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Agency as an emerging phenomenon in the construction of massive open online courses: a discursive–material approach to the techno-pedagogical edX platform and its forums

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ABSTRACT

This paper demonstrates how agency emerges as the teaching team members of three social science and humanities massive open online courses (MOOCs) reflexively discuss the affordances and limitations offered by edX. Special attention goes to the entanglement of forums within their courses. We examine the edX platform as a discursive–material knot, a dispositif that can be partially configured by teaching team members. The interviewees interpretively articulate institutional pressures, the technological characteristics of edX, perceived learner behaviours, and pedagogic theories and preferences constitutive of their MOOCs. We identify six forms of agency: catalyst, surveillance-based, expertise-oriented, socializing, guiding, and humanizing. We demonstrate that agency emerges due to the complex and interpretive articulations of material and discursive elements.

Introduction

This article seeks to enrich ongoing discussions about agency in online and hybrid educational platforms (e.g., Charlier, Deschryver, and Peraya 2006; Peraya and Peltier 2012). It is a response to the call for a finer lens to explore and encompass the complexity of agency in online discussions. We agree with Ligorio, Impedovo, and Arcidiacono (2017, 540) that further research is needed to determine the ways in which agency is expressed; however, we argue that agency is never a matter of mere expression or intent.

Rather, agency is understood as a process outcome whereby material and discursive elements are knotted together in a deceivingly coherent way. Similar to Damşa et al. (2021), we are convinced that a relational perspective is required to understand the types of agency emerging in massive open online courses (MOOCs). Teachers, learners, resources, tools, institutions, infrastructures, and communities find themselves in dynamic relationships where agencies emerge (Damşa et al. 2021, 3).

If one lifts the black box of the user-friendly interface, MOOCs (and their platforms) appear to be messy knots of human and non-human elements (see Perrotta, Czerniewicz, and Beetham 2016), the complex configuration of which invites, enables, and constrains specific forms of agency. To lift the hood of this black box for techno-educational platforms such as edX, we draw on Foucault's understanding of dispositif. Dispositifs are heterogeneous assemblages of elements that serve a strategic function and operate across and through institutions and individuals (Bührmann and Schneider 2008).

We approach MOOC dispositifs as discursive–material knots: complex entanglements of signifiers, statements, narratives, bodies, processes, practices, institutions, machines, and other aspects of social, discursive, and material reality, through which specific forms of agency emerge (see Carpentier 2017).

Below, we provide a brief overview of MOOC research and online education agencies, explaining how the MOOC dispositif can be understood as a discursive–material knot. Our qualitative analysis focuses on the way teaching team members of three social science and humanities (SSH) MOOCs discuss, interpret, and configure their forums, and, based on this, we identify six forms of agency.

Towards a socio-material perspective of MOOCs

Extant literature on platforms such as edX is often grounded in educational theory and computer science; it is also marked by behaviouralist assumptions and seeks to improve online and distance education. SSH research on MOOCs is relatively minimal at present (see Ebben and Murphy 2014; Zhu, Sari, and Lee 2018) but is becoming more common.

Behaviouralist and cybernetic bias in extended MOOC studies

Extant literature on MOOCs distinguishes between *connectivist* MOOCs (cMOOCs) and *extended* MOOCs (xMOOCs). On the one hand, xMOOCs offered on platforms such as Coursera, Udacity, and edX aim to 'extend' university education beyond the traditional classroom; at the same time, they rely on a relatively classic transmission model of education, learning, and communication.

On the other hand, cMOOCs rely on connectivist pedagogic theories where learning is understood to be a process of making connections. They involve a non-hierarchical and non-linear view of learning where 'there is not a body of knowledge to be transferred from educator to learner and where learning is not limited to a single environment' (Kop 2011 cited in Ebben and Murphy 2014, 333). In contrast to xMOOCs, cMOOCs are not defined by any particular technology (Ebben and Murphy 2014, 333–334). The majority of research on cMOOCs aims to understand underperforming participants and/or their motivation (Ebben and Murphy 2014; Knox 2018, 163). Unfortunately, in cMOOC studies, by focusing on individual motivations, researchers often ignore the way technology shapes learner agency (Knox 2018, 163).

The majority of xMOOC research is informed by the behaviourist holy grail of identifying the right stimuli to optimize learning. This explains why this type of research 'has been dominated by the computational analysis of large amounts of user data' (Knox 2018, 163).

Nevertheless, we should acknowledge recent discussions about the normative, ideological, and political ideas baked into mainstream learning analytics. In this context, the field of critical data studies is particularly relevant (Buckingham Shum 2019; Selwyn 2019). The most recent systematic reviews of the literature on MOOCs (Lambert 2020; Moore and Blackmon 2022; Zhu, Sari, and Lee 2020) provide no clear indication of the place and proportions of critical research in the field. Critical research problematizes the pedagogic and epistemological assumptions of MOOCs as well as the way MOOCs may reinforce the colonial tendencies of top-tier universities in a capitalist academic system, thereby further hierarchizing academia (Ebben and Murphy 2014, 340–342). MOOCs have been criticized for generating and favouring 'roaming autodidacts […] a [type of] self-motivated, able learner that is simultaneously embedded in technocratic futures and disembedded from place, culture, history and markets' (Cottom 2015, 9 cited in Adam 2019, 8). Other studies focus on the ideological assumptions and contradictions in discourse promoting MOOCs (Deimann 2015; Kovanović et al. 2015; White, Leon, and White 2015).

