effective use of e-learning**, **are** key foci in the **professional development of staff** and will be used to inform **staff development**
1423   **E-learning will be** firmly embedded in the curriculum as a means of **enhancing** the quality of **teaching**, meeting students' expectations
1429   **Effective use of e-learning** as a mainstream component of university teaching **have been** the cost (usually in terms of support staff
1433   in particular there **is** a need for training to enable **more effective use of electronic resources**: finding relevant material; judging its
1441   JISC's remit **can be seen as** facilitating and promoting **the effective use of ICT** across **non-compulsory education and research**
1442   It **is** his responsibility to inspire, enable and support the **effective use of ICT across the whole curriculum**
1446   The UK **is** recognised as a world leader in innovative and **effective use of ICT** in **education**
1450   **effective use of ICT is** increasingly important if UK businesses are to bring about necessary **improvements in productivity**.
1458   FERL **is** an advice and guidance service supporting individuals and organisations in **making effective use of ILT** within
1464   improvement in the public sector **will** require **effective use of information technology (IT)**
1465   The term **e-learning** is used in this document to mean the **effective use of information and communications technologies (ICT)**
1466   **effective use of information is** absolutely central to the challenges facing the Government today – whether in improving health
1468   NCAT **is** an independent non-profit organisation dedicated to the **effective use of information technology** to improve **student learnin**
1469   Digital Age **is** designed for those in **further and higher education** who are looking to develop and implement the **effective use of**

1481 **effective use of JISC Services and datasets** **is** often constrained by the lack of training and awareness of these services

1483 to deliver high quality services, develop well-targeted policies and ensure efficient government **depends on** the **effective use of**

1485 changes in **technology** **are** beginning to **transform** the public sector with the move to **electronic delivery** of public services and

1487 HEFCE's objectives for learning, teaching and student choice **are** to support the continuous improvement of teaching, learning

1497 processes and the outcomes for learners and reduce their costs over the longer term through the **effective use of open standards**

1500 if the potential benefits of **more effective use of personal data** **are** to be realised, the public sector needs to build greater trust in the

1522 the resources that were identified confirm that the **effective use of technology to enhance assessment for learning** as well as the

1527 all of this **is** underpinned by the **effective use of technology**

1530 systematic high quality teaching **is** dependent on the **effective use of technology** to develop **students' skills**

1534 **effective use of technology** **is** vital if we are to maintain the world-class provision of UK **higher education**

1536 there **is** a need for more **effective use of technology to provide** access to performance information and to permit data to be submitted

1550 The JISC funds a number of services that **are** essential to the efficient and effective use of the network

1573 to harness **the potential offered by ICT**, and ensure its **effective use** **requires** the consideration and understanding of a range of issu

1582 **eLearning** **will** be used **to innovate** both **learning and its delivery** and will be delivered making **effective and efficient use**

1585 the team **is** responsible for promoting the **effective and efficient use of corporate e-learning applications**; providing frontline

1382 Transitivity= Relational, attributive, Material

At the heart of the strategy	will be	the aim to realise the full potential of digital technology through its **effective use**
Carrier	Proc: rel, attrib	Attribute

and	embed it	in all our learning and teaching processes
	Proc: Material	Goal

1383 Transitivity= Relational, attributive, Mental, Material, Material

JISC's vision underlying the JISC Strategy 2007-2009	continues to be	one of ubiquitous (i.e. anywhere and anytime) and reliable access to electronic information
Carrier	Proc: rel, attrib	Attribute

with a growing	focus on	services and tools, processes and practices that	support	the **effective use**	and
Circ	Proc: Mental	Phenomenon	Proc: Material	Goal	

increase	the value of this information
Proc: Material	Goal

1393 Transitivity= Relational, attributive**,** Material, Material

The emergent themes	are	now more focused on the empowerment of teaching staff	to equip	them
Carrier	Proc: rel, attrib	Attribute	Proc: Material	Goal

to redesign	their teaching	in a way that makes **effective use** of available resources, including technology
Proc: Material	Goal	Circ

1394 Transitivity= Relational, attributive**,** Material

IS/IT directors and other members of staff responsible for implementing the IS/IT strategy	are	directly responsible for
Carrier	Proc: rel, attrib	Attribute

ensuring	the most efficient and effective use of available IS/IT resources
Proc: Material	Goal

