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The rise of the Video-Recorder Teacher: the sociomaterial construction of an educational actor

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Abstract

This paper draws on Actor Network Theory (ANT) and on the sociology of cultural consumption to examine the phenomenon of corporate Massive Open Online Courses (X-MOOCs). Through the analysis of texts available in the public domain, the paper argues that over a short period (between 2012 and 2013) digitisation technology became associated with the emergence of a hybrid 'actor': the DVR (Digital Video Recorder) Teacher. A parallel is drawn between the 'interactive affordances' of digital instruction and the playback and cataloguing options that have contributed to shifts in TV viewing habits. The DVR teacher is described as an artefact in the service of a postmodern project of self-improvement through cultural consumption, which recruits digitisation to meet a growing demand for 'upgrades to the self'. In the conclusion, the paper explores how the study of digital education could benefit from an interface between sociomaterial studies and the sociology of culture.

Introduction

In his analysis of 'Aramis', an ill-fated transportation system in Paris, Bruno Latour offers a remarkable account of how society and technology come together to form interwoven 'assemblages' of humans and nonhumans (Latour, 1996). Latour describes how an 'innovation' can be made or unmade through a continuous, tireless process whereby actors (humans and nonhumans alike) mobilise opinions, recruit each other, generate interest, attract sponsorship and political support; thus conferring reality to relations and identities within a network. Like others in the tradition of sociomaterial studies, Latour delineates a method for understanding the world as a hybrid of nature and culture, as opposed to a collection of distinct ontological zones: human beings on the one hand, nonhumans on the other. As he puts it:

> …but wait a minute, some will object, we are dealing with technologies, not passions, with drawings, not plots; with logic, not sociology; with economic calculus, not Machiavellian calculations. Ah, but they are wrong! The two sets come together in research rooms and administrative council rooms. The pertinent question is not whether it's a matter of technology or society, but only what is the best sociotechnological compromise. (1996, p.101)

In this paper, we assume that seeking sociotechnological compromises provides a valuable lens to understand a range of educational phenomena. Sociomaterial studies, in particular those inspired by Actor-Network Theory, are not new in education and they have shown how knowledge, identities and learning may be generated through the process and effects of assemblages coming together (see Fenwick, Edwards, & Sawchuk, 2011 for a review).

Setting off from these assumptions, we turned our attention to Massive Open Online Courses (MOOCs). Sociomaterial perspectives on MOOCs and digital education are available in the literature (Knox, 2015; Oliver, 2012; Sorensen, 2009). We seek to build on these contributions, also mindful of enduring and recent theoretical debates concerning the relationship between technology and culture (Latour, 1993; Mutch, 2013; Winner 1993). These debates cannot be covered in any detail here hence, at the risk of oversimplification, we will describe rather bluntly the main positions: a critique whereby a focus on the inner workings of artefacts, objects and technological systems may distract from the role of social structures, leading to a disregard for the 'social consequences of technical choices' (Winner, 1993, p.368); as opposed to an emphasis on symmetrical 'enactments' where people and the artefacts (physical and digital) that are integral to their lives are considered as equally essential in the generative process that defines the social world. Our own sociotechnological compromise is an attempt to bridge these two positions using the descriptive affordances of ANT and its appreciation for symmetry, alongside a traditional sociological interest in the dynamics of cultural consumption and subjectification.

MOOCs: from hype to reality

Massive Open Online Courses (MOOCs) are university courses based on open access and unlimited participation. They are delivered via the web and rely on videos in conjunction with established e-learning methods such as quizzes and problem sets. Most MOOCs also provide resources to enable interactions such as asynchronous message boards and email lists, and offer support in the form of Teaching Assistant (TAs). MOOCs are open to all (there are no prerequisites for entry) and there are no fees upon registration. The first recorded use of the word MOOC was in 2008[1] in the context of an online course held at the University of Manitoba in Canada - run for 25 paying students, it was in effect an open boundary course attended free of charge by 2,300 students. This course on 'connectivism and connective knowledge' was part of