Socio-constructivist research on MOOCs and the agency of online learners and teachers

There is an emerging interdisciplinary literature that seeks to come to terms with the changing techno-pedagogical dispositif of higher education. In this context, the work of Peraya, Charlier,

and Deschryver (2014) on 'hybrid' dispositifs is particularly relevant, who focus on the emergence of teaching dispositifs where online and offline teaching formats are integrated via technologies such as teaching platforms. They reject a strictly technical understanding of the teaching dispositif. Instead, they approach hybrid dispositifs as mediatized articulations of symbols, technological elements, and social relationships constituting a techno-pedagogic environment. In another paper, they consider these dispositifs to be spaces where the autonomy of social actors is constructed (Charlier, Deschryver, and Peraya 2006, 470–472). The authors warn us that these dispositifs do not determine the agency of actors in a unilateral way; rather, they attribute a degree of autonomy and reflexivity to teachers and learners.

Socio-material perspectives on MOOC dispositifs

There is a growing body of literature that takes a socio-material perspective on MOOCs (Knox 2018; Perrotta 2014; Ponti 2014). Perrotta (2014) uses the metaphor of the 'black box' to highlight the mystifying and reifying effects of digital technology in higher education. He compares digitalization to 'a black box that seemingly operates as a unity, but in fact is a multifaceted, messy, networked phenomenon that encompasses a wide range of actors, relationships and practices'(Perrotta 2014, 214). Opening this black box sheds light on the way agencies emerge within MOOC dispositifs.

Perrotta, Czerniewicz, and Beetham (2016) observed the emergence of what they call the digital video recorded (DVR) teacher. The DVR teacher – a hybrid entity comprising domain-specific content, digitization technology, and traditional academic practice – is now almost omnipresent within MOOCs. The DVR teacher is the result of attempting to 'translate' traditional courses into the digital online format required for MOOC platforms (Perrotta, Czerniewicz, and Beetham 2016, 7). It encapsulates 'interactive high-quality academic content in a high-production quality presentation' and is based on the language of contracts between universities and MOOC providers. In essence, the DVR teacher involves human, technological, and educational elements that are both material and discursive (Perrotta, Czerniewicz, and Beetham 2016, 10).

In this paper, we consider that agency arises in a discursive–material knot whereby pedagogic principles and practices, technological elements, the agency of learners, and various institutional elements contribute to the emergence of agency within MOOCs. The 'agency of individual teachers' is indeed 'as important as the content and technology' (Aitken and Hayes 2021, 152), but agency itself cannot be reduced to a matter of individually expressed intentions and strategies. This is true for 'online personas' and 'DVR teachers' as much as it is for any other form of agency.

MOOCs as discursive–material knots

Carpentier's (2017) metaphor of a 'knot' allows us to theorize the relationship between the material and discursive dimensions of reality in general and the techno-pedagogic environment of MOOCs specifically. His work builds on the work of feminist, post-positivist, and new materialist authors, such as Haraway (1992) and Barad (2003) (cited in Schadler 2019), as well as on a rich tradition in material semiotics (see Law 2016).

Based on actor–network theory, Carpentier (2017) takes the insight that material objects or things are actants that can modify states of affairs and that objects are mediators or intermediaries, which are implicated in the social through their connection with humans. From the new materialism of Barad, he takes the idea that agency – understood as the capacity to impact the way reality is configured – can be inscribed into and generated by the interaction of objects and technologies as well as human and non-human actors. In other words, agency is the result of a heterogeneous entanglement of discursive and material elements. It can be manifested by individuals and other entities but does not originate within them. Rather, according to Barad (2007), it emerges due to the processes of articulation via 'intra-action', i.e., agency as a dynamism of forces that constantly influence each other.

Agency thus becomes 'a matter of possibilities for reconfiguring entanglements' that (re)configure the world. However, Carpentier does not accept the idea that we can make sense of matter – whether we talk about machines, architecture, or bodies – by separating it from the world of discourse. This can be explained by referring to the poststructuralist notion of articulation (Carpentier 2017, 43–45) that lies at the basis of relational ontology, where meaning can only be partially fixed as we articulate semiotic elements with each other (Zienkowski 2017). Carpentier argues that discourse is needed to provide meaning to machines and assemblages of machines. At the same time, machines and their assemblages 'have a materiality that invites for particular meanings to be attributed to them, and that dissuades other particular meanings from becoming attributed to them' (Carpentier 2017, 45). Moreover, 'these invitations, originating from the material, do not fix or determine meanings, but their material characteristics still privilege and facilitate the attribution of particular meanings through the invitation' (Carpentier 2017, 45). This idea comes very close to the idea of 'affordance' understood as 'the perceived and actual properties of the thing' that 'provide strong clues to the operations of things' (Norman 1988, 9 cited in Carpentier 2017, 43).

