The digitisation of knowledge produces hybrids: politics and identities in MOOCs

Carlo Perrotta

Faculty of Health, Social Care and Education, Anglia Ruskin University, carlo.perrotta@anglia.ac.uk

Abstract

This paper offers a conceptual analysis of Massive Online Open Courses (MOOCs) that draws on Actor Network Theory (ANT). MOOCs are viewed as part of a hybrid collection of events, technologies, networks and interests: an "assemblage" where discourse, materiality and sociality are bound up in each other. The ANT-derived notion of ontological politics is used as a broad framework to discuss the negotiations and performances that confer reality to the MOOC assemblage. In particular, the paper focuses on those features of the MOOC phenomenon that relate to, and stem from, the sociotechnical apparatus of digitisation technology. Digitisation is viewed as a "black box" that seemingly operates as a unity, but in fact is a multifaceted, messy, networked phenomenon in its own right that encompasses a wide range of actors, relationships and practices. Exploring the internal workings of such black box uncovers interesting ramifications and taken-for-granted assumptions that can shed light on the MOOC phenomenon. In particular, the paper argues that digitisation technology is associated with the emergence of a hybrid actant: 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 massive shifts in TV viewing habits: pause, rewind, fast-forward, download, indexing, collecting, organising, uncommitted viewing. The paper's chief contention is as follows: the properties of digitisation technology, and the related economic dealings, have contributed to the assimilation of academic instruction into the ontological space of digital TV watching, with its HCI (Human-Computer Interaction) apparatus. Discussing the nature of MOOC attendance, the paper suggests that Digitisation technology (software platforms and algorithms) contributes to the creation of an "entity" (the DVR Teacher) that encapsulates "interactive high quality academic content in a high-production quality presentation". The DVR teacher is further described as an artefact in the service of a neoliberal project of commoditised, pick-and-mix self-improvement, which recruits digitisation to meet a growing demand for "upgrades to the self". Discussing patterns of MOOC attendance, the paper argues that a new breed of "academic content watcher" may be on the rise - one for whom the existential rewards of browsing and tinkering with MOOCs overshadow whatever use value the original, "certifiable" content knowledge may have possessed. In this respect, the real “innovation” of MOOCs lies solely in the offer of (relatively) novel opportunities to enlist the consumption of knowledge for the production of subjectivities.

Keywords

MOOCs, Hybrid, assemblage, digitisation, ANT, neoliberal subjectivities, critique

Introduction

MOOCs (Massively Online Open Courses) are university courses delivered via the web, which use a mix of videos in conjunction with established e-learning methods such as quizzes and problem sets. MOOCs are open to all (there are no prerequisites for entry) and there are no fees upon registration. 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 of MOOCs raising particular concerns - although the actual significance of completion rates for the future of MOOCs is still being debated (e.g. Koller et al., 2013; Weller, 2013). The paper will return to this point later. For the purpose

of this introduction, it is important to remember the commonly accepted distinction between C-MOOCs (Connectivist MOOCs), a category of experimentation which until not long ago was known only to educational enthusiasts and innovators, and the commercial enterprises known as XMOOCs. C-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 – they are strongly identified with the universities of Abathasca and Manitoba, the Canadian institutions where they originated. X-MOOCs, on the other hand, rely on commercial agreements between traditional universities and technological providers. Over the past few years the MOOC as a commercial phenomenon has been growing at a remarkable pace, and by mid-2013 there were 19 commercial MOOC services listed globally[1] . The provider with the widest imprint, as of 2013, is Coursera, which has partnered with a total number of 85 institutions, including leading universities in Europe, the Middle East and Asia[2].

With MOOCs still in their infancy, relevant insights from independent research are lacking. There is certainly a palpable interest within the research community and beyond. For instance, in 2013 the Bill and Melinda Gates Foundation launched a high-profile initiative to "explore the potential of MOOCs to extend access to postsecondary credentials through more personalised, more affordable pathways". The programme is chiefly interested in funding studies that "examine the efficacy of early MOOC models for various learner audiences and in a wide variety of contexts"[3]. Another notable early contribution is 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, is generally credited with providing insights into 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). It is also worth reporting that the experiences of early participants point to a real stresses between autonomy and self-efficacy on the one hand, and on the other hand the need for structure to support interaction, a bounded knowledge domain, and personal completion or "closure" (Mackness & Williams, 2010).

