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Professional Knowledge Landscapes in Online Pre-service Teacher Education: An Exploration through Metaphor

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Abstract: This paper explores metaphors as a process of professional learning, and as a research method to interrogate professional knowledge landscapes (PKLs) within the flexible space and time of online pre-service teacher education. The methodology comprised five pre-service teacher educators with different disciplinary areas of responsibility engaging in metaphorical analysis of our teaching work. We found that the metaphors that frame our e-pedagogy are multiple, reflecting a range of theoretical positions and objects of our teaching work, sometimes internally contradictory notions of education and e-learning, and the complexities of our individual and collective PKLs. We argue that it is crucial in the context of pre-service teacher education to explicitly examine our own metaphors and reflect on the ways that our metaphors might influence pre-service teachers' subsequent teaching practice. In addition, teacher educators can exploit the spatio/temporal freedom afforded by the porous border between the inside of our online environments and their outside worlds to consciously and deliberately consider the metaphors that they adopt to inform their pedagogical choices, and avoid uncritically perpetuating problematic metaphors of teaching practice.

Introduction

In this article we use metaphors to explore the different approaches and views of five teacher educators in the context of online pre-service teacher education. We seek to understand how metaphors can be used to surface otherwise tacit aspects of our “professional knowledge landscapes” (PKL) and illustrate our e-pedagogy in relation to “space, time and place” (Clandinin & Connolly, 1996, p. 25). Through this investigation we seek to further understand and enhance the potential impact of our individual and collective metaphors on our pre-service teacher education practice, and contribute to the existing knowledge base on the utility of metaphors as a research method for exploring the PKLs of online teacher education.

We commence with a brief account of the distinctive nature of our university e-pedagogy context, followed by a discussion of the concept of PKLs and how metaphors can help us to interrogate PKLs and frame pedagogical approaches to learning in higher education. We then describe the discursive process that led spontaneously to our sharing of

multiple metaphors of our practice, which was then formalised as our research methodology. Referencing theories of teaching and learning, we describe our analytic process, present results in the form of extended quotes, and summarise the complex terrain of our PKLs that was revealed through our metaphor analysis. In the latter part of the paper, we discuss the implications of this joint reflective process for our practice as e-pedagogues.

Context of e-pedagogy

Our discussions and attention centre on teaching in an e-learning environment, which brings with it characteristic notions of space, time and place. In an online environment, learning is not in a fixed point in time and space. It is asynchronous and relationally mediated through technology, for example, through discussion forums, digital learning objects and pathways, hyperlinks and student-generated content. We can certainly distinguish between the “inside” and “outside” of our virtual learning spaces in line with Clandinin and Connelly’s (1996) distinction between what goes on inside and outside face-to-face classrooms. However, we can be “inside” the cyberspace of our virtual learning environments at the same time as being “outside” in the real space inhabited by our colleagues. The boundary between these two places, while it exists, is somewhat more porous than traditional face-to-face environments. The virtual environment affords us space and time for drawing on what’s outside while being inside: for collegial consultation, deliberation and reflection as we enact our teaching and respond and react to our students.

Professional Knowledge Landscapes

Clandinin and Connelly (1996) conceptualise PKLs to describe teachers’ personal practical knowledge within the complexities of their professional environments. These landscapes represent “a map” of the “interface of theory and practice in teachers’ lives” where there can be “epistemological dilemmas” (Clandinin & Connelly, 1996, p. 24). These landscapes are a complex and multilayered canvas of meanings, beliefs and understandings, that are derived from life experience and deployed to make sense of the world and frame practice (Clandinin & Connelly, 1996). The notion of a PKL connotes the characteristic of expansiveness, where practitioners draw from relationships with diverse people, things, and events. So our students are a core component of our PKLs that can indirectly influence our practice. As pointed out by Trigwell and Shale (2004) the outcome and nature of teaching in higher education is influenced by teachers’ emotional and cognitive reactions to students; for example, by responding pre-emptively or subsequently to student evaluations of teaching (e.g., Miles & House, 2015).

Exploring Professional Knowledge Landscapes through Metaphor

The exploration of metaphors is a rich practice for exploring the borderlands of PKL, at the nexus of educational theory and practice. Metaphors can reveal aspects of teaching practice, by giving “imaginative expression to personal practical knowledge making it possible for a person to explore hidden intellectual avenues contained in a metaphor’s frame” (Connelly, Clandinin, & He, 1997, p. 671). We are mindful that using metaphors can construct rigid boundaries in framing a way of seeing the world. They can oversimplify the complex, and theory can “become stripped of its intent and packaged... in teachers’ textbooks, curriculum resources and professional development seminars” (Philpott &

Dagenais, 2011, p. 87). Nonetheless, through analysing metaphors we can surface tacit beliefs and otherwise hidden theories of learning that underlie and inform our higher education practice.

Metaphors do more than help us conceptualise pre-existing reality. As one of our most powerful and ubiquitous ways of structuring our conceptual systems, they structure our reality, influence the way we think about our practice, and guide our actions and practice (Lakoff & Johnson, 1980; Martínez et al., 2001). Metaphor analysis is consequently widely used in researching teacher education (see e.g., Bullough & Stokes, 1994; Jensen, 2006; Marchant, 1992; Marshall, 1990; Martínez et al., 2001; Seung, Park, & Narayan, 2011; Tannehill & MacPhail, 2014). Craig (2018, p. 300) has shown that metaphors are powerful in revealing “teachers' embedded, embodied knowledge of experience”. Building on this work, we apply the use of metaphor to online teacher education, as an under-researched domain of knowledge in a rapidly expanding field.