The knot metaphor allows us to analyse the way articulations of disparate discourses, technologies, and other material elements *afford*, *invite,* and *pre-configure* particular forms of agency. Discourse and matter should not be thought of as separate modes of existence. The different components of a MOOC may gravitate towards the material or to the discursive (see Cooren 2020, 12). Elements gravitating towards the material include the academic institutional context of a particular MOOC, the server on which the MOOC is hosted, and the hierarchical visual architecture of the user interface. Elements gravitating to the discursive include instructions and guidelines that are accessible to MOOC learners.

Methodological considerations

To investigate *how forms of agency emerge in MOOCs*, we focus on the way teaching team members of three anonymized SSH MOOCs (SSH1, SSH2, and SSH3) interpret and configure their forums. The MOOCs differ in terms of subject matter as well as the overall pedagogic approach taken by team members to the forums, the students, and the dispositif.

By describing the design features of selected edX MOOCs and forums and conducting inductive discourse analysis of interviews with professors and assistants, we provide insight into the discursive–material emergence of agency within the edX dispositif. We approach the forums as spaces where the reflexive capacities of teaching team members, who deal with the invitations, limitations, and affordances of edX, become relatively salient.

Figure 1 represents the type of forums and their location for each week or chapter of each SSH MOOC. SSH1 and SSH2 are taught as student-paced MOOCs, which are available to students for most of the year, whereas SSH3 is taught as a teacher-paced MOOC. 'Social forums' offer a space for learners to introduce themselves and discuss matters unrelated to the course, whereas 'cognitive forums' offer an opportunity to exhibit and develop course-related knowledge and skills, usually in response to questions asked by the teaching team. Although all forums are interactive in principle, 'interactive forums' explicitly ask students to interact with each other while engaging in course content. In 'questions forums', students can ask questions of their own. All courses include 'technical' or 'administrative forums' where the practical organization of MOOCs can be discussed (classification based on Henri 1992).

In this paper, we focus on the forum-related architecture, functionalities, norms, and guidelines as well as on the way forums are configured and adapted for each course by the teaching team members interviewed. The interviews themselves focused on the way the material and discursive elements embedded in the platform *afford*, *invite*, and *pre-configure* forms of agency. The goal is to understand how these elements are knotted with other discursive–material elements in the courses under investigation.
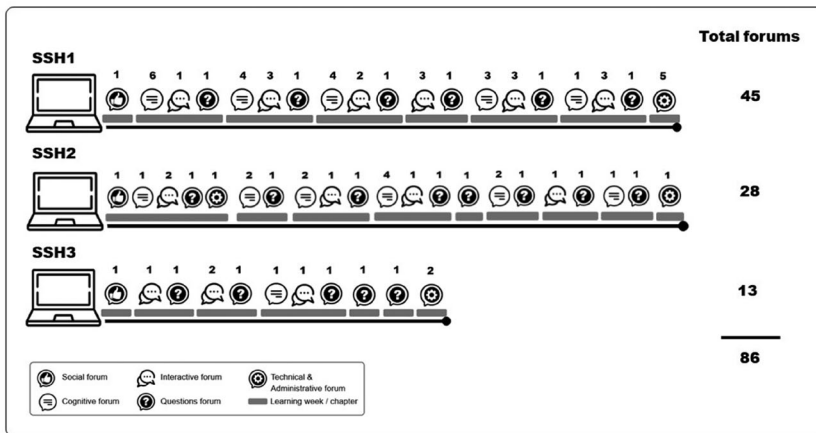
Figure 1. Overview of the SSH1, SSH2, and SSH3 MOOCs.

A degree of reflexivity regarding possible configurations of discursive–material elements is critical for the development of any MOOC. This reflexivity allows educational actors to recognize, resist, and reconfigure the forms of agency suggested by the dispositifs they rely on. By focusing on reflexive statements, we avoid a determinist take on edX's capacity to invite or (pre-)configure agency.

We approached the interviewees as educator narrators invited 'to make connections, [and] to open certain black boxes, while omitting others, all in order to produce coherence and meaning' (Lambotte and Meunier 2013, 89–90). We do not consider the interviews to offer a transparent window into the 'true' intentions of the interviewees; rather, we treat them as sites where interviewees make sense of their MOOCs (Zienkowski 2017, 83).

The interviews were imported in NVivo and coded for the following: reasons for organizing the MOOC; ideas about the pedagogic project behind the MOOC; advantages and disadvantages of the elements of the edX dispositif; actual forum uses and functions; features of ideal and typical forums and posts; and reasons for (not) intervening on the forums. The codes served as an aid for our contrastive analysis of the way agency was imagined by teaching team members, how they interpreted the role and function of forums in their MOOCs, and how they evaluated the edX dispositif and its constitutive elements, including the forums (see Saldaña 2013).

We first identified the preferred modes of agency articulated by the teaching team members by qualitative analysis of the way they imagine and explain their entanglement within MOOC-related activities. Special attention was paid to the forums. We then reconstructed the discursive–material knot of each MOOC as imagined by the teaching team members.