At such an early stage of the scholarly debate on MOOCs, the safest option is be to concede that the "jury is still out" on their educational value. On the other hand, it could be argued that now is the perfect time to examine the assumptions which will shape future research in the area. With this in mind, this paper argues that MOOCs should be studied through a critical appreciation of their hybrid – indeed "messy"- nature. Like many other sociotechnical phenomena, the MOOC, viewed as a broad collection of events, technologies, networks and interests, is taking on the fluid connotations of an "assemblage" where discourse, materiality and sociality are bound up in each other (Latour, 1993, p.6).On the assumption that the "MOOC phenomenon" is messy and hybrid, and that its ramifications extend well beyond the educational trajectories of its participants or the fate of specific courses and institutions involved, this paper contends that analysis from any one disciplinary perspective will prove insufficient. Such efforts will tend to fall into two classes:

a) The analyst uncritically observes phenomena as they unfold, adopting an essentialist stance that views the MOOC as an "innovation" in the educational arena, not interrogating its claims to existence but focusing only on its performance against established, and unproblematically accepted, educational or economic criteria (do MOOCs "work"? Do they lead to better grades? Do they enable costs savings? And so forth). Hanging over this position is the shadow of instrumentalism: the belief that technology is a neutral tool in a cause-effect relationship. This belief completely disregards that cause-effect relationships in education are often socially constructed, even ideological (Feenberg, 2005; Howe, 1994; Knox, 2013). Knox (2013) notes that this tendency is already well established in the "MOOC space", as many accounts celebrate the efficiencies and potential enhancements afforded by MOOCs in the same terms that earlier accounts celebrated e-tutoring systems, virtual learning environments, e-assessment and open educational resources. From a narrow instrumentalist perspective, MOOCs are mere tools functionally involved in a relationship where ‘technology is positioned as a prosthetic to the learning process; an instrument considered only in its capacity for enhancement’. (Knox, 2013 P.23)

b) The analyst critiques MOOCs from the traditional viewpoint of critical sociology – certainly a worthwhile endeavour but one with somewhat predictable outcomes. As remarked by Bigum and Rowan (2013), the

1 http://listedtech.com/content/worldwide-moocs-19-systems.
2 https://www.coursera.org/partners/global
3 http://www.moocresearch.com/

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contribution of critical sociology to the study of educational technologies is invaluable (e.g. Cuban, 1986; Bromley & Apple, 1998), albeit one highly indebted to traditional sociological categories like power, domination, exploitation, reification (see also Latour, 2005, cited in Bigum & Rowan, 2013). Although likely to produce more valuable insights than an instrumentalist approach, this perspective struggles to encompass the new complexities and dynamics introduced to human social systems by educational technologies, which bring with them their own embedded systems of human and non-human interactions, labour and discourse, economic factors, local practices and beliefs.

In an attempt to go beyond this dichotomy, this paper suggests adopting an inclusive method; a method whereby assemblages are not (or not only) the result of forces, influences and disembodied interests and agendas, but are instead analysed as dynamic phenomena continuously – and practically - made and unmade (Law, 2012), never in a complete fashion but producing "gaps, holes and tears" (Fenwick & Edwards, 2010, p4). The paper is particularly interested in the "ontological politics" (Law, 2007; Law and Singleton, 2005) that are shaping the MOOC as multifaceted reality based on events, technologies, negotiations and alliances.

Translation through digitisation

A key notion in ANT is that of translation: the process that creates "mixtures", hybrids of nature and culture where actors (humans and non-humans) form various entanglements (Callon, 1986). During the process of translation, actors recruit each other, re-interpret objectives and roles until one 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. It speaks for others but in its own language. (Callon, 1986, p.24)

In order for the work of translation to become visible, it is necessary to make some choices, so to establish from the outset what is to be foregrounded, while the rest shifts out of focus in the background. It is important to emphasise that not one perspective is more worthy, or more "true" than the others. Many equally interesting, and empirically relevant, stories can be told from the viewpoints of several small or large players, human and non-human. In short: embracing the full complexity of sociotechnical realities enables us to appreciate the plurality of vantage points - some otherwise out of sight - from which phenomena can be observed and understood. For obvious reasons of scope, this paper will provide only one among many possible accounts. The account will focus on those features of the MOOC phenomenon that relate to, and stem from, the sociotechnical apparatus of digitisation technology.