1 http://en.wikipedia.org/wiki/MOOCs#Early_MOOC

the group known as C-MOOCs, a category of experimentation known mainly to educational enthusiasts and innovators. C- MOOCs (Connectivist MOOCs) emphasise the networked, distributed qualities of peer learning and are inspired by the values of universal access and free licensing usually found in the open source community. C-MOOCs are not to be confused with X-MOOCs, which are instead based on proprietary platforms and software, and rely on commercial agreements between traditional universities and technological providers. It was the advent of the X-MOOCs in 2012 that brought MOOCs into the global limelight, with the near-simultaneous announcements of three high-profile initiatives: Udacity, Coursera and EdX. Udacity and Coursera, both off-shoots of Stanford University in partnership with other elite academic institutions, were explicit business ventures backed by investment capital. EdX, on the other hand, was branded as a not-for-profit entity, financially and academically supported by Harvard University and the Massachusetts Institute of Technology. As in many other high-profile digital business ventures, early financial investment in X-MOOCs was driven by the assumption that initially unprofitable technologies or digitised services could be 'monetised' at a later stage through a range of untested or speculative business models. In this paper, we are mainly interested in X-MOOCs (or corporate MOOCs) and, specifically, in their developmental trajectory between 2012 and 2013.

During an initial phase of extensive media coverage MOOCs seemed poised to radically transform higher education. More recently, there have been signs of a 'backlash' that followed the initial enthusiasm with the low completion rates raising particular concerns. An interesting piece of research tracked one million students of 16 MOOCs and found that only around 4% of those who enrol complete these courses, while 'engagement' with the content falls off dramatically over the first couple of weeks (Perna et al. 2014). Evidence also suggests that attending MOOCs is largely the preserve of economic elites around the world, with 80% of MOOC participants coming from the richest 6% of the population who already have HE degrees (Emanuel, 2013).

As the hype dissipates, there is a sense that the 'disruptive' nature of MOOCs has been cast aside and the phenomenon is being normalised and assimilated into more traditional forms of educational technology practice (Bulfin, Pangrazio & Selwyn, 2014). As MOOCs become heterogeneous, variants are emerging with new identities becoming incorporated into new forms in a reconfiguring landscape (Czerniewicz et al., 2014). With this in mind, we look back at the 2012-2013 period to develop a sociotechnological account of how a specific version of 'Massive Open Online Education' came to be and how it led to the constitution of a new type of object in education: the Digital Video Recorder (DVR) teacher.

Methodological resources

With MOOCs still in their infancy and their trajectory unclear it has not been possible to build a robust academic literature and relevant insights from independent research are only beginning to emerge. Early contributions include the exploratory work carried out at Harvard University to study the home-grown EdX (e.g. Breslow et al. 2013). This work focuses mostly on the unprecedented opportunities to build data-based analytic and predictive tools afforded by MOOCs. The connectivist literature, on the other hand, places great emphasis on the emergent, self-defined qualities of MOOCs, which 'integrate the connectivity of social networking, the facilitation of an acknowledged expert in a field of study, and a collection of freely accessible online resources' (McAuley et al. 2010 p.4). Contradictions are already apparent in both theoretical enterprises. For example, definitions of 'participation' and 'success' (or 'outcome') are so radically different in the MOOC space to the formal educational spaces in which those terms are routinely deployed as investigative tools, that it has proved all but impossible to determine whether 'access' is indeed being extended or educational opportunity enhanced.

In this paper we move the discussion past the 'instructional' dimension to engage in a more theoretical and reflective analysis. Our main contention is that although the significance of MOOCs (corporate and 'connectivist' alike) as educational innovations may be thoroughly debatable, at the very least they have helped bring to the fore valuable questions about cultural consumption, whilst enabling a productive exchange between educational sociology and the study of technology in social contexts. MOOCs opened up inroads into various entanglements of socio-economic and technological aspects which, if explored further, can help us develop a more robust and critical understanding of education in the 21st century. The method we have chosen to qualify our contentions draws mostly on the theoretical and linguistic repertoire of Actor-Network Theory (ANT) (Callon, 1986; Latour, 2005). We use this method to describe the 'ontological politics' (Law, 2007; Law & Singleton, 2005) that attempted to produce the 'MOOC assemblage' through technologies, negotiations and alliances. ANT allows us to describe assemblages as dynamic phenomena continuously – and practically - made and unmade (Law, 2012). This approach favours emergent, eclectic accounts of how sociotechnical events take shape and develop, never in a complete way but producing 'gaps, holes and tears' (Fenwick & Edwards, 2010, p.4). A particularly important notion in ANT is that of translation or mediation: a process whereby actors (humans and non-humans) form various entanglements of nature and culture. During the process of translation, actors recruit each other, re-interpreting objectives and roles until a particular version of reality prevails.

