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**Learning safely from error: Reconsidering
the ethics of simulation-based medical
education through ethnography**

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This dialogical working paper results from the annual e-seminar of the [Linguistic Ethnography Forum](#) (LEF), which took place online between 1st & 22nd June 2017. It focuses on Caroline Pelletier and Roger Kneebone's 2016 article, 'Learning Safely from error? Re-considering the ethics of simulation-based medical education through ethnography' (Ethnography and Education, 11.3). The article is an ethnography of simulation-based education in four London teaching hospitals, and it focuses on how mistakes in clinical professional practice are identified and discussed verbally. This is then followed by a discussion with respondents from different disciplinary perspectives, including sociology, health services research, organisational studies, education research and clinical communication. The contributors to this interaction are Jason Rutter & Fiona Copland, Caroline Pelletier, Clare Mumford, Jamie Murdoch, Yael Pulvermacher, Parmênio Camurça Citó and Deborah Swinglehurst.

THE FOCAL PAPER

Learning safely from error: Reconsidering the ethics of simulation-based medical education through ethnography

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Abstract¹

'Human factors' is an influential rationale in the UK national health service to understand mistakes, risk and safety. Although there have been studies examining its implications in workplaces, there has been little investigation of how it is taught, as a form of professional morality. This article draws on an observational study of human factors teaching in four hospital simulation centres in London, UK. Its main argument is that the teaching of human factors is realised through an identification and positive evaluation of 'non-technical skills' and the espousal of 'non-judgemental' pedagogy, both of which mean that mistakes cannot be made. Professional solidarity is then maintained on the absence of mistakes. We raise questions about the ethics of this teaching. The study is situated within a history of ethnographic accounts of medical mistakes, to explore the relationship between claims to professional knowledge and claims about failure.

How do doctors learn from their mistakes? This question has featured in hospital ethnographies over the last sixty years. Everett Hughes (2011, 93) considered it within the broader context of the difficulties facing the workplace ethnographer: 'As soon as we go into these problems [studying mistakes at work], we are faced with defining what a failure or a mistake is in any given line of work or in a given work operation. This leads to still another, which turns out to be the significant one for the social drama of work: who has the right to define what a mistake or a failure is?' The ethnographer cannot claim this right, Hughes emphasises, by studying criteria for success and failure, since their application is rarely subject to consensus. The right to define a mistake is indeed consequent upon full membership of the 'colleague group'; laymen are not considered able to

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understand the contingencies of work. And when mistakes do become subject to public discussion, fear is generated from two potential consequences: that the colleague group's prerogative is undermined, and that the inquisitor 'lifts the veil from the group's own hidden anxieties' (95). Hughes suggests that this is why professionals – from doctors to teachers – are nervous when ethnographers report back to them. Responding to, and learning from, an account of one's work which might identify mistakes is a daunting prospect.

Hughes' argument presents mistakes at work as a phenomenon that puts into question the ethnographer's membership and understanding of the group under study as well as the ethics of the research practice, notably what she or he offers back to research participants. Both of these considerations are important in the study we discuss here, which involved investigating how teaching and learning happens in the simulation centres of several London (UK) teaching hospitals. Such centres have been built over the last seven years or so, to enable doctors learn from and about mistakes (CMO 2008, Gaba 2004). The study was commissioned by the London Deanery, the body responsible at the time for postgraduate medical education, as part of its efforts to promote the use of simulation, which included funding teams of clinical and education researchers – hybrid groups of colleagues and non-colleagues – to investigate how medical education was done, and ideally, report back on its effectiveness. This article is an answer to that request, although we don't say whether simulation is effective or not. Instead, we describe simulation as a novel site of discussion about who has the right to say what a mistake is. This discussion is not confined to the research setting, but played out in this article as well.

With respect to the research setting first: what is taught through simulation is a distinct rationale for medical mistakes called human factors – we will describe how these were defined in our sites of research. The term commonly appears in safety policies across the UK's national health service (NHS), following the publication of reports, such as *To err is human* (Institute of Medicine 1999) and *An organisation with a memory* (DoH 2000), which emphasised that mistakes were ignored in medical culture, and that medical professionals should learn from approaches in aviation and nuclear power. The virtue of human factors is that it appears as a rationale developed outside medicine, where mistakes are posited as learned from, but which can explain failures within medicine (de Feijter et al 2013, Hollnagel et al 2013, Rowley and Waring 2011, Gaba 2004). Simulation has been seen as a good way to teach clinicians about human factors precisely because mistakes do not have their usual consequences:

mistakes made during simulated exercises do not cause harm to living patients and can be more easily exposed and discussed. Mishaps in the course of learning can thus be reviewed openly without concern of liability, blame, or guilt—even decisions and actions that result in the death of the simulated patient. SBME [simulation-based medical education] can help break the culture of silence and denial in medicine and their implications about the learner's competence (Ziv et al 2003, 785).

With respect to how this discussion about mistakes and who defines them is played out in this article: in studying the teaching and learning of human factors, we have attended to the interactions within which this object of knowledge is identified. This implies treating human factors and mistakes methodologically as social constructions, rather than facts existing independently of ways of knowing them. This move contrasts with some of the human factors literature we have read, and accounts we encountered in the field, in which mistakes are cognitive phenomena that are either there or not there, and then either correctly/incorrectly identified (Reason 1990). Our stance reflects our membership of colleague groups who study science and education as ongoing, material, social activities. In the instance of studying how medical mistakes are learned from and about, this stance gives rise to specific ethical questions, pertaining to how researchers position themselves in relation to the researched colleague group. These questions can be explored in relation to two contrasting traditions for studying mistakes in medicine.

The first position encompasses the work of Freidson (1975) and Millman (1976) who developed Hughes' account by showing how medicine was constituted by practices for defending the legitimacy of professional knowledge through contrast with lay knowledge. Millman's study in particular revealed that this led to the systematic denial of error in medicine: 'doctors share many justifications and excuses for making mistakes and for not pointing out each other's incompetence and poor judgment. These justifications are learned in professional training and are supported in the daily practice of medical work. Rationalizations for mistakes and for not criticizing colleagues are encouraged' (10). Millman focuses on medical mortality review conferences, concluding that these events showed how 'medical practitioners...*neutralise the actual sloppiness and carelessness made obvious by [a] mistake*' (98 – our italics). The italics identify how Millman, as an ethnographer, identifies mistakes. She treats the interactional denial of error in settings designed to discuss them as pointing to the '*actual*' presence of error within medical practice. This conclusion is reached on the basis of a supposition about ethnographic knowledge: that it reveals what social groups deny or repress, which is the basis of their collective life, and which the ethnographer makes visible through the application of disciplinary knowledge. This move could be said to characterize structuralist sociology, and is indicative of Millman's concern to assert the prerogative of the sociologist to know what others misrecognise (Rancière 1984, Latour 2005).

Millman claims a moral position – and a disciplinary one – by revealing the shortfalls of a powerful profession. This stance has certain similarities, we would argue, with the human factors rationale we experienced in the field, as well as in some of our reading about it. Both treat mistakes as deficiencies of professional/ 'insider' culture, and as essentially objective events. The educational implication of this stance is that those who make mistakes do so because they lack (or deny) knowledge of them, a problem that can be addressed by giving them knowledge.

The second position has emerged in reaction to the first. Bosk (2003, xvi) introduces his study on mistakes in surgery with a critique of his social science colleagues: 'their failure to find social controls, I argued, stemmed from a lack of appreciation of the inherent uncertainty in the everyday practice of medicine, a definition of error that failed to appreciate the 'essentially contested' character of error'. Bosk emphasizes that an event's classification as mistaken changes across time and space, which does not mean that doctors collude in denying mistakes, but rather that the phenomenon is problematic in its identification. Paget (2004, 24) develops this argument into one about scientific knowledge practices, framing mistakes as intrinsic – rather than extrinsic – to medicine: 'professions have working knowledge, practices that permit them to develop reasoned responses to particular problems and events. Their working practices develop by trial and error. This does not mean that they lack sufficient knowledge (though they sometimes do) nor does it mean that their practitioners are inept or negligent (though they sometimes are). It means that their knowledge/practices are characteristically experimental'. The naming of a mistake is the expression of a wish rather than the identification of a fact: 'the sorrow of mistakes has been expressed as the too-lateness of human understanding as it lies along the continuum of time, and as a wish that it might have been different, both then and now' (149).

These two positions do not emerge from radically different data, but different ways of interpreting the power of professional, and ethnographic, knowledge. Each position has educational implications, the first emphasizing more independent accountability and regulation of competences, the second support with experimentation and lack of mastery in professional/disciplinary practice. These implications are not mutually exclusive (Bosk 2003), but they have different answers to questions about how mistakes arise, are identified, and what is to be learned from them. They have a different way of imagining the relationship between risk and work, and how responsibility is, and can be, claimed or disclaimed (Schepens 2005). This difference highlights that the teaching of and about mistakes is inextricable from the teaching of a morality, the instilling of a collective, professional conscience (Bosk 2003) – what constitutes right and wrong in a professional culture, and what makes up the area in between.

The simulation-based teaching of a human factors rationale is also the teaching of a morality. What we aim to do in this paper is examine how this is taught and in the conclusion consider the ethics of this teaching, on the basis of the above and subsequent debates within ethnography.

