Threshold Concepts: FROM PERSONAL PRACTICE TO COMMUNITIES OF PRACTICE

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Now I know why I have been knocking my head against a brick wall: Doctoral candidates and stuck places

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Biographical Note
Dr. Margaret Kiley research and teaching has focused on research education including: the examination of theses; candidates'/supervisors' conceptions of research; mapping Honours across Australian universities; and the introduction of coursework into the Australian PhD. Margaret works at the Australian National University, where she is the Convenor of the Graduate Research Network of Education. She also holds a conjoint position at the University of Newcastle.

KEYWORDS
PhD, stuck place, research education, threshold concepts.

Abstract
The research reported here was motivated by a comment from a doctoral candidate. I had asked her, as a Research Assistant, not as a candidate working with me, to check a manuscript on Threshold Concepts in doctoral education in preparation for publication. Her main comment after reading the paper was, “If only I'd known that I was just in a stuck place it would have made it so much easier”.

So began work with doctoral candidates to help them understand doctoral study as:

- an extended period of learning where the candidate might be in a liminal state until crossing the threshold of completion and 'graduation', and
- a period made up of a number of threshold crossings as candidates understand the various concepts that challenge them (Kiley, 2009), each preceded by a state of liminality and maybe being in a 'stuck place'.

Background
There is considerable research on doctoral education (for example (Mowbray and Halse, 2010; Walsh, 2010; Platow, 2012) and some initial work on Threshold Concepts in research learning through the doctorate (Leshem and Trafford, 2007; Kiley, 2008; Wisker and Robinson, 2009; Kiley, 2010). Trafford and Leshem (2009) suggest that 'doctorateness' 'combines both 'doing' and 'achieving' a doctorate and so it merges the issues of research process and research technique' (p. 205). They suggest this activity is made up of twelve components, which when understood as a whole actually make up a Threshold Concept, and which they term 'doctorateness'.

In one of the early works on Threshold Concepts in learning to be a researcher, Kiley (2009) identified six possible Threshold Concepts: argument/thesis, theory, framework, knowledge creation, analysis, and research paradigm. However, these concepts had been identified by supervisors and I was keen to see if candidates identified the same concepts. Furthermore, and more importantly for this paper, I wanted to learn if it was helpful to candidates in understanding their learning situation to introduce the idea of Threshold Concepts and the related research, for example, liminality, mimicry and being stuck.

Therefore, the question I set out to ask was: Does having an understanding of Threshold Concepts in research learning assist doctoral candidates to appreciate their own learning?

Methodology
Ten candidates, undertaking a PhD in Higher Education, were given a copy of a paper which outlined the notion of Threshold Concepts and identified a number of possible concepts in learning to be a researcher (Kiley, 2009). The aim was to ensure that they had some understanding of Threshold Concepts.

Following ethics approval, discussions occurred in the regular monthly group meetings (two groups of five candidates each) which had been established over twelve months earlier. Group members had become very collegial and open with opportunities to share experiences and to seek assistance from others. As part of this study, during the group meetings.
participants were asked to share, if they wanted to, any concepts with which they were struggling. One of the aims of undertaking this exercise in groups, rather than individually, was to develop the existing peer support within the groups.

While the discussion was occurring, as the researcher and supervisor, I took notes. Also, along with the others in the group I asked questions for clarification. This was very much a discursive activity with no intention of trying to gain consensus within the group but rather to identify the experiences of individuals. Unsurprisingly, given that they were all doctoral candidates, in many cases their experiences were similar.

The notes were analysed following each of the meetings and then the analysis reported back to the next meetings of the groups. Manual coding of the notes was undertaken through seeking particular ideas and comments and those were then clustered into themes. The analysis was then taken back to the next group meeting where the participants were invited to comment on the analysis and if necessary, modifications were made in consultation with the group.

In the reporting back, each candidate had been coded, e.g., O2, rather than using their name. What was particularly interesting was to note the number of times, having read the findings, participants would comment along the lines of, "Number XXX must be XXX, that sounds just like him" even when the person had been in the other group. To me this indicated how close the candidates had become in appreciating the experiences of their peers.

**FINDINGS**

The analysis suggests that there were four major themes: learning about...; liminality; specific Threshold Concepts; and strategies for learning.

