

# Teaching threshold concepts as points of arrival?: Effective teaching and student well-being

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## Abstract

*In 2014, we suggested that a conversational framework utilizing horizontal and vertical relationships in the classroom can provide a robust framework for effective teaching of threshold concepts (McCulloch & Field, 2014). This paper continues to explore this framework, examining the nature of threshold concepts in the larger context of student well-being. We argue that successful teaching of threshold concepts can promote student well-being, and that this is possible if intentional pedagogical design is located in an enabling and empowering framework informed by notions of effective learning and teaching practice and the self-determination theory of positive psychology (Ryan & Deci, 2000, 2008). First, the paper briefly explains threshold concepts, highlighting the challenges they present for students and tertiary educators. Second, we outline their relevance to student well-being. Third, we interrogate the nature of threshold concepts a little more closely, and consider where the best points of departure for teaching should be situated. Finally, we bring these elements of thinking together with some illustrations of possible teaching practices that demonstrate the potential for teaching threshold concepts as an empowering learning and teaching experience that can enhance student well-being.*

## Introduction

Threshold concepts are a challenge for effective learning and teaching practice in higher education (Meyer et al, 2015). Meyer, one of the founding fathers of the theory of threshold concepts (along with Ray Land), has said with Timmermans that ‘after more than a decade of flourishing international research on threshold concepts in the disciplines’ tertiary educators must now ask:

How do we translate the rich findings of this research into a theoretically sound and actionable form, so that they are of use to instructors, students, and educational developers? And how may we do this in a way that brings unity to the approach while remaining non-prescriptive and adaptive to the various contexts in which threshold concept research and practice occur? (Meyer and Timmermans, 2015, p.1).

In 2014, we suggested that a conversational framework utilizing horizontal and vertical relationships in the classroom provides a robust framework for effective teaching of threshold concepts (McCulloch & Field). In this paper, we continue to explore the possibilities of our framework, this time situating our analysis in a further examination of the nature of threshold concepts, and in the larger context of student well-being. We argue that successful teaching of threshold concepts, because they are ‘troubling’ sites for student learning, can work to *promote* rather than impede student well-being, and that this is possible if intentional pedagogical design is located in an enabling and empowering framework informed by notions of effective learning and teaching practice and the self-determination theory of positive psychology (Ryan & Deci, 2000, 2008).

This paper begins with a brief explanation of threshold concepts, highlighting the challenges they present for students and tertiary educators, and then outlines their relevance to student well-being. We then interrogate the nature of threshold concepts a little more closely, and consider where the best points of departure for teaching should be situated. Finally, we bring these elements of thinking together with some illustrations of possible teaching practices that demonstrate the potential for teaching threshold concepts as an empowering learning and teaching experience that can enhance student well-being.

### **Defining threshold concepts**

Threshold concepts are foundational elements of understanding in a discipline; and they are transformative and integrative in nature (Meyer & Land, 2006). Meyer and Land provided the classic explanation of threshold concepts in their 2003 work, *Threshold concepts and troublesome knowledge: Linkages to ways of thinking and practising within the disciplines*:

A threshold concept can be considered as akin to a portal, opening up a new and previously inaccessible way of thinking about something. It represents a transformed way of understanding, or interpreting, or viewing something without which the learner cannot progress. As a consequence of comprehending a threshold concept there may thus be a transformed internal view of subject matter, subject landscape, or even world view. This transformation may be sudden or it may be protracted over a considerable period of time, with the transition to understanding proving troublesome. Such a transformed view or landscape may represent how people ‘think’ in a particular discipline, or how they perceive, apprehend, or experience particular phenomena within that discipline (or more generally).

Ackerland et al (2010, p. 2) explain that the transformative nature of threshold concepts relates to the way in which understanding them ‘enables students to coherently integrate what were previously seen as unrelated aspects of the subject, providing a new way of thinking about it.’ As Davies has said: ‘When an individual acquires a threshold concept the ideas and procedures of the subject make sense to them when before they seemed alien’ (2006a, p. 74). Meyer and Land (2006) argue that novice learners must understand and internalise the threshold concepts of their discipline if they are to successfully proceed with their learning in that discipline.

And yet the process of reaching understanding and internalising threshold concepts is not straightforward. This is because such concepts are considered ‘troublesome’ (Meyer & Land, 2003, pp. 5-9) in that they are counter-intuitive, disruptive of previously settled understanding, and not only intellectually but emotionally (and perhaps epistemologically) challenging for new learners (Perkins, 2006; McCulloch & Field, 2014). For this reason the theory of threshold concepts helps us to understand ‘why many students “get stuck” at common points in the curriculum and why some students can pass a course exam, but are not necessarily able to apply their learning when in a professional setting’ (Ackerland et al, 2010, p. 2).

