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Who Drives the Drivers?

Technology as the Ideology of Global Educational Reform

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Introduction

Global policy documents in higher education are increasingly interspersed with references to digital technologies. Inter-linked with ubiquitous buzz-words, such as "knowledge economy," "technology enhanced learning" (TEL), and "the student experience," information and communication technologies (ICTs) are tacitly identified as "drivers" of global educational reform. Yet, this view carries a lot of ideological baggage. If global educational reforms are really driven by technologies, then the intentions of their makers become internalized in educational systems, without consideration or public debate. Civic discourse gives way to a language of corporate culture (Giroux, 2002) in accompanying policies. It has already been noted that global reform, based on techniques of performativity, accountancy and audit *through numbers* (Shore & Wright, 1999, p. 2015) reorient the very soul of the teacher in ways that leave "the heart of the educational project gouged out" (Ball, 1999, p. 1). As neoliberal patterns of governance are rapidly exported world-wide, to reconfigure higher education, we describe ways that new policy paradigms, *through texts*, omit the very presence of teachers and students from these discourses altogether, instead attributing human labor to statements about "the use of technology."

Yet, technological references in global higher education policy documents do not simply subscribe to one particular neoliberal ideology. Furthermore, hegemonies are not just "there," they are constructed, through multiple material-discursive practices (Sum & Jessop, 2013). It is therefore our intention to explore some of these material-discursive mechanisms, from several angles, as we consider the question of "who drives the drivers?," if technology is repeatedly declared as the force that is driving global educational reform. We use the term of information and communication technologies with a broad perspective that acknowledges both historical narratives built into systems we use, and also ongoing constructed political and economic hegemonies, including what has been discussed as post-hegemonic power (Lash, 2007). Thus, it is not our intention to suggest

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that theory around audit cultures or performativity are no longer applicable, but rather to consider additional material and discursive factors that have now added further layers of complexity to the question in our title.

In *Towards a Cultural Political Economy: Putting Culture in its Place in Political Economy* (2013), Sum and Jessop stage an encounter between Marx, Gramsci, and Foucault in order to explore the production of hegemonies. They make the important point that: "hegemony is not a cohesive, unilateral, monovalent relationship of leaders and led; it is riddled with tensions, contradictions, and depends on the 'suturing' of difference that is always vulnerable to pulling apart and ruptures" (2013, p. 223). Given that discourse is always contested and people can choose to ignore policies, this opens possibilities for counter-hegemonic networks and movements. However, in global digital society, there are other material-discursive interventions into our lives that are less easy to ignore and more sinister in the ways in which they infiltrate our ways of being. Later in this chapter we consider, through Knox (2015), three interrelated phases of digital cultures in education: cybercultures, community cultures, and algorithmic cultures.

First, though, we begin by clarifying our use of the term "neoliberal patterns of governance." We then proceed to discuss, through Shore and Wright (2015), the notion of governmentality as a powerful driver of neoliberalism, in creating so-called "self-managed" subjects, where perpetual "enhancement" of what we do appears to be the key objective. We draw attention though to a curious contradiction in this logic, as we then demonstrate how policy texts, that appear to bring new ideas and forms of knowledge, simply reinforce an ongoing and alarming tendency to drive out human characteristics and instead foreground the agency of technology, in enacting and achieving educational reforms.

With reference to a corpus-based Critical Discourse Analysis (CDA), we reveal powerful ideological underpinnings of technological references in global higher education (HE) policy documents. We show the grounding of these texts in particular epistemological assumptions, and reveal how these translate into concrete policies. From the point of view of cultural studies and anthropology, policies create new categories of individuals to be governed, including new global actors, subjects, and social spaces. CDA provides one way to look at the inner mechanics of neoliberal networks, where numbers and texts co-opt with digital technologies to optimize practices, but potentially marginalize related human labor. However, returning to the point from Sum and Jessop (2013) that hegemonies are not cohesive, there are further routes through which the question of "who drives the drivers?" might be explored. The notion of human capital might be clearly linked with theories of governmentality, through audit and performativity.

