

ISSN: 1130-3743 - e-ISSN: 2386-5660

DOI: <http://dx.doi.org/10.14201/teoredu20162812544>

ON THE CRITICAL POTENTIAL OF SOCIOMATERIAL APPROACHES IN EDUCATION

Sobre el potencial crítico de los enfoques sociomateriales en educación

Sur le potentiel critique des approches sociomatérielles dans l'éducation

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Fecha de recepción: enero de 2016

Fecha de aceptación: marzo de 2016

SUMMARY

This paper has as central argument that the recently emerging sociomaterial approach to education has an inherently critical potential, but that this capacity is not yet fully deployed and explored in educational studies. In order to make this argument, this paper starts, first, with a concise description of representationalist versus relational thinking, and argues that sociomaterial studies have to be situated in the latter current. Consequently, the role of critique that is largely upheld in representationalist thinking –that is, a role primarily directed at debunking and unveiling– needs to be rethought. In order to reconceive this role, the paper secondly elaborates upon the key characteristics of sociomaterial studies in education in order to show such relational thinking takes shape in and during the conduct of sociomaterial research. These characteristics are crucial in order to fully apprehend the critical prospect of sociomaterial approaches in education. The role of critique, then, amounts to an

engaged attitude vis-à-vis the practices under investigation, and more particularly points to critical creativity as offering some horizons of change.

Key words: educational research; sociomaterial approaches; critique; relations.

RESUMEN

Este artículo tiene como argumento central que el recientemente emergente enfoque sociomaterial tiene un inherente potencial crítico para la educación, pero esta capacidad no ha sido completamente puesta en práctica o explorada en estudios educativos. Para argumentar estas ideas, este artículo empieza, en primer lugar, con una concisa descripción de representacionalismo en contraposición al pensamiento relacional, y propone que los estudios sociomateriales deben situarse en esta última corriente. En consecuencia, la función crítica que es ampliamente apoyada en el pensamiento representacional –que es una función principalmente dirigida a desacreditar y develar– requiere ser repensada. Para concebir nuevamente esta función, el artículo en segundo lugar profundiza sobre las principales características de los estudios sociomateriales en educación para demostrar que tal pensamiento relacional toma forma dentro y durante la realización de la investigación sociomaterial. Estas características son decisivas para aprehender completamente la perspectiva crítica de los enfoques sociomateriales en educación. La función de la crítica, entonces, equivale a una actitud comprometida con las prácticas objeto de investigación y dirige la atención hacia la creatividad crítica que ofrece algunos horizontes de cambio.

Palabras clave: investigación educativa; enfoque sociomaterial; crítica; relaciones.

SOMMAIRE

Cet article a comme argument central que l'approche sociomatériel récemment émergent dans la recherche éducative a un potentiel intrinsèquement critique, mais que cette capacité n'est pas encore totalement déployée et explorée dans les études pédagogiques. Afin de rendre cet argument, cet article commence, d'abord, avec une description concise de la pensée représentationaliste et la pensée relationnelle, et argumente que les études sociomatérielles doivent être situées dans le dernier courant. Par conséquence, le rôle de la critique qui est largement adopté dans la pensée représentationaliste –i.e., un rôle adressé principalement aux démystification et dévoilement– doit être repensée. Afin de ressaisir ce rôle, le document explique deuxièmement les caractéristiques clés des études sociomatérielles dans l'éducation, afin de montrer que telle pensée relationnelle prend forme dans, et pendant, la conduite de la recherche sociomatériel. Ces caractéristiques sont essentielles pour appréhender pleinement la perspective critique des approches sociomatérielles dans l'éducation. Le rôle de la critique, puis, s'élève à une attitude engagée vis-à-vis des pratiques sous enquête, et plus particulièrement à la créativité critique qui offre des horizons du changement.

Mots clés: recherche en éducation; approches sociomatérielles; critique; relations.

1. INTRODUCTION

Recent years have seen a growing interest in the material dimensions of educational practices. All of a sudden, materiality is all over the place and receives a lot of attention from different theoretical points of view such as material culture studies; activity theory; organizational theory; and so on (e.g. Smeyers & Depaepe, 2014; Engeström, 2014). In this article, we focus on one strand of such studies that have recently started to proliferate in the educational field and which can be broadly termed as *sociomaterial approaches*. These approaches share an analytical approach in the sense that they refuse to separate the human dimensions of educational practices from their material dimensions, and rather focus on the relational composition of these practices. Albeit their nomenclature differs [some studies are designated as actor-network studies (e.g. Fenwick & Edwards, 2010; Fox, 2005); others as assemblage studies (e.g. Gorur, 2011; Koyama & Varenne, 2012) and socio-technical or sociomaterial studies (e.g. Luck, 2008; Orlikowski, 2007)], their more general approach of analyzing educational practices from the point of view of the relations between actors present in such practices (rather than considering these actors as atomic agents), is largely similar (Fenwick, Edwards & Sawchuk, 2011). In this article, these strands are considered simultaneously under this umbrella term of *sociomaterial approaches*, thereby pointing to this generally shared relational point of view rather than to their differences. By upholding such a relational point of view, these approaches reframe the way in which we think about (divisions between) traditional categories of educational practices, such as micro and macro, individual and structure, human and material, and so on. More particularly, rather than posing an a priori distinction between these categories, these approaches accentuate the intricate mixture of, and the according fuzzy distinctions between, the social and the material, the human and the non-human – and, hence, the otiosity of clinging to these often taken for granted distinctions. In doing so, sociomaterial approaches do not take (individual) intentions and sense-making, general context, grand narratives or frameworks as a means of clarification of what happens in these settings, but rather consider these at best as being potential outcomes of a study, instead of as a point of departure (Fenwick & Edwards, 2010; Law, 2009; Murdoch, 2001).