Sharing Metaphors as a Focus of Reflection and Change in Teaching

One of the reasons for conducting this research was to facilitate professional reflection as a focus of change - in our individual and shared PKLs, our practices, our beliefs, and in the way we see ourselves. As metaphors offer a rich conceptual means of exploring tacit theories of learning, they are deployed as a vehicle to elicit reflection and frame analysis. In this way metaphors provide a vibrant and generative space through which to collaboratively engage in continuing professional development (Boud & Hager, 2012; Charteris & Smith, 2017; Nye, Foskey, & Edwards, 2014). The analysis of metaphors has been found by researchers and practitioners to be both enjoyable and rewarding, providing insights into practice and influential in enhancing organisational cultures and a sense of community (Hagstrom et al., 2000).

Previous research based on exploring metaphors suggests that articulating and sharing personal metaphors allows researchers/practitioners to identify implications for change in their own teaching (East, 2009). Martínez et al. (2001, p. 974) suggest that metaphors “allow teachers to look at their own practice from a new perspective”, while Munby and Russell (1990) contend along similar grounds that looking at their own metaphors is a necessary part of teacher professional reflection. Tobin (1990, p. 125) conceptualises metaphors as “master switches”, where changing or augmenting a repertoire of metaphors can trigger many associated changes in beliefs and practices. Subsequent studies (e.g., Seung et al., 2011; Tannehill & MacPhail, 2014) empirically demonstrate an association between teachers analysing their metaphors and subsequently changing beliefs about teaching and learning.

In developing the analytical framework to interrogate various metaphors of e-learning in higher education, the following specific research questions were developed.

- (1) What are the nuances of the metaphors we espouse in our individual contexts in online pre-service teacher education?
- (2) What do our metaphors reveal about the nature of our PKLs and e-pedagogy?

These two research questions guided our attempts at interrogating metaphor as a shared heuristic in exploring and mapping the contours of our PKL. We now describe the collaborative research method that we employed to unpack metaphors, map PKLs and interrogate our practice as teacher educators in our e-learning context.

Methodology

Researcher-Participant Context

Located at a regional Australian university where 88% of our students study online, we are a group of five pre-service teacher educators with diverse backgrounds in science, information and communication technology (ICT) education, English, e-learning and the social sciences. We were initially brought together in an otherwise improbable alliance by a joint interest in researching and publishing in the area of e-pedagogical practice (e.g. Charteris, Quinn, Parkes, Fletcher, & Reyes 2015; 2016), facilitated through a faculty research network. Over this time, it became apparent to us that we hold very different epistemological positions that influence how we each locate our e-pedagogy and frame research questions and methodologies.

To ground our work in theory, we elect to explore our own pedagogical positioning, which for the purposes of this paper is communicated using pseudonyms. Ben is a science teacher educator who holds a post-positivist orientation to research, espousing a form of critical realism, combining ontological realism and epistemological relativism. Patrick has both science and information communication technology (ICT) backgrounds and teaching responsibilities in ICT education, engaging in praxis that questions, challenges and disrupts the status quo. Zeno's interests span philosophy, quantum physics, technology, astronomy and ICT and he adheres to an expansive and inclusive epistemological position that defies ready categorisation. Kojak's teaching area is social science and he draws from critical theory, while Louise draws eclectically from post-structural and critical theories to explore agency and power both in schooling and higher education contexts.

Metaphors as an Emergent Method

As a starting point, we engaged in dialogues in the form of three extended group professional learning conversations, which were aimed to systematically explore and surface our differences. The first two discussions were audiotaped and transcribed. In the first discussion, we explicitly shared our theoretical positions and practice in online learning and teaching as a form of double-loop learning (Schon, 1987) that exposed individual values, assumptions and theories in-use which can otherwise remain tacit and undiscussed. As part of this process some of us spontaneously began using multiple metaphors as vehicles to communicate the different foci of our practice. This vehicle became so powerful that we subsequently adopted metaphor and metaphor analysis (for review see Jensen 2006) as a research method to explore our practice, explicitly using metaphors to frame a second extended discussion of our approaches to and views of online teacher education pedagogy.

During a third professional learning conversation, we met and analysed the transcripts of our earlier discussions to explore our use of metaphors and their relationship to our PKLs as a 'bottom-up' inductive approach. In this third extended and discursive process, we jointly scrutinised the transcripts, identifying exemplar quotations and metaphor "labels" that we all had articulated in our initial discussion. One of us scribed the narratives to depict the nuances pertaining to the teaching activity illuminated by each of our espoused metaphors.

The final step of this analytic process was to scrutinise the quotations, the "labels" and the written narratives surrounding them in light of the following influential conceptual frameworks from the teaching and learning literature:

- The way learning occurs and knowledge is generated. For example, learning as acquisition/participation/ knowledge creation (Paavola, Lipponen, & Hakkarainen,

2004; Sfard, 1998), knowledge as constructed/co-constructed (Askew & Lodge, 2000; Piaget, 1955; Vygotsky, 1980).

- The role of the curriculum (e.g. fixed vs negotiable)
- The notion of agency and who was exercising it (teacher/student)
- Notions of students: their role and characteristics
- The “object” (purpose) of teaching (e.g., Engeström & Sannino, 2010)

This analysis involved scrutinising, discussing and tabulating the characteristics of the range of metaphors expressed in the quotations and articulated in the narratives.

