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Experienced academics' pedagogical development in higher education

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Time, technologies and conversations

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Abstract

This paper focuses on extending our limited understanding of how the teaching and assessment practices of experienced academics develop. The development of academics as teachers is increasingly seen as a key focus (Stes et al., 2013) but much of the research in this area has focused on formal educational development initiatives. The analysis presented here investigates how experienced academics describe what has shaped their emerging pedagogical practices over time. The emphasis is on participants' informal experiences. Three foci were identified as the most important for these participants' developing practice: the choices participants made about using time in pressured contexts; the interplay between digital technologies and participants' practice; and the conversations which participants had about their teaching and assessment. The implications presented for future research and development work emphasise influencing the institutional policy context and the value of working creatively with the complexities of emerging academic practices.

Introduction

The development of academics in their teaching roles has become an increasingly important focus recently (Skelton, 2013; Stes et al., 2013) but experienced academics have been less considered in the literature. Growing accountability pressures have raised the stakes for educational development for academics, even in research intensive institutions like the site for the present study (Boud and Brew, 2013). Within research-intensive universities, however, recognition and reward processes and cultural norms which give less value to teaching may make it educational development more challenging (McNaughton and Billot, 2016). Taking up explicitly teaching focused identities can also have a mixed impact on status in research-intensive contexts and can be perceived negatively (Skelton, 2013). More broadly, the developmental possibilities for experienced academic staff will be shaped by their ongoing negotiation of multiple identities and priorities in complex environments characterised by considerable student diversity and a multiplicity of social and material actors (Fenwick et al., 2011; McNaughton and Billot, 2016; Skyrme and McGee, 2016).

Effective learning in higher education is seen as crucial to successful knowledge economies. (Rose, 2013). Most importantly, the quality and processes of teaching and assessment in higher education are fundamental to the preparation of students to engage effectively with gobal challenges such as climate change, poverty and conflict (Anderson and McCune, 2013). These challenges are both complex – in that they involve systems in which the effects of actions are often unpredictable – and also supercomplex – bringing together competing value positions (Barnett, 2007). Educating students to meet these challenges is a difficult but essential task for which educational development is still limited for many academics.

While there is an increasing body of research which explores the development of academics as teachers - often through formal educational development initiatives (Stes et al., 2010) – less attention has been given to informal developmental processes and experienced academics. Mårtensson and Roxå (2015) emphasise the importance of knowing more about the learning which happens informally. They discuss the value of knowing about 'back stage' conversations about teaching and learning (Roxå and Mårtensson, 2009). In the UK, many experienced academics have not participated in formal continuing professional development for their role as teachers and yet they will be central to how education is taken forward in universities in the next twenty years. Even in countries where more experienced academics have participated in formal development, their informal learning processes will be influential. The present paper explores the informal processes through which a group of experienced academics have developed as teachers.

The aim of this paper is to illuminate key processes and experiences through which the teaching and assessment practices of these experienced academic staff evolved over time. The research foci listed below were identified, firstly, on the basis that they were the most important for the participants as the interviews progressed. The participants focussed on these points and mentioned them repeatedly. Secondly, the recent literature has emphasised the value of attending to material elements – particularly digital technologies – as actors in the contexts under study rather than solely focusing on the social (for example, Fenwick et al., 2011). Therefore it was important to explicitly consider the role of digital technologies. Finally, the importance of considering the messy and multi-layered complexity of social realities has also come to the fore (Fenwick et al., 2011; Law, 2004). Jones (2011) notes the importance of considering the rich complexities of academic practice for offering effective

educational development. This being the case, the research foci were chosen to illustrate the multi-layered complexity of these developmental processes and to allow consideration of both the social and the material in participants' evolving teaching practices.

1) How does time interact with the development of participants' pedagogic practices?

2) How do digital technologies act in relation to the participants' evolving teaching and assessment practices?

3) How do the conversations these participants have about pedagogy relate to the development of their practice?