This article aims to offer some elaborations on these research strands and consequential endeavors to decenter both human subjects and non-human objects in educational studies in favor of treating educational practices as relational, composed, and at least partly material, assemblages that are constantly emerging. The central point we want to make is that sociomaterial approaches possess a *critical capacity* vis-à-vis the educational field, but that this capacity is still largely underexposed. In order to come to this argument, this article starts with the introduction of the rudiments that are common to these sociomaterial approaches, viz. a *relational*

thinking. We contrast this relational thinking with the more traditional approach of representational thinking and highlight its main features. Starting from this conception of relationalism, a second section elaborates upon three characteristics of sociomaterial approaches, and illustrates how these characteristics are currently being deployed in educational studies. The adoption of these three characteristics, we argue in a third section, enables to frame the argument that sociomaterial approaches possess the capacity to add a critical dimension to the educational field. In order to make this argument, we outline how we conceive of this critical dimension (that is, as *critical creativity* rather than as critical theory), what this critical dimension enables to show, and how this dimension might be concretely deployed in contemporary educational studies. As we will argue, this will counteract the argument made by some that sociomaterial studies are in essence about 'merely' describing and in that sense a-critical.

2. REPRESENTATIONAL VERSUS RELATIONAL THINKING

2.1. *Representational thinking*

Representational thinking constitutes the driving force behind the majority of scientific research since the advent of modernity (Latour, 2004a). This modern worldview presupposes the world to consist of two different and independent kinds of entities: on the one hand, a human realm consisting of delineated individuals with idiosyncratic intentions, affections and interpretations; on the other hand, a natural realm of solid facts stripped from such interpretation and signification, waiting to be known and hence represented by human entities. Representational thinking, then, amounts to:

[T]he belief in the ontological distinction between representations and that which they purport to represent; in particular, that which is represented is held to be independent of all practices of representing. That is, there are assumed to be two distinct and independent kinds of entities—representations and entities to be represented. The system of representation is sometimes explicitly theorized in terms of a tripartite arrangement. For example, in addition to knowledge (i.e., representations), on the one hand, and the known (i.e., that which is purportedly represented), on the other, the existence of a knower (i.e., someone who does the representing) is sometimes made explicit (Barad, 2003, 804).

Representational thinking thus differentiates between humans, human knowledge and the natural world as it is. This 'system of representation' (ibid.), or this 'modern constitution' (Latour, 2004a), has both been presupposed and theorized in terms of an arrangement that distinguishes the natural world from the social world and which Latour designates as two 'collectors'. The natural world, on the one hand, is operating as a distinct collector stiffed with 'matters of fact', that is, with a gamut of natural objects that take an unproblematic place

in the (co)existence of human beings. These matters of fact are considered to be objective and immutable (their determining characteristics remaining constant over time) and constitute the array of what can be known, or rather, represented. The knower who effectuates the representing, on the other hand, is part of the social world, a messy domain in which human subjectivity, idiosyncratic interpretation and values reign. Representationalism assumes this second collector to be vexatious and imprecise: since its inhabitants ('humans') are part of the social, they are at pains in representing states of affairs accurately. Thus the significance of knowledge (i.e., objective representations, corresponding to the prior reality of the nature-collector) gained by Science, constituting the bridge between the knower in the society collector on the one hand and the known in the nature collector on the other. Science, producing knowledge (in the form of representations), then occupies an intermediary, gatekeeping position between the representer and that which is to be represented, and conceives of its task as primarily being to reflect the natural world as accurately as possible. In this system of representation, the scientist is positioned in between the two collectors, or more precisely, is the only one who is able to travel between the two different collectors. It is because of this intermediary position of science and scientists, in between the natural and the social collector, that the necessity of obtaining a representative sample, of measuring as reliably as possible, of applying the right techniques of data gathering and analysis, and so on, are rendered extremely important: the facts (representations) that Science (and scientists, doing the representing) yields should be as close as possible to the natural world as it really is (what is represented). In other words, *mediation* (as less as possible influencing what one is investigating) and *reflection* (as precisely and as objectively as possible representing what one has found) are central concerns in representational thinking: Are the scientific representations an accurate mirroring of what is to be represented, namely the objects in the nature-collector? Is the retrieved knowledge of the representer mirroring the world as it is? The importance of mediation and reflection undergirds the idea of a knowable natural world 'out there', independent of both humans and non-humans who are only potential knowers by means of representation (Barad, 2003; Latour, 2004a; Rorty, 1979; Verran, 1998).