Finally, we applied a tripartite categorisation of metaphors for learning (Martínez et al., 2001) as a conceptual framework. This framework was adopted because of its succinct and evidence-based encapsulation of strong conceptual foundations that are ubiquitous in educational literature, as follows:

- Behaviourist/empiricist: learning as acquisition of knowledge transmitted through teacher
- Cognitive/constructivist: learning as individual active construction of knowledge, based on experiences, and
- Socio-historical/situative: learning through discourse or as participation in a community of practitioners.

We scrutinised the characteristics of each metaphor that emerged through our previous collective reflection and discussion, and categorised each of them according to the Martínez et al., (2001) framework.

Trustworthiness of data has been attended to by articulating our personal backgrounds and epistemological allegiances, by tightly defining the “rules” describing the categorisation of the data (Lincoln & Guba, 1985), refining the interpretation through multiple discursive analyses and representations of the results, and reporting thick data. The data below were selected on the grounds that they provide the most succinct and richly descriptive metaphors from the data gathered. These illustrative examples were used to surface aspects of e-pedagogy and in particular to review tacit aspects of our practice in pre-service teacher education.

Results: The Metaphors

The following thematic analysis of metaphors highlights how specific ways of seeing the world and viewing knowledge (ontology and epistemology) can frame approaches to learning and teaching in online pre-service teacher education.

Patrick *Travel agent*

Patrick’s travel agent is a knowledge expert who knows and can suggest the “best way” for students to get to where they want to go. A good travel agent knows the landscape and the pathway and can assist with mapping a journey.

It’s bit like me dropping into a travel agent and saying, I want to go here, here and here. So I’m in charge of where I want to go, what the travel agent says, well this is the best way to get to this. Have you tried this, or tried this or if you do this that can work, but it can be risky. So in a sense, have we become like a guide or facilitator, to where they want to, what point they want go to... On the

*way to get there -or if you're there - you might as well have a look over there:
it's only just a quick bus ride down the road...*

The travel agent identifies both the pitfalls and the most effective and potentially rewarding direction. It is posited that while there is significant benefit with student determining the direction of their learning and possibilities for agency, there is also risk for students who want to venture into unfamiliar places and spaces. There is an explorative and non-linear dimension to this knowledge construction. The teacher co-directs the pathway that incorporates the taught curriculum including knowledge of the curriculum map. This emphasis on guidance is blended with a focus on the learned curriculum. Learning here is student initiated and there is a corresponding emphasis on discovery. The student is agentic in that they co-determine the direction. Despite the learner agency and ownership of direction there is no explicit joint socially-mediated construction of the tools students need.

Flight Instructor

Patrick describes his practice using a flight instructor metaphor. He flies alongside students on their manoeuvres, learning from them and their different disciplinary contexts as they decide where and how to execute their knowledge and understandings. Although the students still 'fly' the aircraft, the flight instructor provides expert advice and assistance when necessary. This is a form of co-regulated learning (Heritage, 2016). Working in an ICT context that is applied across disciplines, it is important for students to apply ICT content and concepts to their own contexts.

In ICT we work with students across the whole range of contexts. So while we've got certain skills and attitudes and competencies [that] we want our students to have, it's always within their own context... As an ICT lecturer, we have got that freedom. So a lot of the time I see myself as a bit of a co-learner when I am working with students. This is the same when I was working in a school when I was sort of doing elbow support with colleagues. I remember vividly sitting down next to an art teacher, and she said, "well how can I use it in art"? [I said] "I'm not an art teacher, but I will just show you some things maybe with a paint program." We mucked around with the Mona Lisa and the next thing you know, Mona Lisa has got two heads and she can talk. "Oh, that's very common of the Dadaist movement -blah, blah, blah." I was learning with my colleague and I was showing what I knew in the terms of the ICT knowledge, and she was seeing how it applies.

There is a clear situative component to this metaphor in that knowledge is being generated by professional discourse between the ICT expert and the student/art teacher. However, the expression of teaching of the knowledge of ICT skills is more consistent with the Behaviourist category in that the expert is "showing what he knew" with the intention that the student/art teacher would then know it too.

Door to Door Sales Person

Patrick also describes the door-to-door peddling of ICT-related wares and goods, highlighting the primacy of a teacher who wants to 'close the sale' and achieve a designated end. The curriculum, in this instance, is a static concept that is peddled to the student; sometimes bought willingly and sometimes through cajoling. The salesman has to persuade customers, particularly where they have limited experience, but are expected to use ICT

‘wares’ in their own learning. They may need to deploy these ‘wares’ effectively in schools, in circumstances that may be highly evaluative. For instance, in the Australian context, it is high stakes when novice teachers are required to demonstrate through assessment that they are classroom ready (Teacher Education Ministerial Advisory Group, 2014). Patrick, therefore, ‘sells’ a set of tools that students can learn, adapt and apply to their particular contexts. In this way, the curriculum is about knowing the appropriate ‘tools’ in order to make decisions regarding how and when to use them.

It reminds me of a door-to-door salesman where I just put out my wares and goods and suggest how they might be used. I was learning with my colleague – you know and I was showing what I knew in the terms of the ICT knowledge and they were seeing how it applies.... I just put out my wares and goods and suggest how they might be used.