Agency varieties entangled in the three SSH MOOCs

We identified four categories of elements constitutive of edX MOOCs: (1) institutional pressures of university institutions; (2) technological characteristics of the edX dispositif; (3) the pedagogic theories, perspectives, and practices of teaching team members; and (4) the presence, absence, and perceived behaviour of MOOC learners on the forums. In the following sections, we provide a brief description of each SSH MOOC and analyse the discursive–material knot as imagined by our interviewees.

SSH1 MOOC: a catalysing and surveillance agency

At the time of the interview, the teaching team of SSH1 MOOC consisted of one professor and two assistants. The latter monitored the forums and interacted with MOOC learners on a regular basis, whereas the former acted as the main video on demand (VOD) teacher; however, the MOOC also offered recordings of interviews with experts.

The agency that emerges is, in part, a response to entanglement with (1) university institutions. In this context, the professor in question attributed the decision to organize the MOOC to their previous dean. From the outset, she had reservations about the workload involved in organizing, monitoring, and maintaining a MOOC; she considered these concerns to be justified in the light of the insufficient human, institutional, and financial recognition for the work that comes with running a MOOC, especially in a student-paced model accessible for most of the year:

> Considering the evolution of the edX model […] the MOOC had to be available 24 hours per day, seven days per week, the entire year. It's technically impossible, for me and for my assistants, to be there seven days per week, 24 hours per day, in the MOOC. […] So, there it is; I would say it's mostly the workload and, in the end, the lack of integration in a kind of system of recognition for the work done. Everyone is very happy to say that the MOOC exists, but we don't get any support, neither financially nor humanly. (Prof. SSH1)

In essence, the permanent accessibility of the MOOC impacts the professor's presence and agency online. Upon pointing out that their workload was not lightened in any way after agreeing to develop the MOOC, the interviewer suggested (jokingly) that it sounded a bit like exploitation. The professor acknowledged this with a smile, stating that it was a form of 'voluntary exploitation'. She explained how the university seemed to (incorrectly) assume that, after a first investment, the MOOC 'runs on its own', and she soon noticed that, though her presence was always required, she could not be on the forums on a regular basis and needed to delegate this task to her assistants. The edX dispositif appears to be insufficiently knotted into the recognition systems of her university. This lack of institutional recognition impacts the entanglement of teaching team members in their MOOCs and forums.

Research shows that online contact with students 'can become stressful and burdensome if programs are not resourced and staffed adequately'. Moreover, 'the lack of recognition of staff time and effort perpetuates the myth that online teaching can be easily expanded, a myth that is compounded by carelessly-worded policy documents that obscure human endeavor' (Aitken and Hayes 2021, 147).

According to the professor of SSH1, (2) the technological affordances and limitations of edX and its forums are a mixed bag. Interestingly, she considers that MOOCs hold 'enormous potential for interaction […] [and] non-interaction', which is problematic for her preferred pedagogic approach. Moreover, she deplores that the edX architecture pre-configures the narrative structure of her course because it only allows three levels of depth (see Figure 2):

> There is the module, the sub-title if you want, and the pages. One cannot go further. So, this means that sometimes, you're going to have either a lot, a lot of pages within an activity, or within a module, or you're going to have a lot of sub-points. But you cannot have a lot of drawers.

According to the professor, edX does not provide adequate tools for evaluating the forum participation of MOOC learners; she also notes a lack of visualization and export options for forum threads. This brings us to (3) the pedagogic theories, perspectives, and practices entangled in the configuration of the SSH1 MOOC. In essence, the technological elements of the edX dispositif interfere with the professor's preferred mode of agency. According to her, edX does not provide the analytical tools required to get an overview of the forum discussions (e.g., topics, stance taking, emotions). This is problematic because she cannot conceive of her course without discussing the 'tensions' that structure the CSR (Corporate Social Responsibility) field. She thus questions the extent to which the edX dispositif can trigger the type of reflexive interaction she seeks to exploit pedagogically.
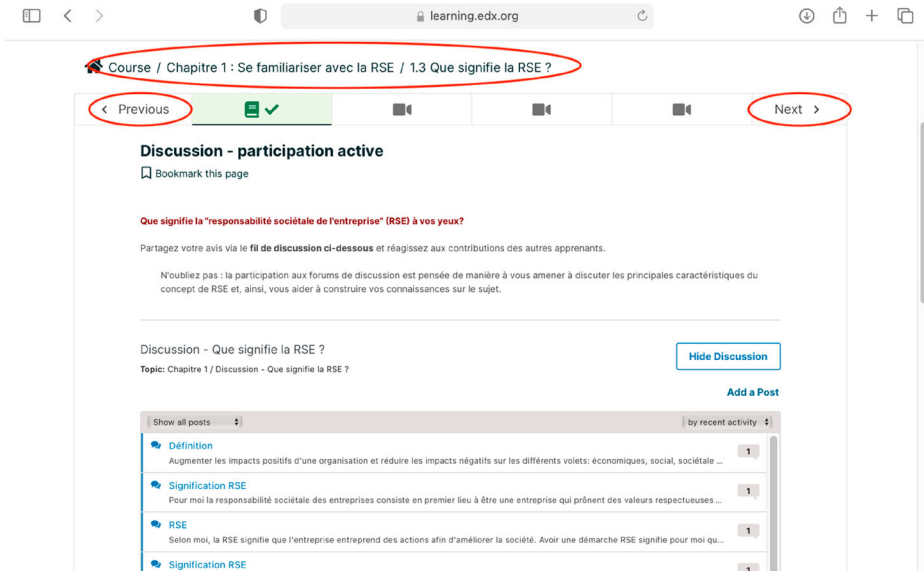
Figure 2. Screenshot illustrating three levels of depth discussed by prof. SSH1: (1) the module is *Chapitre 1: Se familiariser avec la RSE* (English: Familiarizing oneself with CSR); (2) the sub-title is *1.3: Que signifie la RSE* (English: What does corporate social responsibility mean?); (3) pages can be navigated with the 'previous' and 'next' buttons.