1421 Transitivity= Relational, identifying, Material, Verbal

The current corpus of research and scholarship, E Literacy/Information Literacy Development to underpin maximising **effective**
Token

use of e-learning	are	key foci in the professional development of staff	and will	be used
	Proc: rel, ident	Value		Proc: Material

to inform	staff development and the learning experiences of students
Proc: Verbal	Verbiage

1423 Transitivity=Relational, attrib, Material, Material, Mental

e-learning	will be	firmly embedded in the curriculum	as a means of	enhancing
Carrier	Proc: rel, attrib	Attribute	Circ	Proc: Material

the quality of teaching	meeting	students' expectations	and	responding to	the needs of the workplace
Goal	Proc: Material	Goal		Proc: Mental	

1429 Transitivity=Relational, ident,

The main barriers to the **effective use** of e-learning as a mainstream component of university teaching	have been	the cost (usually
Token	Proc: rel, ident	Value

in terms of support staff time), the availability of academic staff time and the ICT skills of staff.

1433 Transitivity= Relational, ident, Material, Material, Mental, Material, Material,

In particular	there	is	a need for training	to enable	more **effective use** of electronic resources:
Circ	Token	Proc: relational, ident	Value	Proc: Material	Goal

finding	relevant material;	judging	its quality;	accessing	and	using	multi media information etc.
Proc: Material	Goal	Proc: Mental	Phenomenon	Proc: Material		Proc: Material	Goal

1441 Transitivity= Relational, attrib

JISC's remit	can be	seen as facilitating and promoting the **effective use** of ICT across non-compulsory education and research
Carrier	Proc: rel, attrib	Attribute

1442 Transitivity= Relational, attrib, Material, Material, Material

It	is	his responsibility	to inspire,	enable	and	support
Carrier	Proc: rel, ident	Attribute	Proc: Material	Proc: Material		Proc: Material

the **effective use** of ICT across the whole curriculum
Goal

1446 Transitivity= Relational, attrib

The UK	is	recognised as a world leader in innovative and **effective use** of ICT in education
Carrier	Proc: rel, attrib	Attribute

1450 Transitivity= Verbal, Relational, attrib, Material

Recent research	indicates	that	widespread and **effective use** of ICT	is	increasingly important	if	UK businesses
Sayer	Proc: Verbal	Verbiage	Carrier	Proc: rel, attrib	Attribute	Circ	Actor

are to bring about	necessary improvements in productivity.
Proc: Material	Goal

1458 Transitivity= Relational, identifying, Material, Material

Further Education Resources for Learning. FERL	is	an advice and guidance service	supporting
Token	Proc: rel, ident	Value	Proc: Material

individuals and organisations	in making	**effective use** of ILT	within the Post Compulsory Education sector.
Actors	Proc: Material	Goal	Circ

1464 Transitivity=Relational, attributive

Improvement in the public sector	will	require **effective use** of information technology (IT)
Carrier	Proc: rel, attrib	Attribute

1465 Transitivity= Relational, attrib, Mental, Material

The term e-learning	is	used in this document	to mean
Carrier	Proc: rel, attrib	Attribute	Proc: Mental

the **effective use** of information and communications technologies (ICT)	to support	learning and teaching
Phenomenon	Proc: Material	Goal

1466 Transitivity= Relational, attributive, Material, Material, Material

Effective use of information	is	absolutely central to the challenges facing the Government today –	whether in	improving
Carrier	Proc: rel, attrib	Attribute		Proc: Material

health,	tackling	child poverty	or	protecting	the public from crime and terrorism.
Goal	Proc: Material	Goal		Proc: Material	Goal

1468 Transitivity= Relational, attributive, Material, Material, Material

NCAT	is	an independent non-profit organisation	dedicated to	the **effective use** of information technology
Carrier	Proc: rel, attrib	Attribute	Proc: Material	Goal

to improve	student learning outcomes	and	reduce	the cost of higher education.
Proc: Material	Goal		Proc: Material	Goal