A self-governing individual within a neoliberal public organization is frequently discussed. Yet Peters and Jandrić (2018) remind us that human capital is not that well suited to the digital age, when crowdsourcing and creative collaboration across groups and networks are overriding the assumption of humans as self-sufficient entities. The figure of *homo economicus* is considered alongside that of *homo collaborans* to demonstrate that transitions of human nature in a

neoliberal context are not clear-cut. This applies more than ever when digital networks are inextricably implicated in the struggles between economic self-interest and collective intelligence and responsibility. On this basis, the chapter seeks to intervene subversively at several levels into the current discourse of global educational reform.

Neoliberal Patterns of Governance

In order to develop this problematic, where technologies, via the medium of policy language, are identified as "drivers" of global educational reform, it is important, first, to be clear on what we mean by "neoliberal patterns of governance." Then we can proceed to explain our conception first, of certain *textual* ways that such patterns might rapidly spread world-wide, through policy documents, to support ongoing neoliberal reconfigurations of Higher Education (HE). Though the CDA examples provided a little later may seem like rather small elements to describe, in a very big picture, these are supplied to offer some actual illustrations of what Aihwa Ong refers to as a "migratory set of practices" that appear to "participate in mutating configurations of possibility" (Ong, 2007, p. 1). Ong discusses multiple practices within "Big-N," or neoliberalism, that are rising like "an economic tsunami that is gathering force across the planet" (p. 1). Therefore, the practice of routinely attributing human activity to technology, in written HE policy about learning, is just one such practice where "technological determinism co-opts with neoliberal agendas" (Hayes & Jandrić, 2014). Later we will discuss these findings in broader cultural terms and in relation to changing views on power, hegemony, and governance.

Venugopal describes a "deep" form of neoliberalism, that travels via a "multiplicity of governing networks, nodes and modes that now allows for far greater levels of contingency and context-specific variation" (2015, p. 170). In *The New Way of the World* (2014), Pierre Dardot and Christian Laval build on the work of Foucault to describe how neoliberal rationality is re-making the world via a governmentality approach. A governmentality approach, "with its emphasis on technologies of optimisation, and the formation of market-responsive subjectivities, is the most influential version of deep neoliberalism" (Venugopal, 2015, p. 170). We consider such "technologies of optimisation" to be inclusive of all human practices (and indeed, we explain later, how these now merge with non-human practices) that aid the enacting of neoliberal agendas, including the conscious, or unconscious writing of rational and deterministic claims about technology in HE policy.

Governmentality as a Powerful Driver of Neoliberalism

Shore and Wright perceive the governmentality of neoliberalism to be enacted in HE through "governing by numbers." They describe managerial and organizational technologies for producing calculative, responsibilized, self-managed subjects in "a global industry of measuring, ranking and auditing organisations

and individuals," that has arisen over the last three decades, based on ideas of enhancing "quality," "efficiency," and "transparency" (Shore & Wright, 2015, p. 22). While there are important values in ensuring student learning is of a high quality, to detach concepts like quality, efficiency, and transparency from the humans who spend many hours supporting students, and indeed the students themselves, makes these "categories" easier to quantify and to govern (also self-govern). Given that easy-to-read decontextualized numbers provide useful tools for governance, they pose the question: "How do we know that our subjectivity has been 'snatched' from us by the audit monster?" (p. 27). In reply, they suggest that these factors "may explain why so many people have embraced audit, and also why others, more critical of its rationality and ethics, struggle to find ways to contest processes of governing by numbers" (p. 27).

With such arguments in mind, we suggest that processes of "governing by text" need ongoing scrutiny too, not as exclusive discursive or representational dimensions alone, but interacting with multiple elements that co-constitute human subjects, objects and sociopolitical orders. Though many authors before us have developed concerns over governance through policy texts (Jessop, Fairclough, &Wodak, 2008; Mulderrig, 2011), in our analysis we reveal a set of practices buried within "deep" neoliberalism that threatens to literally steal human subjectivity. Critical analysis of written texts have been closely linked to the concept of hegemony (Gramsci, 1971) where the power of dominant groups in society becomes integrated through multiple forms of discourse. However, later we will discuss a shift in focus to a "more nuanced understanding of the power potentials and dynamics of digital or new media" (Beer, 2009, p. 997) with reference to post-hegemonic power (Lash, 2007). For now we draw the reader's attention to particular grammatical constructions that can position technologies and policies as enacting the enhancement of quality, but failing to attribute the human. Grammatical constructions have wider sociological significance (Mulderrig, 2011). Therefore, "governance by numbers" is also constructed and enacted via textual patterns. Shore and Wright (2015) make the point "that audits do not so much steal our subjectivity as actively constitute it." However, in our examples, human subjectivity appears to be missing altogether. We demonstrate, in extracts from policy texts about teaching in HE, how the very presence of teachers and students is omitted from discourse altogether. What remains are frequent statements where all manner of technologies, policies, and material factors are attributed with our acts of human academic labor. Thus, the "drivers" of global educational reform seem to be of a distinctly non-human variety!