This representational thinking is present in many research currents scrutinizing the educational domain in general, and how one perceives 'educational research' in particular (even though it is rendered even more complicated here than it already is in the natural sciences, since in the nature collector are there now humans to be known). A first example is evidence-based education policy. Evidence-based policy seeks to retrieve knowledge as valid and as reliable as possible about some features of an educational system (pupils' attainment, for instance) in order to inform the political realm (positioned in the social collector), which is often reproached of conducting policy on a normative basis and merely motivated by values and opinions (that is, too much mediation and too few reflection). In order to inform this value-laden political realm with proper scientific facts, validity and

reliability are of the utmost importance, leading to a searching for methodological and statistical techniques that aim to be as valid and as reliable as possible, such as for instance value-added modelling (Decuyper *et al.*, 2011, 2014; Gorur, 2011; Nóvoa & Yariv-Mashal, 2003). A second example is the examination of pupils' opinions, emotions, and so on, by means of surveys (Law, 2009). Again, what can be seen in this respect is the utmost importance of a continuous searching for making sure that one effectively measures the things one wants to measure. In order to obtain legitimate scientific facts, not only is it of focal importance that the researcher poses the right questions, that is, measures what she wants to measure. It equally is of importance that one takes into account the biases (i.e., distortions that arise from putting humans in the investigable nature-collector) that can arise from posing these questions to pupils who can distort the accuracy of what one wants to measure. Hence the creation of wide Likert scale answers, for instance, so as to ascertain that pupils do not stick to the middle ground of the continuum, because that is what humans appear to be inclined to do. The researcher takes the bridging position here as well: not only on behalf of herself and the questions she poses in order to come to valid and reliable representations, but equally on behalf of the processes of signification of the pupils (whose interpretations can distort this if not adequately controlled).

These two examples are only examples, but they are specially apt in the sense that they are focusing on the two central notions of mediation and reflection, and thereby explicitly recognize the representational view and its concomitant two collectors¹. Rather than assuming two distinguishable collectors (and their according bifurcation) and granting representations a central role, sociomaterial approaches approach education on one flat relational plane in which both social and material actors relate with/to each other.

2.2. *Relational thinking*

The central tenet of relational thinking is that it discards the system of representation with its two collectors. Rather than a collector of humans separated from a collector of natural objects, in relational thinking both of them are considered at once. That is to say, in relational thinking, anything might potentially relate with anything else, and this without assuming a priori differences between different actors (see also below). This has especially been given attention in sociomaterial approaches, which attempt to trace all the relations between different actors that make up a particular educational setting. In doing so, sociomaterial approaches

1. The argument could equally be made for qualitative-interpretative research: the researcher is then analyzing interpretations of human subjects that point to something bigger than only these interpretations (a fact; a general pattern; a theory; an evolution; and so on). Here as well, she takes a bridging position in between the two collectors: she is the one who is able to retrieve these facts and patterns and bring the conclusions back to the other collector.

conceive of every actor as being relationally positioned in a web of relations with other actors. In this view, all things are what they are –and can only be what they are– in relation to other things (Law, 2009; Gad & Jensen, 2010). In other words, relational thinking conceives of agency as being a distributed effect of different actors, instead of being situated in one human actor solely (Callon & Muniesa, 2005).

In a study of workplace learning, for instance, Thompson (2012) elucidates that the delete button –traditionally conceived as being a mute object, nothing but a key– holds a central role in online communities and is crucial in the effectuation of practices of workplace learning. In a relational vein, Thompson not only contends that this button plays an active part; she moreover argues that this button is entangled in a network of different actors, consisting of for instance the learner, the screen, the things that appear on such screens ('online digitalia'), and the digital device of the computer. Likewise, the delete button should not only be thought of in terms of taking up an active role (that is, in terms of being an actor), but equally in terms of only being able to play an active role precisely because it relates to many different other human and non-human actors: it are these other actors that codetermine the button's capacity of exerting agency. In that sense, the agency of the button is conceived as a relational effect. In the traditional system of representation, such an analysis would be very difficult to make. Instead, the focus would rather be exclusively on the *function* of the button (deleting content) or on how this button *binds* or *facilitates* the creation of an online learning community. Similarly, Bigum (2000; Rowan & Bigum, 2003) studied the emergence of web-based teaching, taking up a relational approach. Bigum argues that in such emerging contexts, something (i.e. technologies for online learning) is only made durable, that is, becoming taking for granted, if and when it succeeds in building alliances with different actors (documents, committees, staff, students, computers, etc.). That is to say, educational technologies do not become durable in and on themselves, but only in so far as other actors relate to these technologies (thereby rendering them important). Other examples of such relational thinking have for instance been conducted in educational policy studies, arguing that what is deemed to be important in policy terms (e.g. policy documents, neoliberal discourse, numbers, etc.) is not important in and of its own and even has no relevance in and of its own. A policy document, for instance, is not important just because it is issued by a central government. Rather, it is precisely the other way around: it is by and through relating to such a document, and this by many different actors, that the document gains importance, and that consequentially something as a government might come into being (e.g. Gorur, 2011; Hamilton, 2011).