1469 Transitivity=Relational, attrib, Mental, Material, Material,

Emerging Practice in a Digital Age	is	designed for those in further and higher education	who	are looking
Carrier	Proc: rel, attrib	Attribute	Senser	Proc: Mental

to develop	and	implement	the **effective use** of innovative technologies	in a pedagogically sound way.
Proc: material		Proc: material	Goal	Circ

1481 Transitivity= Relational, attrib,

Effective use of JISC Services and datasets	is	often constrained by the lack of training and awareness of these services amongst teaching academics
Carrier	Proc: rel, attrib	Attribute

1483 Transitivity=Relational, attrib, Material, Material, Material

The ability of	the public sector	to deliver	high quality services,	develop	well-targeted policies	and	ensure
Carrier	Actor	Proc: Material	Goal	Proc: Material	Goal		Proc: Material

efficient government	depends on	the **effective use** of knowledge and information –	including personal data about citizens.
Goal	Proc: rel, attrib	Attribute	Circ

1485 Transitivity= Relational, identifying

Changes in technology	are	beginning to transform the public sector	with the move to electronic
Token	Proc: rel, ident	Value	Circ

delivery of public services and the increasing ability of public services to make **effective use** of large amounts of electronic data

1487 Transitivity= Relational, identifying

HEFCE's objectives for learning, teaching and student choice	are	to support the continuous improvement of teaching, learning and assessment; diverse forms and
Token	Proc: rel, ident	Value

modes of provision; the **effective use** of learning technologies; and the increased accessibility and use of open educational resources.

1497 Transitivity= Relational, attributive, Material, Material

These [good practices within institutions]	are	needed	to among other things	improve	the quality of their learning
Carrier	Proc: rel, attrib	Attribute	Circ	Proc: Material	Goal

processes and the outcomes for learners	and	reduce	their costs over the longer term through the **effective use** of open standards
		Proc: Material	Goal

1500 Transitivity= Proc: Relational, attrib, Mental, Material, Material

If the potential benefits of more **effective use** of personal data	are	to be realised	the public sector	needs
Carrier	Proc: rel, attrib	Attribute	Actor	Proc: Mental

to build	greater trust in the way that	it	handles	personal information.
Proc: Material	Goal	Actor	Proc: Material	Goal

1522 Transitivity=, Relational, attrib, Material, Material, Material

The resources	that were identified	confirm the **effective use** of technology	to enhance	assessment for learning as well as the assessment
Carrier	Proc: Rel, attrib	Attribute	Proc: Material	Goal

of learning	can improve	the effectiveness of teaching approaches	and	enhance	the student learning experience.
	Proc: Material	Goal		Proc: Material	

1527 Transitivity=Relational, identifying

All of this	is	underpinned by the **effective use** of technology.
Value	Proc: Relational, ident	Token

1530 Transitivity=Relational, attributive, Material, Material, Material, Material, Material, Material, Material

Systematic high quality teaching	is	dependent on the **effective use** of technology	to develop	students' skills
Carrier	Proc: Relational, attrib	Attribute	Proc: Material	Goal

support	different learning styles	enable	flexibility of access	provide	formative feedback	capture
Proc: Material	Goal	Proc: Material	Goal	Proc: Material	Goal	Proc: Material

student learning	encourage	reflective processes	and	enable	the effective deployment of staff resources
Goal	Proc: Material	Goal		Proc: Material	Goal

1534 Transitivity=Relational, identifying, Material

Effective use of technology	is	vital	if we are to	maintain	the world-class provision of UK higher education
Token	Proc: rel, ident	Value	Circ	Proc: Material	Goal

1536 Transitivity=Relational, identifying, Material, Material

There	is	a need for more **effective use** of technology	to provide	access to performance information
Token	Proc: rel, ident	Value	Proc: Material	Goal

and	to permit	data to be submitted in electronic form
	Proc: Material	Goal

1550 Transitivity=Relational, attrib

The JISC funds a number of services that	are	essential to the efficient and **effective use** of the network
Carrier	Proc: Relational, attrib	Attribute

1573 Transitivity=Relational, attrib**,**

To harness the potential offered by ICT, and ensure its **effective use**	requires	the consideration and understanding of a range of issues
Carrier	Proc: Relational, attrib	Attribute