However depressing though such revelations may sound, from the point of view of cultural studies and anthropology, policies create new categories of individuals to be governed. In an "anthropology of policy," policy documents are not simply external forces, or confined to texts, but rather they are considered to be "productive, performative and continually contested" domains of meaning (Shore, Wright, & Però, 2011, p. 1). So, having identified the issue of material objects cited as enacting human labor, we can intervene subversively into the current discourse of global educational reform as a contested domain of meaning. In place of the dominant deterministic positions we encounter in written policies, and as a first step to a more open and democratic dialogue, we can

introduce more complex, posthumanist and organizational views. These acknowledge the diversity of digital cultures and their roots in philosophy of technology. Human labor and identity are intermingled with the material devices we use. For instance, few users of smartphones will deny the mixed blessings of the "autocorrect" text function. When it alters the words we write, and results remain unnoticed as we hit "send," embarrassment can swiftly follow. While humans are adapting to digital actors intervening in ways like this for convenience, it may be less obvious to us that these devices and new algorithmic practices (Beer, 2009) are also powerful participants in the political economic context of "Big-N" (Ong, 2007, p. 1). To describe any of these encounters as enacted by technology alone denies the political dimensions of technology (Winner, 1980).

When applying these arguments in an HE context, the foregrounding of technology itself, apparently separated from its social context in strategic plans, brings policy itself under scrutiny to be found wanting. Rather than accept the "policy continuities that support this dominant discourse" (Hayes, 2016), we can choose to expose textual reports, as forms of media in themselves, that need to be re-considered. If we challenge students in HE to take a critical approach when exploring global and local issues, through a variety of visual media, perhaps we need to ask why the writing of institutional policy remains an anonymized textual exercise (Hayes & Obradović, 2016). This becomes a more pressing question when we are able to demonstrate tangible ways that policy documents resort to "trafficking in human attributes" (Kopytoff, 1986, p. 85), thus ignoring decades of research that has exposed the complexity and diversity of human learning relationships with technology. We will therefore return later to discuss some complications that new algorithmic cultures introduce to the question of "who drives the drivers?" among human and non-human actors.

Identifying Who Is "Acting" in Textual Patterns of Governance in HE Policy

Our initial textual analysis is drawn from a corpus-based approach to critical discourse analysis, where Sarah Hayes collected 2.5 million words of UK government policy and university strategy texts written between 1997 and 2012. A corpus can be understood as a collection of naturally occurring language, in this case, HE policy texts that were freely available in the public domain. Corpus linguistics (Baker, 2006) offers structured ways to search a large bank of text like this to examine constructions of language. It is important to note that these initially quantitative findings do not prove anything, or explain why particular patterns may occur. They do though provide significant "content" to examine when considering questions about governance by numbers or by text. Undertaking further qualitative analysis through Critical Discourse Analysis (CDA), more specifically, transitivity analysis (Halliday, 1994), aids a closer scrutiny of such questions in relation to critical theory.

Sarah first examined the policy corpus through software called *Wordsmith* to observe which quantitative patterns emerged through corpus linguistics. *Wordsmith* supports corpus linguistic analysis through *keywords* (Scott, 1997)

Table 15.1 Keywords and how often they appeared in the corpus

Keyword	Number of instances
Learning	19260
Use	8131
Technology	6079

which are words that are statistically significant when measured against a comparison corpus, in this case, the British National Corpus (BNC). The British National Corpus was chosen as it contains 100 million words of written and spoken English from a wide range of sources for comparison purposes. In Table 15.1 some of the keywords that were highlighted and how often they appeared in concordance lines within the corpus are shown.