By approaching educational practices likewise, a relational way of thinking implies the abeyance of the aforementioned system of representation. Rather than presupposing the existence of two distinct collectors, the vantage point of relational thinking is precisely situated at investigating both the social and the natural (or the material) together, as pertaining to the same relational realm. By scrutinizing the

relations that establish in a certain setting, relational thinking is largely interested in how such practices are always in the process of being in the making, that is, how the relations between different actors *enact* something as being an online community, an educational technology, or a policy document (see also Barad, 2007; Law, 2006a). This is then no longer an ontological concern (that is, concerning the way things are), as it is in the system of representation, but rather a question of *ontogenesis* (that is, concerning the way how things come to be), and constitutes one of the focal interests of relational thinking: «how humans and things come to be –how they become– as effects of the arrangements in which they are entangled» (Sørensen, 2009, 13). This changes the position of the actors involved in a setting as much as it changes the role of ‘knowledge’ and of the researcher herself. First, instead of being merely passive objects waiting to be known, relational thinking conceives of the actors under investigation (social and material) as both being active and productive: since both of them are important in the coming into being of something (a policy document, an online community, etc.), agency is not situated in these actors themselves, but rather in how these actors emerge in and through the relations they uphold. Second, knowledge is no longer so much about representing the facts one has obtained as it is about *presenting* how a practice comes into being. Third, in this approach the researcher is no longer conceived as adopting a bridging position: rather than adopting a disinterested and external gaze in order to objectify the natural world, in a relational vein the researcher is equally part of the world and takes up an active (that is, mediating) role herself. That is to say, she no longer neutrally reports of what she sees, but rather registers the relations that are established in the settings she has investigated, and how these relations are leading to particular features of a setting (for instance: not so much pointing to the observation *that* a policy document is transformed from being a mere text into an authoritative document to which many other actors refer, but meticulously describing *how* this happens). Consequentially, the criteria of reflection and mirroring are rendered superfluous: since a stable division between objects and subjects and representation (of facts) is replaced with sundry relations and registration of these relations between different actors, what is at stake or what determines valuable research are no longer such reflections. Instead, the quality of the research project amounts to the extent to which one succeeds in showing how different relational constellations are distributed precisely, and more precisely the extent to which one succeeds in composing an account in such a way that a certain educational practice is *performed*, that is, *given a form* (Latour, 2005, 136-140). Put otherwise, whereas the reflective component is not given consideration here, the component of *accuracy* is rendered extremely important in the sense that not only accurate registration of relations is of crucial importance, but equally the accuracy of one’s descriptions: «A good text is never an unmediated portrait of what it describes [...] It is always part of an artificial experiment to replicate and emphasize the traces generated by trials», Latour states (*ibid.*: 136). These ‘traces’ are the relations established between actors. The notion ‘experiment’ points to

the artificiality of writing an account, that is, this never comes about naturally but needs time and effort and needs to be composed in such a way that it gathers the different actors present in a certain setting. In order to fully apprehend what both this gathering and this composition of an adequate account means, the next section elaborates on three key characteristics of sociomaterial research that issue from this relational approach and that show how sociomaterial approaches aim to uptake such relational thinking in a rigorous manner. By expanding on these three characteristics, however, we do not intend to present sociomaterial studies as being structuring theories or clarifying theoretical frameworks. Rather, and as stated, they should be considered as being relational *approaches* that focus on emerging phenomena (Fenwick & Edwards, 2010; Mol & Law, 1994). As such, it is more appropriate to consider sociomaterial approaches as a call for the researcher to be imbued by particular *sensibilities* rather than as full-fledged theoretical body. As the next paragraph argues, these sensibilities are, first, that the settings under investigation should be conceived *symmetrically*; that relations are, second, not neutral but always enact some *performative* effects; and, third, that the accounts one composes are always directed at assembling *maps* of the settings investigated. These three sensibilities will not only elucidate what is meant with the gathering of actors and with the composition of an adequate account, they will also –and more importantly– ultimately allow for rendering the critical potential of sociomaterial studies explicit.

3. SOCIOMATERIAL STUDIES: KEY CHARACTERISTICS

3.1. *Symmetry*

When adopting a relational approach to educational practices, it is hopefully clear by now that the aforementioned bifurcation between the social and the material, culture and nature, the human and the non-human has no *initial* analytical importance. By thinking in terms of relations, the focus –the sensibility– of the researcher is directed to the agency of different actors which are all treated as belonging to the same analytical plane: Which actions are performed, and which relations make it possible that such actions are performed (and the other way around as well: which actions are thereby not performed)? Sociomaterial studies thus emphasize the heterogeneity of the practices they investigate: consisting of a varied range of different actors who are analyzed in the same way (and starting from their relations). This has been designated as a sensibility towards *symmetry*: each part of the traditional fissure between humans and non-humans is being given equal analytical consideration (Callon, 1986; Fenwick & Edwards, 2010; Law, 2009; Murdoch, 1997). Of course, this is not to say that there are no differences between humans and non-humans whatsoever –for this would again imply a return to the aggregates– but rather that the sorts of actors populating a certain setting and how these are related towards each other should not be assumed beforehand, since this