1582 Transitivity=Relational, attributive, Material, Material

eLearning	will	be used to innovate both learning and its delivery	and will be delivered	making
Carrier	Proc: Rel, attrib	Attribute	Circ	Proc: Material

effective and efficient use of all resources	whilst	maintaining	the quality standards the University is committed to
Goal		Proc: Material	Goal

1585 Transitivity=Relational, attrib, Material, Material, Material, Mental,

The team	is	responsible for promoting the **effective and efficient use** of corporate e-learning applications;	providing
Carrier	Proc: relational, attrib	Attribute	Proc: Material

frontline support to academics (and others who teach/support student learning),	in use of	the core University e-learning systems, tools and services;
Goal	Proc: Material	Goal

undertaking	development work	to ascertain	the benefits and applications of emerging technologies
Proc: Material	Goal	Proc: Mental	Phenomenon

THE USE OF followed by an example of some form of technology (examples from Rows 3556 –5334)

Colour Key

⬛	**Relational process**
🟩	**A form of technology**
🟥	**A form of exchange value**
🟦	**A type of learning**

3556 This approach **is** underpinned by a focus on making effective pedagogical use of **virtual learning environments (VLE) to support**

3559 **New technology is** already **transforming** the way people use and access local government services.

4055 many of today's users **have high expectations of the ability** of **technology-enhanced learning to deliver greatly enriching** and

4224 **Digital Participation can be defined as**: **"Increasing the reach, breadth and depth of digital technology use** across

4288 objective **is** to encourage institutions to engage with this strategy to drive the **mainstreaming** of **the use and application of technolog**

4289 expansion of **e-learning is** guided by a number of fundamental principles: recognition of **e-learning** as both an **enabler and enhancer**

4397 Another important emerging area **is** the use of a **new generation of tools to enable student led collaboration**

4443 The concept of **e-learning is** thus becoming subsumed into a wider discussion of how **learning** can be **enhanced** by more effective

4464 **e-Learning** research **is** the **empowerment of the learner**, which is encouraging real creativity in **the use of available applications**

4509 many institutions **have** been supporting **the use of C&IT** for many years, but this has often involved small scale innovation

4510 the Dutch government committed itself in 1998 to spending 52 million guilders over two years **to promote the use of C&IT**

4512 the centres **were** set up to provide sources of expertise and information on **the use of C&IT in teaching** and to establish subject

4513 this university **has** long had a commitment to the **use of computers in teaching**
4525 within those institutions and departments that are active in **the use of C&IT** it **is** possible to detect a number of key drivers
4542 the FERL project **identified** exemplar colleges in terms of their commitment to and **implementation of C&IT** for **teaching and learning**
4570 exercise **identified** widespread encouragement for greater institutional activity in supporting **the use of C&IT** in **learning and teaching**
4580 studies **is** that there is no evidence that **the use of C&IT** as proposed in TLTP is capable of achieving significant efficiency gains in the
4584 the more exaggerated claims of some of the advocates of **the use of C&IT** in **teaching and learning** **have** not been validated
4597 it **is** particularly common to emphasise **the use of C&IT** without reference to the ways in which it will help the institution to achieve its
4612 The role of HEIs in supporting and guiding innovations of all kinds **is** crucial, especially for **the use of C&IT**
4754 e-learning **is the use of digital technologies and media to deliver, support, and enhance teaching, learning, assessment**
4757 health care delivery **is** changing with the **use of digital data to enhance record keeping, access test results, update the latest rese**
4761 **e-learning can be defined as the use of digital technologies and media to deliver, support and enhance teaching, learning, as**
4762 it [the strategy] **defines eLearning as the use of digital technologies and media to deliver support and enhance teaching, learni**
4771 The primary purpose of this 2006-2010 strategy is to ensure that **e-learning is** properly aligned, assimilated and swiftly embedded
4799 programme **is** exploring **the use of e-portfolios to support learner progression** and widens the scope to include links to schools
4800 JISC's aim with **e-portfolios is** to explore and develop **effective practice** in **the use of e-portfolio systems and tools** through
4806 **e-learning should not be tied to** specific proprietary systems and tools but related to learning processes which such tools
4840 **e-learning is** taken to mean any systematic **use of new technologies to support, enhance or deliver** learning and teaching
4902 **ICT and the use of eLearning techniques will be able to support** some of these needs better than more traditional forms
5004 policy attention has now turned to how to embed **the use of ICT to enhance** excellence in mainstream **teaching and learning** and
5075 **defines e-learning as**: '**the use of information and communications technology** to provide a range of approaches **to enhance** and
5100 **e-learning can be defined as the use of digital technologies and media** to **deliver, support and enhance teaching, learning,**
5110 **Technology Enhanced Learning (TEL) is** defined as **the use of information and communication technologies (ICTs) to support**
5332 e-learning **may be defined** as **the use of new multimedia technologies and the internet** to structure the delivery, and **improve** the
5334 The University **will** continue to explore **the use of new technologies** in its **drive to enable students** to engage in both classroom-bas
5650 The key aims of the **TEL** Strategy **are** to ensure that **technology is used appropriately, effectively and efficiently** to