Methodology

The data comprised audio recorded semi-structured interviews with academic staff in a prestigious research intensive university in Scotland. The interviews began by asking about an upcoming teaching event and about any changes that had been made from past iterations. Later questions asked about participants' assessment practices and explored concrete examples of changes. The participants were asked who they talked with about learning and teaching and about the nature of those conversations. Their views on formal educational development in the institution were also sought. The focus of the interviews was to draw out concrete examples of change in pedagogic practice and then understand what may have shaped these changes. The emphasis on concrete examples was chosen in order to avoid participants simply recounting typical discourses about change from their local settings.

To find participants, personal contacts were approached across the institution for their advice about participants from humanities, social sciences, STEM subjects and clinical areas. These

contacts were asked to identify colleagues who were more experienced academics who had tended to develop their teaching practice informally rather than through participating in structured continuing professional development for teaching. The aim was to achieve a good spread of such participants from across the institution. The sample is summarised in Table 1.

[insert Table 1 about here]

In developing the analysis, the intention was to retain a sense of the complexity and messiness of the realities under consideration (Fenwick et al., 2011; Law, 2004). Fenwick et al. (2011) have also noted the need for greater attention to the material in researching education, considering the actions of elements such as technologies and teaching spaces as well as human participants. The analysis aimed to do justice to the multiplicity of interactions between different layers – such as institutional priorities, disciplines, local departmental cultures, human actors and technologies – rather than reducing an artificially bounded context to tidy categories. While tightly structured analytic categories were not the intention of the present analysis, the process nonetheless drew on practices inspired by constructivist grounded theory as a source of rigour and to ensure close attention to all of the available data (Charmaz, 2014).

As is common in grounded theory, data analysis proceeded in tandem with data collection and the interview schedules were adapted to follow up the most generative areas of investigation. Memos were written throughout the process. The process began with close line-by-line consideration of each transcript. Once all of the transcripts had been considered line-by-line, the foci for the present paper were chosen. All of the interviews were then coded using Nvivo data analysis software with the initial aim of identifying all of the data related to

the foci for the analysis. This was followed by a process of constant comparison within and between interviews to clarify the main findings. Writing proceeded alongside this analysis process. Once this stage of the analysis was complete, all of the interviews were rechecked to ensure that relevant data had not been excluded and that counter-examples to the main points made in the analysis has been identified and included. Coding stripes in Nvivo were used to check the spread and density of coding across interviews and to identify uncoded data to reconsider.

Findings

The findings emphasise the importance of time, technologies and conversations about teaching as key facets of the complex systems which shaped the development of these participants' teaching practices. While the findings on these three foci are presented separately, there was considerable interaction between them.

Focus 1: Time and changing teaching practices

While many of the participants put considerable time into taking forward their day-to-day teaching practices, almost all of them spoke about how lack of time, or the rhythms of their time, were highly significant barriers to *developing* their teaching practices:

I did the orientation [to the Postgraduate Certificate focusing on university teaching]

I intended to take it further but I just didn't have any time to which was a shame but

when you've got everyone breathing down your neck [...] [participant 3]

I think the barriers are on my side really and as you say it's really the time that's the difficulty […] So [clinical duty] is extremely disruptive in the sense that you very rarely get more than maybe 20 minutes undisturbed.

[participant 6]

In the context of global intensification of academic work (McInnis, 2010) concerns relating to time pressure are not unexpected. What is of interest, however, is how participants' time is shaped and prioritised such that the *development* of teaching practice is often inhibited relative to other activities. In this research intensive setting, the participants' choices about how to use their limited time were often strongly influenced by their roles and identities as active researchers, leaders and/or clinicians. The participant quoted below, for example, strongly emphasises his research and leadership roles making clear that these relegate teaching to a lower priority for him:

And I think that things that I really want to put my time into are developing the ideas that we are working with in the research projects. And I know that my teaching is okay, right […] And I'm quite happy with that level of functioning […] And the other thing that I feel I have skills in, is running things […] So I feel that if I were to put more time into something other than research what I should be putting it into is […] that kind of ability to think strategically about things. And bring people along with you and make change happen […] and not many people have those skills and experience […] So unfortunately [for] teaching [that] means that I am not likely to be going into serious innovation and putting my effort there.