**LEARNING ABOUT**

The theme of learning about included four main categories and those were learning about self as a person, self as a learner, teaching, and the research process.

One of the strongest findings was candidates’ reports of learning about themselves as a person. For example, O1 had recognized a pattern in herself and that is, she encounters a challenge, panics and feels she can’t meet it, then tells herself, "OK I can do this". Following from this, once she feels she is in a position to teach the new concept to someone else, then she knows she has ‘got it’. In a similar vein, O7 has discovered that he had a tendency to be a quitter and he would feel defeated and then someone would say something positive and he would decide to have another go. However, through his doctoral studies he is beginning to feel he has, "developed a sense of perseverance". And O4 reported that she is gaining substantially in confidence; now she won’t take ‘No’ for an answer, she wants to ‘have a go’. In a very different way O7 had learned that, "I think I am too applied for academia. I think I can do more in industry, in professional development for example".

In learning about self as a learner for example, O6 suggested that something that has been important for him is understanding himself as a learner. Whereas O2 has realized that she likes the challenge of being busy, especially intellectually, and O1 has discovered that sometimes if she really wants to learn something she puts herself into the position of having to teach it.

Something that O4 has learned about herself as a learner is that she needs to ‘do’ something to be able to actually understand it. She thinks she knows something but then when she goes to do it she realizes she doesn’t. But by trying to do it, she manages to learn it. "I also needed to practise research" reported O6 "I am sure it reflects my learning style. I learn by practice, very hands-on and many iterations of the process".

Given that all candidates were in the graduate field of Higher Education it is not surprising that one of the findings related to candidates was learning about teaching, although not in a formal way through coursework but by being a learner. For example, "The words [in Research Methods] had no actual meaning", says O2 "so you can't ask a question because you don't know what you don't know". However, once she was in this position herself as a learner she could appreciate the difficulty in other learners that she was teaching.

Finally, and unsurprisingly, participants talked about learning about the research process. For example, O1 reported that she has gained a good understanding of qualitative methods and would like to teach Research Methods when she has finished her doctorate, especially as now she has experienced that, "Analysis is the reality, prior to that it is a bit of a fantasy". Perhaps more prosaically was the comment by O6 regarding the time-consuming nature of research. "In the PhD [report] you say you developed a survey and piloted it, but the whole thing took a year and so I guess that was part of the learning to do it".

NATIONAL ACADEMY SIXTH ANNUAL CONFERENCE
LIMINALITY
Being in a state of liminality, as Meyer and Land (2006) suggest, involves mimicry, oscillation and being in a stuck place, all experiences reported by participants.

As 06 commented, "This [being in a liminal space] really resonated, especially mimicry. I had no idea what they meant but I used the terms anyway. At the beginning I thought of myself as a researcher but I soon realized the difference between being a researcher in Social Science compared with Science. I can see now that my understanding of Social Science research was very limited".

"The examples of Threshold Concepts at the doctoral level resonate with me" reported 03. "Also the idea of oscillation – of movement around concepts, thinking away from a position then back to that (or a similar) position is credible. I find that the same key ideas I was working on two years back are still in the foreground – notwithstanding an elaborate dance around these, and my research question".

'Being stuck' was something that only a few spoke of specifically which, as their supervisor, I found particularly interesting as I had observed each of them at different stages being quite 'stuck'. The sense of being in a stuck place often resulted in, or came close to tears of frustration. This frustration was further explained by 03 who suggested, "It is very visceral trying to cross the threshold. It is probably when you really think about opting out".

SPECIFIC THRESHOLD CONCEPTS
From the analysis, there were two concepts which the participants discussed which have not been reported in the previous literature; these were research as an iterative process and the concept of unlearning previous ways of thinking.

Several of the participants talked about their new-found understanding that 'research is an iterative process'. For example, in her previous research experience, 04 had found that the research, "had all been planned out and ran to plan with no changes" but with her PhD research, she came to the realisation that she needed to be open to changes and developments as the research progressed. Similarly, for 06, "The other thing is that research is an iterative process especially understanding the actual process of collecting data and seeing what's there".