3556 Transitivity= Relational, attrib, Material, Material, Material,

This approach	is	underpinned by a focus on making effective pedagogical **use of virtual learning environments (VLE)**	to support
Carrier	Proc: relational, attrib	Attribute	Proc: Material

and	enhance	learning, assessment and teaching	and	providing	digital learning opportunities in a variety of settings.
	Proc: Material	Goal		Proc: Material	Goal

3559 Transitivity= Relational, attrib

New technology	is	already transforming the way people use and access local government services.
Carrier	Proc: relational, attrib	Attribute

4055 Transitivity= Relational, attrib, Material

Many of today's users	have	high expectations of the ability of **technology-enhanced learning**	to deliver	greatly enriching and personalised experiences
Carrier	Proc: rel, attrib	Attribute	Proc: Material	Goal

4224 Transitivity= Relational, identifying, Material

Digital Participation	can be defined as	: "Increasing the reach, breadth and depth of digital technology use across all sections of society
Token	Proc: rel, ident	Value

to maximise	**digital participation** and the economic and social benefits it can bring.
Proc: Material	Goal

4288 Transitivity= Relational, identifying, Material, Material

The final objective	is	to encourage institutions	to engage	with this strategy	to drive
Value	Proc: rel, ident	Token	Proc: Material	Goal	Proc: Material

the mainstreaming of **the use and application of technology**	to enhance	learning and teaching.
Goal	Proc: Material	Goal

4289 Transitivity= Relational, attrib, Mental, Verbal, Material, Mental, Material

The University's approach and support for the expansion of **e-learning**	is	guided by a number of fundamental principles:
Carrier	Proc: Rel, attrib	Attribute

recognition	of **e-learning** as both an enabler and enhancer of learning	acknowledgement	of the utility of **e-learning**	in
Proc: Mental	Phenomenon	Proc: Verbal	Verbiage	

helping	support improvements in the enhancement of learning	awareness	of it as a potentially cost-effective solution to
Proc: Material	Goal	Proc: Mental	Phenomenon

supporting	diverse groups of learners
Proc: Material	Goal

4397 Transitivity= Relational, identifying, Material, Material, Material

Another important emerging area	is	**the use of a new generation of tools**	to enable	student led collaboration (e.g.
Value	Proc: rel, ident	Token	Proc: Material	Goal

use of blogs, wikis and e-portfolios)	that	contribute to	so called 'social learning'	and	facilitate
	Actor	Proc: Material	Goal		Proc: Material

the development of personal learning spaces.
Goal

4443 Transitivity= Relational, attrib,

The concept of **e-learning**	is	thus becoming subsumed into a wider discussion of how learning can be enhanced by more effective and far-reaching **uses of digital technologies**
Carrier	Proc: Rel, attrib	Attribute

4464 Transitivity=Relational, ident, Material, Material, Material

The really exciting aspect of the JISC Learner experience of **e-Learning** research	is	the empowerment of the learner,	which is
Token	Proc: rel, ident	Value	

encouraging	real creativity in the use of available applications and services	to support	not just lifelong learning	but
Proc: Material	Goal	Proc: Material	Goal	

to innovate	in other areas of education, training and learning.
Proc: Material	Goal

