Educational technology and the enclosure of academic labour inside public higher education

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Abstract

Across higher education in the United Kingdom, the procurement and deployment of educational technology increasingly impacts the practices of academic labour, in terms of administration, teaching and research. Moreover the relationships between academic labour and educational technology are increasingly framed inside the practices of neoliberal, transnational activist networks, which are re-defining UK higher education as a new model public service. This paper highlights the mechanisms through which educational technologies are used to control, enclose and commodify academic labour. At issue is whether academics and academic staff developers have a critical or ethical lens through which to critique the nature of the technologies that they use and re-purpose inside the University, and whether such a critique might enable technologies to be deployed for the production of socially-useful knowledge, or knowing, beyond monetization in the knowledge economy.

Keywords*:* academic labour; educational technology; higher education; technology; university

Introduction

Educational technology is increasingly viewed as a site of struggle inside the University, through which the relationships of power between academic management and an increasingly immaterial, academic labour force are re-produced (Feenberg, 1999; Hall & Stahl, 2012; Neary, 2012a).[1] More broadly the deployment of educational technology has been critiqued as a form of state-subsidised privatisation (Newfield, 2012) that in-turn underpins a narrative through which the marketisation of education can be rooted (Beckton, 2012).This narrative helps to amplify the changing conditions and practices of academic labour inside the University (Morris & Stevenson, 2012).

Such practices are impacted by the co-option of technology inside higher education (HE) to support marketised solutions to societal problems, be they related to capitalist work and value extraction (Fuchs, 2010) or socio-environmental crises (Hall and Winn, 2011). This is revealed through a technologically-determinist discourse that elevates efficiency gains, increased productivity and value-for-money, inside the logic of economic growth (Hall, 2011; Newfield, 2010). In the face of such a positivist discourse of educational technology, labour inside the University is at risk of measurement, surveillance, and coercion, in order to meet the marketised demands for profit-maximisation (Ball, 2012; Gove, 2012; Siemens, 2012). As a result of the drive for constant innovation with its concomitant internal, treadmill dynamic (Postone, 1996), technology forms a mechanism through which hegemonic positions can be protected and developed inside education.

These hegemonic positions have been described as neoliberalism, the material practices of which include enclosure, as a form of accumulation by dispossession, and commodification (Harvey, 2005; Klein, 2007).[2] Neoliberalism envelops education through competition between providers, including private corporations, and the extraction of value from previously socialised goods (Deem, Mok, & Lucas, 2008).[3] In this increasingly marketised space, technology is one mechanism through which relationships, revealed through actions, emotions and affects, labour and services, are mined, closed-off and privatised, in order that they can be monetised (Bonefeld, 2010; Tronti, 1973). Therefore, the procurement and implementation of technology is a critical strand through which the interrelationships between the dynamics of capitalist work and the realities of administration, teaching and research as forms of academic labour can be revealed.

One theoretical standpoint that attempts to define potential counterpoints to neoliberalism emerges from Autonomous Marxism,[4] and underpins the work of scholarly collectives like Edufactory and the Knowledge Liberation Front (Neary, 2012b; Thorburn, 2012). These collectives operate in a more distributed form, with a focus on: working democratically through general assemblies; practicing knowledge creation and critique in public, at the level of the society into which the knowledge is to be put to work; and developing militant research strategies that prioritise agency and power-to create the world. In the development of counter-hegemonic positions, such collectives reveal the mechanisms through which academia is re-

structured and its discourses enclosed, including the procurement and deployment of technologies and techniques. Critically, in developing these positions, labour demonstrates the potential to use technology for radically transformative praxis.

Thus, this paper focuses upon the United Kingdom's higher education sector, in order to argue that academics, alongside educational technologists and educational developers, might usefully critique the mechanisms by which educational technologies are deployed at the heart of the University in administration, teaching and research. Such a critique reveals how technology is used to quicken the pace of privatisation of UK HE, and this applies both to the idea of a publically-funded, governed and regulated HE institution, and to the sector as a whole (Deem, Hillyard, & Reed, 2007; McGettigan, 2012; Neary, 2012a). Such a critique also reshapes the deterministic, socio-economic discourses of efficiency, personalisation, and networked individualism that underpin the technologically-mediated University. At issue is whether academic collectives have a critical or ethical lens through which to critique the nature of the technologies that they use and re-purpose inside the University, beyond a limiting focus on enhancing the student experience? How might critical insight about the ways in which educational technologies enable the enclosure of academic labour for value formation and accumulation be catalysed? To what ends might such a critique be put?

Unravelling the relationship between educational technologies and academic labour

As Macbeth is consumed by guilt after the killing of King Duncan, Shakespeare (2007) has Lady Macbeth tell her husband in Act 3 of the eponymous play, 'Things without all remedy Should be without regard: what's done is done.' Later in Act 5, as she in-turn becomes haunted and has to regard those acts that have been done and for which there are deep and very human consequences, Lady Macbeth laments that 'What's done cannot be undone'. The play's innate focus on the interrelationships between cognition, emotion and humanity, with each relationship deepened and twisted through action and reflection, is a reminder of how very personal and social acts close down or open up possibilities. Once something is done, reality is re-set or renewed, until some new act of doing re-sets or renews it further. The idea of doing and the ramifications of work that is done, as a deliberative action in the world that is *with* regard, has implications both for academic labour as capitalist work and the role of technology or technique in that work.

For some Autonomist Marxists, doing is seen as a trans-historical alternative to capitalist work (Holloway, 2002), and it might also be seen as a way of living and working beyond or in excess of our alienated selves inside capitalism (Neary & Hagyard, 2011). This process of doing and re-doing actions in the world does not have a corollary in undoing. It is not possible to undo the reality of our actions or of our work in the world, and Lady Macbeth's cry of 'what's done cannot be undone', and the realisation that acts, work or labour might need to be regarded or reflected upon, is a reminder of the impact of consequence and the need to find an ethical or critical surety in action based on a revelation of our entangled realities. Inside the University, such a revelation of the ways in which the meaning of academic labour is entangled or ravelled with technologies, techniques, organisational structures and processes, and as a result how it enables the reproduction of capitalist social relationships, might help academics to analyse the logic of their enclosure and act against it (Roggero, 2011).