The study

Between January and October 2012, Caroline sat in on 30 half or whole day courses at four simulation centres in London. These centres featured ‘immersive’ or ‘high-fidelity’ facilities, in which the clinical environment is symbolised, by contrast to particular parts of the body, as with, for instance, surgical simulators (Johnson 2008, Prentice 2005). What we mean by ‘simulation centre’ then are facilities consisting of beds, monitoring and other medical equipment, cupboards full of drug containers, and mannequins; as well as teaching facilities, such as ‘de-briefing’ rooms for group discussion, a ‘control room’ from which a mannequin’s settings are manipulated and actions observed behind a one-way mirror, and boxes of props including wigs and make-up. The clinicians doing simulation-based courses were trainee doctors (from Foundation to Registrar level ²), with sometimes nurses and other health professionals. Courses were attended by 6-12 trainees, and taught by 4-6 faculty members, consisting of senior nurses and doctors. Most courses in the centres, and thus most observed courses, taught about human factors. Observing involved mainly sitting at the back or in control rooms, and writing notes on how teaching and learning happened.

Courses usually consisted of three main elements. First, lectures about the purpose of the course. Second, a sequence of scenarios (between 2 and 6), lasting approximately 15 minutes, and in which 1-2 trainees role-played a situation specified by faculty members. For example, a trainee might be told ‘Mrs Smith has been brought into A&E by her sister. She is complaining of stomach pain, and you are the first doctor to examine her’, and then sent into the simulated ward to respond to the prompts controlled by faculty members. Third, and following each scenario, a debriefing, lasting between 20 and 45 minutes, and in which the scenario was discussed. Scenarios were observed by faculty members from a control room, and by the other trainees in the debriefing room via an audio-visual feed consisting of multiple camera angles.

We were given this audio-visual feed in many instances. Its availability is suggestive of the peculiarity of simulation centres as places of medical work, which is subject to being filmed. It is this capability that trainees named in discussing their anxiety about a course; their actions had never been subject to such scrutiny, not least by their peers. This anxiety, and on one occasion a panic attack, qualifies the description of simulation as a ‘safe’ place to learn. It also raised difficult questions about how to maintain an ethical stance. For example, the terms of consent were agreed with hospitals’ research and development offices, where the project was classified as ‘low risk’ because patients were not involved ³; yet the practice of negotiating consent in the field highlighted trainees’ and educators’ concerns about who would see the data. Our seeking consent thus highlighted the different ways in which the research was interpreted depending on what was considered our object of knowledge: medical or educational practice, and by extension, medical or educational failure.

We have analyzed our data as discursive practices (Hodge and Kress 1988, Potter and Weatherell 1987), using an approach familiar within linguistic ethnography (Copland and Creese 2015, Rampton 2007, Rampton et al 2002, Atkinson 1995), which accounts for cultures in the form of semiotic processes. This enables us to trace how a curriculum object – human factors – was given meaning in practice. The method involved analyzing how meaning was assigned to words, such as ‘mistake’ and ‘human factors’, including how such meanings were maintained and challenged over time. The benefits of this emphasis on concrete, semiotic exchanges is that data can be reported in publications but also discussed with participants, opening up possibilities for interpretation, and making this the basis of reporting back (Iedema 2014, Zuiderent-Jerak et al 2009). One disadvantage is that a focus on discursive patterns in transcript excerpts can make the analysis of the situation rather

² Doctors are classified as trainees when they are following a training programme subsequent to their medical degree. During this training period, they work as doctors, but also engage in structured and compulsory training.

³ This definition of the level of risk was taken from the system of categorisation employed within hospitals to classify types of medical research.

cursory (Rampton et al 2002). We draw on field notes to keep a bigger picture in the frame. The data we focus on here are drawn from two phases of interactions: the introductory lecture, in which human factors were defined, and the 'de-briefing', specifically exchanges focusing on the identification of human factors. Our aim is thereby to explore how the object of knowledge was defined and interactionally practised. Our analysis indicates that the teaching of negatively valued objects – human factors, mistakes – was realized through the positive evaluation of 'non-technical skills', a pedagogic strategy legitimized on the basis of a claim to 'non-judgmental teaching'. It is this practice that leads us to raise questions about the ethics of simulation-based teaching, and the way in which the historical problem of defining and identifying mistakes at work is addressed within it.

Mapping the relationship between mistakes and work: defining human factors

Courses invariably started with a short lecture about human factors, which trainees usually said they had not heard of. These lectures work as statements of curriculum, identifying what is to be learned and how, and thereby providing a kind of 'interpretative repertoire' (Potter and Wetherell, 1987, 138) by which to characterize and evaluate actions and events. They suggest how the experience of simulation is given a distinctive form – how it is to be known and regulated (Bernstein 1971). Lectures often involved generic slides, shared across sites and faculty members, with some edits and adaptations. Below are examples, taken from video transcripts, from two lectures in two sites:

OK, human factors, it's all centred around patient safety, it came from the aviation industry, it came through to us, it centres around patient safety, and the results of human error and what you can potentially do, and mostly, when you look at error, a lot of it is not really down to technical skills, it's down to non-technical skills, which is one portion of error, which we're going to explore a bit more today. But it's essentially things like team working, being an active team worker, leaders, followership, followers, communication. But some of it is cognitive, like decision-making, OK, and prioritising, and those sorts of things. And hopefully you'll get a taste of all of that today as we look at the scenarios. So we're not judging your clinical performance in any way. OK? So don't worry.

(Video transcript, centre 1)

Human factors, what do we mean by it? It's about things that affect a person's performance. So that's part of what simulation training is about. It's looking at performances. However, I'd like to stress now that we are not assessing you, we are not looking at how good you are, how many mistakes you make, or whatever. It's about being in a safe environment, being allowed to make mistakes if you like, so that we can all discuss them and we can all learn from them [...] Human error is responsible for 70 to 80%. So it's not machines going wrong, the drugs are wrong, it's all human error. So 70 to 80%. It's something we need to keep in the back of our minds. We are humans, and we do make mistakes. But it's how we can recognise the risks in the situation that we are in. So we mentioned non-technical skills at the beginning, that we need to deal with a crisis, and the sorts of things that we are going to be looking at in each of the scenarios, although they are all different, is how you cooperate, how you lead, are you aware of the situation that you are in and managing that situation, and how you make decisions.

(Video transcript, centre 2)

What do these excerpts say, firstly, about mistakes in medical work, and, second, about simulation as an occasion on which to learn about them?

First, mistakes are presented as having an identifiable, quantifiable and generalizable root cause, divided into one of two kinds, technical and non-technical, the latter accounting for the majority ('a lot of it is not really down to technical skills, it's down to non-technical skills'). The opposition established between 'the technical' and 'the non-technical' establishes a sharp boundary between them, with weaker boundaries maintained within the 'non-technical', whose units are listed

sequentially without apparent order of priority ('it's essentially things like team working, being an active team worker, leaders, followership, followers, communication'). Although this non-technical knowledge is presented as having been imported from a specialist, professional area ('it came from the aviation industry'), its vocabulary is evoked in non-specialist terms ('it's essentially things like...', 'It's about things that affect a person's performance'): in other words, the 'non-technical' is something to be 'schooled' (Bernstein, 1971) – something to be taught – but made up of lay knowledge. Indeed, the naming of mistakes as instances of 'human error' present these as psychological and universal phenomena ('we are humans, and we do make mistakes') manifest in the behavioural, intersubjective dimension of work, by contrast to medicine's technical, scientific knowledge practices ('it's not machines going wrong, the drugs are wrong, it's all human error'). In other words, mistakes in medicine occur primarily by virtue of its activity as experiential, psychological work – its lay, human aspects - which degrade the implementation of largely ('70-80%') correct clinical techniques. 'Non-technical skills' are positive entities, which mitigate human error and enable the recognition of risks, but also, it follows, the primary cause of mistakes.

Second, the pedagogy of simulation is presented as 'non-judgmental', a term that faculty members often used to describe their teaching to us, and to trainees. In these excerpts, this non-judgmental teaching is evoked in phrases including: 'we're not judging your clinical performance in any way. OK? So don't worry'; and 'I'd like to stress now that we are not assessing you'. The non-judgmental teaching of non-technical skills is said to make simulation a safe place to learn ('It's about being in a safe environment, being allowed to make mistakes'). Mistakes made in a simulation are occasions for cooperative talk and the demonstration of what is shared; clinicians' human qualities, as distinct from differentially distributed professional knowledge. This claim marks a shift from positional to personal authority, with knowledge of human factors and non-technical skills arising in/as bonding and solidarity with trainees ('we can all discuss them and we can all learn from them'). The tension between the claim to teach 'schooled' knowledge and to do so non-judgmentally is evident in the shifts between the 'we's' and the 'you's' in the extracts above: 'it came through to us... what you can potentially do...'; 'we are humans....we are going to be looking at [...] how you cooperate...'. In other words, the faculty members here claim pedagogic authority on what is to count as relevant knowledge, but disclaim the professional authority to do so on the basis of their hierarchical position.