Cheerleader

In encouraging students to develop new skills and knowledge in unfamiliar circumstances, Patrick describes a cheerleader metaphor. He knows that students who have had little experience using ICTs can be uncomfortable when facing uncertainty in trialling unfamiliar software. He supports them through cheering them on.

I see myself as very much an advocate and a cheerleader... Just encouraging people to sort of move out of their comfort zones, and I suppose making environments where they do. I mean our unit is very much about [encouraging] students to take risks and try and use things, because sometimes we’ve got students who are doing things they have never ever done before.

Encouraging them to try new things where students transcend their “comfort zone” implies a constructivist point of view of learning -that the students can learn through their own personal risk taking where they trial ICT tools on their own volition.

Kojak

Reluctant Banker

Kojak is reluctant to accept his students’ metaphor of banking. The reluctant and frustrated Banker wants to foster dynamic relationship and negotiate curriculum rather than caving into service/client relationships, depositing knowledge through transmissive e-pedagogy. Here Kojak’s frustrated desire for discursive dynamic generation of knowledge reflects a situative point of view.

Listening to our discussion I remember Freire’s banking concept. – That [critique]is what I try to do with my students. But then when I try to generate responses from the students through the forum - the response I get is that, “let’s not bother with these, just tell me what the assessment is and let me do what I need to do.” ...So that for me is a sense of frustration. We want them to have a more dynamic relationship, but sometimes, or most of the time, what I get from students is that “enough of this, just tell me what I need to do, and so I can do it.”

Student perceptions influences the choices afforded Kojak as a teacher in the e-environment. There is a conflict of interest when students are interested in acquiring banking knowledge and Kojak is interested in participatory knowledge generation - a tenet of critical theory.

Critical Friend

In a critical friend position, Kojak expresses an enactment of critical pedagogy through provocation. This pedagogical approach does not necessarily precipitate the interaction he desires. The critical friend appears to be as frustrated as the Banker, when the desired object of interaction is thwarted.

My domain is social science...So I tell the students I'm your critical friend. My purpose is your success, but I may be sending you provocative questions so don't be offended by it. Sometimes it works. Most of the time it doesn't. Because, as I said, they don't seem to look forward to interactively act. They just say, "give me a task" and they do it...

In the tripartite framework used in this research (Martínez et al., 2001), Kojak's critical friend reflects a constructivist position where he embarks on a quest to provoke interaction. The student expectation in this account is consistent with a behaviourist point of view.

Experimental Pilot

An experimental pilot metaphor illustrates Kojak's approach to knowledge generation as a learner and risk taker. An inductive, experimental approach to pedagogy differs from a more top-down approach where a technician translation of learning theory is applied more rigidly to teaching. An experimental pilot, Kojak trials new ideas in online formative assessment to see what e-pedagogy works in his context.

I feel that I am an experimenter because I don't know how formative assessment can be practiced in an e-learning environment. I have some ideas, but I actually I don't know, I don't have a good grasp of it. So as I was doing my courses, I tried this, and I tried that...and I learnt from the experience. I don't see any document, anywhere that tells me this is how it should be. So I'm navigating this landscape as if I were flying, and just looking and experimenting, finding out what works.

Without a map or flight manual as a driving 'document', Kojak looks for solutions on a trial and error basis, and this inductive approach to developing his own knowledge from his own experience is consistent with constructivist learning theory (Martínez et al., 2001).

Ben

Landscape Gardener

As a landscape gardener, Ben provides structure through carefully planned instructional design that foregrounds the relationship of different knowledges. His garden is a place where the curriculum can be conceived as boundary, within which there are opportunities for students to engage with specific content and how to teach it, and in that sense is consistent with the constructivist point of view of Martínez et al. (2001).

I sometimes feel like a builder or a landscape gardener, where I'm building a kind of a [unit] framework. I'm building opportunities, just through you set things up, the choices I make, the different components that I am slotting together. Hopefully... people will enjoy living there, enjoy being there, be able to move from one room, one part of the landscape to another and being able to see, how they relate, and also see how the whole thing relates to what I consider. And here we go with the power thing because I'm a teacher. I get to decide

what's important and so I do -in relation to other policies and guidelines. I think we all do that. For me, critical thinking is really important -understanding the science properly is really important. That's what happens in my units, and that what I build my landscape I guess, to try and facilitate.

Ben's landscape gardener provokes critical thinking through the constructivist framework provided by the Australian National Curriculum (ACARA, 2016) and related syllabus documents. It offers defined parameters that determine the science pedagogical content knowledge that students can acquire through their active engagement.

Thwarted Explorer

Ben is a thwarted explorer, struggling to find time to investigate ICT software possibilities at his disposal. He has commitments to prioritise and knows that there are so many applications he could be familiar with.

There's so much scope for experimenting and doing things differently and there's so little time to do that in. So last year I focused on one particular thing with grade mark and rubrics and making that work well for me, in terms of summative assessment, to make that as formative as possible. There's a whole lot of other stuff that I'm not experimenting with... So I can see all the explorer gear sitting there in a corner, and I wish I had that time to put more of it on and explore more.

Choices are seen as constraints, but Ben is agentic in deciding a pragmatic pathway to manage his exploration of the constantly changing pile of alluring tools potentially at his disposal. Ben's expressed desire to personally explore and experiment with tools in order to do things differently reflects a personal constructivist perspective.

Louise Broker

Louise alludes to a broker position from a Community of Practice (Lave & Wenger, 1991) mindset. She is interested in disrupting a hegemonic, individualistic discourse and promoting the importance of modelling e-pedagogy that support classroom learning communities.