> Well, for me, the forums, they're really key to this course in particular, because I cannot conceive of giving a course on social responsibility without [a] debate, and so, debating, for me, is something you can only do via the forum, in the MOOC. […] That's how we initially conceptualized the forums about CSR [corporate social responsibility]. You came to this MOOC, but why? What does it mean to you, CSR? In order to kind of see the positive and negative connotations, if people came with specific expectations, with an already well-defined concept in mind or not, how they defined it. (Prof. SSH1)

The SSH1 professor qualifies her MOOC as being oriented towards discussions, debates, and/or controversies – using these terms rather interchangeably. Interestingly, she states that edX has a number of technological limitations that do not invite interactions to take place. Instead, whether discussion takes place is dependent on the individual learners and their motivation to contribute to online interactions: 'if the person is not intrinsically motivated to do it, it will not be the dispositif that will incite him or her to do it. So, the potential is there, but it depends above all on the individual and of whether (s)he makes the effort'.

This last remark draws our attention to the way (4) the presence, absence, and behaviour of learners are entangled and how this entanglement impacts MOOC agency. Here, the professor makes a distinction between students using the MOOC and its forums in the context of her on-site inverted classes and the so-called 'international' MOOC learners, who follow the course exclusively online. The students of inverted classes are instructed to analyse the tensions structuring forum posts, but they rarely participate in the discussions themselves. She observes a lack of interaction and looks for ways to stimulate discussion; sometimes her assistants prompt students to react to the posts of other students, but this only seems to work occasionally (see Figure 3).

According to the professor of SSH1, the lack of interaction is due to the forum being permanently available:

> as I said, they [the students] are not there at the same time, and they do not interact amongst themselves. I t's actually almost like "I went there to give my present, but I don't know if the others will pick it up".

Students frequently express opinions and occasionally provide arguments. It is rare for them to provide examples of their own. Ideal posts link up with the theoretical elements offered by the professor
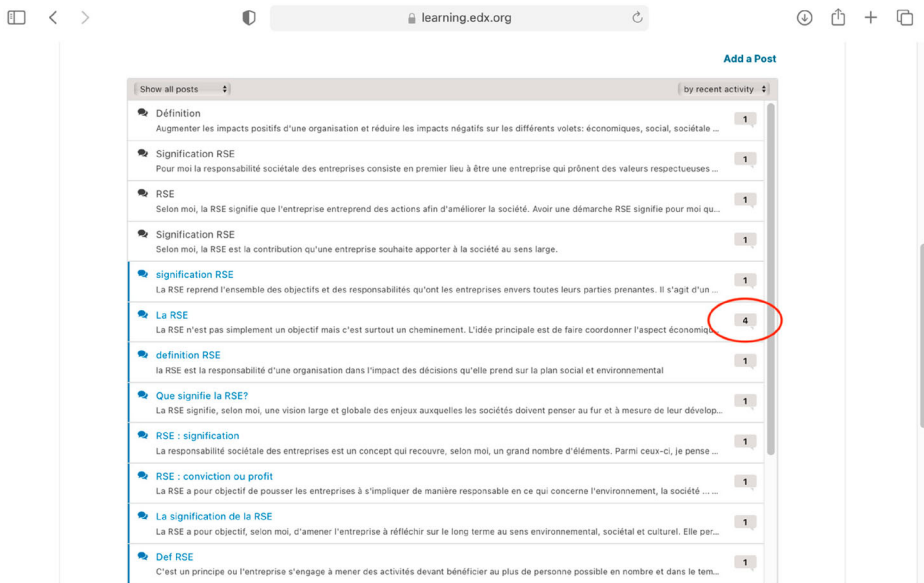
Figure 3. A forum about what RSE (corporate social responsibility) means. Only one response triggered responses from other students (encircled with red).

and go beyond mere declarative sentences by providing argumentation. The professor considers it important to intervene when discussions go off topic, when students are disrespectful, and when interaction is required. Nevertheless, she only intervenes when her assistants call upon her. To stimulate interactions, she often launches forum discussions around value-laden concepts that require students to position themselves reflexively. She questions whether students know what it means to debate, and, therefore, she considers giving precise instructions and clarifications of what is expected of them. Ideally, she prefer a forum where everyone is co-present, which is impossible in a permanently accessible MOOC.