This account of mistakes contrasts with earlier studies of mistakes in medicine that present them as occasions for the exercise of professional authority, and for the differentiation of expert from lay knowledge (Hughes 2011, Bosk 2003, Atkinson 1997, Millman 1976, Freidson 1975). For example, whereas Atkinson (1997) depicts bedside teaching as an occasion for the correction of students' mistakes by means of the display of senior doctors' clinical knowledge, here, such embodied knowledge is undercut by its association with the lay quality of 'human error'. This formulation of the relationship between mistakes and work resonates with recent qualitative and ethnographic studies that identify the 'deficiency model' of safety (Zuiderent-Jerak 2009) introduced to healthcare organisations over the last 10 years, with its emphasis on devising effective systems of care delivery which 'build-in' safety as a non-human, scientific property, to counteract the interests of self-serving hierarchies (Iedema 2009, Rowley and Waring 2011, Waring 2009).

The benefits of the human factors model of error were described to us in terms of challenging the culture of blame in medicine, and the unjust exercise of hierarchical authority that underpins it. Faculty members emphasised that it was important to bring about a culture change in medicine, so that trainees felt able to challenge the actions of seniors and point out their human errors. The legitimacy of this argument was claimed on the basis of the safety records of other industries – notably aviation - which were said to be less hierarchical, and more concerned with protecting the safety of its customers than the authority of senior professionals (thereby establishing an opposition between these two aspects of work).

However, despite its novelty, there are also continuities between the rationale presented in lectures and earlier accounts of mistakes in medicine. Bosk (2003) identifies four ways in which surgeons account for mistakes: these are either technical, judgemental, normative or quasi-normative.

Whereas the first two are treated as features of the training situation, the latter two are treated as breaches of a norm and occasion for corrective remedies. This difference is reinscribed in the technical/non-technical distinction, in treating transgressions of the hospital's social order as more significant than clinical/technical shortcomings. Bosk, Hughes and Millman also all note how senior doctors claim medical mistakes as events that can happen to anyone. Bosk (145) describes this as the ritual of 'putting on the hair-shirt', part of medicine's 'chivalrous code of behaviour', by which the admission of failure emphasises the speaker's humanity, wisdom and awareness of the formidable task facing him. This understanding of mistakes is echoed in the rationale that doctors make mistakes because they are humans working in crisis situations.

These continuities may explain the appropriation of some aspects of the human factors rationale from its ergonomics and engineering literature, as well as the neglect of other aspects. Our reading about human factors suggest that the field is constituted by debates about whether mistakes have identifiable, distinct and repeatable causes or are unfortunate combinations of events (Hollnagel et al 2013, Hollnagel and Leonhardt 2013, Woods and Hollnagel 2006), whether mistakes can be counted and identified independently of the socio-political circumstances in which they occur (Wallace and Ross 2006), whether the disaggregation of work into discrete elements such as non-technical skills has validity (Dejours 2008, Dekker 2005, 2006) and whether mistakes are to be understood on the basis of methods from experimental psychology or ethnography (Hollnagel et al 2013, Dekker 2005). We are not the first to identify the selectivity of the human factors rationale in medicine (Russ et al 2013, Hollnagel et al 2013), but this selection might be interpreted in terms of a professional history of accounting for mistakes rather than a negligent reading of the literature.

Re-classification: teaching non-technical skills non-judgementally

Despite the attention given to human error in lectures, errors were rarely identified in de-briefing discussions. This characteristic of simulation-based medical teaching has been noted in clinical literature, and critiqued. Rudolph et al (2007, 369), for example, reflect on their early experiences of simulation-based teaching and state: 'we were saying that mistakes were discussable and a source of learning, yet we found that we tended to cover them up or shy away from discussing them'. They attribute this to the desire of 'avoiding negative emotions and defensiveness, preserving social face, and maintaining trust and psychological safety', which led them to 'obscure their expert critique' (368).

Our participants did not treat the dearth of identified mistakes as problematic, but rather as indicative of what they were endeavouring to teach: human factors and/as non-technical skills, rather than expert/technical knowledge.

Our transcripts of de-briefing discussions demonstrate multiple discursive strategies by which teaching 'non-judgementally' was performed, including the distributed narration of the scenario's events, the recruitment of de-briefing 'models' adapted from aviation or the army, and the practice of multi-professional team teaching. We will focus here on only one discursive strategy, however, which pertains to the teaching of human factors and/as non-technical skills. What interests us about it is how it resolves the difficulty of identifying and teaching skills defined as lay, by contrast to professional; and how it occurred commonly in response to trainees' identification of their own mistakes (and other trainees' mistakes, which however rarely happened). We called it 're-classification' because it involves re-categorising trainees' descriptions as instances of non-technical skills. The following exchange illustrates it, taken from a debrief in which the trainee referred repeatedly to his failure to diagnose post-operative bleeding sufficiently quickly:

Participating trainee	She said do you want me to bring the crash trolley and I went yes please and she brought the crash trolley (.) then I think you finished your phone call (.) then the cardiology reg called (.) then everything else kind of happened ↑it all seemed to happen very
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Faculty member quickly to be honest (.) the whole thing (mumbles)
 You had early] recognition that things were < not quite what you
 wanted > and (.5) I I think because you had experienced (.2) an
 experienced nurse with you you worked quite well together
 [...] you were lucky cos you had an experienced nurse with you
 but you were talking all the time and so she was aware of all your
 thought processes all the time which meant that the situation that
 was unfolding in front of you was being (.2) you know you were
 sharing the mental model although <you weren't quite together>
 but I thought you showed quite good democratic leadership you
 realised who had the skills (.2) for what and allocated the tasks
 (video transcript, centre 1)

The trainee's account breathlessly evokes paralysis in the face of a rapidly evolving situation: parataxis (Hodge and Kress 1988) conveys an emphasis on the situation experienced moment-by-moment, with events retold as happening in parallel or in sequence but with no logical order. By contrast, hypotaxis characterizes the faculty member's account, by which events are subordinated to one another in a logical order and causation links established. In other words, where the trainee identifies disorder, the trainer establishes order. The effect is that non-technical skills are made sensible; they appear in the scenario by means of the faculty member's intervention and transformation of the trainee's account. The slowing down of speech is indicative of 'problematic talk' (Copland 2011); the faculty member here is not however merely being polite about actions not being 'quite together', as a simple application of politeness theory might suggest, but rather describes what 'sharing the mental model' looks like, through an account of it – and one which contrasts with the trainee's account. The faculty member's intervention includes instances of 'positive jewelry' (White, in Copland 2011), which minimize certain criticisms – for instance, the characterizing of 'democratic leadership' which is however attributed to the luck of having 'an experienced nurse' – but this does not simply make the feedback polite, as in Copland (2011), but rather demonstrates a curriculum objective (leadership as a human factor). The trainee's account, which here and elsewhere in the discussion identify limitations, is thereby corrected and re-classified as an instance of non-technical skills.

Here is another example:

Participating trainee	I think the things I know I notice this in myself in my clinical practice is my (.) I come up with a clear plan and can't communicate it without (.) I sort of chop and change a lot
Faculty member 1	You were very clear first you wanted [this
Participating trainee	Yes], and then I wanted that
Faculty member 1	And then you changed your tack [...]
Participating trainee	And then quite early on I had to have a quite grumpy conversation with someone on the phone (.) I was probably a bit rude, and I do apologise for that [...]
Faculty member 2	And you were very succinct in stating he's sick we haven't done anything we are resuscitating and he's not going to go anywhere so I think that was really good
Faculty member 1	I think you were really clear I think you were assertive (video transcript, centre 2)

Again, the trainee's account identifies limitations - 'I sort of chop and change a lot' – which are then re-classified as positive instances of what is to be taught (the communication skills identified in the phrase 'You were very clear'). The subsequent apology contradicts the faculty members' positive evaluations, suggesting a moderated rejection of the compliments being offered. This leads to further praise, the effect of which is to identify the manifestation of non-technical skills. Disagreement with the trainee's account is thereby realized as collegial solidarity.

The practice of re-classification enabled faculty members to identify non-technical skills as already present in the actions of trainees: the lay skills to be taught were not so much absent as unrecognized. Teaching non-technical skills thus involved teaching a vocabulary to describe skills which trainees were posited as already exercising without being aware of doing so. This discursive strategy is indicative of the meaning of 'non-judgmental teaching' in this context, reconciling the teaching of schooled knowledge whilst disclaiming professional authority and hierarchical difference.

Trainees' negative judgment of their own performance appeared symptomatic of the anxiety they usually showed at the start of courses; it pre-empted criticism, neutralizing this through a display of professional conscience. Faculty members' positive evaluations of trainees' performance communicated that trainees' anxiety was a worthy form of self-surveillance, but that there were also limits to the proper expression of guilt, since mistakes were human. This pattern of interaction repeats one described by Bosk (2003), who states that a doctor's public confession of a failing normally calls forth unconditional professional support, since admission is treated as sufficient condemnation in itself and proof of the doctor's dedication to patient care. A major difference with Bosk's study is that the display of one's errors was, in his site, a privilege of senior staff. In our study, the confession of failings was not a privilege of rank insofar as it was called forth by a statement of universality (although of course faculty members never performed scenarios for de-briefing by trainees). However, faculty members' re-classification of failings into non-technical skills maintained the exclusive authority of professional hierarchy to discriminate mistakes from the proper exercise of work.