Thus, describing the actions or activities that are undertaken with technology inside the University, and which might not be undone, but which might be unravelled through a critique of the socio-technical systems in which those technologies are deployed (Facer & Sandford, 2010; Selwyn, 2010) offers a way of re-inscribing a different form of academic labour. This description of the ravelled, tangled or complicated nature of academic work with technology covers, but is not limited to, issues of: hardware and software procurement and renewal; data management and mining, and learning analytics; curriculum planning and delivery; assessment of and for learning; engagement with open education, massive on-line open courses and personal learning environments; and strategies for mobile learning. However, it also covers the mechanisms by which each of these threads of activity are themselves tangled or stitched into the marketisation of an educational system that has traditionally been seen as publically-funded, governed and regulated (McGettigan, 2012).

Therefore, by highlighting one of the tangled threads, in this case educational technology, academics might be able to use that unravelled element to understand the neoliberal, capitalist networks inside and against which the broader pattern of academic labour and the idea of the University as a public good are realised (Ball, 2012; Deem et al., 2007; Neary, 2012a). One result may be the ability to situate educational technology inside networks of power and

counter-hegemonic resistance that enable academic labour to be reclaimed for socially-useful activities. This is important because educational technology represents assemblages of machinery, hardware, software and practices, which amplify the mechanisms through which UK HE is being restructured. As a result it becomes a potential site of struggle between labour and capital. From an Autonomist Marxist perspective, this offers the prospect of unravelling the realities of academic labour, so that they might be re-stitched inside practices that can then be dissolved into the fabric of society. This is important if academic labour is to be engaged with solving problems at the level of society that are related to scarcity, abundance, austerity, climate change, peak oil and so on, rather than being prescribed and enclosed for the knowledge economy and for monetised outcomes. At issue are the ways in which academic labour can be used for societal knowing, rather than the knowledge economy.

The co-option of educational technology inside neoliberal discourse

If the relationships between academic labour and educational technology are to be fleshed out, they need to be situated inside the dominant ideological practices that are impacting HE. These practices have been described materially as neoliberalism (Harvey, 2005), and have been identified in terms of the following principles (Klein, 2007), which apply to education as a previously socialised good that is being privatised (Institute for Fiscal Studies (IFS), 2010) in response to a structural economic crisis.

1. Structural re-adjustment through mechanisms that enforce competition and coercion, enabled through *both* fee structures and student indenture, *and* the creation of a policy space for the promotion of shared services and outsourcing.
2. The transfer of state or public assets to the private sector under the belief that it will produce more efficient, smaller, and less regulatory government and improve economic outputs, witnessed in policies to widen access to open or publically-funded data and research in order to monetize them.
3. A lock-down of state subsidies for work, like arts and humanities in education, which is regarded as inefficient.
4. The privatisation of state assets and enterprises in the name of consumer choice, economic efficiency or sustainability, revealed in the outsourcing of educational provision and the increased role of consultants and public/private partnerships.

5. A refusal to run deficits, and hence justifying pejorative cuts to state services including subsidized access to education.
6. Extending the financialisation of capital and the growth of consumer debt, through increased student fees and the removal of grants.
7. A controlled, economically-driven, anti-humanist ideology, namely student-as-consumer, and higher education-as-commodity.

For Newfield (2012) the implementation of these principles underpins state-subsidised privatisation of publically-funded, regulated and governed assets (McGettigan, 2012), whilst for Deem et al. (2008) it reflects the isomorphism that is occurring within and across universities in the United Kingdom (UK), as an ideology of marketisation is insinuated into the practices and policies that shape the whole higher education environment. This is not a new process, but the pace with which it is now being rolled-out acts as a dislocation or shock that enables change to be enforced through uncertainty. This is one of the ways in which capital uses systemic crises to renew itself (Harvey, 2010; Marx, 2004), and it forms the background layer upon which the enclosure of work inside the University takes place.
In the UK HE sector, this process of enclosure is made visible in: the re-catagorisation of Universities as businesses in Her Majesty's Revenue and Customs (HMRC) regulations on taxation (2012); in the Coalition Government's use of Value-Added Taxation (VAT) regulations to open-up a space for marketisation through shared or outsourced, technologically-provided services (HM Treasury, 2012); and by enabling for-profit providers to obtain the same VAT exemption on educational services as not for-profits (McGettigan, 2012). For McGettigan (2012) this enables private providers, which are able to leverage private equity, to steal a march on the publically-funded and regulated section of the sector, which being constituted as not for-profit, charitable corporations cannot access such funds. This leaves those institutions at the whims of private, philanthropic donations, or needing to chase increasingly limited and limiting research funding, the economic restrictions on which threaten further forms of capitalist enclosure.

Enclosure is accelerated because the State, working as regulator rather than funder, acts *for* the market. Lipman (2009) argues that this is a crucial field of contestation.

> Education markets are one facet of the neoliberal strategy to manage the structural crisis of capitalism by opening the public sector to capital accumulation. The roughly $2.5 trillion global market in education is a rich new arena for capital investment.

This underpins what Ball (2012) describes as the ‘neoliberal discourse’, which is designed to promote shared libertarian, market-oriented entrepreneurialism that in-turn fosters a new hegemonic relationship between capital and the State. In this model, networks of power and affinity enable the re-production of new geographies of social relationships (Ball, 2012) that focus on creating uncertainties in the spaces in which the State operates, telling common-sense stories about the value of private enterprise in 'leveraging' *both* performance *and* cost reduction, and in connecting those stories to a meta-narrative of *there is no alternative*. These neoliberal, transnational activist networks (TANs) form transnational and shifting assemblages of activity that consist of academics and think tanks, policy-makers and administrators, finance capital and private equity funds, media corporations and publishers, philanthropists and hedge-funds interested in corporate social responsibility. These TANs aim at regulating the state for profit and the extraction of value, and they reinforce these dominant positions through: lobbying; conferences; prizes; media attention; control of funding; research programmes and outcomes; evidence-based approaches to data-laundering; regulation; and technologies. *Pace* Harvey (2010), Ball (2012) describes the reality of how TANs utilise technologies that amplify the complex geographies of neoliberalism, which are resolved materially, as historically-specific concrete class struggle.