[participant 11]

It is important to note, however, that these influences were not necessarily negative in relation to the development of the participants' practice. It is particularly useful, therefore, to consider instances in which these highly pressured participants *did* put time into developing their teaching and assessment practices. The strong value which participants attached to their subject area, for example, could be beneficial for development:

> […] we probably all love [this specialism] and so we want [the teaching] to be as good as it can be really.
>
> [participant 7]

Developmental opportunities which were well aligned with aspects of participants' identities could be well received. For some these were opportunities aligned with their researcher identities. This included participants' perceptions of the history, patterns and pace of development of their subject area and a need to offer teaching which was well aligned with those aspects:

> The course kind of emerged as the discipline emerged […] what sort of subjects that need to be covered and then because there's so much about the pace of [my subject area]
>
> [participant 2]

Generally, the participants' comments illustrated how different aspects of their identities shaped their choices about putting time into developing their pedagogic practices. Even where participants were more focused on research or clinical identities, they often described feeling a sense of care or duty towards students' engagement with learning. The first extract

below describes a long established teacher identity and how that underpinned considerable time put into pedagogic development. The second illustrates how researcher and gender identities may come into play together to shape what is prioritised and how time is used:

I got interested in teaching because of the variability of what I saw, I also thought I had a flair for the design […] As a student […] I just had to pick the [lecture notes] apart and re-order it and maybe lay it out in different ways […] I enjoyed doing that so when I went into academia it was largely because I hoped that that [the design of teaching] would be part of my involvement […]

[participant 1]

I'm currently finishing a major grant […] and starting a new one […] So my research life is very active […] [The students] were really, really positive about the way we'd done the course. And I honestly believe it's worth it. But it is a lot of extra work to teach with this [new] approach […] I do have a bit of a headmistress, kind of mother, kind of approach to teaching […] First year, you know […] you've got to help them […]. [My subject] is one of the best ways to get people interested in science. [My students] are going to go out and they're going to be civil servants, they're going to work in industry and if you can build a community that believes science is important, then when we're going to the government and saying please don't cut our funding anymore, then you have support from the taxpayers […]

[participant 5]

Another important aspect of the participants' accounts of how time related to the development of their practices was the multi-layered complexity of what influenced the

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developmental processes. Research which focuses on a single level – such as individual identities or departmental contexts – cannot do justice to this. The interviews illustrated the rich interactions between time pressures, individual desires and perspectives, diverse social and material agents and processes operating at micro, meso and macro levels of analysis. Departmental, institutional, subject area and broader contexts were relevant, as were material aspects such as learning technologies.

A longer extract is presented below in order to illustrate some of this complexity. In this extract, the participant draws out a wide range of influences at different levels, beginning with the nature of her subject area. She goes on to include institutional processes, such as course review and the engagement of new colleagues in formal pedagogic training. Then she sets out the clinical context which shapes her time before returning to the micro level of the influence of particular colleagues. Broadening out again, government decisions and professional bodies also shape her time:

> A big part of [my subject area] is pattern recognition […] And because [the students are] trying to get to grips with these patterns, I'm trying to take a step back and make it easier again [as they said they were struggling] […] We do post course review […] review the feedback, see if there is anything that we can adjust […] [My younger colleague] has done the post-graduate training course, teaching course. And I can see her trying to apply a lot of what she has learned there. […] So [assessment is] vying with the diagnostic duties that we've got which really take priority […] Because we've got [a colleague with a strong interest in teaching and assessment] as our course organiser [...] we're kind of spoilt a bit there […]The [increased] student numbers [which have created time more time pressure] that's financial, I think

because we're not getting as much money from our usual sources which is presumably government mostly […] The curriculum change [which also increased time pressure] that was…that came from the requirement by [our professional body] probably also the [overseas professional body] […] I mean one of the main ways I probably learned about teaching is watching one or two specific people […]

[participant 7]

For some of the participants, one strand of these complex processes around time was how the available learning technologies shaped their practice and the rhythms of their time. This is illustrated briefly in the extract below and digital technologies are discussed further in the section which follows.

