

Education as a mode of existence: a Latourian inquiry into assessment validity in higher education

Jonathan Tummons, School of Education, Durham University, Leazes Road, Durham, DH1 1TA, UK

Orcid ID: 0000-0002-1372-3799

Abstract

Within professional higher education, the construct of assessment validity is used to make assumptions about the extent to which students are able to replicate in professional practice what they have learned during their studies through the provision of authentic simulated opportunities to practice. Drawing on the work of Bruno Latour, this article argues that the conceptualisation as well as use of the idea of assessment validity in theorising the assessment of simulation-based learning in professional courses, in order to predict the future performance of the student constitutes a category mistake that consequently makes claims for assessment validity which are unfounded. The article goes on to explore ways by which ethnographers of education might use other elements of Latour's work in order to generate rich, problematising accounts of educational practice.

Key words

Actor-Network Theory; Ethnography; Higher Education; Latour; Modes of Existence.

Introduction: reflections on a site visit

In May 2018, I was walking through a training hospital in Nova Scotia, Canada, with the research team of which I am currently a member. Our project, *Becoming a Professional Through Distributed Learning: a Sociomaterial Ethnography*, is exploring distributed medical education in Canada. As we walked through the spaces where the students practice their clinical skills with medical simulation dummies, we discussed the relationship between these practices, and the real-life experiences that they would encounter when taking up their clerkships in geriatric or emergency medicine, discussions that we returned to as we watched video recordings of the students as they fitted foley catheters to the dummies. The behaviours of some of the medical students, typified by comments such as “if this were real life, I would...” led me to consider the ways in which such simulated environments might be considered authentic. How does practising on a dummy help people learn in such a way that they can perform the procedure with a real patient?

Such questions pertain to a variety of curricula, not just medical education, specifically to the ways in which assessment within other professional programmes can be said to be *valid*. Assessment validity is a troublesome construct. A critical explication of validity in assessment falls outside the scope of this article: nonetheless it can be usefully defined as the extent to which a method of assessment is able to capture the achievements intended from a programme of study, and predict achievement in future practice (Messick, 1989; Newton, 2007). However, the warrant that validity claims when derived in part from authenticity through simulation is highly significant when considering assessment in professional or technical curricula that prepare students for specific occupations within which their future actions might make a material difference to the outcomes of not only the profession, but those people who use the service that the members of the profession offer. The problem that emerges relates to the extent to which assessment within a professional curriculum that rests on a simulated context is valid, if we assume that validity in some way has something to say about the future performance of the students being assessed. To what extent does doing well in a simulated assessment generate a warrant for future real-life performance?

The term ‘professional curriculum’ is widely used to refer to programmes of study delivered at universities, at undergraduate or postgraduate level, to prepare students for a specific field of employment. Examples include the healthcare professions, social work, and teaching. Such programmes are invariably endorsed by a professional body, and curricula are mapped onto relevant professional standards, both aspects of quality assurance that render such curricula fit for purpose, so that stakeholders – funding bodies, regulatory authorities, service users – can be confident that those professionals who have successfully travelled through the curriculum have sufficient professional knowledge and competence to be allowed to practice (Bourner et al., 2000; Eraut, 1994; Taylor, 1997). As our medical education research is only at an early stage, the empirical foundations of this paper are derived from my previous ethnographic research into teacher education (Tummons 2010a, 2010b, 2011, 2012, 2014, 2018). The theoretical foundations of this paper are derived from the work of Bruno Latour, and it is to an explication of this framework that I shall now turn.

Latour: from actor-networks to modes of existence

Actor-network theory remains an under-used sociological/philosophical approach within educational research compared to Bourdieusian or Foucauldian studies: it has been employed to explore a number of diverse aspects of educational provision, including university physics and business curricula (Nespor, 1994), PISA testing (Gorur, 2011), teaching in nurseries (Plum, 2018), professional standards for teachers (Mulcahy, 2011), the relationship of technology to theory in education research (Thumlert et al., 2015) and – of particular salience to the argument that I am constructing here – the construction of knowledge through ethnographic research in education (Larsson, 2006). It has been described as: a component of ethnography that is concerned with “the processes of ordering that generate effects such as technologies” (Law, 1994: 18); a “way of talking... [that] allows us to look at identity and practice as functions of ongoing interactions with distant elements (animate and inanimate) of networks that have been mobilized along intersecting trajectories” (Nespor, 1994: 12-13); and a “sociology of the social and ... [a] sociology of associations” (Latour, 2005: 9). It is a way of exploring how social projects are accomplished in ways that can be traced across networks of all sorts of stuff: stories, people, paperwork, computer simulations, routines, texts and voices. It provides ways of thinking about how networks or associations carry influence and influence each other, and foregrounds the ways in which people as well as things are made to do things across boundaries of geography or time or institutions.