So I think about my role in the affective domain to support people to engage collaboratively. Because I think they come in with a mindset that's quite an individual discourse, that links with the way that our society rewards those who work individually. And yet some of the more traditional ways and communities have been collaborative and these get eroded by neoliberalism. So I see the way that we encourage students to think about creating community -to teach people to actually broker some of these ideas deliberately, so there's that brokerage role.

Louise's view is premised on the notion that the graduating teachers can be equipped to go out and deliberately foster similar communities of practice in their classrooms. Louise's focus on collaborative community engagement is consistent with the situative point of view.

Lawyer

Louise also identified a Lawyer metaphor, alluding to her encouragement of “clients” to identify and potentially re-think the existing tacit laws they live by, through exposing them to the wider canon of educational knowledge – the body of educational “law”. This form of scholarship can potentially transform learners by enabling them to challenge existing knowledge and assumptions. She aims to build capacity for practitioners to be ‘teacher scholars’ who can engage with research and have a disposition to be research informed.

There’s also a scaffolding that links with the inherent knowledge that is already established in the academy -to sort of lift people up to see what’s on the horizon and to recognize that they are within a huge body of knowledge and they’re engaging in scholarship. Some of that stuff is actually disconcerting, uncomfortable and challenging because that’s what I think good academic literature can do. It can knock people backwards where they go ‘Hell! All these assumptions just need to be rethought!’ ...

Louise critiques the Lawyer metaphor for the way that it too can be perceived as a transmissive, in reifying certain types of knowledge in the academy.

I do think about a Lawyer...and it’s a very sort of ‘customer delivery’ metaphor, which is problematic for me. But there’s also this body of law, this body of knowledge, and people sometimes need a little bit of awakening, and sometimes that knowledge may be. I don’t know - I don’t think the metaphor works particularly well. But I’m just wondering about it, it’s a work in progress.

In problematising the behaviourist point of view that is implicit in her own metaphor, Louise also expresses the internal contradictions between different notions of teaching that can be held by one person.

Provoker/ Bartender

As a teacher committed to provoking transformation, Louise sees that such work is personally and intellectually demanding. Interested in poststructuralism, Louise envisages that students have multiple identities. Therefore, she responds to students by alternately provoking and consoling, taking up appropriate personas to respond supportively to students’ re-location of themselves. The provoker bartender is a binary figure that can catalyse discomfort by challenging assumptions and at other times offers affective support when a student experiences an unravelling.

It links with the destabilizing notion that really resonates with me, Instead of embedding people in specific categories as identities that that they have to conform to, there are always fluid multiple ways of being perceived by others in locating yourself. And so it actually becomes far more complex and nuanced than locating so statically. Like sometimes there will be this provoker at other times it will be the bartender. Where somebody feels like that they just can’t go on and you just go “Sit down and have a drink you know. Talk about it and let’s move on to the next step.” I think we also have to be careful to not be too rigid. I suppose.

The provoker unsettles and the bartender listens. They are complementary players in a critical practitioner, focussing on students’ work in re-locating and re-constructing themselves, consistent with constructivist notions of teaching.

Sentient Machine Piece

Although deliberately brokering and valuing the knowledge of the academy, Louise is conscious of that same academy as an educational machine of which she is a component, and which she perpetuates. Influenced by critical theory, she aims to point out to students how they are produced in the politics of an education machine.

We are part of a machine, an educational machine with a certain sort of views and values, and ways of seeing the world. We perpetuate certain discourses within this modernist way of locating education, and therefore we privilege certain forms of knowledge, and certain academic identities, and I think it's really important not to hide that. We broker material in very specific ways, and help to form the identities of our students. So although I think it's problematic, I do wonder about it.

Louise reflects simultaneously on elements of both situative and behaviourist points of view of how learning occurs: that knowledge is developed through the discourse and operations of a powerful community of practice – the “Academy” but then transmitted to our students in “very specific ways”.

Zeno

Chess player

Zeno expresses a change agenda as a chess game. Through transforming relatively powerless pawns into queens, he evokes a metaphor within a metaphor.

It's a game of chess in respect that you have players that you are dealing with. You can only move them in certain ways; you're never going to change that. Yet you also have a pile of pawns on the front. If you get them to the other end, you can convert them into something new, you can turn them into a queen or a rook or whatever you want, so I think there's these sets of very rigid things that we're dealing with and people's perceptions that are hard to change and some we never will. But we can still win the game at the end. We've got people who are, pretty stuck in their ways or have a mindset that is difficult to change.

Zeno has a transformative purpose that is enacted through the exercise of strong teacher agency and direction consistent with a behaviourist perspective. He knows his students are not totally malleable, yet he wants to convert them – for them to develop the power and mastery exemplified by the chess queen. But not all the chess pieces want to be changed. This metaphor does not address the kinds of knowledge that students need for them to act agentially, transforming themselves into new and more powerful players, and how they might develop that knowledge.

Cat Herder

Zeno also describes a team approach taken by lecturers who do not miss any online activity, keep the group moving and ensure non-“rancid” harmonious relations. The Cat Herder makes instrumental use of relationships to protect a learning environment where people are directed as a group and working as a community to achieve curriculum ends.