is precisely what sociomaterial studies try to disentangle empirically (Law, 2004; Oppenheim, 2007). Indeed, the first sensibility of sociomaterial approaches directly relates back to the relational implications discussed above: the point is to pick up relationality as a logic which is not so much interested in categories or aggregates, but rather wants to analyze how actions emerge in and through relations. The sensibility of the researcher is then directed at adopting a gaze that approaches any educational setting as a *distribution* of actors and relations «in which all entities are initially (only initially) equal and indeterminate» (Law, 2006b, 88, emphasis added). The latter point is of importance, since it stresses not that humans and non-humans are *the same*, but rather that thinking in terms of relations implies not to place any actor *analytically* above another.

This symmetrical sensibility has been adopted by educational researchers in order not to exclusively focus on human actors alone and to describe how different educational settings are relationally instigated by both the social and the material. This is precisely what Sørensen (2009), scrutinizing the materiality of learning, is after. For her, educational practices do not consist of empowered and active subjects on the one hand and mute, passive objects on the other. Rather, by means of an empirical analysis she shows how daily classroom practices are critically given shape by means of both people and things, to such an extent that it is, at the end of the analysis, hard to make a difference between 'the' social and 'the' material. In a similar vein, Clarke (2002) adopts this symmetrical sensibility in order to come to new understandings of literacy and where this literacy might be found (that is, not solely in the person, but in a relational constellation of various sociomaterial actors). This symmetrical disposition enables her to come to new conceptualizations that offer prospects so as to reconceive literacy (for instance, coming to new orders and classifications that escape traditional theories of meaning connoted with literacy). Other studies have adopted this symmetrical disposition in order to highlight these actors (social and material the like) that are often *black boxed*, that is, entities that play a decisive role in different educational practices but that are, in a traditional representational framework, often ignored or put into the background (e.g. De Freitas, 2012; Waltz, 2006). Hence, educational studies that adopt a symmetrical disposition offer the possibility of both raising and answering questions as: What, or who, is being related to? How is this being done? What, or who, is not related to? Why?

3.2. *Performativity*

As argued hitherto, sociomaterial studies focus on heterogeneous educational settings as relational and flat planes that are always in the making. As such, they conceive of reality as process or as becoming. The focus of sociomaterial approaches is not only on the *distribution* of different settings, as if one would suffice with tracing the relations that are established between different actors. This would only be an exercise of mere registration of actors and relations in

such settings. The point of symmetrically focusing on such relations, however, is that such sensibility enables to become sensitive to what happens in a setting (as an arrangement of interconnected entities) at the level of its *effects*, that is, at which effects are established in and through the relations that are formed. This is where the notion of *practices* comes in: even though the analytical focus is first on (the registration of) relations, in second instance sociomaterial approaches aim to articulate the different effects generated by these relations. The term ‘practice’ hence points to the specificity of what happens in a particular setting, that is, to the effects that are generated by the relational interplay of actors (Schatzki, 2010). Many literature has focused on such effects, analyzing for instance how different relational constellations inaugurate particular sorts of space and time (Koyama, 2015; Heimans, 2012). Landri (2015), for instance, argues that education policy is too often thought of exclusively in terms of human actors and more especially in terms of clear-cut categories such as ‘producers’ of knowledge, ‘users’ of this knowledge and ‘policy agents’ who fabricate policy around this knowledge. Instead of analyzing education policy from such predetermined categories, Landri argues for analyzing education policy rather in terms of how it is being *made*, that is, how it materializes in practice and the precise ways in which it materializes then. Conceived likewise, and depending on the relations between different actors, different relational constellations generate different sorts of education policy *spaces*, such as a more or less stable and fixed region, or on the contrary in the form of a more fluid space in which boundaries are much more open to debate and contestation. As far as the enactment of different sorts of time is concerned, in a study on the role of digital devices in the composition of contemporary academic work, Decuyper and Simons (2014) argue that such different relational constellations generate specific sorts of time, such as processing timescapes where academics constantly adapt to the situation at hand, or timescapes that are characterized by heavy fragmentation and where a strict succession of delineated activities occurs. Next to the enactment of specific sorts of time and space, sociomaterial studies equally analyze how relations between actors in a particular setting have specific effects on these actors themselves: some are being heavily related to and are thereby –as an effect– transformed into authorities, centers or obligatory points of passage; others are very scarcely related to and thereby only of peripheral importance; and so on –see section 2.2– (Callon, 1986; Latour, 1987; Verran, 1999). In sum, the second sensibility points towards what could be termed as the *performativity* of actors and relations between these actors in educational settings: the realization that (and a sensibility for) realities (that) are produced effects of different situated enactments (Law, 2009; Seddon, 2014).