This authority was not unquestioned. In identifying their own failings, trainees' invariably also pointed to those of the course, naming the ways in which a scenario was unrealistic and misleading. These claims countered faculty members' efforts to teach non-technical skills, by focusing instead on the limitations of the technology and the circumstances of its use. In reclassifying trainees' accounts as demonstrations of non-technical skills, faculty members also upheld the legitimacy of simulation as a method of teaching, and human factors as its object of knowledge.

Talking about a mistake

Although most of the de-briefing discussions we observed were oriented towards consensus and the identification of non-technical skills, a small number – 5 of which 3 we have analysed in detail – broke this pattern. These cases were characterized by disagreements about how the scenario could be described and by subsequent discussion among faculty members that the de-briefing had been problematic and/or that the scenario needed revising. The cases offer insight into what was deemed undesirable by faculty members: what was in need of some kind of repair, to avoid problematic de-briefings in future.

Below is an extract from one of these discussions, taken from a short period before the de-brief was formally inaugurated by the usual initiating question 'What happened?'. The scenario had been performed by a trainee who was described by faculty members - in the control room - as having mis-diagnosed anaphylaxis, confusing this for acute transfusion reaction⁴. Having treated the manikin for anaphylaxis initially, the trainee changed his treatment in the last couple of minutes of the scenario, after faculty members had provided additional clues to help him make their intended diagnosis.

⁴ Anaphylaxis is an allergic reaction. Acute transfusion reaction is a reaction to blood transfusion, caused by blood group incompatibility.

	((Trainees re-enter the de-brief room. Brief applause followed by 53 second silence))
Faculty member	So if I wasn't here would you all be chatting? ((laughter)) I can pop out if you like ((laughter)) (mumbles) (10s)
Trainee 7 ⁵	((to Participating Doctor, on the other side of the room)) How are you feeling over there
Participating trainee	↑Yeah↑ a little bit edgy ((laughter)) oh dear↓
Trainee 7	It does feel real doesn't it
Participating trainee	It does and because you know it's a scenario you are waiting for the car crash↑ ((laughter)) it's not =
Faculty member	= and that is one of the failures =
Participating trainee	= and it's not quite realistic in terms of like the patient is slumping you are always like expecting them to be dead ((one trainee laughs)) and unless she says ((pointing to his neighbour, Participating Nurse)) 'hello, are you still with us' then you can't really tell so I'm always a bit 'OK is it crash time ((he laughs, others too))
Faculty member 1	= One of the major failings of this kind of stuff is that we do pick up an enormous amount of information just from glancing about =
Participating trainee	= mmm
Faculty member 1	You lose a load of that (.) Just how people are moving or how people are reacting to you or how awake they are or not (.) just just by looking at them or indeed skin tone all that sort of stuff (.) And yes, that is a problem and yes one one of these days I'm just going to put someone through a complete normal scenario just to really fuck you up ((laughter)) Just to watch you sit there 'something is going to go wrong' ((rocks back and forth on his chair, feigning anxiety)) Just have it as you just have to sit there and chat to the patient (.) that is going to be awesome ((laughter - then 4 second silence))
Trainee 7	Have there been any (.) thoughts on how (.) to make sort of surprise situations 'cos these things happen when you are least expecting it say when you are having a bad day when you are tired or hungry (.)
Faculty member 1	Well ↑occasionally [erm
Trainee 7	[Not when] you are [like ((puts both hands up, feigning terror))

The faculty member interrupts the long silence by identifying his outsider status from the group of trainees, laughter pointing to the delicacy of the situation and marking the question as affective rather than literal. None of the trainees take up the offer of a humorous turn. Instead, concern is expressed about the participating trainee's feelings, a move which offers solidarity with him, the 'over there' arguably a marker of his (distant) symbolic position in the professional group rather than his literal place around the (not very large) table. The rising intonation in the participating trainee's response frames it as a question, casting doubt on the accuracy of the 'yeah', with the laughter, falling intonation and 'oh dear' identifying whilst minimizing a delicate situation. The subsequent exchange marks feelings as real even as the situation from which they emerge is said to be unreal, with the

⁵ 'Trainee 7' refers to the position of the trainee around the table in the de-brief room.

participating trainee identifying how the situation of simulation itself leads to misdiagnosis ('you are waiting for the car crash', i.e. on a course about the management of medical emergencies, one is waiting for a medical emergency to happen, notably curriculum standards such as cardiac arrest) – a claim which undermines the authority of the 'fake' pedagogic situation by its contrast with 'real' clinical practice. The faculty member expresses solidarity through agreement about the limitations/failings of simulation ('we do pick up an enormous amount of information'), and an account of the un-simulated complexity of 'real' clinical practice. This move, we would argue, is an endeavour to re-establish solidarity with the group of trainees on the basis of an acknowledgement of shared 'real' clinical capability, the professional bond having been identified as broken from his first intervention and Trainee 7's subsequent turn. The faculty member's humorous acknowledgement of the non-reciprocity of simulation as well as the use of an informal register ('just to really fuck you up') offers symbolic intimacy and social solidarity, one which again is not taken up by trainees (as shown in the 4-second silence). Trainee 7's penultimate intervention develops the critique of the validity of simulation as well as its ethics of safety, the faculty member's moderated disagreement interrupted, solidarity thereby again rejected, and pedagogic authority refused.

The excerpt illustrates how the perception of error threatened both professional solidarity and pedagogic authority. What is practised discursively here is a marking of insider and outsider status, by means of exchanges on the nature and reason for error, and the identification of failure in the pedagogic situation itself. In the subsequent elaboration of the de-briefing discussion, faculty members focused on the identification of the participating trainees' non-technical skills, a move which marginalized complaints about the pedagogic situation, re-established the authority of faculty members in initiating questions and giving evaluations, and re-established agreement within the group to some degree (the participating trainee however remained attentive to the limitations of the simulation throughout, and also visibly distressed).

We have discussed this excerpt at data sessions with several of our study participants, with the aim of exploring the affective aspects of simulation-based teaching, and the problematic consequences, as we see them, of how error is defined as an aspect of lay, 'human' qualities identifiable through non-judgmental teaching. On some occasions, the faculty member's actions have been extensively criticized for sacrificing the validity of simulation on the altar of professional solidarity. The criticism assumes that a mistake was made by the trainee that warranted correction; it thereby disqualifies the objections to this assessment in the excerpt itself and insists on faculty's pedagogic authority. A contrasting reading has been that the data reveal the 'real' educational weakness of simulation; this reading has been offered to us by clinicians who do not teach in simulation centres and express some skepticism about their educational merits on the basis of a lack of realism. This view assumes that the barrier to identifying and learning from mistakes is the realism of their representation; in other words, consensus on how mistakes are to be represented.

Both positions treat mistakes as objectively 'out there', subject to agreement and therefore group solidarity. This is also the assumption at play in the human factors rationale taught in introductory lectures, which makes 'human factors' and 'non-judgmental teaching' the basis of such solidarity. A third position is however opened up by ethnographic research on the 'essentially contested' quality of mistakes at work.

The ethics of teaching about medical mistakes through simulation

The main argument for simulation's educational and ethical imperative is that it provides a safe place to learn from mistakes, by contrast to the workplace (CMO 2008, Ziv et al 2003). In our study, this imperative was inextricably intertwined with the teaching of a new rationale to explain medical mistakes – human factors – and its associated pedagogic strategy, non-judgemental teaching. Both were intended to make mistakes into phenomena which could be learned from.

We have shown that the teaching of human factors in simulation centres does not so much mean that mistakes can be made safely, but rather that they cannot be made: accounts of practice, including identified failures, are re-classified as demonstrations of non-technical skills, a move which

maintains the basis of professional solidarity on an absence of mistakes. The right to identify a mistake is usurped by the claim to knowing non-technical skills, and knowing these in lay, human qualities, by contrast to differentially distributed professional/technical knowledge.

The value of the human factors rationale was justified in our sites in terms of challenging the culture of medicine, including its culture of blame, shame and denial. The positing of this culture implies that mistakes are made and then covered up. This is the story that Millman (1976) also tells, when she describes how doctors ignore each other's mistakes, with trainees socialized into the deployment of justificatory narratives to cover up incompetence. The contemporary re-appearance of this narrative logic within simulation-based medical education – by contrast to outside it, in 1970s sociology – points to the disagreements and contestations now taking place within healthcare, as opposed to between medicine and external disciplinary knowledge. These disagreements are however transformed pedagogically, in the simulation-based teaching situation, into a celebration of non-technical skills, in an effort to be non-judgmental.

However, the ethics of this narrative, in which mistakes are equated with a deficit in (albeit lay) knowledge, can be contrasted with its opposing ethnographic narrative, which highlights the 'essentially contested' quality of mistakes in professional practice (Bosk 2003); contested not because they are denied primarily, but because they are problematic in their identification (Paget 2004). The ethics of this narrative are claimed on the basis of seeing mistakes from the point of view of those in whose work they appear, as a retrospective judgment on an uncertain, continuously evolving and experimental professional practice. Medical culture is not figured, in this narrative, as denying mistakes; it can however deny that mistakes are intrinsic to its practice, part of doing healthcare rather than its removeable excess – not because doctors are human, but because medicine is an emerging, practical activity. Paget's argument, in particular, undoes the necessity of equating medical professionalism with the absence of mistakes. Indeed, what Paget and Bosk both teach is that the identification of mistakes is an affective exercise in moral, professional judgment. It is not independent of, and prior to, participation in medical practice, as the notion of a non-judgmental pedagogy implies, but intrinsic to it. Their studies, in this respect, highlight that mistakes have long been a concern in medical culture – by contrast to arguments that state they have not. They also suggest that the problem which mistakes pose for medicine is not so much patients being harmed, as what this symbolizes: the experience of a loss of mastery over a recalcitrant object of knowledge.