There is an online quiz [that comes back in the morning at 9am] […] And in the free text box they say "I don't understand this", "this is really easy" […] And then we see them […] that afternoon. So [that day] is frantic trying to fathom what they actually want to learn […] And I thought it would get easier this year […] but no, they had quite different desires this year […]

[participant 5]

Focus 2: Digital technologies and changing teaching practices

In many of the interviews, changes in pedagogic practices were described as intimately intertwined with shifts in the digital technologies available. Rather than clearly ordered and planned processes, participants' accounts suggested rich interactions over time between technologies, local practices and many other facets. The material technologies appeared as

actors which shaped practice, rather than as passive tools. The technologies could also mediate the influence of other actors, as was the case when electronic voting systems provided teachers with new evidence about the levels of understanding of their students, which then shaped their practice:

[Electronic voting systems] allow me to judge whether the students have got to an important point of understanding or not […] I'll be honest, I was going to use clickers initially […] to perhaps make the lectures a bit more groovy […] The very first clicker question I ever used in a lecture was a very, very simple question […] I assumed they would all […] be getting the right answer […] In fact, I got all four answers with equal probability […] So lecture one, clicker question number one, day one, abandon lecture do something else […] So that was how I learned the value of clickers actually.

[participant 8]

I put in a whole load of clicker questions […] so most of [my preparation] is reminding myself how those questions were linked to the narrative […] the first year you are struggling to get this thing together […] second year you fix the main bugs, the third year it's quite nice […] and it's more kind of reminding yourself how it works and thinking "maybe I should do that a bit differently this year" […] I guess I've got more confident […] I really don't panic if we hit something that, it's like "oh no one has understood this" […] right this is something that you are going to have to go back to your textbook, go back to your notes or there's a tutorial question […]

[participant 3]

Some of the participants talked as if they were being drawn into and engaged with novel pedagogic practices through the sense of possibilities provided by technologies which were new to them. The interest they expressed tended to focus on seeing new possibilities for particular types of learning experience they hoped to achieve, rather than seeking novelty per se:

Well what we've been working on is an online prescribing simulation […] I'm hoping very much that we might get to […] a simulated real world environment […] I can take students out on to the ward […] [but] the really poignant learning experiences are still, you know, few and far between […] When you go to a simulated environment it's possible to make the learning experiences come much more thick and fast […] so they have the opportunity to actually start to respond and make things happen […]

[participant 1]

In the extract above and also the one below, there is a sense of expectation of possibilities in new digital practices which may extend beyond what the participant can currently imagine:

[…] what I would appreciate is a deeper understanding of the value of the visual when it comes to encouraging deeper learning […] I'd like to understand just what's the actual reach of the visual beyond ways that I could imagine […]

[participant 2]

The richness and subtleties of the interplay between multiple digital technologies and between technologies, participants and sociocultural processes came through clearly in these

interviews. The participant quoted below, for example, was negotiating and balancing her strong role in a research culture and her care for students' learning within multiple technological systems including the institutional virtual learning environment as well as external social media possibilities:

I think the other thing that made [the flipped classroom] possible was moving [to a new VLE] […] the quizzes and the grade centre that's on there […] I asked at the start of the year who reads their emails more often than once a week. And three people put their hands up […] So, I said well how am I going to communicate with you. And they were like Facebook […] then made my first post […] it was like 10pm at night, within two minutes, I had three people like it, and by the morning the whole class had seen that post […] And I was like, this is revolutionary, I have a way I can instantly communicate […] And they say, "I read this bit, has anyone seen it?" "Oh yeah it's a typo". And you get this little chat, 10 of them, and then one of us will come in and go, sorry guys yeah we'll correct. And it's so quick/so rapid.