The keyword "use" was explored more qualitatively, to consider how "the use of technology" was discussed in relation to human academic labor. In a small extract from the findings, shown below, it is possible to observe a sustained pattern of attributing many human activities, such as teaching quality, provision of feedback, student learning, productivity and management to "the use of technology." In a transitivity analysis, breaking down these statements to look at their components aids us in noticing who the actors are and which goals they are attributed with achieving.

5437 'the use of technology *to improve* teaching quality'

5441 'the use of technology *to enable* and support work-based learning'

5447 'the use of technology *to enhance* the student learning experience'

5448 'the use of technology *to enhance* learning, teaching and assessment'

5457 'the use of technology *to support and enhance* the business and management functions'

5485 'the use of technology *to enhance* assessment and the provision of feedback'

5504 'the use of technology *to enhance* learning, teaching and assessment'

5520 'the use of technology *to create, sustain and develop* reflective learning communities'

5522 'the use of technology *to promote* efficiency and effectiveness'

5523 'the use of technology *to overcome* problems, circumvent disability, or finding alternatives'

5547 'the use of technology *in meeting* the needs of a diverse student body'

5573 'the use of technology *can increase* accessibility and flexibility of learning'

5602 'the use of technology *to enhance* learning and teaching'

5638 'the use of technology *to enhance* the student learning experience regardless of location'

5659 'the use of technology *can increase* accessibility and flexibility of learning'

5660 'the use of technology *to create* digital archives to improve practice'

5661 'the use of technology *to enhance* front line productivity and management'

In transitivity analysis, verbs reveal different types of processes, and nouns tell us who or what is actually "doing" these. Above we can see that many verbs describe active processes that are being undertaken. These are shown in italics: "*to improve*," "*to enable*," "*to enhance*," "*to create*," "*to sustain*," "*to develop*," "*to overcome*," "*to increase*." The noun: "the use of technology" is enacting these processes, and thus it is implied that the many goals: teaching quality, provision of feedback, student learning, productivity and management, are achieved by "the use of technology," rather than the dialectically intertwined breadth of human labor that is likely to accompany this.

There is not scope within this chapter to explain in more detail than this the detailed linguistic forms of analysis undertaken, see Hayes and Bartholomew (2015) for more on Sarah's particular methodology of corpus-based CDA applied to educational technology policy discourse. However, it is worth drawing attention to the role of "repetition" in the above textual examples. In some cases this verges on plagiarism, as phrases and statements are frequently reproduced across institutional and national policy texts. According to Lash, "the hegemonic order works through a cultural logic of reproduction, the post-hegemonic power operates through a cultural logic of invention" (2007, p. 56). This is an argument we will return to later. For now, we proceed to consider not only the clearly instrumental approach that such statements reinforce, as part of a global approach to measuring, ranking, and auditing efficiency (Shore & Wright, 2015), but also to place these in a wider consideration of cultural studies and algorithmic cultures. This extends our previous discussions of textual drivers within policy (Hayes, 2015, 2016; Hayes & Jandrić, 2014) to acknowledge that these managerial and organizational agendas need to be negotiated within new powerful cultural spaces where "older habits of thought, conduct, and expression appear to give way to newer ones that have yet to fully replace them" (Striphas, 2009, p. 189).

Who Drives the Drivers? A Post-Hegemonic Cultural Studies Perspective

In earlier writings, we have shown that the common-sense narrative of "using technology to enhance the student learning experience" is closely linked to Barbrook and Cameron's Californian ideology in two main ways. "By positioning students as passive recipients, of the notion of 'the student learning experience' builds a consumerist perspective into the process of teaching and learning" (Hayes

& Jandrić, 2014). Furthermore, "the notion of 'using technology to enhance learning' transfers human powers into information technologies" (Hayes & Jandrić, 2016). On that basis, we offered a possible form of "linguistic resistance" through posthumanist perspectives. In this chapter, we go one step further and analyse the common-sense narrative of global policy documents in the context of cultural studies. According to Knox, the perspectives of digital culture

> offer two principal and interrelated ways of thinking differently about education: the diversity, nuance, and strangeness of culture, as opposed to the rational universalism of education, combined with useful perspectives from the philosophy and theory of technology, which are able to account for more complex notions of our relationships with the digital. (2015, p. 1)

Knox identifies the "three interrelated phases of digital cultures in education": cybercultures, community cultures, and algorithmic cultures (p. 2).