And then we've got the herding cats type of thing because... we're dealing with something that's fluid. You know that one rancid post that goes up [online in the learning management system (LMS)] and goes feral can totally wreck your unit. You can send it right off the track. There's the herding cats bit, where you've got

to be very on your toes because they will just dart off the other way. And if you do want to herd cats then you need a team of people working, so that there are more eyeballs around the place. You need to have your working dogs that run around the edges and get everyone back in the flock... Well you miss lots of things because you don't see, you are not engaging with them in a personal relationship, they're just looking at you and running away... I think that herding cats come back to the relationship. It's really the relationship building, which then you can change their behaviours.

Zeno expresses a kind of benevolent behavioural perspective on managing a large number of independent individuals who may sometimes behave unpredictably or badly.

Provider of a Toolset

In a not too dissimilar (if less pecuniary) way to the door-to-door salesperson, Zeno provides students with the tools they require when they encounter employment in schools.

You want to make sure that they have a toolset and understand there are other ways of doing things. Because they're going to come up against students, down the track who don't think anything like them. If they don't have an extra thing to pull out of their little toolbox, they will get into trouble. Remember we are teaching them in an e-learning environment, yet they could be confronted by kids that they have to deal with it in a different way. How do we give them other tools for doing things that might be useful for them down the track?

It is acknowledged here that the students may well require different tools to the ones Zeno deploys in the e-learning environment. Pre-service teachers may have worldviews, experiences and knowledges very different to Zeno's own experience, and although their teacher education is in an e-learning environment, as graduates they will need to be equipped to teach across a range of modes. The provision by the teacher of tools for collection and deployment by students accords with a behaviourist point of view (Martínez et al., 2001).

Summary of Results

The following table (Table 1) summarises the salient characteristics of the particular subject position metaphors described above. We detail these positions in terms of the five exploratory frameworks we used: the objects of our teaching, the form of curriculum, and notions of the location of agency, characteristics of students and the nature of knowledge generation, together with the relevant epistemological category according to Martínez et al. (2001).

Immediately apparent in Table 1 is the variety and multiplicity of the metaphors expressed by each of us to communicate different aspects of our practice and PKLs. There were no dominant metaphors, or unitary metaphors expressed that captured our individual PKLs.

Also evident in Table 1 is the variable consistency between ontological positioning, epistemology and practice revealed for each of us by the joint analysis of our metaphors. For some of us (Ben and Zeno) our metaphors reflected a degree of consistency in our ontology, epistemology and practice. For example, behaviourist ideas of learning as acquisition of knowledge by students from agentic teachers were expressed fairly consistently by Zeno. For others the metaphors invoked reflected a range of the three categories of epistemology (Martínez et al., 2001), depending on the aspect of our PKLs at the focus of discussion. For

example, both acquisition and constructivist perspectives of knowledge generation were evident in different metaphors articulated by Patrick. Behaviourist notions of knowledge acquisition were also evident in one of Louise's metaphors, co-existing with her other expressions of knowledge as created through collective discursive dialogue, which are more consistent with the socio-historical/ situative perspective described by Martínez et al. (2001, p. 967).

In terms of the differences *between* the researchers revealed by the metaphors in Table 1, arguably the most apparent were the objects of our teaching and our views of students. Each of us expressed very different and often multiple goals and purposes of our teaching – of what we were trying to do within our professional work. This related in part to the range of perceived demands of the disciplinary areas within which we were operating, but also related to our views of the characteristics and needs of our students as well as our personal commitments to wider purposes of education.

Perceptions of curriculum, as predetermined and not negotiated, were expressed by those of us from Science/ICT backgrounds and teaching responsibilities, but with Patrick (ICT) also expressing the need for students to select and modify ICT tools for their own context, hence negotiating that component of their curriculum. This contrasted with Louise and Kojak who, in line with the critical theory they espoused, questioned the role of curriculum in pre-service teacher e-learning. An emphasis on teacher agency was prevalent in most of our metaphors, which also revealed to a much lesser extent considerations of some aspects of student agency by Louise, Kojak and Patrick.

	Metaphor	Learning Objects	Curriculum	Location of Agency	Notions of students	Notions of Learning & generating knowledge	Martinez et al. (2001) classification
Patrick	Travel Agent	Risk taking Pedagogical innovation Exploration	Negotiated	Teacher & student	Agentic, self-directed	Co-constructivist, discovery learning	Cognitive/ constructivist
	Flight instructor	Co-production of knowledge	Negotiated	Teacher & student	Needs are contextual	Acquisition and Co- construction (of different kinds of knowledges)	Behaviourist/ empiricist (knowledge of ICT) + Socio-historical/situative (contextual knowledge)
	Door to Door Salesman	Student acquisition of & proficiency with e-tools	Pre-determined	Teacher	Need specific tools for accreditation	Acquisition	Behaviourist/ empiricist
	Cheerleader	Student disposition of risk-taking through trying e-tools	Pre-determined	Student (within the teacher's parameters)	Unfamiliar/ uncomfortable with ICT	Acquisition	Cognitive/ constructivist
Kojak	Reluctant Banker	Dynamic and critical knowledge production <i>with</i> students	Critically co-constituted	Teacher agency (Student reluctance)	Instrumentally-motivated surface learners	Situative, participatory	Socio-historical/ situative
	Critical friend	Student success Avoidance of offence Inter/action	Critically co-constituted	Teacher & student	Instrumentally-motivated surface learners	De- & Re-construction	Cognitive/ constructivist or Socio-historical/ situative
	Experimental pilot	Determining effective e-pedagogy	Inductive	Teacher agency	N/A	Construction	Cognitive/ constructivist
Ben	Landscape Gardener	Students' critical thinking & disciplinary understanding. Enjoyment	Predetermined – not negotiated	Teacher	Engage when enjoy learning context, don't know yet what's important	Construction	Cognitive/ constructivist