Digitisation technology is for MOOCs what the internal combustion engine is for the car or the transistor for the computer: a black box that seemingly operates as a unity, but in fact is a multifaceted, messy, networked phenomenon in its own right that encompasses a wide range of actors, relationships and practices. Opening up black boxes - or "depunctualising" in ANT terminology (Latour, 1999) - generally uncovers interesting ramifications and taken-for-granted assumptions that will shed light on a much broader range of issues. Digitisation is the process through which texts, images and sounds are translated into digital information, or bits (binary digits: sequences of zeroes and ones) which behave as endlessly replicable "content". The translation process through which digital information is made alters the ontology of the original objects to produce altogether different "things". These things are amenable to a range of entanglements by virtue of their newly acquired essence as data. The main result of these sociotechnical dynamics is a "phenomenology of digital content" that encompasses social relationships - some consensual, others reactive or resistive - economic calculations and consumption patterns. Not all of these aspects are of interest here, but some are worth mentioning, such as the erosion of proprietary rights and the emergence of a contested separation between ownership and consumption. Digital content can be consumed and shared without being owned or purchased, this gave rise to the well-documented "problem" of internet piracy, but there are other interesting features. While traditional cultural products were experienced in specific, physically bounded contexts, digital content can often only be experienced in the distributed and "public" space of the internet, with publishers of said content experimenting with a range of novel business models to regulate access and usage: licensing (i.e. agreements whereby content can be used only under specific conditions), subscriptions, paywalls, and so forth.

The features of digital content are arguably related to the rise of a mythology of authenticity, locality and physicality, constructed in opposition to the proliferation (and overload) of endlessly replicable digital entities,

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which conversely are presented as curtailed, cheap or somewhat less real than the "real things": a live music concert, or a traditional classroom-based lecture. We can observe this dynamic at work in the conversations and interactions that surround MOOCs - especially in the rise of a peculiar type of actant - part reality, part social construction or even myth. We might call this actant the "DVR (Digital Video Recorder) teacher". The DVR Teacher is an entity pulled in two opposite ontological directions. On the one hand, it is an entirely replicable, finely tuned version of a human academic, whose teaching skills have been harnessed and amplified thanks to the addition of playback options (pause/rewind/fast-forward - see Carey, 2013). On the other hand, it is a de-humanised, passively experienced recording that only provides a "compelling testament to the value of the in-person lecture/discussion", as professors in the philosophy department at San Jose State University wrote in an open letter, to protest against a proposed agreement between their institution and the MOOC provider edX[4].

From a conceptual viewpoint, what it is being described here is a hybrid phenomenon that comprises domain-specific content, digitisation technology and traditional academic practice: the DVR Teacher is media user interface as much as established instructional routine. The key point is that its essence is not set in stone or defined from the outset, but instead is the outcome of the ontological politics played out in a range of contexts. The term "politics" is used here loosely to refer to the enactments and performances that determine what such a "thing" is in relation to a broader network of relationships. One such context is, for instance, the arena of the early economic negotiations and dealings between universities and MOOC providers, which over the past three years provided opportunities for the parties involved to experiment with what the philosopher J.L. Austin called performative acts (Austin, 1962). In keeping with Austin's view, these acts did not simply aim to formalise linear business transactions, they were instead an attempt to enact, through the formality of a business transaction, a specific version of what MOOCs are or should be. Not unlike the words "I do" pronounced at a wedding are not simply a constative statement but a fully-fledged act: a performative utterance leading to a "phase transition" or a state change for two individuals.

One of such contracts has been made available on the internet[5]. 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, during which 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 perfomative act that actively advances a specific "version" of MOOC instruction. One that recruits the systems and tools of Digitisation technology (software platforms and algorithms) to create an entity that encapsulates "interactive high quality academic content in a high-production quality presentation". As suggested earlier, we could call this entity the DVR Teacher.