Against this backdrop of the enclosure and marketization of activity and relationships inside the neoliberal university, educational technology is an important domain through which these strategies play–out. This process is complex and is related to the ways in which some educational functions prove profitable and can be privatised. For example, some vocational training can be provided at low-cost using part-time or precariously employed, post-graduate lecturers engaged with the resources of on-line open education or distance learning (Couvée, 2012). Publishers are able to leverage their market capitalisation and access to content and learning management systems to sell services into education (Ravitch, 2012). Private equity funds are engaged in the purchase and development of established learning management systems and related educational applications, in order to sell services into tertiary education (Gartner, 2011). Those activities that require much higher infrastructural investment, and which are of marginal profitability but which have a higher social utility, like medicine, can

be left to the State to fund. It is in post-education that these proprietary skills can be harnessed for profit, for instance through the privatisation of healthcare.

Thus, technologies are insinuated inside a broader system of enclosure, which underpins accumulation by dispossession (Harvey, 2010) as a way in which surplus academic labour or rents can be extracted from individuals and institutions. In terms of surplus academic labour, academic management is able to bypass agreements on contracted staff teaching hours by moving more work on-line and then counting it as administration rather than formalised contact hours with students. Equally, the development of discourses around innovation and teaching excellence that are explicitly linked to work that is undertaken on-line catalyses a competitive environment between individual staff, and this in-turn acts as a lever to extract surplus labour. In this way, constant innovation can be normalised or routinized within the administrative load of academic staff, and performance can be monitored and disciplined. In terms of rents, for-profit technology providers are able to utilise and mine institutional data, especially where services like learning management systems and widgets or plug-ins are hosted for the institution, in order to develop and sell new services(Gartner, 2011). Such services, often related to personalisation and workflow efficiencies, are driven by institutional competitiveness in the HE market and the need to appear innovative and efficient in service delivery, and they enable the extraction of profits from fees on products that are contracted for.

Educational technology and the university as new model public service

As the University becomes a site of capital accumulation, and as a result a site for entrepreneurial investment, it is important to recognise that it also remains a site for the production of mass intellectuality, where knowledge claims can be legitimised and critiqued (Marx, 1993; Virno, 2001). However, the tensions between hegemonic and counter-hegemonic views of the idea of the University make it a site of struggle over the meaning and purpose of academic labour. The use of technology by academics inside, against and beyond the University amplifies the nature of this struggle, and academic labour is impacted by dominant narratives that underpin material practices about: the ways in which technologies are procured; the evidence that is used to inform their educational deployment; the money that frames research and development with technologies; and the ways in which institutions

define the relationship between sustainability and technology. At issue is whether it is possible to develop a critique of technologically-mediated behaviours inside the University, from the perspective of academic labour.

However, in the UK, organisations that support the implementation of educational technologies inside the University have a reduced space for manoeuvre in the face of austerity politics. Thus, the main regulatory body for English universities, the Higher Education Funding Council for England (HEFCE, 2012) highlights the importance of technological deployments for cost-reductions, business-process re-engineering and efficiency gains, which themselves might underpin radical transformation of the university as a 'business'. HEFCE states that it works with key partners like the Joint Information and Systems Committee (JISC) and the Higher Education Academy (HEA) in supporting institutions in this technological transformation. The JISC's Transitions Group (2012) highlighted the importance of the Higher and Further Education sectors for economic growth, and it explicitly connects and relates changes in these sectors that are 'political, financial, technological and competitive'. The changed fiscal landscape means that JISC must operate within 'stringent new financial realities', in order that it is 'better geared to achieving a large impact', related to cost savings, value-for-money, value and impact, and organisational efficiency and effectiveness. This legitimation of a discourse that connects technology-mediated educational innovation to fiscal realities is also revealed in the HEA's organisational values (2012), which place the importance of value-for-money alongside enhancing student learning and institutional innovation.

These new realities are reinforced in the Educause (2012) 'Top-Ten IT Issues', as defined by educational managers in the USA. These issues focus upon realising the affordances for educational technology on the University as a business, through operational efficiencies, consumerization, large data and analytics, as well as developing key strategies related to "bring your own device" and the use of the cloud. Thus, the organisational landscape against which HE institutions are regulated and from which they are supported has been recalibrated by economic shock in the name of new public management (Davies, 2011). New public management is an important lens through which the increasingly privatised relationships catalysed by the deployment of educational technology can be analysed. The then UK cabinet minister John Denham (2006), argued that

> All public services have to be based on a diversity of independent providers who compete for business in a market governed by Consumer choice. All across Whitehall, any policy option now has to be dressed up as "choice", "diversity", and "contestablity". These are the hallmarks of the "new model public service".

In developing the idea of such a new model public service, the 2012 UK Coalition Government budget (HM Treasury, 2012) further tightened control of the technological policy and practice of universities. It re-defined universities as working in the 'business' of education; it applied VAT-exemption on shared services, which tend to be hosted or outsourced, in order to treat 'commercial universities… fairly'; and it created a research investment fund that 'will attract additional co-investment from the private sector' in technology-rich areas (McGettigan, 2012). Hence, technology has become a crack through which private corporations can enter the publically-funded, governed and regulated education sector, using public/private partnerships and outsourcing in service-delivery (Davies, 2011), and a discourse of economic efficiency and productivity catalysed through technological innovation (Gove, 2012). In this metaphor, technology forms a crack in publically-funded, governed and regulated education, which can be widened in order to open-up spaces for marketised services to enter, and then privatised, enclosed and commodified.

Thus, technology acts as a mechanism that reinforces political enclosure inside systems of education, through techno-essentialism. Feenberg (1999, p. viii) argues that essentialist discourses '[of] technology reduces everything to functions and raw materials'. Technology is viewed as a lever for efficiency gains, innovation in productivity and work-flows, and in delivering user or student-centred outcomes related to inclusion, participation, retention or value-for-money. In this discourse, technology in education is deliberately cast in primarily economic and de-politicised terms, and in a form that allows further recalibration of the sector by alluding to deficits in the existing technological practices of teachers and academics.

Educational technology and the recalibration of academic labour for business

Inside neoliberal discourse and material practices, the University is re-defined based on the idea of the new model public service. This idea frames the recalibration of academic labour inside and across HE *for* business, catalysed by technological innovation. Thus, the UK's Secretary of State for Education, Michael Gove (2012), has linked the importance of technology in leveraging educational change as follows:

> with each new gadget, each huge leap forward, technology has expanded into new intellectual and commercial fields… Almost every field of employment now depends on technology. From radio, to television, computers and the internet, each new technological advance has changed our world and changed us too. But there is one notable exception. Education has barely changed. Our school system has not prepared children for this new world. Millions have left school over the past decade without even the basics they need for a decent job. And the current curriculum cannot prepare British students to work at the very forefront of technological change.