> Translation builds an actor-world from entities. It attaches characteristics to them and establishes more or less stable relationships between them. Translation is a definition of roles...and the delineation of a scenario. (Callon, 1986, p.24)

Translation is therefore a dialectic and dynamic process: what actors actually do in connection with other actors, human and non-human, in order to produce versions of reality that eventually stabilise to a greater or lesser degree.

Translation through digitisation

Digitisation is the technological system that makes massive open online education possible. As such, it represents a black box that seemingly operates as a unity, while being in fact a networked collection of technologies, relationships and practices in its own right. ANT authors often refer to the task of opening up black-boxes – or 'depunctualising' (Latour, 1999) – as a necessary form of analytic work that uncovers taken-for-granted assumptions, thus shedding light on a much broader range of issues. It can also help to demystify technology, deconstructing the mythical properties often ascribed to it and recasting them as mundane, messy and more labour intensive than many may be willing to concede. The work of digitisation, that is, the work carried out through, and because of, computer software, can be construed as a form of 'ontological alteration' as it quite literally translates texts, images and sounds in digital 'bits' of information, or binary digits: sequences of zeroes and ones.

> Like the alphabet, mathematics, printing press, combustion engine, electricity, and integrated circuits, software re-adjusts and re-shapes everything it is applied to - or, at least, it has a potential to do this" (Manovich, 2013, pp.32-33).

These new digital entities are amenable to a range of manipulations that reflect their newly acquired qualities. Paraphrasing again Manovich (2001), these qualities can be summarised as follows:

- numeric representation;
- modularity, digital entities exist independently;
- automation, digital entities can be created and modified automatically;
- variability, digital entities exist in multiple versions.

The production and manipulation of digital entities have had visible consequences on many areas of cultural consumption. For the purpose of this paper we are mainly interested in the sphere of television watching, which following the digital distribution 'boom' has become increasingly associated with watching habits based on choice, collection and organisation, rather than the 'passive' consumption of content. Researchers from the field of Human-Computer Interaction (HCI) interested in emerging patterns of TV watching highlighted the 'time-shifting' enabled by digitisation and by user-friendly digital interfaces, as well as the multiplication of consumption opportunities across physical media (DVDs) and, more recently, digital services (Barkhuus and Brown, 2009; Simons, 2013). The new, 'empowered' consumers of digital TV are therefore allowed to experience content whenever they want and on wide array of personal screens, thus embedding TV watching even deeper within their lifestyles. In fact, the 'Me TV' (Hoppenstand, 2006) becomes an identity-defining hobby, characterised by personalised forms of consumption which are at the same time intensely committed and shallow. Some TV shows and fiction series are compulsively and swiftly watched in their entirety never to be touched again; whilst others are only experienced fleetingly, as digitisation allows people to 'graze', switching between shows multiple times before settling on something. Moreover, the variability and replicability afforded by digitisation encourage forms of collecting behaviours whereby viewers take pleasure in managing and organising their favourite content. Barkhuus and Brown note that 'much of this television had not been watched, or at the most had been watched once. This suggests that, as with other collecting behaviours, the value of owning the collection is more than simply the benefits that easy access to what is being collected provides' (2009, p.18). In other words, the translations performed by digitisation and the related enactments suggest that the consumption of digital TV content has become enmeshed with the production of subjectivities. This is consistent with the vast body of sociological research on the 'reflexive society', according to which forms of intense, personalised consumerism are fuelled by a broad set of assumptions by which the original function of commodities is partially replaced by the promise of existential rewards (Bauman, 2000; Beck, 1992; Beck et al. 1994; Giddens, 1991). According to these perspectives, current discourses on lifestyle and selfhood reflect the confusing and multifaceted nature of contemporary societies, and are influenced equally by the individualising force of late capitalism and by the blurring of symbolic boundaries between the spheres of work, education and leisure. As a result, traditional structuring factors which in more 'solid' times used to frame identities around interpersonal bonds, professions and social class, give way to fluid forms of cultural and material consumption that turn selfhood into the shifting outcome of provisional 'identity projects'.