The entanglement of the discursive–material elements constituting the SSH1 MOOC results in a form of agency whereby the MOOC forums and teaching team members are conceptualized as catalysts for interaction. Students are supposed to position themselves reflexively and argumentatively in relation to the tensions constituting the academic field in question. The teaching team also develops a surveillance-type agency, as their pedagogical project requires insight into the content of the forum discussions. However, the emergence of this form of agency is restricted by the technological limitations and affordances of the edX dispositif.

SSH2 MOOC: an expertise-oriented agency

SSH2 MOOC started out as a teacher-paced MOOC. Later, it became permanently available as part of a micro-master program and is currently taught in English by one professor and one assistant. The professor is motivated by the prospect of pedagogical renewal but also by a personal 'ideological' goal. He seeks to contribute to 'a popular understanding of international law', a discipline he considers essential for bringing about a 'better world'.

Over the years, the SSH2 professor retreated from the forums due to a lack of available time; he also retreated due to the lack of recognition and support for the time he did spend on the MOOC and its forums. He justified his absence from the forums in the same way as the SSH1 professor and stressed that the term 'volunteer' is 'not stamped' on 'his forehead'. Overall, the SSH1 and SSH2 professors regret their retreat from the forums, but, at the same time, they felt compelled to do

so. Both suffer from (1) an insufficient entanglement within the university's institutional systems of recognition.

> So, I think it's a pity because I, I like to be in touch with the international students, but one has to be serious. I mean, if it's not taken into account in my teaching services, […] it's a real pity. So, I, I don't do anything except for the updates. I don't take care of the forums. (Prof. SSH2)

The SSH2 professor evaluates the technological affordances of the platform positively, as they are consistent with (3) his pedagogical preferences: 'Listen, I really think it's a very beautiful tool. I don't master all of the possibilities of this tool, but I think it is very efficient. It's a beautiful platform'. Moreover, he claims that the edX format connects to the 'YouTube culture' of his students and to the learning methods they are accustomed to.

The SSH2 assistant takes a more critical stance on the affordances of edX technology. He points out that the linear and chronological structure of edX MOOCs does not invite people to revisit previous posts and discussions. The fact that users do not automatically follow the posts they have read or the threads they have contributed to does not help either. Learners must click on a follow button to receive updates about specific threads. The SSH2 assistant does not consider the edX platform to be appropriate for triggering good posts and discussions. He also complains about a general lack of user friendliness. Most of the issues he raises are associated with the permanent availability of the self-paced MOOC. He considers this format to impact negatively on the possibility of creating an online community of learners via edX forums.

This last issue is mostly problematic to the 'international' cohort of MOOC learners, who cannot rely on an existing on-site student community. The professor thinks that the local students may have less of a need for such a community. He believes that the confrontation with international viewpoints and experiences would be useful to the locals and is disappointed by the lack of curiosity with respect to the forums on the part of the local students. He attributes this to their supposedly single-track focus on the exam. The SSH2 professor is very much aware of the knotted nature of his MOOC. He problematizes the consequences of the student-paced format in terms of rhythm, pace, and overall course design. He also discusses the impact of this format on the forums and the ways in which they can be exploited pedagogically:

> Offering the MOOC permanently is without a doubt a good thing because it offers flexibility to learners, because it offers visibility to the institution, to edX, and so on. But it destroys the idea of a cohort, of a community of learners. That's for sure. It makes the feeling that one is doing something together impossible. One does everything alone and at home in the MOOC. Period. (Prof. SSH 2)

The SSH2 professor approaches the forums as spaces where students can make connections between the theoretical concepts of the discipline on the one hand and societal issues on the other. Ideally, the forums perform the ideological function of convincing students of the positive impact of international law on everyday life.

The SSH2 assistant considers the MOOC to be based on a traditional knowledge-oriented approach, whereby teachers incarnate knowledge rather than facilitate discussion and reflection. He believes that the full potential of the forums can only be exploited in a more participatory and discussion-oriented pedagogic project. In the knowledge-oriented model, the forums perform a secondary function. The assistant primarily intervenes within forums to deal with issues of non-comprehension regarding course materials, exams, and the practical organization of the MOOC.

Despite the limited potential of forums in terms of creating an online community of learners, the SSH2 professor values them because they enable 'an opening of the mind towards the point of view of the other concerning a common question, and a possibility to connect the matter of international law to contemporary issues'. The forums are not conceptualized as spaces for surveillance. Even in the early years of his MOOC, the SSH2 professor avoided intervening in discussions because he did not want to shut down debate. He only intervened twice: when a discussion became too hostile and when a student was disseminating erroneous historical information about WWII.

It remains unclear how (4) the entanglement of the presence, absence, and behaviour of MOOC learners impacts the agency manifested in the SSH2 MOOC. At no point did the SSH2 interviewees indicate that the lack of forum engagement by local students impacts the MOOC configuration. The type of educational agency that emerges is not of the catalysing or accompanying type. Rather, the agency rests on the expertise of teaching team members, who act as authoritative sources of knowledge. The type of learning to be facilitated via the forums consists of establishing links between the academic knowledge offered and the realities that are lived and perceived by the MOOC learners.