Actor-network theory is now absorbed within a larger anthropological and philosophical project, *An Inquiry into Modes of Existence* (AIME) (Latour, 2013). AIME constitutes an assemblage of several strands of Latour’s work, including science and technology studies (STS), explorations of modernism, geopolitics, semiotics, and philosophy (Conway, 2016, Delchambre and Marquis, 2013). AIME sets out to construct a systematic description of the different ontological systems that co-exist to describe contemporary ways of being (Ricci et al., 2015). Elements of AIME have begun to be employed through explorations of legal theory (McGee, 2014), politics and postpolitics (Tsouvalis, 2016), and contemporary academic practice (Decuyper and Simons, 2016). Modes of existence are those social, technical, semiotic and material conglomerations such as *law*, or *technology* or *morality*, that constitute the empirical multi-realist ontology that Latour has concerned himself with. Modes of existence are identified through the use of a series of notations: thus, technology becomes [TEC], or morality becomes [MOR]. Subsumed within AIME, actor-network theory is designated as [NET], now just one amongst fifteen modes. Whether or not there might be more modes than those that Latour identifies is left unexplored (Edward, 2016). Perhaps there is such a thing as a mode of existence of academic practice, as suggested by Decuyper and Simons (2016: 14), and perhaps others as well. Here, I draw on AIME to illustrate how Latour’s multi-realist ontology can be used to explore the stuff of education more generally, and validity in assessment more specifically, focussing on one small episode of educational practice derived from ethnographic research.

Generating inquiries about the world

According to AIME, one of the ways through which we can advance our inquiries about the world we live in and the things we do, is through the identification, explication and avoidance of *category mistakes* (Ryle, 1949). Category mistakes are ontological mistakes. When something that consists of one property is presented as consisting of a different property, then a category mistake in relation to the thing has occurred. It is by disambiguating the ways in which we make sense of the phenomenon being discussed, that the

category mistake can be resolved. Ryle (1949: 6-7) provides three examples of category mistakes, one being that of someone watching a game of cricket for the first time who, after having paid attention to explanations of the different roles of the fielder, the bowler and the wicket-keeper, complains that the explanation has not encompassed the role of maintaining 'team spirit' or 'the spirit of the game'. Any subsequent correction of this category mistake would need to explore the difference between the different roles that the players have on the field, and their wider, more collective role, in playing the game in a positive, mutually-encouraging manner. In this way, what Ryle posited as the category mistake of Cartesian philosophy, the bifurcation of body and mind, can be overcome (Ryle, 1949: 9-13).

An example of a category mistake that Latour recounts is of Mont Aiguille, a mountain south of Grenoble, France. If we want to know more things about this place, should we go hiking up it, or study some maps, or both, or something else? (Latour, 2013: 69 ff.) In fact, we can do different things to intensify our efforts in *knowing* about Mont Aiguille: go on more extensive walks; write more, richer descriptions of the routes and the rocks; and undertake more frequent geographical surveys with increasingly sophisticated measurement tools. In this way the steady accumulation of maps, photographs, memoirs, diagrams, signs, and so forth that allow us to 'see' and to 'know' about Mont Aiguille – without even needing to actually go there if we can't manage it – becomes stronger and richer. However, the ontological bifurcation between the map and the mountain needs to be remembered. To forget this would not only do a disservice to the many people and things or *immutable mobiles* (Latour, 2005) who have gathered and been gathered together over time to help us know more about the mountain (the terrain, the geology, the history, the environment), but would also lead to a *category mistake*: a conflation of the mountain, with what we know about the mountain. This is not to defend or even to propose a constructivist or postmodernist epistemology: there is no hyper-subjective collection of multiple truths concerning Mont Aiguille. We do not all get to construct our own 'truths' about what Mont Aiguille is, not least because *common sense* would render any outlandish statements as nonsensical (Latour, 2013: 59). Rather, we want to be able to agree that Mont Aiguille is what it is: we want to be able to say 'true' and 'accurate' things about it, to create faithful accounts or objective knowledge (Conway, 2016). And we can do this through our inquiry. But our true and accurate accounts are not the same thing as the mountain itself.