	Thwarted Explorer	Managing own commitments	N/A	Teacher constrained	N/A	Construction	Cognitive/ constructivist
Louise	Broker	Shaping learning dispositions	Performative	Student (within the teacher's parameters)	Individualistic	Collective/ participatory dialogic	Socio-historical/ situative
	Lawyer	Critical transformation : Research-informed teacher-scholars	Negotiated	Teacher	Have assumptions	Acquisition	Behaviourist/ empiricist + not Behaviourist/ empiricist
	Provoking Bartender	Critical, transformation, destabilise hegemony, protect student well being	Critically co-constituted	Teacher	Multiple identities	De- & Re-construction	Cognitive/ constructivist
	Machine Piece	Surfacing hegemony of hidden curriculum & hierarchies of knowledge.	Critically co-constituted	Student and teacher cast an acted upon systemically	Products of academic system	Simultaneous acquisition and situative	Socio-historical/ situative and NOT Socio-historical/ situative
Zeno	Chess player	Changing students-transformation	Pre-determined, not negotiated	Teacher	Some malleable, some not	Acquisition	Behaviourist/ empiricist
	Cat Herder	Good learning environment & changed behaviour	Pre-determined, not negotiated	Teacher	Can be unco-operative	Acquisition	Behaviourist/ empiricist
	Provider of toolset	Tools to deal with school children & keep out of trouble	Pre-determined, not negotiated	Teacher	Can be "deficient" in tools	Acquisition	Behaviourist/ empiricist

Table 1: Metaphors of e-pedagogy in higher education

Discussion

In summary, in relation to research question 2, our individual and collective PKLs as revealed by the analysis of our metaphors of our online teaching practice are indeed complex and multilayered, as conceptualised by Clandinin and Connelly (1996). Further, our individual PKLs in some cases encompass aspects that appear to be internally contradictory, such as the way knowledge is generated. The fact that the landscape is multilayered and complex means we all have had to resort to using multiple metaphors to adequately describe how we see ourselves and what we do. Rather than a single lens framing our practice, the landscapes might be better conceptualised as a set of overlapping and interacting lenses that we deploy in different contexts.

Reflection on our metaphors, in relation to research question 1, reveals that many of them are limited, partial and problematic. They reveal tensions between the metaphors of teaching and learning held by teachers and learners, in reflection of the intricate real-life work of teaching. For example, we are aware of the limitations of being a Travel Agent for students who are not exercising agency, or are unsure where they want to go; of being a Critical Friend for students who may not welcome or respond to the proffered interaction, or a Lawyer for students who are not disposed to be research-informed. For example, a situative perspective of knowledge construction was expressed by Kojak through his Reluctant Banker metaphor, which he viewed as problematic because it was not shared by some students, who wanted to *acquire* knowledge (and credentials). As suggested by our metaphors, variation in our desired educational objects and those of our students impacts our practice, thus requiring practitioners to engage with a range of pedagogical means and personas. We are in some respects positioned by our students, and by our perceptions of our students, in ways that can contradict our epistemological convictions or knowledge of e-pedagogy principles. One of the affordances of exploring metaphors is in foregrounding alternative ways of acting and being: strategically and reflexively changing lenses in response to different students and different contexts.

Another important influence on the metaphors we adopt is the object of our teaching, which can be conceptualised as our motives for our activity in relation to its desired outcomes (e.g. Karkkainen, 1999). Our teaching object is focal in driving our teaching, yet is ambiguous, multiple and can be internally contradictory (Engeström & Sannino, 2010, pp. 4-6). For example, helping an online student to learn about the uses of a particular ICT tool may be facilitated by an element of transmission of information, while other broader purposes sit more easily with more disruptive or more socio-historical/ situative approaches. The knowledge-by-acquisition motif that is very apparent in some of our metaphors sits uneasily with our understanding of the range of critiques of teacher-focussed transmission teaching in higher education, (e.g., Englund, 2017; Prosser & Trigwell, 1999), and of the affordances of Web 2.0 tools in student-created content, co-creation and sharing of knowledges and understandings. However, we see this aspect to our collective PKL as aligning with some of the objects of our practice.

The diverse range of learning objects articulated, that is so apparent in Table 1, reflects the influence of our respective particular cultural-historical experiences, theoretical allegiances, and the multiple influences of the mandated curricular, institutional and broader socio-political agendas (e.g., perceived demands of disciplinary areas, satisfying accountability measures) that influence our work as pre-

service teacher educators. So, in these terms, PKLs are shifting sands, potentially impacted by, and in turn impacting, the range of outcomes teacher educators and their students aspire to achieve.

Because we see the professional knowledge landscape as composed of relationships among people, places, and things, we see it as both an intellectual and a moral landscape (Clandinin & Connelly, 1996). The metaphors we drew on were shaped by our varied disciplinary backgrounds and the nature of our disciplinary knowledges. They were also an analytical heuristic that allowed us to capture images of ourselves in action, and to surface power relationships espoused in the way we talk about our practice. For example, the highly visible teacher agency in our metaphors and relative invisibility of student agency provoked discussion and collective reflection on the purposes of our practice. The prominence of teacher agency is not surprising, given the power of curriculum and policy frameworks to determine the nature of learning and power relations in education.