Yet as Newfield (2010) argues in his work on the new proletarianisation, it is difficult to sustain such a deterministic, positivist argument for the generalised, emancipatory potential of technological skills, because under capitalism technologies are used: to promote consumption; to lever production gains; to increase the rate of profit; for workplace monitoring and surveillance, as well as management and stratification; to catalyse the creation of value by opening up or harnessing new markets; or by stimulating innovations that further valorise and re-produce capital (Fuchs, 2010; Valtysson, 2011). As a result of these processes, Newfield (2010, pp. 13-14) highlights how the educational discourse inside neoliberal capitalism works to produce three different types of technologically-driven knowledge or skill.

1. Type C is 'commodity skills', which are 'readily obtained' and whose possessors are interchangeable, like the skills associated with call centre operations.
2. Type B is 'leveraged skills', which require advanced education and which offer clear added value to firms, and yet which are generally available. These include the skills of computer programmers or network administrators, the proliferation of which depress wages and leads to automation or outsourcing.
3. Type A consists of 'proprietary skills', defined as 'the company-specific talents around which an organization builds a business'. The holders of these skills are nurtured and cultivated in order to contribute to the firm's propriety knowledge, and to discipline or cheapen the other two types of knowledge worker. In this view, only those who create

> proprietary knowledge, thereby enabling the firm to seek rents, are to be retained, supported, cultivated, and lavishly paid.

In light of this typology, Gove (2012) re-enforces the entrenched view that alleges the democratic-yet-neutral tendencies of digital technology, where all have the opportunity to profit from becoming the Type A workers that Newfield analyses. In this view, it is by harnessing technology, coupled to a process of re-skilling teachers and academics, and deploying these techniques inside new curricula that are fit for business, entrepreneurship and creativity, that economic equality of opportunity will be enabled. Thus, Gove (2012) stated that:

> technology will bring more autonomy to each of us here in this room. This is a huge opportunity. But it's also a responsibility. [So] We want to focus on training teachers. Universities, businesses and others will have the opportunity to devise new courses and exams. In particular, we want to see universities and businesses create new high quality Computer Science GCSEs, and develop curricula encouraging schools to make use of the brilliant Computer Science content available on the web.

Using technology as a cipher for opening-up education for business imperatives, amounts to a form of what Newfield (2012) calls 'subsidy capitalism', in which 'the public, directly or indirectly, does not participate in the investment, research, and development decisions that remake society year in and year out. It hands over resources and all decision rights at the same time.' The new public management focus on business defining the curriculum, and by association recalibrating teacher or academic training and development, reflects Newfield's (2012) point for the USA that:

> There is a profound cultural limitation at work here: American leaders see the agencies responsible for social benefits as categorically less insightful than the financially self-interested private sector, even though the latter are focused entirely on their own advantage. As it is now, the future emerges in erratic bursts from the secret development operations at companies like Google... We are having an increasingly difficult time imagining a collective future that emerges from common activity.

It is from inside the increasingly constricted, technologically-mediated and determined spaces that form the University and shape its curricula, that academic labour might be re-thought.

Educational technology and the enclosure of academic labour inside the university

In imagining a collective future that emerges from common activity underpinned by technology, educators might usefully focus less on the perceived affordances of educational technology, in terms of participation and digital literacies, horizontal organisational structures, equality of access and opportunity (JISC, 2012), and focus more on the implications of the uses of technology for academic labour related to increased service-sector proletarianisation and monitoring, and the routinisation of work that is based on outcomes and technologically-mediated performance (Feenberg, 1999; Williams, 2010; Caffentzis, 2012). This change of focus is important because academic labour inside the university is increasingly set against what Mason (2012) highlights as a new sociological type, the disenfranchised graduate loaded with debt and with no future beyond precarious employment and the obligations of debt repayment that in-turn threaten intergenerational justice (The Intergenerational Foundation (IF), 2012).

Not only are these relationships framed by debt, but they are also impacted by the domination of corporate power over digital lives, spaces and time, which are individual and communal, as well as being social and academic. Doctorow (2012) highlights how the information economy is being realised through the subsumption of our everyday engagements with technology and digitised content under private property and copyright law. Thus, labour is reduced to 'a tedious enumeration of every permutation of things people do with information—and what might be charged for each.' The result of this commodification of our virtual lives is a need to 'control how people use their computers and the files we transfer to them.' Doctorow (2012) highlights how surveillance and monitoring on software, firmware, and hardware enables corporations and the State to restrict and control the operation of personal technologies. Moreover, network technologies are routinely used to overcome on-line anonymity tools like DNSSec and Tor, in the name of monitoring copyright and piracy infringements.

This is the deeply politicised and increasingly enclosed world onto which educational technology and academic labour needs to be mapped, beyond simple economic utility. It is from inside this enclosed space that educational technology is interpreted and implemented by educational technologists, staff developers and technicians, and then adopted by practitioners and students. In taking a more meaningful stance, Feenberg (1999, p. 87) argues

for '[a] critical theory of technology [that] can uncover that horizon, demystify the illusion of technical necessity, and expose the relativity of the prevailing technical choices'. At issue is reclaiming a politics of technology in education, against a determinist or essentialist position. It is important, therefore, to develop examples of how technology impacts academic labour based on problems of performance, efficiency and scale, and to highlight how a broader, political, contextual analysis might be developed. In the sections that follow this is begun based on a revelation of the relationships between academic labour and: cloud computing; learning management systems; corporate publishers like Pearson; surveillance and monitoring technologies; and technologies that emerge from the militarisation of the university.

Cloud computing and the control of academic labour

Cloud Computing has been argued for from perspectives of scale and organisational/labour efficiency (IBM, 2010). However, economic and service-level analyses provide a limited critique of the geo-political and legal issues that arise, in particular related to the conflicts between free speech and national security legislation, like the US Patriot Act (Electronic Frontier Foundation (EFF), 2012; Hall and Winn, 2011). These conflicts act as a brake on the freedom of academic research, and enclose the processes and data produced through academic work inside the politics of security. Thus, the EFF (2012) notes that

> The issue for users is whether the US has jurisdiction over the cloud computing service they use, and whether the cloud computing service has "possession, custody or control" of their data, wherever it rests physically… anyone using cloud hosting that is concerned about government access has to decide which governments they are most concerned about accessing their data and records and choose their provider accordingly.