4,509 Transitivity: Relational, attrib

Many institutions	have	been supporting **the use of C&IT** for many years	but this has often involved small scale innovation at the margins rather than large scale implementation
Carrier	Proc: Rel, attrib	Attribute	Circ

4,510: Transitivity=Mental, Material

The Dutch government	committed itself	in 1998	to spending 52 million guilders over two years	to promote
Senser	Proc: Mental	Circ	Phenomenon	Proc: Material

the use of C&IT within teacher training colleges
Goal

4,512 Transitivity=Material, Material

The centres	were	set up	to provide	sources of expertise and information on **the use of C&IT** in teaching	and
Carrier	Proc: rel, attrib	Attribute	Proc: Material	Goal	

to establish	subject based networks of academic staff with relevant interests.
Proc: Material	Goal

4,513 Transitivity=Relational, attributive

This university	has	long had a commitment to **the use of computers** in teaching
Carrier	Proc: rel, attrib	Attribute

4,525 Transitivity=Relational, attributive

Within those institutions and departments that are active in **the use of C&IT** it	is	possible to detect a number of key drivers
Carrier	Proc: rel, attrib	Attribute

4542   Transitivity=Relational, ident, Mental, Material

the FERL project	identified	exemplar colleges
Token	Proc: rel, ident	Value

in terms of	their	commitment to
Circ	Actor	Proc: Mental

and	implementation of	**C&IT** for teaching and learning
	Proc: Material	Goal

4570 Transitivity= Relational, ident, Material, Material

So far as JISC is concerned, as part of its 1998 strategy review	the responses to its consultative exercise	identified
Circ	Token	Proc: rel, ident

widespread encouragement for greater institutional activity	in supporting	the **use of C&IT** in learning and teaching
Value	Proc: Material	Goal

4580 Transitivity= Relational, identifying

A further important conclusion from both studies	is	that there is no evidence that the **use of C&IT**	as proposed
Value	Proc: Relational, ident	Token	Proc: Verbal

in TLTP	is capable of	achieving	significant efficiency gains in the cost of teaching
Circ		Proc: Material	Goal

4584   Transitivity= Relational, attrib

The more exaggerated claims of some of the advocates of the **use of C&IT** in teaching and learning	have	not been validated
Carrier	Proc: rel, attrib	Attribute

4597 Transitivity= Relational, attrib, Material

It	is	particularly common to emphasise **the use of C&IT** without reference to the ways in
Carrier	Proc: rel, attrib	Attribute

which it will help the institution	to achieve	its strategic goals
	Proc: Material	Goal

4612   Transitivity= Relational, attrib,

The role of HEIs in supporting and guiding innovations of all kinds	is	crucial	especially for the use of C&IT
Carrier	Proc: rel, attrib	Attribute	Circ

4754 Transitivity= Relational, identifying, Material, Material, Material

A widely-used definition of e-learning	is	the **use of digital technologies and media**	to deliver
Token	Proc: rel, ident	Value	Proc: Material

support	and	enhance	teaching, learning, assessment and evaluation
Proc: Material		Proc: Material	Goal

4757 Transitivity= Relational, identifying, Material, Material, Material, Material, Material

Health care delivery	is	changing	with	the **use of digital data**	to enhance	record keeping	access
Value	Proc: Relational, ident	Token		Actor	Proc: Material	Goal	Proc: Material

test results,	update	the latest research	make	prescriptions	and	improve	appointment schedules.
Goal	Proc: Material	Goal	Proc: Material	Goal		Proc: Material	Goal

4761 Transitivity= Relational, ident, Material, Material, Material

E-learning	can be defined as	the **use of digital technologies and media**	to deliver,	support	and
Token	Proc: Relational, ident	Value	Proc: Material	Proc: Material	

enhance	teaching, learning, assessment and evaluation
Proc: Material	Goal

4762 Transitivity= Relational, ident, Material, Material, Material

It	defines eLearning as	the **use of digital technologies and media**	to deliver,	support	and
Value	Proc: Relational, ident	Token	Proc: Material	Proc: Material	

enhance	teaching, learning, assessment and evaluation'
Proc: Material	Goal

4771 Transitivity= Relational, attrib, Material

The primary purpose of this 2006-2010 strategy is to ensure that **e-learning**	is	properly aligned, assimilated and swiftly
Carrier	Proc: rel, attrib	Attribute

embedded in the University learning and teaching strategy, planning and academic practice	in order to	enhance	the student experience
	Circ	Proc: Material	Goal