Category mistakes occur when we mistake actual things in the world (it might be a mountain, but it might be an institution, or a building, or a group of people, or a process) with the ways in which we write or talk about them (or make images of or about them, or sing about them). To put it another way, through introducing two more modes of existence to this account, we might instead say that when we confuse or conflate real things or beings, which are referred to within AIME as *beings of reproduction* [REP], for the ways in which we write and talk about them, which are referred to within AIME as building up into chains of information and understanding or *reference* [REF] that we have established in order to bring those same beings into view, a category mistake of the [REP-REF] type is introduced. Category mistakes of this type are paradigmatic of the Cartesian epistemology and ontology of 'modernity' that, following Ryle, Latour is concerned to unravel (a broader element within AIME as well as Latour's wider body of research (Latour, 1993)). The conflation of a being or a thing [REP] with the way that we write or talk about it, the way that we create inscriptions and descriptions of it [REF], is just one of the ways by which the Moderns (to borrow another item of Latour's terminology) have sought to establish apodictic statements relating to the world. One of the aims of the

Inquiry, therefore, is to unravel the Moderns' cartesian (mis)understanding of the bifurcation between the world, and the things that are known about the world.

Category mistakes within professional higher education

How might an ethnographer of education (Latour describes AIME as the work of an 'ethnographer' or 'anthropologist' – here I use the term 'ethnographer of education' to reflect this as well as my own academic work) make use of these ideas, and specifically the notion of a [REP-REF] category mistake? In order to place this discussion within empirically recognisable contexts, I draw on prior research in order to generate an example that demonstrates how the [REP-REF] category mistake can be employed to disrupt taken-for-granted notions. The example that I discuss here relates to validity, as earlier defined, within the assessment of reflective practice within teacher education. Specifically, it is important to note that assessment validity within professional education in part entails the construction of models of assessment that are sufficiently realistic and/or authentic, that consist of processes, tools, procedures and environments that are sufficiently closely aligned to the actual professional contexts that students are studying towards (Klenowski, 2003).

Challenges to the ways in which assessment theory and practice are defined and operationalised are far from uncommon. Indeed, it might be suggested that spending time explicating, let alone critiquing, matters such as these is moot. However, to fail to provide at least some sense of the complexity that lies behind and underneath such discussions would be to risk reinforcing one further aspect of the Moderns' repertoire: the idea that information (about assessment, about Mont Aiguille, about anything that we might wish to explore through our inquiry) is 'pure' or 'unchallenged' (Latour, 2013: 93), that it can be presented immediately, unproblematically, and without mediation (Conway, 2015: 7). Latour uses the analogy of accessing information on a computer to illustrate this problem, contrasting the need to account carefully for our chains of reference [REF] with the immediate delivery of information that we might receive, sat in front of our laptop computers, from double-clicking on a mouse button. Thus, the *double click* mode [DC] constitutes the antithesis to the inquiry presented within AIME, namely that there are no such things as facts that speak for themselves (Latour, 2013: 137). My argument, therefore, is that the validity of assessment in reflective practice (and perhaps in other educational contexts) is too often treated as knowledge of the double-click mode, which is labelled as [REF-DC], lacking a careful account as to how it is arrived at, leading to a category mistake of the [REF-REP] type that leads to claims for the validity of the assessment process that cannot be sustained.

Teacher education, reflective practice, and validity

Within the dominant discourse of teacher education (Gee, 1996), reflective practice is reified as a professional attribute, a characteristic of professional activity that is required in order to enter the teaching profession and maintain good standing within it. It is expected that both trainee and experienced teachers engage in reflection on practice as part of their professional repertoire. As such, it needs to be included within teacher education curricula, where it remains more-or-less unchallenged, although there is considerable debate relating to different models of the assessment of reflective practice, and the knowledge (professional, experiential, propositional or otherwise) that reflective practice serves to help (trainee)

teachers to construct. If we assume that the assessment of reflective practice is valid, however, then we have to assume that assessors are able to infer that what students are doing is, indeed, 'reflective practice'. The validity of this assessment rests on two dimensions: firstly, that the way in which reflective practice is understood by students and assessors is aligned; secondly, that the evidence that is gathered from the assessment process is sufficient for assessors to make their inferences. The inference to be made in this context is in relation to the extent to which the assessors can judge that the student has learned about reflective practice through completing a variety of reflective assignments, and will in turn become a reflective practitioner in the classroom.