The first phase of digital cultures in education, cybercultures, is focused on concepts of space, place, and identity. Major works from this phase include scientific studies such as Donna Haraway's *Simians, Cyborgs, and Women: The Reinvention of Nature* (1991) and also seminal works of science fiction such as Gibson's *Neuromancer* (1984). The common-sense narrative of "using technology to enhance the student learning experience," and the consequential omission of the very presence of teachers and students from the discourse of (higher) education evoke the worst dystopian nightmares of Frankfurt School theorists such as Herbert Marcuse and Martin Heidegger. Yet, the notion of technological control over people (or, in this case, higher education) is clearly overblown. Technologies are not independent from humans; they merely perpetuate ideologies that are built into their foundations. In order to understand the present-day ideology of information technologies, therefore, we inevitably need to look into the history of their creation.

It is well known that information technologies were developed in laboratories funded by the US Army. Their developers were predominantly white, male, and well-off – yet, they had been strongly marked by the spirit of 1968 and the hippie movement. The historian of technologies Fred Turner shows that development of information technologies was ideologically much more complex than the commonly accepted discourse of left-wing vs. right-wing ideologies. For instance, the left was divided into two main groups. One of these groups, the New Communalists

> believed that new tools would bring people to new levels of consciousness, which would in turn foster development of a new and hopefully better society. On the other hand, the New Left engaged in standard political activities such as gatherings and lobbying, and sought to change the world from within the system. (Turner & Jandrić, 2015, p. 169)

Similarly, the right was also divided into several fractions. To make things more complicated, some right-wing fractions such as the Wired blended neoliberal ideologies with libertarianism; some left-wing fractions such as the New Left were actually much more politically conservative.

Based on such historical background, technological references in contemporary global higher education policy documents do not simply subscribe to one particular neoliberal ideology. This ideological uncertainty fits well with the uncertainty of identity and place characteristic for posthumanism, and with the main concerns of the phase of cybercultures. In this contested space, the dominant ideology of technological references in global higher education policy documents is hard to pin down and critique. Furthermore, it is in this contested space that we can find roots for resistance to the dominant narrative. From a broader historical perspective, the current ideology of technological references in global higher education policy documents might merely be a passing phase in human development. Already in 2000, Richard Barbrook put forward a brave thought experiment or McLuhanist probe: "Engaged in superseding capitalism, Americans are successfully constructing the utopian future in the present: cyber-communism" (Barbrook, 2000; see also Jandrić, 2017. Ch. 5). From Barbrook's perspective, the question 'who drives the drivers?' has an even more complex answer. Is it possible, that allowing technologies to drive changes might eventually supersede the neoliberal ideological underpinnings of contemporary higher education?

The second phase of digital cultures in education, community cultures, describes the shift toward the culture of participation developed within interactive Web 2.0., and replaces the notion of virtuality by the notion of the network. From this perspective, "using technology to enhance the student learning experience" brings about a whole new set of questions such as unequal access to digital resources. As information technologies become more and more available, the notion of the digital divide characteristic of the 1990s and 2000s has slowly been pushed aside by more pressing issues such as digital literacy. In community cultures, technologies are viewed predominantly as vehicles for human collaboration and social participation. This theoretical position, which can probably best be described as soft technological determinism (Levinson & Jandrić, 2016), still insists on the importance of human agency. However, this agency is conducted on various online platforms, and thus limited by their inner workings.

The phase of community cultures continues and reinforces the ideological mashup started in the phase of cybercultures. For instance, Howard Rheingold – an early digerati who was heavily involved in circles around the Wired, and who is generally recognized as one of the main architects of the right-wing Californian ideology – also strongly advocates many positions that are typically defended by the left: knowledge as commons, net neutrality, decentralization of power …

> We are in a period of struggle over control … Whether digital technologies such as tools used by the United States Department of Defense to surveil populations is going to give them complete control, or whether the continued development of personal technologies and knowledge how to use them will increase the power of people to more democratically determine their faith, is still undecided. I think that if you assume that centralised power has won, that is a self-fulfilling prophecy. (Rheingold & Jandrić, 2015, p. 161)

In the perspective of community cultures, ideological underpinnings of technological references in global higher education policy documents are most prominent in various social struggles inside and outside of the realm of technology.