To point to the indeterminacy of medical work is not to advocate passivity in the face of intrinsic failure, but it does give a different basis for an ethical, educational practice: one which identifies mistakes and the proper execution of work as intertwined, necessary to each other - rather than springing from different sources; one which treats the right to identify mistakes and their remedy as a process within medical education, rather than its a priori; and one which foregrounds experimentation and lack of mastery in professional practice rather than denying this through a positing of technical and scientific perfectibility.

If we draw on this second ethical stance to consider educational practice in simulation centres, what we see is that group discussions in which the identification of mistakes generated contestation and disagreement could be might be considered productive, potentially, rather than failing, in foregrounding the problem of identifying a mistake, by contrast to assuming it as an inadequacy or deficiency. In other words, such group discussions might be considered the basis of a future educational, ethical practice which explores different moral, professional frameworks for judging failure and responding to it, making the right to identify a mistake into a subject of discussion rather than inherent to a position within a hierarchy (we develop this point in Pelletier and Kneebone 2015, in press). Such a stance aligns with the endeavor to uncouple moral authority from professional hierarchy without simply re-coupling it with the pedagogic hierarchy inscribed in the positive evaluation on non-technical skills.

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INITIAL DISCUSSION BY JASON RUTTER (UNIVERSITY OF DUNDEE) AND FIONA COPLAND (UNIVERSITY OF STIRLING)

We would like to thank the organisers of the e-seminar, Caroline Pelletier and Deborah Swinglehurst, and the LEF Committee, for inviting us to open the seminar as e-discussants.

Let's start by introducing ourselves. Fiona has been a member of LEF for many years and has served on its committee. She was asked to be a discussant because she has researched an area which has similarities to the simulation event described in the article. In her case, it is the post-observation feedback conference, an activity that takes place after teachers have 'practised' teaching and been observed by a trainer (e.g. Copland, 2011). In this discussion, Fiona draws on her own research to expand on some of the themes of the article and to pose questions that might be of value to researchers working with similar educational practices.

Jason is a sociologist with a background in conversation analysis and ethnography dating back to his work on stand-up comedy in the late 1990s. Like Caroline, one of the authors of the paper to be discussed, he has worked in both digital games and health service research. His research career has seen him based in an eclectic mix of university departments including psychology, communication sciences, business and, most recently, dentistry.

In this closely-argued and informative article, Caroline Pelletier and Roger Kneebone turn the spotlight on simulations, a pedagogical approach that is becoming popular in medical education. A major theme in the article is the value (indeed ethics) of simulation-based medical education, which the authors argue is 'the teaching of a morality' (p.270), as the simulation is concerned not only with identifying error but also with what constitutes right and wrong in a professional culture. Of course, this morality is not necessarily recognised by those who take part, either as educators or trainees, but is uncovered through the linguistic ethnographic approach taken by the authors. The article, therefore, in our view answers the Heineken question, which Fiona first heard Ben Rampton pose in an ethnography, language and communication course in 2006: 'In what ways does linguistic ethnography enable you to get to parts of the process you study which other approaches couldn't reach?' (see too Shaw et al. 2016).

Although concerning medical pedagogy, the article was published in the journal of *Ethnography and Education* which has made it accessible to those of us who have an interest in ethnographic approaches to researching education. It has also provided us with the opportunity to understand how education is enacted in a specific medical context, the simulation, a context not generally explored in the general education literature. Caroline and Roger have also published their work in the journals

Games and Culture and *Psychoanalysis, Culture and Society*, where the readership, we suppose, is different. It begs the question: how many medics read these journals?

We are reminded of discussions Fiona and her co-editors, Julia Snell and Sara Shaw, had with Jeff Bezemer around his chapter, 'Partnerships in research: doing linguistic ethnography for and with practitioners' (published in: *Linguistic Ethnography: interdisciplinary explorations*). In editorial meetings, Jeff explained how he had struggled to get his linguistic ethnographic work published in medical journals which required numerical data to be included in the study. This chimes with a discussion we had with Caroline prior to this seminar. She told us that this article was submitted to a medical journal first but it was rejected for being 'far too long'. These examples make us wonder about two things: the relationship between researchers and research users, and how linguistic ethnographic research is communicated.

With regard to the former, there is something of an appetite in the higher echelons of medical education to value the work of linguistic ethnographers (e.g. Professor Kneebone and UCL has employed a number of these researchers; Celia Roberts' work at the GMC is another case in point). As the article under discussion shows, linguistic ethnography can make 'the familiar strange' and challenge hegemonic understandings of medical practices. But is it enough for educators to read the work? Do those involved in medical research read it? Are the findings valued and are they taken up in practice? In this case, will simulations be challenged as process for training medical staff? Will the divisions between technical and non-technical knowledge be examined? Will the ethics of blame in medical care be confronted? If the findings are not read by those with power to make changes, what is the value of the research?

With regard to the latter, we might ask ourselves if it is time for a journal of linguistic ethnography. Interdisciplinarity has been at the heart of linguistic ethnography as it has developed over the last fifteen years (see Rampton et al. 2016) and this means that its work is published in a range of different journals, as Caroline and Roger's experience shows. It can therefore be difficult to access work using similar approaches and sensitising concepts as it requires the reader to know where to look. A journal would provide a central point of reference for researchers and could make visible the range and quality of work in this area. Some might argue that a journal would work against our ability to ensure our work has research reach as we would be confined to publishing in one place, writing for an audience already in sympathy with our views. Would we also be in danger of narrowing the readership for our work?

The practice of reporting back to stake-holders and research participants has become common in interdisciplinary work. When Caroline and Roger share one extract with their study participants, the actors in the transcript were sometimes extensively criticised for their behaviours. Fiona has had similar experiences when sharing feedback data with other teacher educators. She became uncomfortable when the teacher educators focused not on the interactional patterns in the transcript but on perceived weaknesses in the trainer's approach (see too Lefstein and Isreal, 2015). Although the trainer's identity remained anonymous, Fiona felt that she had betrayed the trainer's trust, although she had permission to use the extract. We wonder, therefore, about the value of this practice. Caroline and Roger do not say if they were able to persuade their participants to consider mistakes as contested and constructed, a main finding of the research. If they did, was it worth it?

Let us now move on to examine some of the main themes in the paper. One is the value of simulation for medical pedagogy. Medical educators believe that simulation can support learning in a safe environment. Simulations therefore occur in a laboratory with the educator and other 'trainees' looking on. There are a number of affordances to simulations: for example, nobody gets hurt physically; learning becomes a joint activity; and educators can focus on issues that they believe are pertinent to developing good practice. However, as the article shows, there are downsides too. Trainees find the experience stressful and emotional; patients may not get hurt but trainees suffer. And the other trainees are expected to be the audience, providing the evaluative comment that this inevitably entails when identifying 'mistakes', while at the same time reminding a supportive peer, a difficult balancing act, and one which the audiences in the article seem to shy away from (see too Copland, 2010).

Medical educators and medical ethics panels consider the simulation a low risk activity, but Caroline and Roger suggest, through the data presented and their analysis of them, that this may not be the case. There is a strong parallel here with the post-observation feedback conferences in language teacher education that Fiona has researched (see Copland, 2010 and 2011). Trainee teachers, with little or no experience, are expected to perform as a teacher in front of an educator, other trainee teachers and of course, the students. Although the students are 'real', in that they are learners of English, and the activity takes place in a classroom with course books, in other respects the activity is simulated. Some sail through. Others, however, find the process extremely difficult and may not perform well, may leave the course, or may fail it. It would be interesting to know what the consequences are for medics who do not do well in simulations. Does the non-judgmental framing mean that there are no negative consequences?

The simulation is recognised by the educators as a performance (video transcripts one and two). Trainees demonstrate their skills not to save patients but for the approbation (or not) of the educator and other trainees. In a text which features several medical examples, Goffman (1971) suggests that humans perform roles in their everyday lives as they engage in impression management:

When an individual appears before others, he knowingly and unwittingly projects a definition of the situation, of which a conception of himself is an important part. When an event occurs which is expressively incompatible with this fostered impression, significant consequences are simultaneously felt. (Goffman, 1971: 234-5)

The simulation is one such event. The trainees, used to performing the role of competent medics, must now perform a set of non-technical skills in a fabricated scenario. While the educators insist that the learning activity is 'non-judgmental', the trainees recognise their weaknesses and their fostered impressions suffer. Goffman warns, 'There is no interaction in which the participants do not take an appreciable chance, of being slightly embarrassed, or a slight chance of being deeply humiliated' (p. 236). The panic attack suffered by one trainee in the article suggests that the slight chance of humiliation is amplified in the simulation, perhaps because he/she must model not only a successful medic but also a successful leader and communicator.