Our analysis of metaphors also reveals PKLs where there is a normative aspect to practice alongside moral purpose and critical attacks on hegemony. The prevalence of "power relations in current educational policies" is a recurring theme in the scholarship of critical social policy (Ball, 1993, p. 106). For example, the knowledge -by-acquisition pedagogy which we have at times adopted to meet some learning objects is a manifestation of the banking concept of education, where there is an emphasis on receiving, filing, and storing deposited information, which has been critiqued by Freire (1972) and subsequent critical pedagogues (e.g. Jackson, 2016) for its role in perpetuating existing oppressive social systems.

This surfacing of the normative aspects of our practice and associated rather dubious power relations through our analysis of metaphors raised other fundamental questions for our collective consideration. Do we see ourselves as distance pedagogues who can e-manipulate passive pawns to our own ends? Or are we positioned that way by the students and/or the academy? For example, the discussion raised and questioned a culturally located assumption in response to the Lawyer - is it appropriate to universalise the value of criticality? In reflecting on this previously unquestioned assumption, we argue that for teacher education students who will be engaging in the contested political space of education, awareness of legitimatised hegemonies, reflexivity in their approach to their roles in knowledge production and awareness of whose knowledge is most valued within legislated curricula are important and worthwhile capabilities. Similarly, is an intentional 'destabilising' of students views and beliefs by the Bartender a moral exercise of teacher agency, even when practiced with moral purpose by a benevolent and supportive teacher? This has raised the question of whether it is ethical for us to explicitly set out to change somebody's mindset. Perhaps it refuses the legitimacy of the values and attitudes that students bring with them to teacher education.

Sharing our metaphors also generated some epistemological/axiological collisions which prompted us to critically reflect on each other's and our own practice, and to generate new perspectives and enhancements for our own teaching. For example, in developing a new unit with his team, and in part influenced by Patrick's Travel Agent metaphor, Ben has applied a more student-centred approach to the unit design where the students choose between a small number of possible learning pathways based on an initial diagnostic assessment. By surfacing the amount of banking we are doing, the process of analysing our metaphors has prompted some reflection on this aspect of our collective practice, especially as we are educating pre-service teachers to transcend transmissive approaches.

The exploration of new “spaces of imagination” (Cook-Sather, 2003, p. 19) is critical in pre-service teacher education, because as pointed out by Lakoff and Johnson (1980) in their seminal work, people in power are able to wield and impose their metaphors. As pre-service teacher educators, we are in a position of power relative to our students and through our practice we are indirectly imposing and potentially transferring our own metaphors. The extent to which the metaphors that we enact might interact with our students’ metaphors, perspectives and habits of mind is likely to be variable and difficult to assess. However, the metaphors we impose via the language we use and the actions that we take may well frame the perspectives and metaphors taken up by the pre-service teachers that we teach. The possible interchange of teacher and learner metaphors is an interesting question that warrants further research. At the very least it is important that we critically reflect on the ways that we approach our students and what it is that they see through the e-learning interfaces we use, and furthermore, we do not unwittingly impose and perpetuate metaphors that constrain pre-service teachers’ subsequent teaching practice.

Along the lines advocated by Bullough and Stokes (1994), we see comparing and exploring our metaphors as a useful means of self-exploration, that allows us to both develop different ways of conceiving of teaching in a distance education context and reflect on the implications of our existing conceptions.

Conclusion

In addressing research question 1, our discussions about e-learning spontaneously surfaced multiple metaphors of different aspects of practice, through which some of the contours of our PKLs were mapped. While Craig (2018) highlights how individual teachers’ sense making and knowledge creation processes can be fostered through exploration of metaphor, we demonstrate how teacher educators’ metaphors are multiplicitous, can operate simultaneously, and in self –contradictory ways. The Cat Herder, the Bartender, the Reluctant Banker and other figures of our conjuring reflect the changing lenses in the PKLs we draw from. These metaphors are multiple, unstable, fluid, shifting and changing. They reflect the ebbs and flows of complex interactions, where in the constantly shifting PKLs of pre-service teacher education, teacher educators negotiate and renegotiate situative spaces.

In relation to research question 2, our analysis of metaphors exposes to us some of the nuances of our own PKLs, reflecting and revealing inconsistencies in our positioning as practitioners. By exploring our different metaphors, we elaborated on individual personal professional practice and open “new spaces of imagination” (Cook-Sather, 2003, p. 19) and action. In this way, our shared exploration of metaphors became a powerful and satisfying form of professional learning, which, in accordance with findings of Miller, East, Fitzgerald, Heston and Veenstra (2002, p. 81), resulted in the development of “professional intimacy” that has influenced our own professional practice.

Conceptions of knowledge and of learning influence the metaphors taken up in the socially mediated spaces of online learning environments. Over the space and time dimensions of e-pedagogy, we draw from various metaphors for pedagogical praxis at different times, depending on our beliefs about knowledge construction, the dynamics of the technologically mediated relationships we are building, our views of our students and the focal object/s of our teaching. The porous border between the inside and outside of our virtual learning spaces/times allows for the considered choosing of actions and

reactions, arguably even of different personae, for different purposes. The choices we make, which are inextricably linked to the PKLs we bring to our work as e-pedagogues are potentially powerful and far-reaching, and need to be carefully deliberated.

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