The third phase, algorithmic cultures, refers to the ways in which automated data processing interacts with educational formations. Algorithmic cultures introduce radical equality between human and non-human actors – a few decades after the works of Gibson and Haraway, questions of identity that marked the phase of cybercultures have returned with a vengeance. From the viewpoint of engineering, algorithms are simple mathematical relationships that are clearly defined by humans. However, algorithms are often hidden from the user, and the interaction between multiple algorithms may yield unexpected results. Set up by humans, algorithmic actors act fairly independently and unexpectedly. This calls for a deeper conceptual analysis: how human (or non-human) are algorithmic actors? However, questions pertaining to identity are just a tip of a much larger iceberg. Algorithmic cultures are instrumental in building "the digitally saturated and connected world" (Bell, 2011, p. 100), where issues of identity are intertwined with issues of community and issues of technology. In the context of algorithmic cultures, therefore, the question "who drives the drivers?" has become muddier than ever.

The researched policies create new categories of individuals to be governed. Cyber-students and cyber-faculty, who build values pushed through technology into their own identities. Social networkers, who "critically" use Web 2.0. technologies without much reference to their underlying architecture. Human consumers of algorithms, who click on personalized ads and build their own realities around algorithmically produced data; also non-human algorithmic actors, which interact and produce these realities without much reference to their original set-up. The researched policies also create new spaces. Cyberspaces, which offer escape from human bodily reality. Spaces of communication, which offer an opportunity for collaboration between humans. Spaces of computation, which present to most people as black boxes that somehow create their reality. These developments are local, because cyborgs recombine the human and the technological in numerous creative ways. They are also global, because algorithms employ the same principles in a vast number of different situations.

The classification of digital cultures into cybercultures, community cultures, and algorithmic cultures is a mere historical construct which describes scientific development during the past few decades. In reality, these phases have always co-existed, because they reflect "the basic human urge to question one's own identity, social relationships, and the relationships between the human and the non-human" (Jandrić, 2016). Cyber-students and cyber-faculty are also social networkers, and producers/consumers of algorithmic data. Cyberspaces are spaces of collaboration and spaces of computation. The drivers are mixed up, but not the same as, those who are driven – and their mutual relationships are often hidden.

Therefore, we now return to the points we made earlier, regarding hegemony, as an integration of the ideologies of powerful groups into everyday life, laws, texts, and policies. Domination takes place through consent, through ideology and through discourse. Over time theorists have also observed the cultural

spread of power through different forms of media and imagery. However, where in the past specific forms of resistance may have been easily located within everyday processes, Lash suggests that the spaces for resistance are now filling up in new ways. In place of discourse, power has become more sinister, to "penetrate your very being" (Lash, 2007, p. 59). Beer describes this as a "vision of close up and inescapable power" that "lives with us and reacts to us" (Beer, 2009, p. 993). In other words "it is not just resistance in our post-hegemonic culture, but also domination that works ontologically" (Lash, 2007, p. 58) and this has implications for organization and self-organization (Beer, 2009).

In the realm of traditional cultural studies (Stuart Hall, Terry Eagleton, David Harvey) and in the realm of traditional critical pedagogy (Paulo Freire, Henry Giroux, Peter McLaren), this study should be based on typical research questions such as: "Who drives the drivers? Which ideologies drive the drivers' drivers? Which mechanisms do they employ to drive these ideologies?" On the historical scale, however, technologies entered the arena of higher education only yesterday – and it was very necessary to embrace them in the existing critiques. Criticial studies in digital cultures cannot rely merely on pre-digital analyses of power and dominance. Therefore, we need to develop a new language of critique, and transform traditional cultural studies in and for the context of the age of the digital.

Post-Hegemonic Power and Educational Reform

According to Peters and Jandrić (2018, p. 341), "we are at a stage today where we can begin to investigate links between creativity, the mode of digital production, and the logic of public organisations." They show that this logic fosters "large group creative collaboration and co-creative labor based on being open, peer-to-peer, sharing, interdependence and acting globally". Based on Peters's earlier work, they call this "co(labor)ation, that is, a form of collective intelligence or 'the wisdom of the crowd' (so-called 'crowdsourcing') as a systematic learning process that encourages "creative labor" (CL)," and offers "CL as a substitute to human capital (HC) which is not well suited to the digital age" (Peters & Jandrić, 2018, p. 342). The notion of human capital corresponds to the well-known figure of *homo economicus*, while the notion of creative labor corresponds to the developing figure of *homo collaborans*.