Perhaps such dissonance is impossible to avoid when contrasting frames are being evoked by different parties. Is this a situation where trainers and trainees are orientating differently towards what they consider core professionalism in the situation of the simulation? The frame created through the training preambles creates a schema in which technical skills are not salient to the matter at hand. Trainees are aware that the clinical skills they ordinarily rely upon are being excluded from consideration within the simulation exercise. Without clinical skills how can they perform meaningfully as clinicians? So the trainee struggle to engage with a simulation pointing out limits to its reality and focusing on their actions, whereas for the faculty members this is more a simulacrum. They are interested in what the process itself reveals irrespective of whether that adequately reflects what happens in real emergency situations. This irreconcilability between different professional visions (Goodwin, 1994) is apparent to trainees and they try to second guess both task and its codification 'because you know it's a scenario you are waiting for the car crash' (p.277).

In the medical and teacher education contexts, feedback from the educator is a key feature. It is noticeable that educators in both contexts take the epistemological high ground, framing what has occurred within the simulation according to an agenda of developing non-technical skills (medical education) or meeting criteria (language teacher education) and providing expert opinions of performances. A difference might be that in the medical simulations presented here, feedback is framed as non-judgmental while in the teacher education context, evaluation is part of the educator's role. Nevertheless, it is hard to reconcile the educators' view that simulation is non-judgmental when they clearly offer evaluative comments in the feedback section ('you were very succinct', that was really good'). A discussion of this seeming contradiction between what is said and what is done would be interesting; it has certainly proved fruitful in other educational contexts.

The fact that trainees are self-deprecating in the discussions after the simulation provides a space for the educators to praise and to reframe negative actions as positive ones, an approach which provides

face-saving affordances for both educators and trainees. In contrast, in the post-observation feedback conference, trainees as well as being self-deprecating will often highlight the strengths of their performance, perhaps in the hope that ‘audiences also accept the individual’s particular performance as evidence of his capacity to perform the routine and even as evidence of his capacity to perform any routine’ (Goffman, 1971: 235). It is interesting that face issues are not much discussed in the article. Given that the trainees are already established medics, it could be argued that they have a lot of face needs to negotiate, particularly as they are performing routines in front of both senior staff and peers.

Another theme in the paper is how mistakes are conceptualised. Rather than being objectively ‘out there’, mistakes are recognised in the paper as social constructions. It is the professional vision which marks them out from the background of other phenomena, codifies them, and gives them specific values and meanings. As the skills associated with professional practice are standardised and certain levels of competence are expected then making mistakes becomes necessary to the process of learning this skills. This is an also approach taken in the language classroom – that mistakes are evidence of learning and therefore to be accepted rather than negatively evaluated. However, as the papers’ authors argue, the same trainees are not afforded the right to make this kind of processual mistake as the mistakes either do not exist – the argument used for non-judgmental pedagogy – or are reclassified positive illustrations of non-technical which the trainer seeks to promote. Mistakes are identified but used as a lens through which to view the training objectives.

There is a curious duality in the ways mistakes are framed – both as a normal part of professional practice and as an undesirable flaw in that practice which needs to be identified and eliminated.

Generally, feedback is accepted by trainees in both types of simulation. However, now and again, a trainee will challenge the authority of the educator and even of the simulated activity itself, disrupting the event in Goffman’s terms. In these cases, an uneasy atmosphere prevails as the educators try to negotiate the challenge (see Copland 2010). The tension is palpable in the extract on page 277 where the trainees refuse to align with the educator and to recognise his/her pedagogical authority. The authors suggest that the tension is predicated on the perception of error: the trainees perceive error in the simulation itself while the educator focuses on identifying the non-technical errors of the trainees. There is also the possibility that the trainees close ranks to protect a member of their team from the criticism that must follow (the ‘patient’ dies). Nonetheless, the educator’s attempts to bring the trainees on side which at first fail, eventually are successful. Caroline and Roger suggest that this is because educators focused on the identification of the participating trainees’ non-technical skills ‘which marginalised complaints about the pedagogic situation’ (p. 278). This may be so, but it could also be the case that participants will work together to re-establish the equilibrium, to repair the disruption. As Goffman suggests, ‘performers, audience and outsiders all utilize techniques for saving the show’ (p.232).

But is this show about saving face or is it also about saving the status of the core, technical aspects of the profession which are excluded from evaluation in these training sessions, are presented as the default category (we don’t appear to have a non-interaction skills or similar category) and, presumably, are subject to quantitative rather than qualitative evaluation?

Jason was especially interested in the construction and performance of a discourse which promoted a practical division between technical and non-technical skills. How tenable is it really to consider decision-making as a non-technical skill separate from the technical skills decisions are been made about? The authors point to “the opposition established between ‘the technical’ and ‘the non-technical skills’” (p.272) but Jason wonders to what extent this is a discursive device on the part of those running the course to reinforce technical/clinical skills as the foundations of the health profession. Caroline and Roger point out that this production and maintenance of boundaries between clinical and non-clinical skills is an established discourse amongst analysts as well as practitioners and that mistakes are often ‘reclassified’ as instances of non-technical skills.

The training sessions discussed appear to focus almost exclusively on performance, on the ability to demonstrate actions considered appropriate. The talk of cognitive aspects to role enactment and issues such as decision making mentioned in the pre-simulation briefs appear to get lost in practice. The

debrief sessions seem not to engage with factors that might be seen to influence both technical and non-technical skills such as cognitive bias/cognitive dispositions to respond, memory processing or task analysis. While, Caroline and Roger highlight psychological aspects of behaviour and their part in action and mistake making, the training session seem to focus of the ‘doing’ of mistakes. So while the Faculty member talks about ‘thought processes’ and ‘mental model’ (p.275), it is clear that it is the performing of those for others is key. The management of doing is framed as crucial to developing a practice of ‘team working, being an active team worker, leaders, followership, followers, communication.’ (p.272)

Finally, Fiona was particularly interested in the notion of non-technical skills in medical education which include being able to lead, to work in a team, and to communicate. In teaching, non-technical skills might be conceptualised as rapport, empathy and listening. Nobody doubts these skills are important. However, how do we teach them and how do we assess them?

Some suggested questions for discussion:

1. Through the linguistic ethnographic analysis, authors question the legitimacy of simulations for the pedagogic purpose of teaching non-technical skills.
 - Are there contexts in which simulations have been researched using a linguistic ethnographic approach? What was uncovered?
 - In what other educational contexts are simulations used? Are they fit for purpose?
2. As interdisciplinary research develops, linguistic ethnographers are increasingly finding that their skills are valued in other academic disciplines such as medicine.
 - What difficulties do linguistic ethnographers face when invited into new and sometimes strange contexts to carry out research?
 - How can linguistic ethnographers make their work relevant to disciplines which traditionally do not take an interpretivist approach?
 - Has the time come for a Journal of Linguistic Ethnography?
3. Sharing data with participants has become common practice.
 - What are the benefits of sharing data and what are the disadvantages?
 - Should ethics approval forms explicitly state that data could be used for this purpose?
4. The metaphor of performance is used by educators in the seminar. The watching peers make the metaphor particularly salient.
 - What should the role of peers be in simulations?
 - Should peers be expected to take an evaluative role?
 - What face issues are exposed in simulations with audiences?
5. Pelletier and Kneebone suggest that the underlying tension in the extract on page 277 is down to the perception of error.
 - Are there alternative readings of this extract?
 - What could a more detailed analysis of language have revealed about this (or other) interaction(s)?

RESPONSE 1: CAROLINE PELLETIER

It's Election Day in the UK but before going to vote, I thought I would just respond to a couple of points raised by Fiona and Jason in their comments on the article by myself and Roger Kneebone for the LEF e-seminar.

They raise a question about the value of a linguistic ethnography of simulation-based medical education if the published findings do not reach a medical audience. This is a tricky question, with much wider ramification than this study alone and there are lots of ways of thinking about it. I'll make some brief points about it.

The research was made possible by funding from a medical body – the London Deanery - which no longer exists. It was one of the organisations culled after the 2010 election, and its replacement is now also about to disappear. By the time this research was published, there was no one to formally report it to. The Deanery's replacement body has shifted its focus from education as an activity in its own right, to 'service improvement', an agenda which educationalists struggle to speak to given the extended sequences of activities between professional education and patient care. This is suggestive of the very different timescales at play in medical education policy versus research analysis and publishing. It also suggestive of the different temporalities constituting medicine as an institution (Boys in White still seems to capture many elements of medical culture) and the often quick turnaround of initiatives and their associated bodies / jobs / people. I tried to convey this by situating simulation-based education (a new initiative in the UK in 2008) within a much longer history of accounting for mistakes in medicine and hospital ethnographies. Everett Hughes' work from the 50s, Bosk's work from the 70s and Paget's work from the 80s seemed to me highly pertinent to understand what was going on in the high-tech setting of the simulated emergency ward. What was at stake was the same thing: the boundary between medicine and its other, between a doctor and a quack. This points to a third difference in temporalities: between ethnography as a form of writing (I still quote Mauss!) and medicine, in which referencing, and thus the invoking of a relevant antecedent, rarely goes back ten years.