Watching TV, watching MOOCs

Our line of enquiry has developed from an account of how digitisation attaches certain characteristics to TV content, delineating a scenario where said content becomes entangled in a set of socio-technological enactments as evidenced in the HCI research literature. We then argued that new forms of personalised cultural consumption afforded by digitisation are enlisted in the production of subjectivities, in accordance with the self-reflexive tendencies of contemporary societies. As we return to Higher Education, we contend that an analysis of the operational properties and 'affordances' of digitisation may assist the sociological critique of corporate MOOCs. This critique cannot simply argue that X-MOOCs represent a concerted, technology-driven attempt to commoditise knowledge. The commoditisation of knowledge was already an

established phenomenon documented in the sociology of education before the recent excitement for massive open online education (e.g. Brancaleone & O'Brien, 2011; Kenway et al. 1998; Naidoo, 2003; Naidoo & Jamieson, 2005; Newman, 1999). By drawing on ANT's conceptual toolset, our critique is instead framed by the central notion of translation. Therefore, we choose to describe how new objects, and new relations between humans and those objects, are created at the intersection of society and technology. We then take stock of their broader cultural significance by drawing on explanations available in the sociological literature. Our main contention is that a description of how hybrid 'ed-tech' entities are created and then recruited for various sociocultural purposes (mainly consumption) represents a novel perspective in educational sociology.

If we consider for a moment the interface between online users and digital content in MOOCs, the interactive opportunities (as in 'interaction between users and content') we can identify are, by and large, the very same playback and cataloguing options described in the HCI literature, which have contributed to great shifts in TV viewing behaviours: pause, rewind, fast-forward, download, indexing, collecting, organising, and uncommitted viewing. The only addition MOOCs make to this range of 'interactions' is the use of in-video quizzes. Following on from these considerations, we may posit that the translation work carried out around and through digitisation technology has had one, possibly unexpected, side-effect: the assimilation of academic instruction into the ontological space of digital TV watching and its HCI apparatus. This assimilation was actively pursued or resisted in the debates, economic dealings and technological implementations that took place across a network defined by HE institutions, corporate MOOC start-ups, dissenting staff and enthusiastic commentators. The result of these politics between 2012 and late 2013 was the emergence of a peculiar type of actor: the 'DVR teacher' - a hybrid entity comprising domain-specific content, digitisation technology and traditional academic practice.

The term 'politics' is employed here loosely to refer to the enactments and performances that determine what people and 'things' are in relation to one other and to a broader network. The notion of ontological politics lies at the heart of translation in the ANT model, and the two terms are used interchangeably to signify a process of sociomaterial construction. Sociomaterial construction plays a central role in ANT, but it should be clearly distinguished from other popular views on social constructivism whereby the world is thoroughly constructed and represented through semiosis. ANT recognises the role of materiality alongside the constitutive powers of language and practice as a form of intermingling, thus aligning itself with the more 'realist' approaches in discourse studies, which argue that although aspects of the social world are semiotically defined, there are also realities and situated practices which affect and limit the discursive construction of the social (e.g. Fairclough, 2003). A famous example of sociomaterial construction, simultaneously discursive and material, is the account of how the diameter of the front wheel led to different 'versions' of the penny farthing (Pinch & Bijker, 1987). In each version, clusters of engineers, users, commentators, artefacts (e.g. the air tyre) and actual designs interacted to produce two types of bicycle. One type was the 'macho machine' (Pinch & Bijker, 1987, p.36), in which the higher velocity allowed by a larger front wheel, and the ensuing instability and risks, became associated with a culture of masculinity and athleticism. Another type was the 'unsafe machine' (ibid), defined by other alliances and meanings that led to designs with lower front wheels, saddles pushed backwards and other features that became associated with a more feminine cycling culture. Translation is therefore a dialectic process -it is what human and non-human actors do in connection with other actors in order to produce versions of reality that eventually stabilise to a greater or lesser degree.

Something very similar happened in the 'corporate MOOC network' between 2012 and 2013, when a range of technical choices, performances, decisions and contestations contributed to

confer reality (one among several) to massive open online education. Consider, for instance, the early, tentative economic dealings between X-MOOC providers and US universities. These seemingly standard transactions could indeed be seen as attempts to enact, through the formality of an economic undertaking, a specific version of what MOOCs are or should be. One of such contracts has been made available on the internet[2]. Although it has been superseded by more recent business strategies, this contract still represents valuable evidence of the above-mentioned ontological politics during a period of fluidity and uncertainty, when MOOCs were riding a wave of enthusiasm and hype while trying to assert themselves as credible business propositions.