[participant 5]

Some participants indicated more ambivalent perceptions and experiences of novel technologies and learning. This could relate, for example to: practical challenges in implementation; the participant's personal stance on particular technologies; or a sense that change was being imposed. As with the more enthusiastic participants, it was clear that the material technologies were acting in the change process in complex relations with other actors. The extract below illustrates a sense of externally imposed control and time pressure enacted with an institutional virtual learning environment (VLE) and related systems. These

particular forms of pressure and uses of power could only emerge in the contexts of the technologies available in this context:

> All of the students' course materials, information, contacts all go through [the VLE]. They submit [through plagiarism detection software] they're marked online and the feedback goes through online [...] I think sometimes the promise and the push and the expectation is beyond the resource that is available and the support that is available [...] We're constantly told [...] "have a look at this, you could use that". "You know you can extract this information about your students and make sure you use the student platform to record this, that and the next" [...] And the attendance requirement for home students as well as tier four visas [...] So you've got three different systems there that are impacting directly on people's teaching [...] So there's these sort of things that somebody is producing somewhere, and saying look this is all available to you and it's like, "when am I going to learn all this?"
>
> [participant 10]

Focus 3: Conversations about learning and teaching

Conversations about learning and teaching were an important site for all of the participants' development. These conversations took place both in formally structured settings - such as teaching meetings and committees - and informally as diverse opportunities arose. In this paper, conversations with colleagues, family and friends will be considered. Conversations with and feedback from students will be reported together in a future publication as these were closely intertwined.

It was clear that the patterns of generative conversations with colleagues about learning and teaching did not sit neatly within particular bounded contexts or groupings. Conversations took place within and across groups and subgroups and also with specific individuals who were important for participants. The significant conversations could be with local or international and with past or present contacts. Sometimes chance, incidental or social connections turned out to be significant. Conversations with relatives with an interest in pedagogy were also mentioned. Colleagues within the same work unit or subject grouping might or might not be part of particular developmental conversations. The extract below is an example of an initial interaction which is social and research related which is followed up through a range of more and less formal interactions over time:

[…] the very first time I heard about this [teaching innovation I adopted] was actually in the pub with one of the professors from my research group […] then [name] came and gave a talk […] and I [said] I have only ever heard about this stuff talked about in the context of introductory courses so I don't really know how I would apply [it] […] he said, "Run it like an arts course where people are supposed to do the reading beforehand and then they come and talk to you about it" and I said, "Yes I can do that" […] That was where I started getting into […] a bit of a mission never to give a standard lecture ever again […] and people were usually there at coffee time and so you could have a chat about [teaching innovation]. There's a group of immediate colleagues and a research group that we go to lunch with, sometimes we talk about [teaching innovation] […] and I guess because I am interested, if I walk past [name's] office or [name's] office I sometimes pop in […] So I might go […] and say, "I've got this type of thing and I want to do it differently […] do you know of any research in the area or things that people have tried?"[…]

While the subject area context was clearly important for these participants' conversations, the data did not illustrate a simple pattern of academic disciplines shaping practice. Sometimes small sub-groups within a discipline were important, or a small number of local or international contacts in the same sub-discipline. There could be also clear differences of perspective on learning and teaching within subject area groupings. While some participants emphasised the importance of cognate examples, others valued interdisciplinary conversations. The two extracts below illustrate some of these diverse experiences:

Sometimes it's the links that you perhaps don't anticipate […] We've had contacts with [another discipline] for digital storytelling [….] contacts […] at social anthropology and how that enables our understanding of systems and societies and health behaviours […] spark something new and creative.

[participant 10]

I felt that with […] doing things with equations and that kind of thing, I couldn't quite see necessarily that you could access this more conceptual stuff which is where I saw the clickers as been really valuable. I spoke to [name] in Maths who had been doing [a similar] subject but in a more maths kind of way and he had been using clickers and he explained to me how he used them […] and at that point the penny dropped […]

[participant 3]

Although all of the participants had benefited from conversations about teaching as their practice developed, this did not imply that finding good conversations about teaching was always easy. Some of the participants noted the loss of previously valued sites of conversation or the lack of particular kinds of discussion with local colleagues. Structural barriers to conversations about teaching and assessment were also noted by several participants. These tended to relate to the organisational units into which the institution was divided, which could either limit conversation or make it difficult to pursue the ideas discussed. This extract below illustrates how an institutional restructuring process was perceived to be detrimental to these conversations:

[…] we used to be a department of […] about 25, 30 academics and we would get together regularly in groups to talk about these things, sometimes informally in the coffee room, sometimes in staff meetings […] And I think that worked better than it does now in a big [unit]. In a big [unit] to find that sort of forum for sitting down in a comfortable setting and chewing over how we do our exams just doesn't happen.