For this reason, threshold concepts can be thought of as the ‘jewels in the curriculum’ (Land, Cousins, Meyer & Davies, 2005, p. 5), providing ‘a diagnostic role in curriculum design, highlighting for teachers areas of the curriculum that deserve special attention, not only because they represent transformative learning points, but because this is where students are most likely to experience difficulties in their learning’ (Akerland et al, 2010, p. 2). For tertiary educators, the troublesome nature of threshold concepts offers a special opportunity to promote student well-being. This is because effectively supporting student learning of threshold concepts works to support not only the acquisition of new discipline knowledge by students, but can enable and empower students to move forward in their discipline with confidence. Therefore, the teaching of

threshold concepts is a critical component of curriculum strategies for the promotion of student well-being.

### **Current concerns and theorizing about student well-being**

In recent times, the Australian tertiary sector has become increasingly concerned about the psychological well-being of university students. The work of Helen Stallman in 2010 and 2011, for example, evidenced a distinct decline in the psychological well-being of students at university. Catherine Leahy's 2010 study of the prevalence of psychological distress in different faculties and disciplines at the University of Adelaide indicated that of the 955 students surveyed, 48 per cent were classified as being psychologically distressed. More recently, Wendy Larcombe's work at the University of Melbourne confirms that elevated levels of psychological distress are occurring in students across many different disciplines at university (2014). The quality and depth of tertiary student learning, and levels of student engagement and success, are undoubtedly negatively impacted by the experience of high levels of psychological distress, and therefore warrant attention.

Activity in the sector is increasingly focused on this important issue. For example, in 2010, the Australian Learning and Teaching Council funded a Teaching Fellowship to stimulate strategic change in legal education to address high levels of psychological distress in law students (Field, 2014); in 2011, the University of Melbourne's Centre for the Study of Higher Education hosted a National Summit to assist 'the sector to develop improved policy and practice responses to the growing incidence of mental health difficulties and mental illness on campus' (CSHE, 2011); and in 2012 the Office of Learning and Teaching funded a priority project on curriculum renewal to build student resilience and success (Cranney et al, 2012).

There are many potential causes for the elevated levels of psychological distress experienced by students at university. Indeed, there is no *one* cause that can simply be identified and addressed. Rather, a range of integrated approaches is needed to ensure that all students can access interventions and supports that will be effective for their personal situation. Many Australian universities already provide excellent student success and retention, counselling, equity and other support services.

In terms of theorising to explain and measure student well-being, the most promising avenue seems to be self-determination theory. Self-determination theory (SDT) is an important, albeit relatively new, macro theory of educational and positive psychology which seeks to explain how and why an individual's behaviour is self-motivated and self-determined (Ryan and Deci, 2008, p. 654). The first element of SDT involves three basic psychological needs that humans have as the basis for self-motivation, self-determination and well-being: autonomy, competence and relatedness (Niemiec, Ryan & Deci, 2010). 'Autonomy' refers to the self-governed, volitional nature of an individual's behaviour and the capacity to act in congruence with one's true beliefs, values and interests, or in other words to be the causal agent of one's own life. 'Competence' concerns an individual's 'experience of effective interactions with the environment' and their sense of ability, capability and mastery in relation to tasks and challenges (Niemiec, Ryan & Deci, 2010, p. 176). 'Relatedness' concerns the universal desire to bond and interact with other people, and experience caring for them; the experience of meaningful and reciprocal connections with key others (Niemiec, Ryan and Deci, 2010, p. 176). The second element of SDT concerns motivation – with both intrinsic and extrinsic forms of motivation relevant to self-determination

and well-being – but with the importance of intrinsic motivations and goals highlighted because they are driven by reference to an internal motivator that connects with one’s values and beliefs.

### **Student well-being and the academic curriculum**

As shown above, many areas of student life are being investigated and theorised in an effort to introduce measures to maximise student well-being. However, one area of intervention that has not yet been substantially explored is that of the academic curriculum itself, and its realisation through teaching interactions with students (Field, 2014; Cranney et al, 2012). This seems rather curious, since learning a discipline, as manifested in a curriculum, is the reason why students have come to university in the first place! The curriculum is surely a fruitful area for enquiry, and one question that might immediately be posed is: are there any places in the curriculum that might be seen as critical for student well-being? And if so, are there any conceptual and/or operational tools that could usefully be used to connect the curriculum, students and ‘well-being’?

The difficulties students have in mastering threshold concepts certainly suggest one site of critical importance for their learning and well-being. Students struggling to understand the threshold concepts of their discipline experience feelings of uncertainty, ambiguity and disorientation, collectively referred to in threshold concept literature as the state of ‘liminality’. Students going through this time of ‘not understanding’ feel disempowered and lacking in confidence, which as the theory of self-determination states, is likely to have a negative effect on their well-being. . In fact, though there is no empirical evidence to categorically establish this at present, one might hypothesize a link between the state of liminality and the evidence we have of the declining psychological well-being of commencing university students. After all, if one experiences doubt, confusion and uncertainty in the area that is the very *raison d’être* for coming to university, that is hardly likely to conduce to a state of empowerment or well-being.