Remembering that it is the assessment of reflective practice that is of concern, not the practice of reflection amongst teachers and trainee teachers more generally, it is straightforward to identify literature that seeks to critique the assessment of reflective practice before looking for ways to enhance or reconstruct it in such a way as to enhance validity. Pertinent examples include calls for more clarity and rigour in constructing reflective practice assessment frameworks in order to enhance validity (Collin et al., 2013; Smith and Trede, 2013), as well as calls for innovation and development within the construction of assessment methods in order to facilitate more meaningful and authentic reflective practice, again enhancing validity (Barton and Ryan, 2014; Stupans et al., 2013). Analyses such as these share a concern to correct or otherwise ameliorate the validity of an assessment process that, precisely because it is currently tolerably valid and might be rendered more so, can therefore with a degree of certainty predict that those trainee teachers who have successfully completed these assignments will acquire the habits and mindset as well as techniques of reflective practice and draw on these when they enter the profession. And it is validity that constitutes the element of assessment theory through which what might be termed an epistemological and ontological bridge between reflective practice within a teacher education programme and reflective practice within the teaching profession, is posited.

Locating the category mistake

My argument is that the agglomeration of research into reflective practice within professional education has served to construct this powerful discourse surrounding reflective practice, which has been able to persuade many people that if only we get the teacher-education assignments 'right', we can engender reflective practitioners. If only we adjust the construction of the portfolio or allow the use of different writing models or allow trainees to select their preferred approach from a menu of reflective writing models, then the authenticity and validity of the reflective assignments will be enhanced to the extent that we can make more confident claims about the reflective practice habits of the newly qualified teacher. In this sense, the construct of 'assessment validity' constitutes knowledge that has become ossified, with the tenuous chains of argument, of choices and of inquiry that led to the settling of the notion of validity lost sight of. Or, to use the terminology of AIME, 'validity' has become knowledge of the Double Click mode [REF-DC] (Latour, 2013: 128). The complex chains of reference [REF] through which conflicting ideas about 'validity' have become established (McGee, 2014: 101-102), but by no means agreed upon, have been usurped by a definition of 'validity' that assumes not only that it is possible to have such a construct in the first place but also that the definition of such a construct can be agreed on and then operationalised, fixed into the assessment criteria

of teacher-education curricula and embodied within and through the actions of external examiners, moderation reports, professional standards, and assessment theorists.

And so we find teacher educators running reflective practice sessions for their trainees that encompass a range of activities. Trainees engage in reflection on teaching practice sessions which have been observed by their mentors, write reflections relating to their own week-by-week progress, and include reflective elements within academic essays, gathered together in a portfolio (MacLellan, 2004). Teacher trainers grade the portfolios, hold moderation meetings, and attend examination boards where awards are confirmed. The boundaries between grades are discussed, sometimes – though by no means always – through reference to institutional standards, and external examiners scrutinise these processes, reading samples of student work and checking to see that moderation processes have been followed, remembering that such processes, and the social practices that envelop them, are invariably specific to the institution in question (Hudson et al., 2017). I have explored these practices in my own prior ethnographic research, informed by actor-network theory (Tummons 2010, 2014, 2018). For this inquiry, it is sufficient to note that the assemblage of practices that I have described can be understood as constituting an actor-network, designated here as [NET] (Latour, 2013: 61-62).