'Unlearning previously held ways of thinking or views' was a concept that several raised. For 03, this unlearning was that he had to unlearn his ingrained approaches to thinking about data and its analysis. In a similar vein 06 commented, "That was one of my Threshold Concepts when I realized I had to look at what my data said, not what I thought". For another candidate, he reported that he felt he was forever fighting his ideological position and that he was imposing ideological judgments on the data, rather than seeing what the data were indicating. "When I actually understood this it was a monumental change" (07). Another 'light-bulb' moment for 06 came from talking with another student who said, "You've already made your assumptions and now you are setting out to prove them, not to find out what your participants think. I know this is another thing that you [the supervisor] had talked about a lot, but it wasn't until that moment that it actually clicked".

Three other concepts already reported in the literature, and which were discussed by participants, were the concepts of theory, epistemology, and argument.

With regard to theory, 02 learned to let go of her own ideas about theory and realize she could develop her own theoretical perspective, that is, a framework made up of several different theories. From a different perspective, and with hints of mimicry, 06 commented, "Theory was another thing I didn't understand, people kept asking me about my theoretical perspective but I didn't have a clue what they were talking about".

'Epistemology' was another concept with which, as their research supervisor, I had noticed many of the candidates struggle. What had helped 05 with a breakthrough was from the Research Methods class about the bottom-up and top-down approach to research. As he worked through the readings for the course he commented that he finally understood epistemology, "Now I can see that 01 is doing her research the way she is because she is who she is and I am doing it this way because I am a top down sort of person" (05).

Finally, 'argument', which had challenged a number of candidates including 06 who commented, "A major threshold concept for me was argument. I was really stuck on argument and the meaning of argument. I finally had a breakthrough when talking with peers. I know you [the supervisor] had gone on about it for years, but when I was talking with [two peers] it suddenly clicked" (06).
STRATEGIES
As a supervisor I was very keen to learn if the candidates could suggest strategies that had helped them with the learning challenges that they had encountered during their period of candidature. From the data, three particular strategies emerged, the importance of peers, the importance of time, and the use of outside milestones in addition to the formal ones of the university.

With regard to the 'importance of peers', 06 reported, "As a part-time student I felt isolated and then I made an effort to get more involved and it made it much easier. It was all about peers, being able to chat, and go to Manning Tree, that's nice. Especially when there are visitors. It is good to be in an academic community. That's the big difference between here and where I was before" (06). For 02, a relatively new candidate, her observation was particularly telling, "Yes you can see that others have moved through it. There was a time when it seemed everyone was stuck and very depressed and I wondered if it (this depression) were contagious and I didn't want to catch it, but I think it was because everyone was at the same stage (that is, analysis)".

The 'importance of time' was of particular interest to me as a supervisor and I specifically asked the question, "With some of these light-bulb moments (that they had discussed), could they have happened earlier if someone other than your supervisor had talked about them?" It was in response to this question that the most common response was epitomised by 06 who suggested, "No, I needed to lead up to it. I don't think I would have understood until I had a marriage between theory and an understanding of research methods".

The third strategy that was suggested was 'the use of outside milestones' to assist with learning, development and confidence. As 03 suggested, "The university's concrete milestones like ethics etc., these are all helpful but the outside milestones are also very helpful like conference presentations". Candidates had noted the benefits of attending conferences in earlier discussions. They had suggested that having to prepare a presentation for a conference or a manuscript for a journal provided a strong motivation for getting the work done as well as an opportunity to monitor their learning.

DISCUSSION AND CONCLUSION
From the nature of the discussion and the comments made, it was clear that doctoral candidates found it helpful to have explicit discussions related to Threshold Concepts in research learning and reflect on their own learning. Through the discussions they indicated that three of the previous Threshold Concepts noted in Kiley (2009), that is, theory, epistemology, and argument were of particular concern to them. Furthermore, they identified two additional concepts, not reported in the earlier study, that is, research as an iterative process and unlearning previously held ways of thinking or views. Also, of particular interest to me as the supervisor was the level of debate and discussion among the participants in the group. Only one, that is 08, commented that she wasn't sure she had learned any of the specific concepts but she had certainly learned about alternative approaches to research.

The activity will be ongoing with current and new candidates as I have found that it is a way of helping them to appreciate that there are specific concepts related to learning to be a researcher and that a) if they are having difficulty they are not on their own, and b) there are strategies to assist in learning those concepts, and c) there are ideas such as liminality that can help explain the situation.

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REFERENCES