3.3. Mappings

A third characteristic of sociomaterial research is related towards the composition of resulting accounts, conceived as being a process of assembling. ‘Assembling’

in this respect relates to the particular *actions* the researcher undertakes in scrutinizing and reporting of this setting. Hence, the assemblage notion does not point to a structure to retrace (as in: «This particular reality consists of these specific assemblages»), but rather points to a *means of analysis* by means of which to approach the setting(s) under investigation (Ong & Collier, 2005; Marcus & Saka, 2006). This means of analysis largely consists of observation and according descriptions, and more specifically of following the actors in a particular setting in order to scrutinize how different educational settings are relationally composed. The aim of sociomaterial analyses is to present a detailed account of the distribution of actors and relations of this setting and the consequential effects of this relational distribution. By and large, this could be termed as a *cartographic* way of researching, in which this mapping allows to see and describe the relations by means of which a setting is constituted. This mapping needs to be understood in a specific manner, however, that is, in a performative and not in a mimetic sense: in a sociomaterial vein, mapping is not conceived as an endeavor aiming to faithfully represent a setting, but rather as an activity of description that aims to produce an adequate account and that *presents* (rather than represents, reflects or explains) such relational compositions (Pickles, 2004; November *et al.*, 2010). In a relational point of view, cartographic activities (and such cartographic descriptions might be effectuated visually as well as textually) are then not concerned with reflecting what was seen, but rather with gathering the actors and relations composing a certain educational setting, and with presenting the particular educational practice that is consequentially enacted. As such, maps (both written and visual) are considered as active devices themselves: *mappings* instead of maps (Fenwick, 2010; Kitchin & Dodge, 2007).

Designating sociomaterial research as cartographic research helps in understanding what these studies try to attain in educational research: they attempt to present an account of the investigated settings in such a way that the focus is not directed at holistic explanations but rather at assembling descriptions. The resulting maps, then, might be visually or textually (or a combination of both) oriented, but their focal intention is to present the reader with an adequate account of some educational setting that aims to come to an understanding of the specificity of this setting and of the mechanisms and operations that are at work in these settings. Ceulemans and colleagues (2012), for instance, present a cartography of standard formation in teacher education. By mapping how these standards operate, are rendered operable and how they make other actors operational, they present an account that aims to show how some actors start to act as an obligatory passage point. That is, by mapping how a teacher education setting looks like today, their analysis enables to show/present (rather than explain) the effect of such passage points and how contemporary teacher education is typically shaped through actors that hold a central role in these practices. Similarly, Nespore (2011) undertakes a cartography that presents how educational change is not only the feat of human actors, but equally critically shaped by devices. Again, the purpose

here is not to consider such devices as holding the same status as humans, but rather, by means of mapping as a research technique, to show that devices (in this case, a demo as an instructional device at a university) are active actors instead of mute objects. Nesper's cartography shows, for instance, the distribution of actors (professors, producers, the instruction demo, grants, etc.) necessary for the device to come into being. Furthermore, the cartography displays not only the distributed agency of this device (the device cannot be conceived in and on its own, but directs agency of other actors and leads to different performative enactments) but equally the various mechanisms that are at work in this university setting (inscribing the device into a text; translating it into policy priorities; enrolling other actors, etc.).

In sum, what can be gained by such cartographic endeavors is not explanation or generalization. Rather, this third sensibility points to attempting to present the relational distribution of educational settings in such a way that one might be able to come to grips both with mechanisms that are at stake nowadays in different educational settings and with the specificity of how such mechanisms operate. This implies that sociomaterial studies are always in search for proper words: rather than giving an explanation of what happens of an educational setting, the vocabulary deployed aims at once to stay as close as possible to the setting under investigation and to give an account of what was specifically seen in a particular setting (Latour, 2005). This pertains to the (sorts of) relations that are established as well as it points to the (sorts of) actors and the (sorts of) effects: which actors and relations are composing a practice? Which sorts of space and time eventually emerge? Etc. Even though such vocabularies will to a great extent be specific to the setting one has investigated, this is not to say that they would have no relevance at all beyond the particular setting: they might resonate with other studies, might be linked with other cases, might be adapted or tuned to other studies, and so on (*ibid.*; Nesper, 2011, 33).

4. THE CRITICAL POTENTIAL OF SOCIOMATERIAL STUDIES IN EDUCATION

Based on these premises, in this last section we want to make a case for the *critical capacity* that these sociomaterial approaches possess. The importance of stressing this critical capacity is threefold. First, it is a fruitful means by which we can concretely argue that sociomaterial approaches have something more to offer than just 'mere description'. Even though the above probably already indicates to some extent that sociomaterial approaches are about more than description alone, there is controversy as to whether or not these approaches have a critical capacity or not (Whittle & Spencer, 2008 – see for an elaboration of the argument Edwards & Fenwick, Forthcoming). In this respect, we will argue that the descriptions generated by sociomaterial approaches are already critical *in and on themselves*. Second, this might inform a revival of critique in a time where it has «run out of steam» (Latour, 2004b). Indeed, it seems as if we have critiqued everything over the last years, have debunked nearly every aspect of what education is or could be,

but where does this all lead to? To state it with Latour (2010), aren't there enough ruins already? If we have gained insight that everything is constructed, for instance, what can we concretely do with such insights? Does this stretch any further than the academic circles we present these insights to? Isn't there a better option to pursue, that is, an option that seeks to offer propositions rather than merely debunking what is held to be true (Edwards & Fenwick, Forthcoming; Hacking, 1999; Smeyers, 2010)? Third, we argue that this critical capacity of sociomaterial approaches is especially relevant for educational research, in the sense that this critical capacity might lend to elucidate some aspects of what education(al research) is all about and equally might give rise to concrete (sorts of) descriptive *interventions* that are opened up in this process.