SSH3 MOOC: socializing, humanizing, and guiding forms of agency

The professor of SSH3 MOOC currently handles her MOOC entirely alone, apart from the technical support offered by her university. She monitors the forums, interacts with students, and updates the MOOC without assistants. She used to rely on an assistant to plan the interactive Skype-supported exercises, but this is no longer the case. As real-time student interactions are not afforded by the edX dispositif, she uses Skype for this purpose.

The SSH3 professor claims that the organization of her MOOC is 'a purely individual initiative'. She sees herself as a 'free electron' in her faculty, 'who kind of does the strange thing that nobody else does'. After writing a vulgarizing book on the course topic, she noticed a call to organize MOOCs: 'the MOOC was a continuation of the will to vulgarize and to make the information available to the largest possible number [of learners]'. Moreover, she wanted 'a new project'. Her pedagogic reasons for organizing the MOOC run parallel to those of the SSH2 professor.

The SSH3 professor uses the MOOC in an inverted teaching format. Students who follow her course on campus discuss MOOC content during offline classes. The professor clarifies that the MOOC is a simplified and less detailed version of the course she gives on campus. It focuses on the introduction and the more accessible chapters of her book. In general, the professor is happy with the affordances and invitations of the edX platform, except where forums are concerned.

In contrast to the SSH1 and SSH2 professors, she does not mention (1) institutional problems related to the recognition of her MOOC-related work. This can be explained by the teacher-paced nature of her MOOC and the fact that she considers herself to be a 'free electron' within her faculty. The MOOC institutional elements seem to be performing (rather than facilitating) non-obtrusive functions.

The affordances and limitations of the (2) technological elements of edX are evaluated positively. According to her, edX facilitates a multimodal teaching approach; it increases the accessibility and reproducibility of course content, enhances student freedom, and reduces teacher stress. However, the MOOC format comes at the expense of a lower degree of 'ecological adaptability'. In essence, the MOOC format does not allow teachers to adapt themselves *in situ*. This is due to the VOD format, where everything is said only once and in a single way. In offline classes, the professor can adapt her message with examples and explanations in the context of real-world events to meet student needs.

The SSH3 professor also mentions a navigational problem linked to the chronological and hierarchic structure of edX. She highlights that finding specific information on the edX platform while studying is difficult. For this reason, she wrote an 'accompanying manual' specifically for the MOOC to help students locate relevant information, which removed the need to resort to copy–pasting the VOD transcripts. This for-sale printed booklet was also conceived of as a material keepsake of the MOOC.

The SSH3 professor is critical of the visualization and structure of the forums. Her ideal forum would enable her to categorize different types of posts into a mind map. What she has in mind is a more 'dynamic' forum. This would require edX to change its structure so that she could (re)structure the forum answers herself. She is aware that such a forum would require a 'crazy involvement' on the part of the professor, which might not be 'manageable'.

> The ideal forum would already require edX to change its structure. Because the problem is that people constantly launch new discussion threads, so there's no follow-up on the forum because there's always a new thread appearing. Moreover, I think […] it would [require] an absolutely crazy involvement on the part of the professor because, for me, the ideal forum would be a forum that I could structure. Imagine a student who asks a question, and then you have those who respond below. Being able to structure this, like 'well, look, I take the answers of different people, and I put all opinions A in the table over here, and all of the opinions B in the table over here', and, on this basis, I can make a comparison between opinions […] and I think people don't have the patience to read everything. So, they will read the question; they are going to read one, two, three [answers], and then they will say, 'Me, I'm going to give my opinion'. (Prof. SSH3)

The SSH3 professor does value the forums. To understand this, we need to take a closer look at (3) her pedagogic ideas and practices. She seeks to provide a well-structured MOOC where students can feel the teacher's 'presence'. The SSH3 professor seeks to accompany her students in a variety of ways: on the forums via personalized messages, through her videos, and through her booklet. She considers the perception of a human presence to be essential to motivating her MOOC students. She believes her presence gives a liveliness to the forums and to the MOOC. The idea is to give the students the impression that they are not simply 'facing a machine'.

> For me, the primary objective of the forum is motivational, not content related. I believe that one issue with the MOOCs, and this is why I don't have a self-paced MOOC, I have a structure-paced [MOOC]. I think, otherwise, people would feel alone, and maintaining one's level of motivation while being alone without a person behind it, if there's no professor, and if there are no other learners, if there's nothing, that's extremely demotivating. When I enrol myself in a course, and when I say 'Hello, my name is Mohamed', and there's a Canadian professor who says 'Hello' and 'Welcome', even if that's all, this already helps you to say the week thereafter 'OK, I'm going to connect myself'. (Prof. SSH3)

Note that 'presence' can be understood as 'a perceptual illusion of non-mediation' (Lombard and Ditton 1997 cited in Samuel 2020, 80). To generate a sense of presence, online-course designers can exert a degree of agency over the content, format, teaching strategies, instructor roles, technology, and support of online courses (Samuel 2020, 80).