This is important where research or teaching covers sensitive subject-areas, like terrorism, as there are examples of university management taking an authoritarian line and working with authorities against academic autonomy (Yezza, 2011). It is also important where decisions about implementing outsourced solutions are taken for bureaucratic reasons rather than being based on the practices of academics (Pritchard, 2011). This reflects the disconnection between the organisational drivers for economic efficiency and academic needs to ensure the safety of data and practices.

The Educause (2012) list of 'Top-Ten IT Issues' places the development of a cloud strategy alongside: 'supporting the trend for IT consumerization'; improving the institution's operational efficiency'; 'integrating information technology into institutional decision-making'; 'transforming the institution's business using information technology'; and the use of large data and learning analytics to manage the institution strategically. These strategic issues are inter-connected, to the extent that storing digital artefacts in the cloud enables the outcomes of academic labour to be mined and monitored, for example in storage spaces like dropbox or social networks like Facebook, and for new services to be monetised from them (Hall and Stahl, 2012). Cloud-based services also enable the separation and surveillance of proletarianised work, and the re-production and redistribution of commodity- and leveraged-skills to low-wage societies through outsourcing, and cutting labour costs for in-house work. There are also attempts being made to commodify and sell the idea of cloud computing in terms of green IT or sustainability (IBM, 2010), despite the lack of evidence that the cloud is 'greener', with industry wrapping itself around this concept as a space for further service-led innovation, and for the privatization of public, academic services through outsourcing, consultancy or the extraction of rents. Thus, cloud-based hosting of the processes and data that underpin academic labour becomes a way in which rents can be extracted from that labour.

The relationship between learning management systems, private equity and academic labour

Blackboard (2012) is utilised as a Learning Management System in particular across the global North, and, as with other providers in the marketplace, the Company provides services that are rented by or licensed to Universities that are funded in some cases by the State through general taxation. Blackboard also has a stake in selling value-added services into universities, including some that are cloud-based. In 2011 it was reported that Blackboard had an 'expanding footprint in the defense sector', and that as a result

> The Pentagon gets a manageable software program that helps instructors in subjects like military logistics and infantry tactics get a handle on the coursework flow of thousands of occasionally far-flung active duty military personnel. Blackboard, on the other hand, has a neat little honeypot that has, in many ways, saved the company (The Financial Investigator, 2011).

The argument here was that defence contracts made the learning management system as a product viable. Also in 2011 Blackboard was acquired by Providence Equity Partners, a private-equity company. Providence was advised by, amongst others Goldman Sachs, on its acquisition of SRA International (2011), a company that 'is dedicated to solving complex problems of global significance for government organizations serving the national security, civil government, health, and intelligence and space markets.'

At issue here is not the ethics of the relationships between these corporate bodies. However, the relationships between publically-funded and regulated universities, many of whom have corporate forms that are charitable and not-for-profit, and companies like Blackboard, enmesh academic labour deeply within Ball's (2012) TANs. These educational networks include investment banks and private equity companies, defence contractors and the Pentagon, and service providers who are tied into issues of national security and militarisation. The role of academics and their labour inside these networks, which enable those networks to leverage rents and profits through joint ventures and service delivery, needs to be discussed in the context of a University's mission and in the sector's wider aims to work for the public good, rather than simply addressing service-utility.

Pearson and the privatisation of academic labour

The formation of Pearson College (2012) enables the education corporation Pearson Education Inc. to leverage: its learning management system and on-line content produced by academic labour; the partnerships that it has with established academic institutions in the UK, like the University of Sunderland and Royal Holloway College (Gill, 2011); and, its connected educational think-tank (2012). For Pearson Education, the rationale is to gain fees from an HE market. The possibility that for-profit providers like Pearson College might gain UK degree-awarding powers was signalled in the UK Coalition Government's response to its white paper consultation, which noted a desire to enable greater diversity and competition by widening access to University Title (McGettigan, 2012). This, then, destabilises traditional descriptions of academic labour inside universities that is publically-funded, regulated and governed.

The mapping of academic labour onto new terrains opened-up by Pearson College, is also tied to the possibility that the accreditation or examination process might be commodified. Pearson Education runs a for-profit examination board, Edexcel and this underpins the idea of accreditation for-profit, which is also developing elsewhere in terms of massive on-line open courses like Coursera (2012). Here there is a separation of the teaching process from that of examination or of assessment for learning, and the commodification and enclosure of each process. Ravitch (2012) has written critically about the role of Pearson in the privatisation and monetisation of public education in the USA, stating that 'tests are the linchpin of the attack on public education. The politicians throw about test scores as evidence that our entire public education system is a failed enterprise.'

This has ramifications for academic labour inside a more competitive UK HE market, as the government uses secondary legislation to lever open the sector for privatization. As for-profit providers are encouraged into the sector often using the promises of study at a distance using technology as a catalyst, an architecture is opened-up that threatens the public regulation and governance of HE. The profitability of HE partnerships for companies like Pearson Education highlights how educational technology is developed as a way-in *both* to the extraction of value from universities, *and* to the recalibration of the purpose of universities to catalyse such extraction further. Partnerships and leverage are enforced, in-part, because academic labour is shackled inside the demands of performativity revealed in the research evaluations or student satisfaction scores. Thus, engaging with external partners like Pearson for service-driven efficiencies make sense for universities that are being recalibrated as businesses.

Moreover, Pearson College signals the possibility that a surfeit of new, for-profit providers will cheapen the costs of academic labour that does not develop proprietary knowledge or skills (Newfield, 2010). This risks driving down labour costs and increasing precarious academic work based on post-graduate rather than tenured staff. Flexibility, redundancy, productivity, privatisation, restructuring, value-for-money, all underpinned by technology, risk becoming the new normal for academics involved in teaching and research. As the discipline of the market enters HE in the guise of for-profit, technologically-rich operations like Pearson College, the spaces that are available to develop critiques of the recalibration of the University are reduced.