What follows is an extract from such contract, suitably outlining some key 'definitions':

> 1.5 'course' means the presentation of instructional content pertaining to a certain body of knowledge.
>
> 1.6 'course criteria' means a rigorously designed Course meeting high academic standards that uses multi-media Content in a coherent, high-production-value presentation (i.e., not just a simple lecture capture) to provide the end user opportunities for a rich set of interactions or assessment (whether provided by automatic grading technology or by peer-to-peer interaction activities), resulting in a meaningful learning experience that significantly transcends static content or plain videos.
>
> 1.11 'platform' means Company's proprietary software platform and algorithms used to host, transmit and make Content available via the Internet and to provide related services and functionalities, including automated grading or facilitating peer-to-peer interactive activities.

These 'definitions' highlight one aspect above all: the ontological conflation of 'instructional content', 'high-production value presentation' and 'interactive opportunities' into the notion of 'meaningful learning experience that transcends static content'. This conflation can be viewed as a constitutive act that actively advances a specific 'version' of MOOC instruction. One that recruits the systems and tools of digitisation technology (software platforms and algorithms) and of video production to create an entity that encapsulates 'interactive high-quality academic content in a high-production quality presentation'. We might call this entity the 'DVR teacher'. 'Constitutive' acts performed in different contexts during the same period convey even more strikingly the sociomaterial dimension of this process, effectively illustrating the entanglement of digitisation technology, instructional practice and the resources of TV production. What follows is an extract from a guide published jointly by the Center for Instructional Technology and the Office of Information Technology at Duke University in 2012 to help members of staff to 'prepare for Duke Coursera courses'[3]. The almost cybernetic conflation of human, educational and technological aspects in a 'recording kit' is a text-book example of translation work:

> CIT and OIT worked together to develop a simple Mac-based check-out recording kit, based on recommendations from Coursera, used by faculty for recording most of the video segments. The kit includes a drawing tablet, high-definition camera and high quality microphone for the best results. Faculty use Screenflow screen recording software to record video lectures in several formats – professor lecturing

[2] http://www.documentcloud.org/documents/400864-coursera-fully-executed-agreement.html

[3] http://cit.duke.edu/blog/2012/10/what-does-it-take-to-prepare-a-duke-coursera-course/

> alone, with PowerPoint slides, or drawing on slides or a blank screen. OIT also offered advice to faculty on lighting setup in their office and, through theMultimedia Project Studio, sound proof rooms where faculty could record lectures or do interviews. OIT has also worked with Duke Media Services to help faculty develop short segments for use in the video lectures of staged experiments and other material or more refined editing options needed for some of the videos.

Similar guidance materials published by academic support services in British universities when the UK-based MOOC platform Futurelearn was launched in 2013 illustrate further the hybridising dynamics that created mixtures of educational practice and digital TV production. The following extracts are from the Universities of Sheffield[4] and Exeter[5]:

> (Sheffield) (…) Course content is written, filming begins on the video content and course exam & quiz questions are confirmed. Also a list of all 3rd party content is created, so that we can gain any permissions necessary. By the end of this time we should have completed any filming needed and have a course trailer up on the platform.
>
> (Exeter) Depending on the nature of the MOOC you may be involved in video interviews or location-based video shoots. The development team will produce high-quality video content that can feature location shooting, animation and bespoke graphical content.

Upon its surfacing, the DVR teacher immediately found itself pulled in two opposite ontological directions, not unlike the penny farthing in Pinch & Bijker's study. On the one hand, it was an entirely replicable, finely tuned version of a human academic, whose teaching skills had been harnessed and amplified thanks to the addition of playback options (pause/rewind/fast-forward - see Carey, 2013). On the other hand, it was a de-humanised, passively experienced recording that only provided a 'compelling testament to the value of the in-person lecture/discussion', as professors at San Jose State University famously wrote in an open letter, to protest against a proposed agreement between their institution and the MOOC provider edX[6].