The professor considers the 'primary objective' of the forums to be 'motivational, not content related'. She values the ability to combat loneliness, demonstrate a human presence, animate the course, share experiences, and express opinions. The forums allow her to identify what has been understood or not understood. This is why the SSH3 professor avoids intervening in forums. Although she invites students to apply or discuss key concepts on the forums, she never goes there herself, as she finds the content to be predictable. She prefers to manifest her presence on forums where students launch questions of their own and where, 'from time to time, there's a student, a learner, who has a thought that seems interesting to me, and on which I need to think in order to integrate it into my course'.

The SSH3 professor seeks to insert a human presence in her MOOC. This does not mean that she seeks to create a community of learners (as initially intended), but she does want students to feel connected to the course: 'it's a connection, but not a communitarian one'. The issue of presence is key to understanding the professor's preferred mode of agency:

> My presence is also something in my head, you see. So, I think that if the thing is active in my head, people will feel it, because I am going to be there because I am going to do little things that will make people realize that I am there. It isn't merely 'I have developed the course and I have an assistant and now I leave'. I believe people realize that I am really there. (Prof. SSH3)

The (4) agency of MOOC learners impacts the type of agency emerging within the forums. The SSH3 professor identifies a need for a non-communitarian bond with the course and herself on the part of the students, a need to be accompanied by a professor who appears as a human being through a multimodal collection of documents. She recognizes that there is a limited number of forum discussions and posts, but this ensures the MOOC is manageable for her and her students.

The discursive–material entanglement of the SSH3 MOOC results in a type of educational agency centred primarily on establishing a social link. It also results in a type of agency that emerges

through the crystallization and performance of a human mode of interaction through multimodal course materials. In essence, agency emerges due to learners feeling accompanied by the professor as they pass through the MOOC.

Conclusion

Our case study highlights that agency emerges due to the (1) institutional pressures of university institutions, (2) the technological characteristics of the edX dispositif, (3) the pedagogic theories, perspectives, and practices of teaching team members, and (4) the presence, absence, and perceived behaviour of MOOC learners on the forums. Teaching team members often interpret, experience, and discursively construct these categories in different ways, leading to different forms of agency.

It would be a mistake to equate these forms of agency with the intentions of teaching team members. Agency is expressed through subjects but does not originate in human beings. It is always caused by a dynamism of forces, such as the four categories mentioned above. Teaching team members can reach a degree of reflexive awareness with respect to the elements and forces that shape their MOOCs; they can leave traces of this awareness in the way they talk about and reconfigure the edX dispositif. Based on our analysis, we identified six forms of agency:

(1) A catalysing agency leads professors to imagine themselves and/or to act performatively as catalysts for interaction, discussion, debate and/or controversy (SSH1).
(2) A surveillance-based agency leads professors to imagine themselves and/or to act performatively as monitors that may or may not intervene when discussions among students devolve, when forum norms are breached, and/or when erroneous knowledge circulates (SSH1).
(3) An expertise-oriented form of agency leads professors to imagine themselves and/or to act performatively as sources of authoritative knowledge who are in a position to judge the quality of student contributions (SSH2).
(4) A socializing agency leads professors to imagine themselves and/or to act performatively as reinforcers of social bonds in the context of the MOOC (SSH3).
(5) A humanizing agency leads professors to imagine themselves and/or to act performatively as human beings (SSH3).
(6) A guiding agency leads professors to imagine themselves and/or to act performatively as entities who accompany learners throughout their MOOC experience (SSH3).

These six forms of agency may co-occur in a single MOOC. The mode of agency preferred by a teaching team member may clash with the type of agency invited by edX; it may also differ from the type of agency that emerges. Interviewees regularly expressed a preference for cMOOC teaching ideals and practices that run counter to the invitations and affordances of edX.

Matters of agency become salient when a specific articulation of discursive and material elements proves to be untenable or comes under pressure as well as when pedagogic choices need to be made. For instance, interviewees testified to the fact that the forums do not invite the preferred mode of agency they seek to generate in their MOOCs. Their preferred modes of agency are restrained by factors such as the degree of technical, financial, and human support provided by their institutions as well as the number of students enrolled in the MOOC. Such factors impact their ability to actively monitor, update, and engage with the MOOC, its forums, and its learners.

By relying on a relational ontology, we can explain why there are differences in terms of agency in techno-pedagogical dispositifs. MOOCs are created by teaching team members who display at least minimal degrees of reflexive awareness with respect to available choices in configuring their MOOCs. Our analyses show that the edX dispositif does not configure agency unilaterally. Rather, agency emerges due to the complex discursive–material entanglement of human and non-human (intra-)agencies, intentions, and elements.

Issues of agency only gain importance in the context of rapid acceleration towards digital and hybrid forms of teaching. Further debate is needed concerning the potential impact that techno-pedagogical dispositifs may or may not have on the emergence of different forms of agency. To avoid the dangers of technological determinism and a naïve belief in the autonomy of educational actors, further investigation into the relational, discursive–material, and communicative constitution of techno-pedagogical dispositifs is needed.

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