Homo economicus and *homo collaborans* are based on three confronting assumptions: (1) the assumption of individuality, characteristic of neoliberal ideologies, is counterposed by the emerging concept of collective intelligence; (2) in a networked environment, the assumption of rationality is superseded by horizontal relations between entities which make a rationally aware self-sufficient entity ontologically impossible; and (3) the main defining feature of the *homo economicus* – the assumption of self-interest – is superseded by decentered forms of collective responsibility. In spite of obvious differences, the transition from *homo economicus* to *homo collaborans* cannot be cut clearly. For instance, a lot of pre-digital science is based on collaboration, and *homo economicus* seems to thrive in the digital worlds. Instead, this transition can be described as a slow change from one mode of being into another, which mostly concerns questions

pertaining to human nature, and which is essentially pedagogical. It is in this way, show Peters and Jandrić (2018), that process philosophy reveals the new power relationships in the age of post-hegemony.

These processes are strongly linked to the current educational reform of higher education. Contemporary institutions of higher education are based on the model developed in the early nineteenth century by Wilhelm von Humboldt. The Humboldtian university is a public good, which holistically blends research and education, and which strongly relies on the humanistic concept of *Bildung*. In Humboldt's view, the university should be independent of (daily) politics, religion, and economy, and the produced knowledge (as well as the process of knowledge production) is always a commons. It is within the Humboldtian university, that early information and communication technologies have been developed in research institutes of MIT and Stanford, and that principles such as Net Neutrality and Free Software have defined the current digital landscapes. However, these principles have been appropriated by neoliberal ideologies. In the field of technology, neoliberalism has been introduced by the Californian ideology; in the field of higher education, neoliberalism has been introduced by rapid commodification of the contemporary university. However, the same technologies that fostered the development of *homo economicus* are now slowly but surely building the new *homo collaborans* (Peters & Jandrić, 2018, p. 350). Perhaps, after all, Barbrook's question whether humanity currently enters the phase of cyber-communism (Barbrook, 2000) is not a mere thought experiment. Through the emergence of *homo collaborans*, this daring hypothesis gets surprisingly close to current reality.

The Humboldtian university was built on the ancient humanistic notion of *homo collaborans*, who then gave way to the neoliberal *homo economicus*, who is now being superseded by the new digital *homo collaborans.* Instead of analysing which social groups benefit from the current commodification of education, therefore, this analysis situates the question "who drives the drivers?" into a higher conceptual plane of the eternal struggle between *homo economicus* and *homo collaborans.* This perspective is useful, because it allows for the contributions of various fields, such as philosophy and anthropology. This perspective is also blind to detail, because it deliberately avoids standard questions from cultural studies such as: "who benefits from commodification or decommodification of higher education?" However, while there is a plenty of research that asks the standard questions, we believe that it is important to add this higher-level perspective to the wider debate.

This analysis clearly rejects dominant deterministic positions, identified in our critical discourse analysis, which understand technology as a driver for reform of higher education. It shows that the concept of the university is directly linked to our understanding of human nature, and that any reform of higher education should be guided by a vision of the future university. This vision is primarily humanistic, but also imbued in a current technological and social context. In a posthumanist universe of contemporary digital cultures, neoliberal *homo economicus* is dialectically intertwined with the digital *homo collaborans*. However, aristocratic *homo economicus* of the nineteenth century is radically different from the neoliberal *homo economicus* of the twenty-first century, and Humboldt's

homo collaborans based on *Bildung* is radically different from the digital *homo collaborans*. The contemporary struggle over the future of the university is an old battle, fought by new warriors and on a new terrain.

In our previous works, we have shown that in order to intervene subversively into the current policy discourse of higher education, we need to bring humans back into the equation. However, this analysis shows that it is not enough to emphasize the role of human administrators, teachers, and learners – we must also understand the complex forces that form their nature, and the links between past, present, and future. It is only by feeding a more complex understanding of these forces back into the discourse, that it is possible to intervene subversively into the current reform of higher education. Cultural studies need to develop a new, posthumanist language that is able to acknowledge the complexity and diversity of digital cultures, maintain roots in philosophy of technology, and ask new questions pertaining to power in the current post-hegemonic environment.