[4] http://chronicle.com/article/The-Document-an-Open-Letter/138937/
[5] http://www.documentcloud.org/documents/400864-coursera-fully-executed-agreement.html

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Digital content across entertainment and HE

The interaction opportunities commonly associated with digital content are not fabrication or social construction - they are real, albeit rather limited, "affordances" (this term should be used carefully to avoid falling unwittingly into an essentialist position, whereby technologies have intrinsic and static ontological qualities, as opposed to dynamic, negotiable ones - at least until they "stabilise" - see Latour, 1993). The interactive opportunities of digital instruction are, by and large, the very same playback and cataloguing options that have contributed to massive shifts in TV viewing habits: pause, rewind, fast-forward, download, indexing, collecting, organising, uncommitted viewing. The only addition that MOOCs make to this range of "interactions" is the use of in-video quizzes. From these observations stems the paper's chief contention: the translation work of digitisation technology and the related economic dealings have had one, possibly unwanted or unexpected, side-effect: the assimilation of academic instruction into the ontological space of digital TV watching, with its HCI (Human-Computer Interaction) apparatus. A digression is needed to further develop this line of inquiry, as we follow digitisation technology in its transformational foray in the entertainment industry.

Television watching is an increasingly computerized activity, with multiple complex HCI issues - most prominently the emergence of watching patterns based around choice, collection and organisation, rather than the “passive” consumption of content (Barkhuus and Brown, 2009). Barkhuus and Brown (ibid) imply that digitisation technologies enable a more interactive form of watching through the active choice of what content is to be consumed. TV watching is thus freed from the spatiotemporal constraints imposed by traditional broadcasting. The authors draw on interview data to highlight a range of emerging behaviours afforded by the random access viewing of digital content - for instance “grazing”: moving between multiple shows before deciding on what to watch. Equally interesting is the emergence of a whole new dimension of enjoyment whereby intense, personalised TV watching becomes a full-fledged hobby. Viewers not only watch TV shows, they collect them in various formats (digital and not), manage and organise their collections, share their views with others (online and offline). Interestingly, Barkhuus and Brown note that “much of this television had not been watched by participants, 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). This phenomenon is explained as a process of self-expression: the behaviours enabled by digitisation technologies contribute to enlarge the collector’s identity.

The work of Barkhuus and Brown is in keeping with insights from the critical study of "postmodern identities", in so far as it implies that digitisation allows viewers to enlist the consumption of content as a "toolkit" for the production of subjectivities (Binkley, 2008). The choices, the interaction and the collectability alter the original function of TV shows (i.e., to entertain) by enabling them to satisfy the personal need for a fulfilling life project. As Binkley notes (2008), new practices of consumption that involve the production of subjectivities promise personal benefits that transcend those offered by traditional commodities. Paradoxically, the use value of commodities becomes secondary, superseded by the existential and emotional rewards that those commodities promise. From this perspective, TV-watching-as-hobby feeds into an aestheticized notion of selfhood based on good taste and intellectual pursuits. Watching successful and often critically acclaimed TV shows becomes an identity marker, further supported by a media discourse that celebrates the growing artistic value of TV, at the expense of the creatively challenged world of high-budget motion pictures[6].

Watching TV, watching MOOCs

As we leave the entertainment industry to return to Higher Education and its recent trends, we begin to see how a view of digitisation as a technological system with its own operational properties may open up interesting analytic possibilities. In particular, a more nuanced critique of MOOCs becomes possible. This critique builds on the assumption that MOOCs do not represent a concerted, corporate-driven attempt to commoditise knowledge, since the commoditisation of knowledge has continued apace for longer than many are probably willing to accept. In this respect the real “innovation” of MOOCs lies solely in the offer of (relatively) novel opportunities to enlist the consumption of knowledge for the production of subjectivities. Thus the interconnection of technology, consumption and "identity work" emerges as a topic of prime empirical interest.

An article co-authored by the founders of the MOOC enterprise Coursera offers a valuable contribution to the thesis discussed thus far (Koller, Ng, Do & Chen, 2013). The article explores the well-documented "retention

[6] http://www.theguardian.com/tv-and-radio/tvandradioblog/2013/oct/23/10-reasons-tv-better-movies

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problem": a very small fraction of those who enrol for a MOOC successfully complete the course. The authors argue that completion rates may not be the most appropriate framework for thinking about student success in MOOCs, as they lead to inaccurate conclusions if interpreted at face value. For such metrics to be useful, they "must be defined and interpreted with the learner's goals in mind" (Koller at al. para.3). Koller et al. remind us that MOOCs cater to a very diverse audience. Some students enrol on a whim, just browsing around (or "grazing", like the TV fans described in the previous paragraph) for courses that may or may not be interesting or useful. Others are instead very committed and self-motivated from the outset. By hypothesising that there are different populations of MOOC participants, each with their own goals and intentions, the authors are able to employ sophisticated statistical techniques which, somewhat unsurprisingly, show that among the students in the "high-retention group"(the already committed), retention rates are very high - up to 92 percent per hour of lecture video. The key point, however, is another. The authors suggest that placing too much emphasis on retention rates is unwise as it neglects that, compared to those who drop out of brick and mortar universities, students who enrol for free in a MOOC and do not complete the course incur zero financial cost to themselves and taxpayers. The authors and entrepreneurs conclude that "given the amount of time that people spend on activities such as watching television, 'wasting' time on education, even by non-completing students, seems inoffensive" (Koller at al., 2013, para.4).