233

4799 Transitivity=Relational, ident, Material, Material,

A second phase of the programme	is	exploring the **use of e-portfolios**	to support	learner progression
Token	Proc: Relational, ident	Value	Proc: Material	Goal

and	widens the scope	to include	links to schools and work based learning
	Circ	Proc: Material	Goal

4800 Transitivity= Relational, ident, Material

JISC's aim with e-portfolios	is	to explore and develop effective practice in the **use of e-portfolio systems** and tools
Token	Proc: Relational, ident	Value

through the co-development of standards	and	piloting	of e-portfolio related technologies and standards.
Circ		Proc: Material	Goal

4806 Transitivity= Relational, ident, Material, Material

The **use of e-learning**	should not be tied to	specific proprietary systems and tools	but	related to
Token	Proc: Relational, ident	Value		Proc: Material

learning processes	which	such tools	facilitate
Goal		Actor	Proc: Material

4840 Transitivity= Relational, attrib, Material, Material, Material

For the purpose of this document	**e-learning**	is	taken to mean any systematic **use of new technologies**
Circ	Carrier	Proc: rel, attrib	Attribute

to support	enhance	or	deliver	learning and teaching.
Proc: Material	Proc: Material		Proc: Material	Goal

4902 Transitivity= Relational, attrib, Material

ICT and the use of eLearning techniques	will	be able	to support
Carrier	Proc: Relational, attrib	Attribute	Proc: Material

some of these needs better than more traditional forms of delivering education
Goal

5004 Transitivity= Relational, attrib, Material

Policy attention	has	now turned to how to embed the **use of ICT**	to enhance	excellence in mainstream teaching and learning and research.
Carrier	Proc: rel, attrib	Attribute	Proc: Material	Goal

5075 Transitivity= Relational, attrib, Material, Material, Material

The University	defines e-learning as:	'the **use of information and communications technology**	to provide	a range of
Carrier	Proc: rel, attrib	Attribute	Proc: Material	Goal

approaches	to enhance	and	extend	learning	for a wide range of individuals and groups'.
	Proc: Material		Proc: Material	Goal	Circ

5100 Transitivity= Relational, identifying, Material, Material, Material

E-learning	can be defined as	the **use of digital technologies and media**	to deliver
Value	Proc: rel, ident	Token	Proc: Material

support	and	enhance	teaching, learning, assessment and evaluation
Proc: Material		Proc: Material	Goal

5110 Transitivity= Relational, identifying, Material, Material

Technology Enhanced Learning (TEL)	is defined as	the **use of information and communication technologies** (ICTs)
Token	Proc: rel, ident	Value

to support	and	deliver	learning and teaching
Proc: Material		Proc: Material	

5332 Transitivity= Relational, identifying, Material, Material

E-learning	may be defined as	the **use of new multimedia technologies and the internet**	to structure	the delivery
Value	Relational, ident	Token	Proc: Material	Goal

and	improve	the quality of learning and teaching
	Proc: Material	Goal

5334 Transitivity= Relational, attributive, Material, Material, Material, Material, Material

The University	will	continue to explore **the use of new technologies**	in	its
Carrier	Proc: rel, attrib	Proc: Material		Actor

drive	to enable	students	to engage	in both classroom-based and location-independent learning
Proc: Material	Proc: Material	Goal	Proc: Material	Goal

5650 Transitivity= Relational, identifying, Material, Material, Material, Material, Material, Material

The key aims of the TEL Strategy	are	to ensure that technology is used appropriately, effectively and efficiently	to support
Value	Relational, ident	Token	Proc: Material

student learning and development;	support	staff in the delivery of the curriculum;	prepare	students
Goal	Proc: Material	Goal	Proc: Material	Goal

to function	in a technologically-rich and changing world	enhance	existing provision	exploit	new market opportunities
Proc: Material	Goal	Proc: Material	Goal	Proc: Material	Goal

PROCESS TOTALS

Relational, attributive	Relational identifying	Verbal	Mental	Material
40	26	3	11	120