Within this [NET], the [REF-REP] category mistake of assessment validity is located. The dominant discourses (Gee, 1996) of higher education assessment practices operate with sufficient *political* power (I shall return to politics later) so as to persuade a sufficient number of actors that ‘validity’ has been constructed in such a way that it can be taken for granted, a form of construction about which The Moderns would permit a critique within strictly defined parameters: a critique that allows – indeed, fetishizes – multiple interpretations, but loses sight of the tenuous network of events, practices, people and artefacts that allow ‘validity’ to be constructed in the first place (Edwards and Fenwick, 2015; Latour, 2007). With ‘validity’ formalised in such a way as this, it is a simple operation to allow this construct to explain how requiring trainee teachers to complete their reflective assessments and portfolios leads them to become (with a tolerable degree of variation) reflective practitioners after qualification. ‘Validity’ is so strong, so well entrenched within the politics of assessment and of professionalism, that reference to it in the [DC] mode permits actors to lose sight of the ontological and epistemological differences that distinguish the trainee in the university classroom from the qualified teacher in the classroom. These are two different spaces or places – two different institutions. This does not mean that these two institutions are bifurcated, however. The crisscrossing of activities across the institutional, geographic or temporal spaces that allow us to see the differences between these two institutions is so copious that any notion of a boundary between them simply does not make sense (Latour, 2013: 30). But they are different nonetheless, and the ‘validity’ category mistake attempts to join them together so that unsettling questions about the validity of the assessment of reflective practice can be sidestepped. We lose sight of the differences between doing reflective practice assignments and being reflective practitioners just as Ryle’s (1949) fictional interlocutor loses sight of the differences between the technical role of a specific member of a cricket team and the broader philosophy of fair play. The assessment of reflective practice and the practice of reflection are joined by documents, books, people, forms, and more: chains of reference [REF] that allow us to move between them in just the same way that Mont Aiguille is joined to our knowledge of Mont Aiguille through maps, cartographers, the stories of fellow hikers and so on. The assessment of reflective practice and the practice of reflection *co-respond* in the

same was as Mont Aiguille *co-responds* to the map of Mont Aiguille (Latour, 2013: 86). They co-respond, but they are different.

The politics of assessment validity

I need to draw on another mode of existence to begin a wider discussion concerning assessment and reflective practice, a discussion that has been closed off by the [REP-REF] category mistake. Specifically, I need to consider the organisational and institutional *politics* [POL] that have, amongst other things, eschewed the unpacking of this category mistake in favour of a genre of discourse that Latour refers to as *straight talk* (2013: 127). It is through straight talk that knowledge of the [REF-DC] kind is explicated, discussed in meetings, seminar rooms, and corridors. 'Interlocutory situations' (Latour, 2013: 125) such as these serve many functions. But it is the function of persuasion, of generating a sense of adherence to a particular course of action, process, or way of working, that renders such situations political in the way in which Latour proposes the politics [POL] mode (Latour, 2013: 134). Any collective situation has the potential to generate activity in the [POL] mode, the activity that ensues whenever some people meet and discuss things that they might want to do to shape or adjust the world that is around them (Tsouvalis, 2016 – though see also the argument that Latour pays insufficient attention to the theorization of 'power' and how it might be enacted in political, as well as other, contexts (Kipnis, 2015)).

As with any mode of existence, [POL] needs to be considered on its own terms. Each mode has its own way of working, of talking, that needs to be considered in its own right. Thus, we find that political speech constitutes a way of talking about things, of arguing, making statements, establishing knowledge and so forth, that leads to political institutions making statements regarding 'truth' or 'falsity' that are quite distinct *in how these are done* in comparison to other modes such as religious institutions [REL]. In just the same way as we want to be able to say 'true' things about Mont Aiguille, so we might want to be able to say 'true' things about politics, or about religion. But the ways in which these 'true' things are established are distinct to each mode: a mode has a unique type of *veridiction* (Latour, 2013: 53) in order to establish its felicity and infelicity conditions. For Latour, modes of veridiction pertain specifically to each mode of existence. Thus, we might draw on any number of modes of veridiction depending on the nature of our inquiry, so long as we subscribe overall to the multiple ontologies of the AIME project (a commitment that I return to below).