During the same period, high-profile commentators went as far as articulating complex economic justifications of the imminent individualising revolution incited by MOOCs in global HE (Barber et al. 2013), often with tones unwittingly reminiscent of the confusing and uncertain nature of 'liquid modernity' (Bauman, 2000):

> With the rapidly changing world and the pace of new developments in industry, a concentrated four-year curriculum may find itself on the path to obsolescence. Individuals now need to continuously update their skills to stay relevant to the changing market conditions (Barber et al. 2013, p.29)

The same authors went on to celebrate the consequences of globalisation on universities, which buckling under the pressure of competition and technological change, can only survive by modularising and 'unbundling' curricula, thus allowing competition to be distributed across several individual components rather than weighing down on the whole institution. As such, the advent of MOOCs and the modularity brought about by digitisation is, unsurprisingly, construed

[4] http://www.shef.ac.uk/lets/toolkit/technologies/moocs
[5] https://as.exeter.ac.uk/eqe/projects/mooc/developing-a-mooc/
[6] http://chronicle.com/article/The-Document-an-Open-Letter/138937/

as the inevitable result of economic necessity, as the groupings of the various components of educational provision allow precious efficiencies, while being attractive to consumers who can pick and mix according to their personal needs. Echoes of Bauman's liquid, disorienting modernity can be distinctly heard in such celebrations, although a symmetrical, sociomaterial angle on MOOCs allows us to appreciate how the fluid ambivalence of modern lives is concretely realised in junctures where technological systems and their affordances meet the rhetoric of economic necessity. the DVR teacher becomes therefore entangled in a socio-economic dynamic that aims to reproduce fluid ambivalence on a global scale; an enabling factor and a tool to be deployed in the frantic quest for improvement enacted in everyday life in the name of self-entrepreneurship and perpetual innovation (Appleby, 2010; Rose, 1999).

Attendance patterns and low rates of completion in the first generation of X-MOOCS can therefore be understood, at least partially, as either shallow forms of 'grazing' and uncommitted viewing, or emerging variants of the sorts of the collecting behaviours described earlier in relation to digital TV watching, where the original functions of content (in the MOOC's case to 'instruct') are conflated in confusing and confused projects of individual amelioration. These projects are appealing to those among us who fear being left behind in the 'global race', hence frantically grasp at all opportunities however unproven the benefits may be. From this perspective, the 'DVR teacher' is an entity that promotes commoditised, pick-and-mix self-improvement (Ashton, 2011; Kotamraju, 2002), by recruiting digitisation technologies and the growing demand for 'upgrades to the self' (Perrotta, 2014). Either shallow grazing or fretful, inconstant self-improvement, dysfunctional patterns of MOOC attendance clearly demand critical and sociological types of investigation, rather than being swiftly dismissed as irrelevant given the low costs of MOOC instruction and the 'massive' quality of overall attendance, where even a fraction of completing students may count in the thousands (Koller at al. 2013).

Discussion and conclusion

In this paper, we discussed the negotiations and 'translations' that conferred reality to corporate X-MOOCs during a period of intense contestation. In particular, we explored the ways in which the operational properties of digitisation became entangled with a range of practices and performances that include the enactment of subjectification. The key thesis is that a range of interactions and sociomaterial factors at the intersection of technology, corporate HE and economics led to the constitution of a hybrid actor: the DVR teacher. From this thesis followed the suggestion that certain forms of MOOC attendance are expressions of 'identity work', through which the DVR teacher can be enlisted in individualised projects of commoditised, pick-and-mix self-improvement. Notwithstanding these provocative suggestions, this paper's contribution to the emerging scholarly debate about MOOCs lies mainly in the illustration of a theoretical and methodological approach - one that favours focused, descriptive accounts to totalising explanations based on too broad categories (market, ideology, and so on). While these categories are essential, they are not sufficient to a productive critical inquiry in a context where complex, hybrid and often contradictory systems are simultaneously at play. Our own interpretation of 'productive critique' assumes that, instead of remaining suspended at the level of abstract, ideological forces, or diving too deeply and confidently into the 'affordances' of specific technical implementations, the analyst should proceed by degrees: first describing in detail the concrete manoeuvres that take place across people and technologies, then gradually tapping into a broader body of critical sociological knowledge. Given the nature of the suggestions, this paper simply sets the scene for more extensive inquiries in the various forms of MOOC attendance. In this respect, the interconnection of technology, cultural consumption and 'identity work' represents a promising topic ready for more in-depth empirical analyses, which should include

ethnomethodological descriptions (Pollner, 2010) of how multiple interactions, devices, discourses and actions converge into localised performances.