The notion of 'critique' has to be understood in a specific way, however. In a representational vein, critique largely amounts to debunking and unveiling what was hitherto hidden: certain aspects of the educational domain are then not what they seem, or render particular hidden effects visible (e.g. Hacking, 1999; Latour, 2004b; Martín García & Barrientos Bradasic, 2010). The critical position of the researcher in this respect largely amounts to unveiling what is not (yet) known and what we (yet) hold to be 'true', and constitutes another perpetuation of the system of representation:

With critique, you may debunk, reveal, unveil, but only as long as you establish, through this process of creative destruction, a privileged access to the world of reality behind the veils of appearances. Critique, in other words, has all the limits of utopia: it relies on the certainty of the world beyond this world (Latour, 2010, 475).

This conception of critique amounts to invoking superjacent and hidden interests, (f)actors, fields of power, rationalities, and so on, that frame what is, what can be done and how this should be done. The knowledge thus generated is considered to be emancipatory in so far as it assists in the development of rationality, self-reflection and a better understanding of the situation one finds oneself in (Simons *et al.*, 2005, 819; see also Masschelein, 2004 and Simons, Olszen & Peters, 2009).

Conceived from a relational and sociomaterialist approach, however, critique points to something other (and we just sketched the representational approach here in order to designate what it is not, not as much to critique the notion of critique –which would be a rather odd kind of catch-22–). Instead of debunking and unveiling, in a sociomaterialist vein critique is situated in the ability to *intervene* in what could be called matters of concern (in contradistinction with the matters of fact in representational thinking, Fenwick & Edwards, 2010). This intervention is not the intervention of the representationalist critic who focuses on «guarding, judging, legitimating, monitoring, saving or securing» (Simons *et al.*, 2005, 827). Rather than that, as Latour argues, the word should be connoted with optimism through and through, since the aforementioned sensibilities of sociomaterial approaches at the very least open a space where critique can be deployed as a

means to compose and to assemble. In a sociomaterial vein, critique is utterly affirmative and experimental, instead of destructive and (merely) conceptual (Edwards & Fenwick, Forthcoming). In this respect, the person of the critic is then not a debunker or an unveiler but an assembler who gathers different heterogeneous actors together, not a distant objectifying scholar but –to use terms that might perhaps sound somewhat unfashionable– an *engaged* and *caring* one:

The critic is not the one who debunks, but the one who assembles. The critic is not the one who lifts the rugs from under the feet of the naïve believer, but the one who offers the participants arenas in which to gather. The critic is not the one who alternates haphazardly between antifetishism and positivism like the drunk iconoclast drawn by Goya, but the one for whom, if something is constructed, then it means it is fragile and thus in great need of care and caution (Latour, 2004b, 246).

It is this conception of critique as a way of relating to, engaging and experimenting with, and (re-) composing the present that we want to explore in the remainder of this article (Simons *et al.*, 2005, 2009). More particularly, this is then less an arguing for critical theory and a resistance to the present as it is an argument related to *critical creativity* which is centrally directed at attachments and gathering, rather than at detachment and taking apart (to sharpen a distinction made by Braidotti, 2013). Based on the arguments raised in the previous sections, we argue that educational sociomaterial studies can be conceived to have a critical capacity understood likewise on at least four levels, and that these studies are in this respect more than only a ‘merely descriptive’ tool to use. To be clear, this is not to state that description is a bad thing or would not suffice in and on itself. On the contrary, the position we advocate for here is a position that runs *through* such descriptions and that thereby conceives of these descriptions as already being interventions themselves.

First, sociomaterial description always implies an act of *gathering*, that is, of assembling a variety of actors that are present in a particular setting into what we have called an adequate account. This is not a distant endeavor, as it is largely portrayed in the system of representation. Rather than that, it is an account (not a neutral rendering of facts) that is aimed at being adequate (that is, that makes a description of the actors gathered in such a way that these actors can ‘speak for themselves’, instead of being ‘spoken about’). This act of assembling is an act of *composing*: it entails a description of what has been gathered through registrations. By drawing various actors together into a description, what is rendered clear likewise is not only that ‘nothing stands on its own’, but equally and more importantly that if nothing stands on its own, what is deemed to be important or worthwhile needs to be related to (or otherwise, it would disappear). By scrutinizing how different settings are relationally composed, sociomaterial studies are hence highly aware of both the fragility and the stability of certain compositions, since both fragility and stability are a relational result that can be made as well as be destroyed. This implies that through their descriptions, sociomaterial studies have the critical

capacity of opening up contemporary assemblages by describing them empirically, and hence of turning factual givens into actual concerns, that is, as gatherings of actors that are in need of care and need to be treated with caution. This is critical in as far as it implies that educational practices are reconceived, drawn out of the factual realm and instead being turned into matters of concern and in as far as this enables engaged and caring publics of researchers, students, teachers, etc. to gather around such matters of concern (Decuyper *et al.*, 2011, 2014; Masschelein & Simons, 2013).