We can now position the consensus that has grown up around the validity of the assessment of reflective practice [REF-DC] in terms of politics [POL]. We can see the network [NET] of people, routines, policies and objects that have been associated sufficiently strongly to gain a degree of permanence; and we can see how the assemblage within this [NET] coalesces around the construction of assessment validity within the dominant discourse of teacher education that I outlined above. This dominant discourse, or *straight talk*, is advantageous precisely because it discredits other ways of speaking about something, a process that is accomplished through bringing knowledge of the [DC] mode into politics, as [POL-DC]. Just as [DC] knowledge denies the hiatuses, exigencies and discontinuities that in fact underpin knowledge of the [REF] type, so [POL-DC] straight talk maintains plausibility through presenting as 'true' things that might well have been established as 'true' but which rest on chains of reference [REF] that are characterised by those same hiatuses, exigencies and discontinuities. Whilst knowledge of the [REF] mode not only acknowledges those

tribulations but also foregrounds them, knowledge of the [DC] mode assumes that we can enjoy direct access to unmediated knowledge, promulgated through the use of straight talk within any political [POL] situation.

Conclusion: generating accounts of assessment practice

AIME is an empirical inquiry, looking at different courses of action within different domains, interrelated but nonetheless distinct. Through this inquiry we can generate robust, pluralistic accounts of the world. These accounts are rooted in the empirical, and it is through ethnographic research that the present account has been realised, through which AIME can proceed. An inquiry into any course of action – such as the course of action that leads to the establishment of a dominant discourse of assessment validity in higher education – starts with the identification of the things, processes and people who are involved in allowing this course of action to come to pass, enrolled within an actor-network or [NET]. The explication of a [NET] can start at any point within the network – such as the assessment of reflective practice within a teacher-training curriculum – and from that starting point the ethnographer can travel in any number of directions, so long as they continue to trace the connections, leaps, and movements that the things and people enrolled within the [NET] pass through (Latour, 2005). From here, the ethnographer can look for those category mistakes – such as mistakes of the [REF-REP] type that conflate being a reflective practitioner with assessing reflective practice – that are lost sight of by our informants (who, in line with the *principle of symmetry* which is characteristic of actor-network theory, can be both non-humans as well as humans). Such mistakes lead to knowledge of the [DC] type, such as the way in which assessment validity is rendered as [REF-DC] knowledge, sustained by straight talk within a political space that sustains this knowledge [POL-DC] in a manner that focuses solely on the results of the tenuous chains of reference [REF] that allow us to make statements about things that might be ‘true’ or not, rather than also focusing on the ways by which those chains are brought and then held together in the first place.

How, then, might we proceed with the present inquiry, that has begun to unravel the ways in which assessment validity on one teacher-training curriculum might be talked about and understood? There are two complementary ways to proceed that I would wish to consider. The first is to continue our research in a manner appropriate to educational or social research more generally, to draw on *theoretical generalisation* to inform our empirically as well as theoretically-informed reading and research into other reifications or *instaurations* (Gobo, 2008; Latour, 2013: 160) of reflective practice and of the assessment of reflective practice, and to look for other category mistakes. And the second is to widen the horizons of our inquiry into other areas of education: education consists of heterogeneous practices that are hardly ill researched, but which, I suggest, might benefit from an inquiry of the AIME type.

At the same time, we have to avoid charges of theoretical essentialism and/or an uncritical adoption of AIME. In keeping with actor-network theory [NET], AIME thus far eschews direct discussion of methodology. In the case of actor-network theory, this has allowed for the emergence of a range of approaches that can be conveniently described in terms of social research, including (but not restricted to) ethnography (Fenwick and Edwards, 2010). This broad approach to research is in turn adopted by AIME (Berliner et al., 2013). Like its predecessor, AIME is performative, permitting some ways of viewing the world whilst restricting others

(Law and Singleton, 2013), reflecting the epistemological politics of ethnographic research more widely (Atkinson, 2015). Indeed, a critical reading of AIME foregrounds the problematic that surrounds the potential for contradiction between AIME's claim to be a venue for multiple ontologies on the one hand, and Latour's sweeping critique of Durkheimian and Wittgensteinian sociology on the other (Delchambre and Marquis, 2013: 570-571). The politics of representation as well as of methodology both, therefore, need to be critically attended to in a manner that Latour does not address, but which we can find addressed within ethnographies (of education) more broadly (Marques da Silva and Parker Webster, 2018; Smith, 2005; Tedlock, 2000). With these caveats in place, we can proceed to our inquiry.