We did discuss the findings with medical educators, particularly those who contributed to the research as participants, but also on medical education post-graduate programmes. I led a session on Roger's MA programme this year largely based on this paper – the argument makes a lot more sense now in such settings than it did when I first tried it out on my simulation MA module back in 2010, mainly I think because medical educators have a lot more experience of doing simulation-based teaching, and thus a stronger basis by which to evaluate the hyper optimistic claims which accompanied its launch as a policy initiative (when simulation was framed as the one-stop solution to safety concerns. But such is the want of policy launches). I have also done a follow up project with one of the sites involved experimenting with different ways of designing scenarios and discussing them. This work is ongoing. This perhaps points to a fourth point about time in research: impact isn't a one-time affair, it comes, goes, and then potentially comes back again, in altered forms, as its meaning and significance evolve in changing contexts. This adds another dimension to Fiona's question about whether, but also when, data should be discussed with participants. I have no doubt that if we ran such discussion sessions again now, we would get different responses.

RESPONSE 2: BY CLARE MUMFORD (UNIVERSITY OF MANCHESTER)

I really enjoyed reading this article. Thanks for introducing it in the seminar this year: as the discussants note, I may not have encountered it otherwise. Coming from the perspective of organisation studies, I responded to the paper from my PhD work on employee silence, and found myself thinking about similar interesting issues, about *when* mistakes *become* (reportable) mistakes, and *who* is accountable for both their avoidance and subsequent reporting.

I found the idea of 'human factors' and mistakes very interesting as the focus in the paper. What I found noteworthy was how the simulation exercises and subsequent discussions seemed to focus the attention (and therefore potential anxiety and embarrassment) upon one individual's performance at a time, rather than think through how leadership, team work etc (all those 'non-technical skills') might be conceptualised to emerge in distributed forms of practice. It struck me that if the latter perspective had been taken up, with groups of trainees working together, than the different perspectives of how it

feels to work together - slippages in linguistic meaning, possible misunderstandings of actions, etc - might have been the focus of learning, and 'mistakes' would take on a very different feel.

I was intrigued by the subsequent debriefing conversation in that second extract, and how the apparently personal mistake of misdiagnosis didn't seem to be talked about. It seems like those debriefing sessions are the really interesting places for learning, in that it shows what is reasonable to admit to, what is reasonable to feed back and notice, what emotions can be displayed, etc. From an organisational learning perspective, I was reminded of Chris Argyris' work on undiscussability and double-loop learning, and how participants talk in ways that cover up their own involvement in the processes that lead to 'mistakes'. This brought to mind the discussants' points about (a) the issue of sharing data with stakeholders and participants, and (b) how we teach rapport, empathy, listening: this may be very naive and idealistic, but perhaps there are opportunities to reframe the most significant learning as taking place reflexively within feedback discussions, to look at the situated discursive strategies and interactional patterns, both forgiving and condemning, we (people) are using when we are discussing others' performance in such sessions?

Finally, a short response to the discussants' question - yes, a journal of linguistic ethnography would be great!

Clare Mumford

RESPONSE 3: JAMIE MURDOCH (UNIVERSITY OF EAST ANGLIA)

I also really enjoyed reading this paper and thought I'd pick up on Fiona and Jason's request for alternative readings of the extract on p277 which perhaps adds something to Clare's email. I have become increasingly interested in the explanatory power of what we might refer to as interactional tensions, misunderstandings, dilemmas or disruptions to routinized practice. This interest follows inspirational work from many who have laid the foundations for, pioneered or been associated with the development of linguistic ethnography over the last 10-15 years. It is particularly attractive when carrying out studies of interactions within medicine, a discipline so heavily steeped in a positivist philosophical view of the human body and human behaviour that qualitative research has often been dismissed as producing knowledge based on small samples and with limited value. Whilst in many circles this view has become outdated, only last year the British Medical Journal (<http://www.bmj.com/content/352/bmj.i563>) announced it would no longer publish qualitative research, a decision predicated on such reasons.

The ability to what Ray McDermott once referred to as 'seeing the world in a grain of sand' is therefore very attractive for challenging such views. One particularly useful approach that I'm sure many are familiar with is to begin with Scollon's and Scollon's three elements of social action, comprising 'discourses in place', 'historical bodies' and Goffman's 'interactional order'. Scollon and Scollon propose that we can map out these three elements to understand moments of social action. In the case of the extract in the paper perhaps the discursive concepts/objects that structure the practice of clinical simulations reveal different discourses in place that produce particular interactional tensions when enacted by students and trainers with particular backgrounds, agendas, skills, linguistic resources (historical body) in a particular interactional order that requires their peers to first observe, evaluate and feedback on a performance that is both literal as a simulation and as a performance of competence as a clinician. As Caroline and Roger pinpoint, concepts being attended to include: human factors, patient safety, non-judgemental, technical, non-technical, leadership, team player, mistakes, risk. A broader look at the portrayal of healthcare delivery in mass media (e.g. <http://www.telegraph.co.uk/news/health/heal-our-hospitals/9782562/Stafford-Hospital-the-scandal-that-shamed-the-NHS.html>) also reveals the distribution of blame and accountability is central and highly pervasive to explanations of medical error. We can therefore argue that a moral discourse of medical error is likely to be highly pertinent within an interactional dynamic where individual clinical actions are monitored. The difficulty of framing the simulations as set within a non-judgemental environment is that it not only orientates to this discourse of medical error by implying judgement as a

distinct possibility being excluded here, but sets up inevitable tensions when perceived medical errors need to be explained as non-technical skills.

The issue then is whether we can see this playing out in the transcripts and is it helpful for explaining trainee's shows of solidarity and trainers focusing on non-technical skills. As Caroline and Roger discuss in the first two extracts on p275 we can see examples of faculty members re-classifying the trainee's description of their actions in terms of non-technical skills, a piece of rhetoric which functions to uphold the learning objectives of the simulation and not as an individual technical error that needs to be explained. This seems to be the crux of the problem. Trainees in explaining their actions, seemed to orientate to how contextual elements interact with 'human factors' to produce different actions, whereas ironically the trainers exclude this as a possibility by recontextualising 'human factors' as individual non-technical skills.

The dissonance between explanations of technical error and non-technical rhetoric appears to be interactionally resolved in these first two extracts and in this sense appear unproblematic as interactions as a consensus is apparently reached. In contrast, p277 perhaps provides an example where such tensions are much harder to resolve using the same rhetorical strategy. Instead of consensus there are contested explanations and attempts at repair, demonstrated in the ways that Caroline and Roger explain, through extended silence, shows of peer solidarity, humour. My take on this extract was that it may not be a difference in perception of error per se but that these reported differences might be a manifestation of managing tensions between competing discursive positions of judgement vs non-judgement of technical error, circulating within this difficult interactional space. Upholding the trainee's actions as non-technical skills in this scenario is perhaps much harder to achieve when faced with a clear technical issue that would be hugely problematic with a real patient. But yet the trainers have to uphold this position to maintain the credibility of the simulation and their position on being non-judgemental. For trainees, discrediting the legitimacy of simulation as an adequate educational tool is not a surprising response in the face of an activity where not discussing the technical elements is excluded. This interactional tension therefore might offer a 'telling case' (Mitchell, 1984) of the broader institutional context in which this activity takes place. I think there needs to be more evidence to support this interpretation, including a better understanding of the 'historical body' – for example, we don't have access to the trainee's and trainer's previous interactions, history of their relationships which might be an important influence of the tension here. Nevertheless, it might be a useful way to approach such examples.

It made me think of a potentially useful point of contrast – the Observed Structured Clinical Examination, or OSCE, which from my own experience at least, is very much about assessing technical skills, but in contrast to an interactional space with a group of peers and a faculty member offering 'non-judgemental' feedback, OSCEs are one or two examiners who very much focus on clinical competence in a specified simulated scenario. As Caroline and Roger say at the end of their paper, group discussions on the identification of mistakes could more fruitfully explore the moral and professional frameworks for judging failure and responding to it. One aspect of this could be to communicate the importance of how discursive tensions may play out within such activities, how we might resolve discursive tensions in the design of educational activities including how we might carefully consider the most suitable interactional dynamic for discussing individual actions.

Jamie

RESPONSE 4: YAEL PULVERMACHER

In the context of my research on formative processes of student teacher's professional vision I am involved at the moment with analyzing teaching approximations (alternately referred to as rehearsals, [computer] simulations, micro-teaching and so forth) as a mean to shape student teachers' professional vision. Teaching approximation is a common and highly evaluated pedagogy for practice and skills'

learning in pre-service teacher education. It is assumed to enable student teachers to experiment with defined aspects of practice in well-designed and secured environments with on-the-spot guidance and feedback of an expert (as opposed to experts' role presented in the paper, as Fiona mentioned).

The approximations I am looking at occurred in a Civics methods course in an Israeli teacher education program. The approximations are 15 minutes discussions of an event of current affairs. Bringing challenging discussions into the classroom is challenging to teachers and practicing challenging discussions regularly, enables the teacher educator to open pedagogical dilemmas to discussion

Obviously, the paper presented for this seminar is very relevant to my interest in [comparative] study of socializing novices into a profession and I thank you for that.

Two thoughts I'm sharing:

1) The word mistake is altogether missing from teacher education discourse. Educators talk about students' mistakes, what can be learned from them and how to correct students, but not about [novice] teachers' mistakes. Yet, teacher educators are expected to give immediate feedback and evaluation upon student teachers performances. It seems interesting to me (and more so after reading this paper) to think how mistakes are defined and named in teacher education and by whom. The post-event discussions in my data suggest that embedded narratives play a key role in negotiating normative practice without ever mentioning the word mistake.