The use of institutionalised tools for the marginalisation and surveillance of academic labour

The implementation of institutionalised communications-solutions, for instance Microsoft Lync across universities often underpins an integrated systems architecture that connects communications and information-management capabilities across an institution. However, the development of such architectures also makes possible institutional surveillance of academic practices and labour, through the recording of activity like logging-in to the system, and settings related to personal availability in the system. It also enables the disciplining of marginalised practices, like the utilisation of open source solutions like Linux, or of practices that are defined outside technocratic norms, where those marginalised practices do not easily inter-operate with the established communication tools (O'Rourke, Teicher, & Pyman, 2011). So where staff utilise non-institutionally-agreed tools in their work, this can be viewed as abnormal and as activity to be re-engineered.

This process of re-engineering is driven further by institutional demands for self-surveillance and monitoring. Thus, the fetishisation of learning analytics and data-mining, linked to diagnostic and summative assessment, alongside student progression and retention agendas, is in-part technologically-driven, and connects academics to the daily measurement of their practices and to impact measures for teaching (Siemens, 2012). For Siemens (2012, p. 1) learning analytics offers

> a substantial base of techniques for analyzing discourse, social networks, sentiments, predictive models, and in semantic content (i.e., "intelligent" curriculum). In spite of the currently limited knowledge exchange and dialogue between researchers, vendors, and practitioners, existing learning analytics implementations indicate significant potential for generating novel insight into learning and vital educational practices.

At issue is how these data are used to manage risk and performance in teaching and research, and to commodify the outcomes and processes that underpin academic performance. Connected to indicators of student satisfaction, like the UK National Student Survey and returns on indicators like employability and retention to regulatory agencies, learning analytics threaten the surveillance and monitoring of academic practices in ways imagined in the cybernetic hypothesis (Tiqqun, 2001). In this hypothesis, technologies are utilised inside networks of power, in order to dominate and commodify autonomy of action. Thus

technologies and techniques of data-mining and analysis are used to destroy academic autonomy.

> "Autonomy" means that we make *the worlds that we are* grow. The Empire, armed with cybernetics, insists on autonomy for it alone, as the unitary system of the totality: it is thus forced to annihilate all autonomy whenever it is heterogeneous. We say that autonomy is for everyone and that the fight for autonomy has to be amplified. The present form taken on by the civil war is above all a *fight against the monopoly on autonomy*. (Tiqqun, 2001)

In developing approaches to the analysis of interactions mediated digitally, educational developers or technologists, or academic staff might consider the means by which their everyday existence is captured and incorporated inside the means of re-production of capital. In engaging with metrics and the monitoring of outcomes, academics might consider how these uses of technology risks further objectifying social relationships as commodities from which value can be extracted through, for instance, the monitoring and harvesting of personal data, the enclosure and control of spaces or applications of consumption, the use of venture capitalism to support specific social networks, and the technological augmentation and capture of affectivity. This is summed up by Watters (2012) in analysing the possible acquisition of the school-focused social network, Edmodo by Pearson Education:

> Pearson (via Learn Capital) was an early investor in Edmodo, and Edmodo could provide a social network for the education publishing giant (and a giant that's really scrambling to move towards a digital future). Pearson products and services could be easily sold to schools, teachers and students this way. Analytics could be gleaned about curriculum usage, student-teacher engagement, and so on. A sale to Pearson would likely be about acquiring a large user-base for additional curriculum and textbook sales. And, of course, it would be about student and teacher data – what people are studying, buying, reading, writing.

Framing discussions about the implementation of specific technologies as politically-neutral instances of problem-solving removes the imperative, for instance, to engage with labour unions about the management and monitoring capabilities of such tools as an aggregated whole. Thus, it becomes critical that the use of institutionally-deployed technologies is set within a wider set of collective agreements that safeguard academic autonomy, rather than seeking to control and exploit it. These relate to workload and work-based monitoring, as well as health and safety. At issue is how academics or educational technologists discuss labour rights and safeguards when deploying a technology or designing an architecture.

Technologies And The Militarisation Of The University

In their review of militarism and education normal, Meiners and Quinn (2011) analyse the mechanisms by which public education in the United States is shaped by militarisation. In terms of HE this includes using the vast revenues devolved to the military for research, and they argue that '[M]ilitarization, according to researchers, asymmetrically shapes contemporary higher education, channelling resources to sub-fields within science, engineering, mathematics, and particular areas of linguistic and political inquiry, while the remaining disciplines—art and humanities, in particular—receive no military dollars.'

The interaction between the military and HE as revealed and catalysed through technology is not new. Dyer Witheford and de Peuter (2009) argued in Games of Empire that the production of games like *America's Army* and the development of augmented/virtual spaces in partnerships between the military and university knowledge labs enables capital to leverage the power of the state to 'reassert, rehearse and reinforce [the] twin vital subjectivities of worker-consumer and soldier-citizen'. With a focus on the marketing of the game *Full Spectrum Warrior*, they highlight how curricula designed around the cultures of game production, as well as the processes of modding and hacking demand 'the total obedience of the culture industry to the protocols of the War on Terror – its immediate ingestion and reproduction of the state's paranoias', and that 'new kinds of militarized formats' fuse 'technological innovation and the erotic charge of combat' in 'renewed, compulsive militarization' (Dyer Witheford and de Peuter, 2009, pp. 101, 117). Here academic labour is used to collapse the space between the military frontline and the living room through research and development, and pedagogies of control.

Academic labour and educational innovation that is underpinned by technologies is folded further inside this militarised discourse in a number of other narratives, beyond the connections between the Pentagon and both Blackboard and Pearson noted above. These include:

- the control and exploitation of hacking as labour through the relationships between DARPA, hackerspaces and schools (O'Reilly About, 2012);

- the connections between hacking competitions, education departments and national security, and the co-option of hacking as a pedagogy of, or curriculum for, control (Roberts, 2012);
- the use made by Universities of drone technology, and the co-option of academic research for defense contractors (Morley, 2012);
- in public/private partnerships that focus upon wireless video surveillance of individuals and activities(CISOC, 2012); and
- in the disconnect between our activist promotion of technologies that are apparently transformative in the global North at the expense of their implication in war in the global South, like the Raspberry Pi (Hall, 2012).