[participant 8]

The foci of the conversations which did occur with colleagues were highly diverse including: specific tricky issues that had been encountered; teaching innovations; curricula; assessment practices; norms and standards; and policies and structural changes affecting teaching. As well as discussing and sharing ideas for practice, the conversations could serve the purpose of emotional or motivational support for development. The extract provided below, for example, describes a tradition of supportive conversations with less experienced colleagues:

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There were two senior colleagues [name and name] who simply saw it as their job to take young academics a bit under their wings […] one of the things that was always clear was that there was a place where you could talk about teaching […] Because I liked it, it helped me a lot, I try to recreate that as much as possible these days and they, younger colleagues, come I take them out to coffee and ask them, "How was your class going, anything I can help with?" or "Oh, that sounds brilliant, can I sit in and have a look?" […]

[participant 4]

Discussion

The findings on time remind us of the considerable pressures on academic colleagues in the context of the intensification of academic work (McInnis, 2010). Choices about how to spend limited time were one of the strongest shaping forces for these participants' development as teachers. Future research should consider these processes in greater detail using methodologies such as journals recording decisions about how time is used day-to-day. Often the participants chose in favour of: research; leadership; taking forward their day-to-day teaching and assessment; and necessary administration. This could leave little space for developmental processes relating to pedagogy. This is of considerable concern in a world where high quality programmes of study are essential to prepare students effectively for supercomplex challenges (Barnett, 2007).

The opportunities for development which were taken by these participants were typically available in their day-to-day interactions making them more realistic to pursue. How choices about developing pedagogic practices are made in context should be an important focus for future research and a key concern for educational developers. For the participants in the

present study, developmental opportunities which were well aligned with their multiple roles and identities were crucial. This research echoes the findings of Hemer (2014) who commented on the limited time that academics may have for critical reflection on pedagogy and how this interacts with academic identities and what is valued in universities. These findings emphasise the importance of research which accesses participants' diverse identities and roles and how these interact in shaping practice. Drawing out care for the subject area or care and duty in relation to students may work well to draw academics into developmental conversations about teaching.

The nature of the developmental opportunities which experienced academics typically engage in is also key to the design of effective institutional provision for these colleagues. To influence these colleagues sufficiently to drive cultural change will require locating academic development provision in spaces which feel accessible to participants juggling complexity and multiple identities. This would be worth the effort as experienced and established academics will have a disproportionate influence on cultural practices in their local areas. Based on the findings of this study, the ideal would not necessarily always be spaces bounded by participants' subject areas or local departments. The key would be fit with participants' particular experiences of complexity and the temporal rhythms of their roles. Well-designed online communities might prove effective in this regard. Diversity of forms and temporal patterns of academic development would likely also be necessary.

Hannon (2013) emphasises the 'entangled practices' (p.168) which form the implementation of learning technologies, where new practice emerges unpredictably from the interplay between human and non-human actors. The findings of the present study offer a similar picture with various digital technologies having an active role in shaping emergent practice.

Rather than tightly planned initiatives with predictable outcomes, digital technologies were described in the findings from this study as acting within complex, multi-layered and ever shifting conglomerations of practice.

Giving more attention to these 'less visible practices' (Hannon, 2013, p. 169) is important to making sense of how learning technologies operate in higher education. The findings from the present study suggest that academics' development as teachers is often closely intertwined with digital technologies and this should be given careful attention by both educational researchers and educational developers.

Policy and practice in academic development should treat educational technologies and other material aspects as active actors in learning environments not as passive tools. The power relations inherent in how these technologies are implemented and promoted should be closely considered. Where these clash with the existing power relations and identities of experienced academics, the implementation of change is likely to be more fraught and contested. One limitation of the present paper is that data were only collected in a single institution with particular technologies available. It will be important in future to conduct comparative research, for example, across different VLEs . Digital ethnography would also be a useful means by which to investigate this aspect of experienced academics' development as teachers.