Latour defines a mode of existence in terms of four aspects (for what follows see Latour, 2013: 488-489). Firstly, we need to consider the course of action being followed – the *trajectory* of the social phenomenon that we are concerned with – and look for the *hiatuses* that the course of action has to overcome. The course of action that I have explored here is of assessment: the hiatus is the establishment of validity. Secondly, we need to consider how this mode establishes 'true' and 'false' statements – the *felicity and infelicity conditions*: here, it is through examiners, handbooks, routines and criteria that 'true' statements about assessment have been established. Thirdly, we need to explore the *beings* that the mode institutes: here – remembering the principle of symmetry – we might explore teachers and students, organisations, buildings, and texts of all kinds. Finally, we consider the otherness or *alterity* of the mode: here, those aspects of the stuff of 'education' that generate an ontology distinct from another mode. There are other hiatuses to consider of course, just as there are any number of other trajectories within the practices of schools, colleges and universities that might engage us as ethnographers. There are more felicity and infelicity conditions to identify, more types of beings – non-human as well as human – established through educational processes, and more kinds of otherness to describe. With further empirical inquiry, it would be possible to describe the chains of reference that bind and surround educational processes with sufficient detail, depth and rigour to be able to identify education as a mode of existence in and of itself, to which I shall tentatively ascribe the notation [EDU].

Acknowledgements

I would like to thank the two reviewers who provided constructive feedback on the first iteration of this paper. I would also like to thank Dr Oakleigh Welpy and Dr Rille Raaper, fine researchers and colleagues, for their helpful advice during the thinking about, writing, and revising of this paper.

References

Atkinson, P. (2015) *For Ethnography*. London: Sage.

Barton, G. and Ryan, M. (2013). Multimodal approaches to reflective teaching and assessment in higher education. *Higher Education Research and Development* 33(3), 409-424.

Berliner, D., LeGrain, L., and Van De Port, M. (2013). Bruno Latour and the anthropology of the moderns. *Social Anthropology/Anthropologie Sociale* 21(4): 435-447.

Bourner, T., Katz, T., and Watson, D. (eds.) (2000). *New Directions in Professional Higher Education*. Buckingham: Open University Press/Society for Research into Higher Education.

Collin, S., Karsenti, T. and Komis, V. (2013). Reflective practice in initial teacher training: critiques and perspectives. *Reflective Practice* 14(1), 104-117.

Conway, P. (2016). Back down to Earth: reassembling Latour's Anthropocenic geopolitics. *Global Discourse* 6(1-2), 43-71.

Decuyper, M. and Simons, M. (2016). Continuing attachments in academic work in neoliberal times: on the academic mode of existence. *Critical Studies in Education* ifirst.

Delchambre, J-P. and Marquis, N. (2013). Modes of existence explained to the moderns, or Bruno Latour's plural world. *Social Anthropology/Anthropologie Sociale* 21(4), 564-575.

Edwards, R. and Fenwick, T. (2015). Critique and Politics: a sociomaterialist intervention. *Educational Philosophy and Theory* 47(13-14), 1385-1404.

Eraut, M. (1994). *Developing Professional Knowledge and Competence*. Abingdon: RoutledgeFalmer.

Fenwick, T. and Edwards, R. (2010). *Actor-Network Theory in Education*. London: Routledge.

Gee, J. (1996). *Social Linguistics and Literacies: Ideology in Discourses*. Second edition. London: RoutledgeFalmer.

Gobo, G. (2008). Reconceptualising generalisation: old issues in a new frame. In Alasuutari, A., Bickman, L. and Brannen, J. (eds.) *The Sage Handbook of Social Research Methods*. London: Sage.

Gorur, R. (2011). ANT on the PISA trail: Following the statistical pursuit of certainty. *Educational Philosophy and Theory*, 43(s1), 76-93.