Academics might usefully ask fundamental questions about the ways in which their educational spaces and the technologies they actively deploy inside them, contribute to the militarisation of the physical spaces of their campuses, or the co-option of their labour for the military. At issue is the possibility of creating non-militarised spaces. Hersch (2010) argues that this is important because by diverting resources from other areas, military research both distorts the research climate and balance between different subjects and reduces the resources available for creative holistic approaches to conflict resolution. Moreover, the resources associated with military research and the associated research climate may be impeding genuinely creative and innovative research, which often takes place at the boundaries. The disciplining of marginal forms of academic labour extends to the increasing homogenisation of campus-based or institutional technologies through partnerships, and the refusal to support marginalised innovations, often located in open source communities.

Reclaiming academic labour through a critique of educational technology

Enclosing academic labour inside the University is a new front in the attempt by capital to further accumulation and the extraction of value. Inside UK HE, technology reveals the conjuncture of forces that seek to catalyse and co-opt this process, in the services, techniques and applications that blind us to the social and economic realities described by neoliberalism. In the face of such co-option, academics might echo Lady Macbeth's lamentation that 'What's done cannot be undone'. However, in that same moment technology enables academics and educational technologists to shine a light on what their labour might be for. What it might help them to defend, against its use for labour management, business-process

re-engineering or the real subsumption of that labour for the valorisation of capital or for control.[5] The academic uses of technology might usefully then be developed critically, tactically and in public, where the politics of how technologies are used as a crack for surveillance, commodification and control can be analysed.

Thus, the interplay between the idea of doing as a deliberative action in the world that is *with* regard and the roles of technology or technique has implications for academic labour as capitalist work. The question is how academic labour can be used to subvert, dissent from or push-back against the contexts and realities outlined above, either inside or beyond the University. This involves academics imagining a collective future that emerges from common activity, or in developing collective forms of work or doing that enables the development of discretionary power and autonomy beyond the rate of profit. It is important that academics use their labour to overcome the mechanisms that co-opt how that labour inside capitalism overcomes all of human sociability, to the point where all activity appears to be determined by economic growth. The point is whether academics can develop new forms of labour in new spaces, in order that the complexity of their labour in HE might be unravelled and re-stitched against technologically-enabled or determined, new public management.

However, even here there is a risk of replicating the systemic inequalities that are promoted through hegemonic positions. As Hoofd (2010) argues, all forms of activism and innovation risk their own subsumption inside structural regimes of domination. In fact

> the current mode of [neo-liberal] late-capitalism relies on the continuous extension and validation of the infrastructure and the optimistic discourses of the new information technologies. Discourses that typically get repeated in favour of what I designate as the emerging speed-elite are those of connection, instantaneity, liberation, transformation, multiplicity and border crossing (Hoofd, 2010, p.9).

Thus, even those educators who claim to be hacking or co-creating ‘new spaces’ with students, or developing and deploying personal learning environments or massive online open courses as opposed to institutionalised systems, are operating inside structures that were created with the goal of facilitating global capitalism and which contribute to refining technologies of surveillance and control. Thus, Hoofd (2010, p. 17) argues that ‘The idea that subjectivities from social movements are in any way less produced by neo-liberal

globalisation is highly problematic.' This stretches to cover the academic labour developed inside social movements like Occupy or in marginalised groups like Anonymous and LulzSec (Colman, 2012), or in the collective educational opposition realised in the EduFactory (2012). However, these counter-hegemonic networks frame a desire for academic labour to be based upon democratic engagements in general assemblies, in developing militant research strategies against their control by capitalist agendas, and by doing, working or labouring in public.

In agitating for general assemblies, militant research strategies, and for labour or for doing in public, academics might then work to identify possibilities for the use of technology that are precluded by new public management. This might involve cracking, hacking or modding the university, and doing so in public, to forge a new form of sociability or new spaces for higher learning. This is important in the face of governmental funding, regulation and governance that are constricted by TANs, and in particular by the compression and enclosure of time and space wrought by technologically-transformed, finance capital (Harvey, 2010). It is natural that those who work inside universities would escape into problem-solving tactics like 'social inclusion' or 'equality of opportunity', which are liberal themes so often connected to discourses that emerge around emergent or participative technologies. Academics then have an important role in arguing against the conversion of intellectual activity into intellectual capital and hence private property, catalysed through processes of virtualisation that are driven by the commodification of research and teaching and the emergence of commercially-viable, proprietary products that can be marketised. The capitalist processes of deskilling and automation, fetishisation of products, and proletarianisation of labour are at the core of this process.

This struggle is given life in the range of radical academic projects and occupations in the UK, which are an attempt to re-inscribe higher education as higher learning dissolved into the fabric of society (Hall and Stahl, 2012). In some cases these projects are working politically to re-define issues of power. In most cases they see the institution of the school or the university as symbolically vital to a societal transformation. They form a process of re-imagination that risks fetishisation or reification of radical education, but which offers a glimpse of a different process that shines a light on the University as one node in a global web of social relations. These webs are immanent to those neoliberal TANs and form their

own transnational activist networks. Developing these networks also focuses upon rethinking in public the role of academic labour in society, facilitated through educational technologies but realised in concrete experiences on solid ground.

Conclusion: ds106 as a concrete experience on solid ground

One example of what might be possible is ds106 (2012). This on-line community that emerged from an academic course on digital story-telling at the University of Mary Washington focuses on learning and teaching in public, via shared and collaborative assignments, that can be produced, consumed, distributed and remixed. Beyond the formalized curriculum and assignment schedule, content is produced publically and assessments can be submitted by anyone. Assessments take the form of mixed media and are rated by the community based on criteria linked to their complexity. This rating takes the form of participative dialogue, facilitated by the expertise located in academic staff. In this way it offers the possibility of developing practical, democratic alternatives in public that might become socially-useful knowledge designed for the production of solutions to social problems.

The process of production of an assignment is mapped alongside the actual media artifact that tells the digital story. In parallel to the course, a series of blogs and other community media like a radio station help to make the community and community solutions more concrete. Students laboring in public, inside an autonomous community, define the tools and techniques they need to tell their digital story. One core idea underpinning ds106 is in the relationships that might be formed and nurtured over time, reinforced creatively using a range of digital media (radio, video, text), and realized in shared programming and a desire to keep the virtual and physical spaces moving and reflective. This sustains ds106 as a communal or social idea, and these communal actions in the ds106 world underpin individual formations, integrations and perspectives.