Overall it was clear that there were very rich opportunities for development of practice in the informal conversations which these participants had about teaching and yet these informal exchanges are rarely considered in the current discourses relating to continuing professional development for teachers in higher education. Thomson (2015) notes the importance of such

conversations for novice and mid-career academics and the present study suggests they continue to be important for highly experienced staff. Like Roxå and Mårtensson (2009), the research reported here suggests that conversations about teaching do not follow tidy patterns mapping to specific groups, departments or academic disciplines. The participants discussed teaching within and beyond their local academic contexts and with family and friends.

Pyörälä et al. (2015) also found conversations with colleagues, friends and family to be relevant for teachers' development in higher education. In their data, contacts from pedagogical courses were important, which was not the case for the current sample who had been chosen for their lack of engagement with formal continuing professional development. Otherwise Pyörälä et al. presented a fairly similar picture to the present research with a mix of local and international as well as social contacts providing sites for discussion. One limitation of the present study is that these informal conversations were only discussed at interview and not observed. While observation of such ad-hoc interactions might prove difficult, an ethnographic approach following particular participants over time might offer deeper insights.

This complex picture of conversations about teaching suggests that Trowler (2014) is right to caution against strong epistemological essentialism when making sense of teaching in higher education. There is evidence, however, that the cultures of academic disciplines do contribute to shaping learning and teaching practices (Kreber ed., 2009) and participants in the present study were clearly interested in the relevance of particular perspectives on teaching to their own subject areas. Conversations with local colleagues would likely also be shaped by and help produce the 'teaching and learning regimes' of their work units (Trowler and Cooper, 2002). These patterns of local norms, practices, assumptions and relationships were clearly

important for the participants in this study. The conversations which influenced practice, however, were not neatly bounded to the local unit and its practices. Participants often sought and made use of perspectives from beyond the local setting and sometimes from beyond academia.

To influence cultural change in relation to pedagogic practice at the institutional level, it will be important to promote policies which encourage generative conversations about pedagogy and support the development of new practice inspired by those conversations. This is likely to require attention to workload models and reward structures which may not value informal support for colleagues or broad conversations about pedagogy with a range of contacts. Engaging deeply with pedagogical change may challenge academics' dominant identities and require them to wrestle with growing complexity in relation to their social and material contexts, particularly as learning technologies continue to develop rapidly. Strong messages and active support from leaders at different levels of an institution are therefore likely to be required and this would have to translate into concrete availability of time and resource to support pedagogic change. The findings presented here suggest that attention to structural barriers to conversations and change across traditional boundaries would also be important.

From a methodological perspective, the findings presented in this paper suggest the importance of engaging actively with mess and complexity in researching academic practice in higher education (Fenwick et al., 2011; Law, 2004). Reducing data to neat analytic categories may lose the essence of the processes in play. Yet research in this area must go beyond simply noting that there is complexity, to providing theoretical and practical conclusions. The use of time, digital technologies and conversations as foci in the present paper suggest fruitful directions for further research and development. The analyses presented

here also highlight the interplay between the social and the material in teachers' development in higher education. Too little attention has been paid to the active part which the material, in this case digital technologies, plays in teachers' development.

These are not passive tools; the technologies strongly and actively shaped the directions of developing practice and this requires further research. These changes in practice and academic being can happen where new technologies enable new forms of interaction between students and academics which shift the balance of power and the patterns of communication. The constraints, requirements and possibilities of virtual learning environments can also position the academic differently in relation to their institution and their students. Access to rich examples of diverse uses of digital technologies with details of their potential implications may enable academics to exercise greater agency as teachers in a digital world. Care must be taken in considering how VLEs designed by global corporations may have unintended consequences in controlling academic practice.

Boud and Brew (2013) suggest that academic development can be under-theorised and emphasise the importance of seeing academic work as professional practice, drawing on the practice turn in social theory. This implies close attention to the situated social practices of academic colleagues, rather than simply seeing effective teaching and assessment in terms of decontextualised knowledge and skills. Boud and Brew suggest that it is important to view 'learning as a constructed and emergent phenomenon arising in and from academic work ...' (Boud and Brew, 2013, p. 209). This perspective fits well with the data presented in the present paper. Boud and Brew note the relevance of material elements in making sense of academic practice and the findings presented here suggest that a stronger emphasis on the materialities of practice, such as the active involvement of digital technologies, may be

important. Thus theoretical perspectives from the sociomaterial tradition (Fenwick et al., 2011) should be considered more frequently in research into teaching and assessment practices in higher education.