Second, based on these descriptive accounts and as the examples in the previous sections hopefully show, sociomaterial approaches have the generative potential of both presenting that what is unfamiliar in educational settings and of re-presenting the familiar in such a way that what is often not given (many) consideration is presented as well. This applies as much to the many material actors present in a particular educational setting as it applies to social ones: instead of only considering traditional and to be expected human actors (e.g. students, pupils, teachers, ministers, and so on), sociomaterial studies, by mapping and showing how educational settings are relationally constituted, equally gather the many actors that are required for a practice to sustain itself and hence point to the agency of all of these actors. It could be stated that conceived likewise, sociomaterial description gives a wake-up call to the educational field by *defamiliarizing* what is often considered as familiar: education policy, for instance, not only consists of ministers and policy documents but equally of standards, websites, affected teachers; a university not only consists of lecture halls, professors and students but equally of computers, patents, friends, stories; ... as we have argued, the crucial point is not stating that these are important as such, but concretely showing how something is being *rendered* important or obsolete (e.g. a document is important not because it is issued by the cabinet but because other actors relate to it in such a way that it is rendered important). This constitutes a second dimension of this critical capacity: sociomaterial approaches allow for the inclusion of that what is often not given many consideration because it is so familiar, and for showing how these actors are (potentially) truly decisive as well. Conceived likewise, this constitutes not only a critical action, it equally constitutes an educational one in as far as sociomaterial descriptions aim to give voice to actors that are often not taken into consideration and as such disrupt established ways of looking and seeing².

Third, these descriptions could be conceived as being emancipatory, but again differing from the traditional representational meaning of the word. In this reconceived critical vein, emancipation is not qualified as detachment but rather as going from one *attachment* to the other (Latour, 1999, 2013). Coming back to

2. There is a point to be made here that in most sociomaterial studies, such thoughts are often primarily linked to the political realm instead of to the educational realm (see especially LATOUR, 2004a). We do not have the space to elaborate upon the relations between the two in this article, but see EDWARDS & FENWICK (Forthcoming) and POSTMA (2012).

the notion of care introduced above, care indeed requires attachment. There is no way to care without being attached to that what one cares about, or to put this differently: «care is a doing necessary for significant relating» (Puig de la Bellacasa, 2011, 98; also Latour, 2004b). The critical capacity related hereto is that such 'matters of care' (*ibid.*), or such attachments, can be identified in and through sociomaterial descriptions in such a way that what we have designated as a practice might come to the fore: the specific way of doing and relating to specific things that makes that something can be termed as being 'educational'. In other words, sociomaterial descriptions have the capacity to give a voice to that what could be termed as the (proto-)typical *educational* by identifying the different attachments that actors have in educational settings. In times where educational research is under increased societal pressure and under increasing appropriating tendencies of other scientific disciplines, this seems as a highly important and critical task (see also Masschelein & Simons, 2010). The emancipatory act here is then not directed at (detaching) the individual (see above), but precisely at identifying and describing those attachments that make that a practice can sustain itself, for instance, identifying those attachments that are present in a particular educational setting (e.g. an attachment of a teacher to certain norms and values, to pupils, to providing these pupils with worthwhile education, but equally to chalk, books or other objects). This is not achieved by adopting a theoretical, but precisely by adopting an empirical and descriptive vantage point: by deploying a *stubbornly realist* attitude and by assembling different mappings of different aspects of educational settings, sociomaterial approaches offer the opportunity to highlight which attachments one cares for and that enable an educational practice to emerge. In doing so, they offer the critical prospect of presenting what it is for schools, universities, families, etc. to *exist* as a school, university or family today (Latour, 2013).

Finally, and ultimately, the critical capacity of sociomaterial studies is situated at the agency of the researcher herself. That is to say, if sociomaterial approaches enable to approach educational settings as relational and composed practices that have a typicality that can and needs to be described empirically, these approaches are also critical in so far as they enable to *recompose* that what is perhaps not too well composed. Sociomaterial approaches, by having the potential to make such empirically informed *proposals* at reassembling what is given today, are perhaps especially well fit to critically intervene in present assemblages or to (re-)shape and (re-)design future compositions so as to shape a more livable common world (Latour, 2004a, b). This resonated heavily with action-oriented forms of educational research as well as with the domains of critical pedagogy, but perhaps this establishing and reshaping of a common world is especially an endeavor that all educational researchers are –one way or the other– concerned about and care for themselves. That is to say: perhaps this is precisely one of their own modes of attachment.

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