2) Practice approximations are used by experts to socialize novices to the professional ways of understanding the phenomena in the realm. Thus, different (and even opposing) positions of trainers and trainees are internal aspects of negotiating the meaning of what is it that participants experience and understand of it. In teaching approximations and in post events debriefs found in my data, student teachers often express naïve perspectives regarding for instance the development of classroom discussions and natural interest driving student learning, whereas teacher educators stress the need to carefully plan classroom discussions, ongoing analysis of students' responses for further learning etc.

I am interested in understanding how this negotiation, facilitated by the specific tasks (such as simulations) that the profession afford to novices, shape their professional vision. What do novices actually learn from it about the practice? How can we learn novices' understandings in the context of their participation in such settings? I find that the interactions are sometimes too slim to understand what is it that participants make of the experience but don't know any better tools for that.

Thank you,

Yael

RESPONSE 5: BY C PELLETIER

Hi Yael,

It's very interesting to come across the use and concept of 'teaching approximations'. In discussing this paper with Fiona, we thought it might be worthwhile to do a more systematic comparison of feedback practices in professional education, across different sectors. Comparing how rehearsals / role play / simulations / videoed practice are made sense of in collegial talk could tell us quite a lot about how norms are taught, learned, contested in professions which place pedagogic emphasis on embodied and tacit knowledge. The problem of making sense of how participants interpret the experience is quite a big one, as you suggest. In the sites I worked in, feedback questionnaires were often used, which were invariably positive - they told educators how much trainees had enjoyed the experience and felt they had learned. This enjoyment was, to me, a little perplexing, given how nervous trainees often were to perform and how numbers of trainees on courses fell significantly unless obligatory attendance was enforced. I made sense of this enjoyment in several ways - I won't go over this now, it's the focus of a paper in Psychoanalysis, Culture and Society. But it's linked to

the identification of mistakes insofar as educators were very keen for trainees to have a good time, not only to help attendance but also because funding to run such courses was influenced by the positivity of trainee feedback on end-of-course questionnaires; it was something simulation centres were expected to highlight when they bid for funding to run training courses. It's still the main measure used by regional funding bodies, I think, to evaluate the quality of simulation-based provision (regional branches of Health Education England).

I was also very much struck by the prominence of the concept of mistakes in the courses. My first thought was that I was perhaps quite privileged to have a job in which I never make a mistake. I may review literature inadequately, make unsubstantiated claims, over- / under- / mis interpret, overlook key issues, etc....(see peer reviews!) - but the concept of a mistake is absent, I think, in academic work. Accuracy has some meaning as a concept, but not error, in my experience at least (I appreciate saying this may be a hostage to fortune, and someone may wish to correct me of course...!). But this is a point Hughes' makes in his discussion of mistakes at work, and which leads him to attend to the circumstances in which such phenomena are identified, or not. It's what gave me the idea that there is nothing 'natural' or given about a mistake, a whole social world exists behind its emergence.

RESPONSE 6: BY PARMÊNIO CAMURÇA CITÓ (UFRR)

I'm affiliated with a federal public university in northern Brazil (the Federal University of Roraima State – UFRR) and starting my doctoral research on agency in language learning contexts, particularly English as a foreign language. My project aims at placing agency as one of the central issues of Brazilian scholars of applied linguistics, especially ones who work with language teaching/learning, by providing a careful examination of the attainment of agency in communicative interactions in language learning classrooms. My research examines how learning is impacted by, at once, the intentions behind, and implications of, attempts to achieve agency. Finally, for the analysis of agency and its manifestations I consider the comparison of successive moments when participants possibly manage to alter their own agency considering their intentions and the implications of their actions. Grasping how and why changes to agency happen will shine light on how fuller agency can be attained during language learning in the classroom.

As the fulfilment of agency is seen as a relational phenomenon, it must be studied vis-à-vis the forces that impose limits on its achievement. In regard to the emic perspective I adopt, other important factors are the effects of classroom dynamics and the relevance participants give to the attainment of agency while interacting. Besides, elicitation as a feedback practice is expected to help understand how participants themselves construct agency, both their own and others', taking into account their previous experiences and future expectations towards the learning of the foreign language.

Although the paper did not directly referred to agency, it interested me especially with regard to possible ways of grasping participants' perceptions (feedback practices). The discussants' questioning if 'contrasting frames evoked by the different parties (trainers and trainees)' might be due to their differing orientations on what should be considered appropriate in the simulation, made me think about my intention in using elicitation to access participants' orientations to the goal of the interaction (foreign language teaching and learning).

In my project, I'm also using sociolinguistic scales as categories that emerge from sociocultural practices supported by the fact that 'scales enable us to invoke non-visible and non-immediate features' (Canagarajah & De Costa 2016).

I hope I receive more contributions from the forum on possible ways to understand orientations in language learning classrooms interactions.

Thank you!

Parmênio

RESPONSE 7: DEBORAH SWINGLEHURST (QUEEN MARY UNIVERSITY OF LONDON)

I thoroughly enjoyed reading this paper and found it compelling and thought provoking. I am a GP and could relate very clearly to some of the tensions that the paper makes visible, and agree with Jamie that the OSCE situation is a useful point of comparison (and one with which I am more familiar).

I echo concerns about how to get papers like this onto the desks of practising clinicians – this is an enormous problem, illustrated by Jamie’s comment on BMJ editorial policy. I think we may need to explore other ‘non traditional’ ways of publishing academic research to bring our work to the attention of practitioners and policymakers.

Thanks also for some of the additional context – which also helps to make sense of what is going on here. I was particularly interested to read that despite the apparent reported ‘enjoyment’ (on the compulsory ‘happy form’ that is the sole form of trainee evaluation here) the only way to keep the trainees ‘on board’ is by making these sessions obligatory. One of the questions in my mind as I read the paper was “why are the trainees here?” and “is this part of a compulsory training requirement or is it learning that they choose to engage with as part of their professional development”.

The notion that this is a ‘non-judgmental’ and ‘safe’ space is patently not the case as the paper so clearly demonstrates (brilliantly done, thank you!). How could any experience that involves ‘obligatory’ performance in a lab, surrounded by ‘simulated bodies’ which have an uncanny tendency to ‘die’, with surveillance cameras, one way screens, and a jury of evaluators ever feel safe?

Making visible the practice of rendering certain activities as ‘non-technical’ and therefore somehow ‘other than’ subject to the medical gaze is fascinating... ‘non-technical’ is of course a negative descriptor which tends to prioritise the importance of the ‘technical’. I can see that the term ‘human factors’ attempt to reframe this in a more positive way – but seems like this is a very unusual kind of human where mind, body, techne and communicative practices are seen as entirely separate entities which can be conveniently ‘bracketed off’ depending on the context. I think the moral questions raised by an activity ostensibly focused on how to learn ‘safely’ from mistakes, but which in fact glosses over mistakes, does not allow them to be the focus of attention and instead reinterprets them in terms of a curricular objective are immense.

‘Mistake’ is a term that is not – I think - much used in medical practice, though may be talked about. We have ‘significant event’ meetings, and a ‘significant event’ is often one which is regarded as involving a number of contingencies which (unfortunately) align in time and space in such a way that something unintended happens. Responsibility often comes to be seen as distributed (not necessarily unreasonably) but the practice of ‘significant event’ reporting raises interesting questions like ‘significant to whom’ and ‘how significant’ or even... ‘is this thing that happened ‘significant enough’ for me to report it’ etc. Oh...and significant events are ‘scored’ against a scale (yes,...and those that are assigned a low score may not qualify for discussion at a team meeting).

Fiona asked “what happens to medics who do not do well in simulation?” Interestingly in general practice (and in the ‘communication skills’ modules of undergraduate medicine) communication itself is re-framed as a technical skill. It is the subject of OSCE examinations (scored by a score sheet with tick-boxes like “did the student share options with the patient?” “did they display empathy”) and –

importantly – good performance in this simulated environment of actor-patients is essential. The ‘Clinical Skills Assessment’ examination for the Royal College of GPs or licensing examination is well known to be an examination in which the performance of ‘skilled communication’ in a simulated surgery with role-playing ‘patients’ is crucial. This is a particular kind of performance and blurs the real-unreal in potential confusing ways as already qualified doctors are required to second-guess the nature of the assessment, perform a range of ‘scripts’ in convincing ways at the OSCE station and ‘perform empathy’ in the full knowledge that the situation is ‘not real’. If medics don’t pass this test, they cannot qualify as GPs. (see this paper by Greenhalgh / Roberts for interesting critique...<https://bmcmmededuc.biomedcentral.com/articles/10.1186/s12909-016-0535-2?platform>)

It was interesting to see how difficult it was for trainees in this paper to critique the nature of the activity they were engaged in, ‘the simulation’ – they are in a troublesome liminal space but opportunities to explore why this feels troublesome (perhaps the seed of some very useful learning) are limited.

The non-technical / technical duality that this kind of activity intentionally sustains is extremely problematic. As Montgomery says (and forgive me if I don’t quote quite accurately) medicine is not a science nor an art – it is a practice. It is only when it is fully appreciated by that the relationship between what is called ‘technical’ and ‘non-technical’ are recursive and mutually constitutive that we may get anywhere close to ‘clinical wisdom’.

Deborah Swinglehurst