In light of the argument developed so far, such a seemingly flippant comment warrants further scrutiny. Inoffensive as the patterns of MOOC attendance may be, they appear to have much in common with TV-watching habits emerged over the last decade - in so far as both are bound up with the operational properties of digitisation technology and the "identity work" that they enable. Following on from this last point, here is another hypothesis to complement the one advanced by Koller et al.: browsing and attending MOOCs contributes, for many students, to mediated narratives of lifestyle and selfhood, while it allows them to remain faithful to an overarching need for fluid ambivalence (Bauman, 2013). According to Bauman, in these times of "late modernity" ambivalence is no longer a threat to subjectivity, but a pre-condition for a permanent state of indeterminacy. This state allows people to entertain a variety of life-choices, practices and identity projects, all of them inscribed within a process of neoliberal subjectification. In our confusing epoch ("liquid" as Bauman puts it), the neoliberal values of economic entrepreneurship, perpetual innovation and self-reliance are enacted in everyday life through a frantic quest for self-improvement (Appleby, 2010; Rose, 1999). The MOOC' s proposition – easy, fast-tracked access to content that bears the promise of individual amelioration and possibly better life chances – is 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" becomes an artefact in the service of a neoliberal project of commoditised, pick-and-mix self-improvement (Ashton, 2011; Kotamraju, 2002), which recruits digitisation technologies and the growing demand for "upgrades to the self". These fluid identity projects exploit digitised academic content, while at the same transcending the use value of such content. The "TV hobbyists" described by Barkhuus and Brown (2009) used TV shows, of which they may have watched only a few episodes, to communicate and demonstrate one's good taste. Similarly, a new breed of "academic content watcher" may be on the rise - one for whom the existential rewards of browsing and tinkering with MOOCs overshadow whatever use value the original, "certifiable" content knowledge may have possessed. The extent to which these tendencies are intentionally exploited by MOOC providers is unclear. There are undoubtedly signs of exploitation in some of the "monetisation" strategies devised to make MOOCs financially viable. For instance, one of such strategies aims to create, using a financial terminology, a primary and a secondary market. In the primary market the digitised content is directly re-sold to organisations that may use it for training purposes. In a secondary market the object of the transaction is no longer the content itself but the intangible cultural capital attached to it. In this market, users may purchase symbols (e.g. badges) that do not carry university credit but demonstrate achievements or content "coverage" in the MOOC. These symbols operate like a sort of universal currency of capability, with individuals invited to use them to persuade employers, clients and aquaintances of their potential to do valued work.

Conclusion

This paper used Actor-Network Theory to discuss how the MOOC phenomenon is being assembled through performances, discourses and technologies. Due to its brevity, its main contribution lies probably 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

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contradictory systems are simultaneously at play. The approach outlined here is instead resolutely descriptive, beginning from a specific vantage point within the network, before tapping into a broader body of critical sociological knowledge. The ANT-derived notion of ontological politics has been used as a conceptual frame to discuss the negotiations and performances that confer reality to the MOOC assemblage. In particular, the paper argued that digitisation technology is associated with the emergence of a particular type of hybrid actant, the DVR (Digital Video recorder) teacher. This actant exemplifies a conflation of academic content, instructional practice and "interactive opportunities" which, when described, provide a window into different translations performed by and through digitisation technology. The paper explored the ways in which the operational properties of digitisation become entangled with a range of practices and performances that include the enactment of neoliberal subjectification. The key thesis is that certain forms of MOOC attendance are expressions of "identity work", through which the "DVR teacher" is enlisted in a neoliberal project of commoditised, pick-and-mix self-improvement that recruits digitisation and the growing demand for "upgrades to the self". One final comment to bring this brief discussion to a close: given the theoretical and hypothetical 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, consumption and "identity work" represents a promising topic ready for more in-depth empirical analyses.

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