- Hudson, J., Bloxham, S., den Outer, B. and Price, M. (2017). Conceptual acrobatics: talking about assessment standards in the transparency era. *Studies in Higher Education* 42(7), 1309-1323.
- Kipnis, A. (2015). Agency between humanism and posthumanism: Latour and his opponents. *Hau: Journal of Ethnographic Theory* 5(2), 43-58.
- Klenowski, V. (2003) *Developing Portfolios for Learning and Assessment*. London: RoutledgeFalmer.
- Larsson, S. (2006). Ethnography in action. How ethnography was established in Swedish educational research. *Ethnography and Education* 1(2), 177-195.
- Latour, B. (2013). *An Inquiry Into Modes of Existence*. London: Harvard University Press.
- Latour, B. (2007). Can we get our materialism back, please? *Isis* 98: 138-142.
- Latour, B. (2005). *Reassembling the Social: an introduction to Actor-Network Theory*. Oxford: Oxford University Press.
- Law, J. (1994). *Organising Modernity*. Oxford: Blackwell.
- Law, J. and Singleton, V. (2013) ANT and Politics: working in and on the world. *Qualitative Sociology* 36(4), 485-502.
- MacLellan, E. (2004), How reflective is the academic essay? *Studies in Higher Education* 29(1), 75-89.
- Marques da Silva, S., and Parker Webster, J. (2018) Positionality and Standpoint: situated ethnographers acting in on- and offline contexts. In Beach, D., Bagley, C. and Marques da Silva, S. (eds). *The Wiley Handbook of Ethnography of Education*. London: Wiley.
- McGee, K. (2014). *Bruno Latour: The Normativity of Networks*. London: Routledge.
- Messick, S. (1989). Meaning and values in test validation: The science and ethics of assessment. *Educational Researcher* 18 (2) 5-11.
- Mulcahy, D. (2011). Assembling the 'Accomplished' Teacher: The performativity and politics of professional teaching standards. *Educational Philosophy and Theory*, 43(s1), 94-113.
- Nespor, J. (1994). *Knowledge In Motion: space, time and curriculum in undergraduate physics and management*. London: RoutledgeFalmer.
- Newton, P. (2007) Clarifying the purposes of educational assessment. *Assessment in Education: Principles, Policy and Practice* 14(2), 149-170.

Plum, M. (2018). Signing in: knowledge and action in nursery teaching. *Ethnography and Education* 13(2), 204-217.

Ricci, D., de Mourat, R., Leclerq, C. and Latour, B. (2015) Clues. Anomalies. Understanding. Detecting underlying assumptions and expected practices in the Digital Humanities through the AIME project. *Visible Language* 49(3) 35-61.

Ryle, G. (1949). *The Concept of Mind*. Abingdon: Routledge.

Smith, D. (2005). *Institutional Ethnography: a sociology for people*. Lanham: Altamira Press.

Smith, M. and Trede, F. (2013). Reflective practice in the transition phase from university student to novice graduate. *Higher Education Research and Development* 32(4), 632-645.

Stupans, L., March, G. and Owen, S. (2013). Enhancing learning in clinical placements: reflective practice, self-assessment, rubrics, and scaffolding. *Assessment and Evaluation in Higher Education* 38(5), 507-519.

Taylor, I. (1997). *Developing Learning in Professional Education*. Buckingham: Open University Press/Society for Research into Higher Education.

Tedlock, B. (2000). Ethnography and ethnographic representation. In Denzin, M. and Lincoln, Y. (eds.) *Handbook of Qualitative Research*. Second edition. London: Sage.

Thumlert, K., Suzanne de Castell, S. and Jenson, J. (2015). Short Cuts and Extended Techniques: Rethinking relations between technology and educational theory. *Educational Philosophy and Theory* 47(8), 786-803.

Tsouvalis, J. (2016). Latour's object-orientated politics for a post-political age. *Global Discourse* 6(1-2), 26-39.

Tummons, J. (2018). *Learning Architectures in Higher Education: beyond communities of practice*. London: Bloomsbury.

Tummons, J. (2014). Curriculum as Accomplishment. Tracing Human and Non-human Actors in the Delivery of Educational Curricula. In *Le Sujet De L'Acteur: an anthropological outlook on Actor-Network Theory*. Kapriev, G., Roussel, M. & Tchalakov, I. Wilhelm Fink.

Tummons, J. (2012). Theory, reflectivity and communities of research practice in Higher Education. *Higher Education Research and Development* 31(3): 299-310.

Tummons, J. (2011). 'It sort of feels uncomfortable': problematising the assessment of reflective practice. *Studies in Higher Education* 36(4): 471-483.

Tummons, J. (2010a). Institutional ethnography and actor–network theory: a framework for researching the assessment of trainee teachers. *Ethnography and Education* 5(3): 345-357.

Tummons, J. (2010b). The assessment of lesson plans in teacher education: a case study in assessment validity and reliability. *Assessment and Evaluation in Higher Education* 35(7): 847-857.