We return now to the point raised earlier about hegemony and reproduction. This has links with efficiency, where technology in modern society has been discussed as the "use of scientific knowledge to specify ways of doing things in a reproducible manner" (Castells, 2000). In policy texts there is the same tendency to repeat statements, which when heard often enough end up being repeated by people, though often unconsciously. In this way we then contribute to reproducing a discourse that marginalizes how our labor is discussed. Post-hegemonic power, however, is said to work through a cultural logic of "invention" or "chronic production of economic, social and political relations" (Lash, 2007, p. 56). Thus, "post-hegemonic power and cultural studies is less a question of cognitive judgements and more a question of *being*" (p. 58). The implications of this become clearer if we recall that we have argued previously for human beings to reclaim their place within policy texts, to avoid being written out altogether. Yet the ontology that might have offered some form of resistance to re-occupy cognitive judegments in policy texts is being penetrated from every angle and "power, previously extensive and operating from without, becomes intensive and now works from within" (p. 59). It is within this complex posthumanist context, that we need to link analyses of power and discourse to more fundamental questions pertaining to digital cultures such as human identity in the age of digitally saturated environments.

Conclusion

As Lash points out: "politics was once confined to a set of more or less clearly defined institutions" but now "politics leaks out" (2007, p. 75). Politics leaks from technologies, from (the lack of) people in policy discourse, from our personal and social identities, from our communications, and from algorithms. These leaks change the existing power relationships, and radically transform various traditional concepts such as hegemony. Such ubiquity of politics, and such a transformation of power relationships, are never more apparent than when we ask "who drives the drivers?" among the human and non-human actors of algorithmic cultures.

In late twentieth century, cultural studies have significantly contributed to our understanding of education and educational politics in particular. In the age of digital cultures, however, traditional cultural studies are also undergoing significant changes. Speaking of contemporary reform in higher education, therefore, we are not merely facing a new research problem that can be "attacked" by old methods. Literally and metaphorically, we make the road by walking, and research questions which emerge from digitally saturated environments inevitably require new research methodologies and new languages of critique to be developed. In the age of digital cultures, addressing important educational problems requires the development of a new generation of cultural studies. Obviously, this huge task cannot be achieved within a single book chapter. Yet, our research does offer some guidelines for future developments.

Critical discourse analysis shows a strong lack of human agency in the policy language of higher education. Traditional cultural studies would address this problem by seeking actors hidden by discourse through an analysis of power and knowledge. In our previous research (Hayes & Jandrić, 2014), such an approach has led to identification of illicit ideologies in the discourse. In the age of digital cultures, however, cultural studies need to embrace the emergence of non-human actors and the complexity of their relatinships with human actors. Using the metaphor of struggle between neoliberal *homo economicus* and digital *homo collaborans*, this approach acknowledges the complexity of mutual interdependence between these two ideals. In this context, traditional analysis of hegemony (and the very concept of hegemony!) become increasingly muddled and connected to deep inquiry into the philosophy of technology and ontology.

Historically, information and communication technologies have been around for only a very short amount of time. Yet, their power and ubiquity have definitely brought about rapid social and technological transformations roughly described through the notion of digital cultures. At this moment in history, the exact scope and extent of these transformations are by and large unclear – it is only with the wisdom of hindsight that, some time in the future, we will be able to accurately describe the moment here and now. However, this should not refrain us from experimenting, asking new questions, developing new modes of analysis, and creating new languages of critique. The new approaches have not arrived from thin air. Standing on the shoulders of critical pedagogy and cultural studies, traditional modes of analysis are still important and valid. Yet, as we write these words, these modes are being rapidly superseded by emerging forms of critique such as digital cultural studies, and we need to dare and explore what it means to be an educator in the age of digital cultures. At this moment in history, it is hard to say which elements of the traditional critique are still valid, and which elements need to be updated or even completely changed. However, the question "who drives the drivers?" clearly indicates the need to simultaneously ask new questions and develop a new language of critique – and digital cultural studies might be a possible route for asking questions pertaining to contemporary global reform of (higher) education.

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