This is important where academic labour might be used for societal transformation and resilience, rather than for commodification inside the knowledge economy. Key here is producing a knowing society based on the foundations of resilience, namely: the modularity

of communities; the diversity of available resources; and feedback on activities undertaken in those communities and with those resources, in order to enable a community to overcome or adapt to a dislocation or shock. In enabling academic labour to flourish through technologies and against commodification, promoting public activity for resilient solutions to complex problems inside the fabric of society is critical (Hall and Winn, 2011).

Thus, ds106 asks academics need to consider their participatory traditions and positions, and how they actively contribute to the dissolution of their expertise as a commodity, in order to support other socially-constructed forms of production. In the critique of knowledge production, revealed through the production/consumption of specific educational technologies, ds106 is an example of how the University might grow in excess of its symbolic role. Thus, students and teachers might reconsider how they engage with digital technologies, in order to contribute to a re-formation of their webs of social interaction. Critically it acts against enclosure for work or doing in public, using a range of technologies. It also strives to find other forms of value, beyond monetisation. In this way, ds106 asks us to question how do students and teachers critique educational technologies in order contribute to public dissent against marketisation, domination and foreclosure, and to tell stories democratically and in public?

This public role matters more because academic labour is being commodified in a world that faces socio-environmental crises, and which is in the midst of a global crisis of capitalism. The agenda for the development of digital literacies, or for an ICT curriculum, or for redesigning academic training, lies beyond the demands of transnational finance capital or of commerce or of industry, as realised by the state-under-capitalism, for marketised skills. Testing and deliberating global solutions demands an engagement with politics, and with politics as they are revealed through technology. Overcoming global problems demands that universities do not simply outsource solutions, but that they act as public spaces for the co-operative and social use of technologies in the name of socially-useful knowledge. This is the idea that students and teachers might dissolve the symbolic power of the University into their actual, existing realities, in order to engage with a process of personal transformation that is about more than employability (Neary, 2012b).

At issue inside the increasingly marketised UK HE sector is how academics engage critically with educational technologies in order to create spaces for the production and construction of a mass intellect in commons that enables their labour to underpin a pedagogy of excess (Neary & Hagyard, 2011). Inside the UK University as a new model public service, academic might use technologies to refuse and push-back against the idea that the market and an employability-fuelled education system is the motor for solving social problems. In this process, it becomes more important that technologically-mediated, academic labour becomes socially-defined and produced knowing. This might be achieved through work that is carried out in public using a range of technologies and techniques that engage with uncertainty across a wider cohort of disciplines. Engaging academic labour in developing resilient approaches to global disruptions demands no less.

[1] Where the struggle between labour and capital lies in the creation and commodification of cognitive capital, for example inside the University as a vehicle for what has been termed the "knowledge economy", production, consumption and circulation processes have been defined as "immaterial" (Hardt and Negri, 2000; Žižek 2009). In this view, the immaterial, individual emotions and affects, cultural cues and mores, and the construction of the relations between individuals "are themselves the very material of our everyday exploitation" (Žižek 2009, 139). From this process of mutating human subjectivity, capital exerts control over communication and the re-purposing of information, and uses techniques and technologies to enclose and commodify an increasingly fluid and identity-driven set of social relations. One aim is to reduce unproductive circulation time, and thereby increase the rate of profit and relative surplus value. It should be noted that the idea of immateriality, tied to the ideas of the social factory, precarity, network governance and cognitive capitalism are contested (Davies, 2011).

[2] Accumulation by dispossession as a form of primitive accumulation has recently been developed by David Harvey (see, for instance, Harvey, 2010) and relates to the mechanisms through which a producer's rights and her/his agency or autonomy are plundered or enclosed. The use of legal frameworks, employment rights or intellectual property rights, often by corporations, to enclose the use of content, techniques and technologies and to remove those rights from their originators, is one form of such dispossession. One outcome is the extraction of rents of the development and commodification of new services (Hall & Stahl, 2012). Thus, the relationships between technologies, enclosure and dispossession inside the University are important in analysing academic labour.

[3] A starting point for a critique of the place of educational technology is socially necessary labour time, which Marx (2004) viewed as the source of all value. Rather than being conceived of as units of labour measured in hours or days, it is conceived as the amount of labour time required by a worker (or academic/student) of average productivity (and therefore skill), working with tools (like educational technologies) of the average productive potential, required to produce a given commodity (such as feedback on assessment or journal article). Thus, in the higher education context more-skilled academics reduce the average time and increase productivity, whilst unskilled academics contribute less social value. Revealing the uses of educational technology in terms of increased productivity and reduced socially necessary labour time enables value to be seen as a complex social relation, rather than a material practice, such as a given amount of human activity (like the number of class contact hours) or an object that can be commodified (like a mobile application). Value is a relationship between people organised into a society, and in our current, historical form that is abstract labour within capitalist work (Postone, 1993).

[4] The Autonomous Marxist position that developed from the Italian *Autonomia Operaia* movement of the 1970s is important in this discussion as it develops an argument for labour as the on-going crisis of capital. As a movement from below, it enables critiques of capitalist work, and especially the ideas of the social factory, mass intellectuality and immateriality to be developed. It also creates a space inside which governance through, for example, networks can be analysed from a range of perspectives, which include the waged and the unwaged.

One outcome is the attempt to refuse or push back against the realities of capitalist work by describing world in which "doing", and an exodus from capitalist work, becomes central (Holloway, 2002). In this process of refusal or pushing-back, understanding the co-option of technologies and techniques, including ensembles of practices, is critical if counter-hegemonic positions are to be developed and deployed.

[5] In higher education, as in society more broadly, it is through the repetition of technology and its automation of creative tasks, that academic work becomes abstracted from the staff and students engaged in those practices. This level of abstraction of the academic's labour-power from the process and reality of capitalist work enables social domination, which is impersonal, increasingly rationalized, and managerially constrained, and which adds to a University's relative surplus-value (Marx, 2004; Postone, 1993). More generally, social domination takes the form of real subsumption of labour under capital, whereby the production and labour processes are revealed as changes in the relationship of the worker to her/his own production and to capital. In the real subsumption of labour under capital, the development of productive labour-power (including through technological innovation) becomes large-scale or globalised, and incorporates science and machinery as representations of the general intellect. In the Autonomist Marxist view, developing social critiques of the real subsumption of all of life under capitalist work and the extraction of value, inside what has been called the social factory, is critical in developing counter-hegemonic positions.

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