We also wish to return to the notion of sociotechnological compromise described in the introduction, reminding the reader that this paper should be seen as an attempt to build conceptual bridges between the descriptiveness of ANT (and its appreciation for symmetry) and established sociological perspectives. As it's often the case with hybrid analyses we are not entirely sure our attempt was successful, but we remain convinced that bringing together scholarly traditions is a worthwhile, intellectually enriching endeavour. However, in order for this interface to develop further and more rigorously we must acknowledge the diversity of views in current sociological discourse. There is in fact a wealth of resources from the sociology of culture, in particular Bourdieu's approach to the study of cultural fields, which could assist the analysis of relations between social agents in the 'MOOC space' as they negotiate positions grounded in forms of power and capital (Bourdieu & Nice, 1980). Some have already noted parallels between ANT's notion of ontological politics and Bourdieu's emphasis on 'thinking relationally' about the political actions of agents who 'connive and collude' to claim symbolic and material capital, thus defining the contours of cultural fields (Prior, 2008). What is arguably missing from Bourdieu's repertoire is an account of how technologies become bound with social and individual dynamics. As noted by Prior, 'When technology is considered a true form of mediation (…) it is possible to extend the range of objects in Bourdieu's fields to include those devices, techniques and artefacts that permit the solidification and transformation of field relations' (2008, p. 304). Something similar was argued here when we suggested that digitisation technology was a central component in a dynamic that, during the negotiations and dealings that took place in the field of corporate Higher Education between 2012 and 2013, led to the emergence of a hybrid, part human/part technology actor: the DVR teacher. Our suggestion that this hybrid actor may be recruited in processes of identification to fulfil a demand for 'upgrades to the self' also sits comfortably alongside other typically Bourdieuian ideas - in particular, the notion that people engage in cultural consumption to produce distinctive identity positions in a field. Nonetheless, our preference for the themes of the reflexive society and, in particular, for Zygmunt Bauman's evocative accounts of liquid modernity seemed like a better 'fit' for an analysis concerned mostly with what happens when the personalising and individualising affordances of digitisation become entangled with educational practice and global economic interests. In order to advance the constructive dialogue between sociomaterial studies and other sociological traditions, future efforts will need to consider whether an account of MOOC attendance as cultural consumption can be strengthened by referring to the role of traditional structuring factors such as social class; or whether it may be the expression of recent forms of cultural 'omnivourousness' that rely on shifting notions of status (Coulangeon & Lemel, 2007). Either way, socio-technological investigations in the field of global digital education could certainly benefit from a theoretically informed concern for social inequalities and for what defines new norms of cultural legitimacy. This could certainly help to illuminate recent empirical findings about MOOCs' failure to adequately serve students from underprivileged backgrounds and from the global south.

As a final point, let us be clear that we are not claiming that the analysis presented here applies to all those who choose to attend a MOOC, as most certainly there is a wider range of factors and motivations, explicit or tacit, that draw individuals towards massive open online education. Moreover, it is important to acknowledge the efforts to inject sound pedagogical design and a concern for the complexities of teaching into MOOC curricula (Ross et al., 2014). These efforts point to an emerging diversity of MOOC designs and pedagogies and strive to promote "the possibility of contact in digital environments (…) by grappling with the textuality, forms of presence, and the instability and strange permanence of the Web, and using these to find ways for students and teachers to work creatively and critically together" (ibid, p.62). Nevertheless, we

believe that our interpretive attempts can help us make sense of the 'problem' of low completion rates in a less commonsensical way, while laying the foundations for future critical analyses of corporate MOOCs. Our suggestions are also consistent with the research findings discussed in the paper's introductory section, according to which MOOCs are largely the preserve of the educated elites, the majority of which fail to fully commit and seldom see courses through to completion. The view emerging through this analysis is that for all the lofty aspirations of democratising education for the disadvantaged masses, the X-MOOC industry may have a lot in common with the self-help industry, so far as it turns the existential anxieties and fickleness of the (mostly western) educated middle classes into business opportunities.

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