In terms of informing educational development practice, the findings presented here suggest that academic developers should aspire to influence policies and leadership practices which allow complex informal learning to mature into substantive change in culture and practice. Policies around workload, recognition and reward will be particularly important. Specific academic development initiatives are more likely to succeed when they connect effectively with core aspects of participants' identities. It is important that academic development takes into account that within the cultures of research-intensive universities this may not involve identities focused on being a teacher. Other aspects, such as the love of the subject area grounded in a research-focused identity, may be more relevant. Academic development should also support colleagues to develop coherent narratives of selfhood in the context of rapid change and complexity, particularly in relation to learning technologies (McNaughton and Billot, 2016).

Connecting well with these diverse and shifting identities ideally requires long term working relationships. That said, even briefer initiatives can play to diverse aspects of participants' identities and address topics of direct interest to participants in how they are described and taken forward. Further, making time within formal educational development activities for informal conversations about teaching may enhance opportunities for fruitful informal learning and encourage a culture which embraces such conversations and supports positive identity development (Thomson, 2015). Engaging all academics deeply with reflection on pedagogy is crucial if they are to create the kinds of active, risky and well balanced

programmes of study required to prepare students to engage with supercomplex challenges (Barnett, 2007; Anderson and McCune, 2013).

The findings from this research suggest that educational developers need to continue to enter into and work with the complexities and pressures shaping participants' developing practice. Such forms of engagement may be facilitated by activities already occurring in some universities such as seconding other academic staff temporarily into academic development units (Loads and Campbell, 2015). Loads and Campbell explain how secondments can provide opportunities for 'authentic, practice-based development' (2015, p. 358) which sits well with the picture of developing academic practice set out in the present research. Another possibility is creating posts focused on education within subject areas and connecting those with central units (Pyörälä et al., 2015). More generally, Boud and Brew (2013) suggest that greater emphasis should be placed on development activities which are closely connected with the opportunities arising from participants' everyday work.

Such forms of academic development increase the likelihood that well-grounded perspectives on pedagogy will be available in an accessible manner within the day-to-day practices of pressured academic colleagues. Where this goes forward consistently, real cultural change may be achieved. Haigh (2005) notes how the informal conversations academic developers have with other academic colleagues may be an under-valued developmental process. These conversations may not be easy to count or measure within managerial processes but they emphasise the 'personal, local and immediate' (Haigh, 2005, p.4) in ways which would likely be appreciated by the participants of the present research. Creating new spaces for informal conversations about learning between diverse groups of experienced academic staff may also be a significant role for academic developers.

There are important implications at the level of institutions and the wider sector. If academic staff in research intensive institutions like the one in the present study are to engage richly with developing their teaching practice, then policy and practice must support this. In particular, strategies for recruitment, recognition and reward must give real weight to participants' being engaging in developing their teaching. Likewise annual review should include discussion of and facilitation of these developmental processes. Workload allocation needs to take into account that reflecting on and developing pedagogic practice should be mainstream, not pushed to the margins of colleagues' time.

Conclusions

The findings presented in this paper draw attention to the importance of researching the rich, tangled webs of the social and the material from which academics' pedagogic practice in higher education emerges. Retaining the nuances and unclear boundaries of practice, rather than imposing tight structures on the data, allows a richer and more subtle picture to emerge. This is valuable for both research and for informing practice. Educational development practice which engages deeply with messy realities may be more likely to access the points at which pedagogic practices can shift in valuable directions. Institutional policy and practice must recognise and support these processes.

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Table 1: Participants in the study

Participant	Gender	Subject area
1	M	clinical
2	M	humanities
3	M	STEM
4	M	humanities
5	F	STEM
6	F	clinical
7	F	clinical
8	M	STEM
9	F	clinical
10	F	social sciences
11	M	STEM
12	M	social sciences