In fact, when we look more closely at liminality and consider it through the lens of SDT theory, it is apparent that a student in these ‘stuck places’ is the very converse of a ‘self-determining individual’ That would then suggest that, if ways could be found to maintain and support student autonomy, competence, relatedness and intrinsic motivation while they are engaged in threshold concept learning, then perhaps they may avoid, circumvent or at least shorten the time they spend in the uncertain and distressing ‘liminal’ space. . We see this as a exciting but challenging question for threshold learning pedagogy, and to begin to answer it we return to the theorizing of threshold concepts, interrogating further the nature of a threshold concept first in a disciplinary, and then in a pedagogical, context

### **Threshold concepts: points of arrival or points of departure?**

The words and phrases of a ‘threshold concept’ express, in precise fashion, some aspect of the discipline’s perspective on the world, which is what differentiates its concerns and priorities from those of other disciplines (eg an often cited example from the TC literature is ‘opportunity’ in Economics). A threshold concept is therefore a summative statement in a discipline, a particular arrival point in that discipline’s thinking. Behind it sit assumptions, passages of thinking, theories, and paradigms that pertain to the priorities and issues of the discipline and its field of operation.

Writing on disciplinary threshold concepts in Economics in 2006, Peter Davies observed:

A threshold concept may be described as a particular way of understanding the world, but acquiring that threshold concept also involves appreciating how one might arrive at that understanding of the world. Put another way, you do not understand a threshold concept until you have understood the assumptions that generate it. ... It is the way of generating the concept that is usually omitted in current teaching, which starts with the outcome of economic reasoning, not the process of generating the insights that make economics a powerful way of thinking...(Davies, 2006b).

Davies (2006b) is saying here that, when considering the teaching of a threshold concept, it is pedagogically more sound to begin with the preceding steps, to consider the underpinning, generative assumptions, and to make these the starting point of learning. He points out what can happen if this is not done:

A problem for students yet to acquire a threshold concept that is lurking in a theoretical explanation, is that it is far from obvious to them that the world should be portrayed in the way constructed by the theory. This leads them to think that their learning is to be the acquisition of a set of formal models, and that they have to demonstrate that they can reproduce and manipulate these models ... They have not been given access to the theorising which leads economists to construct a particular model of a situation.....

In fact, this makes perfect sense. Teachers know how important it is to ‘start from where the students are’ and that if this is not done, students may fail to grasp discipline fundamentals, and default instead into the features of surface learning, like memorization and ‘mimicry’, rather than engage in the deep learning that leads to understanding and mastery. However, if the teaching focus moves away from the threshold concept considered in isolation, and shifts instead to ‘the journey’ that takes the student *towards the threshold concept as the point of arrival*, then the teaching endeavor can be considered holistically. The teacher can then commence by establishing and consolidating what students already know, and gradually move them forward into what is not known, and in this way the student can be helped to take their first steps in distinguishing the discipline’s areas of concern.

Linking this to self-determination theory we suggest that starting from safer ground where students feel they are able to operate with the confidence that arises from a degree of autonomy and competence is a sounder way to start the threshold concept journey than the more common method of facing students starkly with the threshold concept as a new, troublesome and destabilizing challenge.

### **Teaching the threshold concepts as a point of arrival – an example from the study of literature**

We are now in a position to consider some ways of bringing together the elements so far discussed – the threshold concept as a point of arrival, and self-determination theory as an indicative supportive framework to help us gauge the success of effectively scaffolded learning.

We will use an example from the discipline of literary study. ‘Intertextuality’, along with ‘signification’ and ‘representation’ are acknowledged as threshold concepts in the study of literature (Wisker, Cameron and Antoniou, 2008, p. 15) and these are experienced as particularly challenging for students transitioning from school study (final year of secondary school) to university study. Considering ‘intertextuality’, teachers in the study commented:

‘...you still get students coming from A level here who have this model of meaning being inside texts as a kind of stable entity [and they] just need to extract it.’ (Lecturer 6)

‘...what they [the students] tended to focus on was what they’d done at A-level. So they tended to tell me what Joseph Conrad or...Dan Brown did. What they didn’t do was engage with the conceptual landscape, ie the concept of intertextuality.’ (Lecturer 7)

‘Intertextuality’, the concept mentioned in the above quote, undermines the very idea of the text as a discrete entity, being defined thus: ‘the notion, from semiotics, is associated primarily with poststructuralist theorists. It refers to the various links in form and content which bind a text to other texts. Each text exists in relation to others. Texts owe more to other texts than to their own makers’ (Chandler, 2002, pp. 230-1). This is all very troubling and counter-intuitive for students who have previously, and successfully, studied texts as discrete entities originating with their authors as unique creators. The idea that semiotic systems (most clearly language) predate any individual textual instantiation turns this world-view on its head, as evidenced for example in the words of Roland Barthes ‘It is language which speaks, not the author; to write is to reach the point where only language acts, “performs” and not “me”.’ (Barthes 1977, p. 143).

Presenting this concept starkly to students, with an invitation to get to grips with the difficulties of understanding it poses, is more likely to frighten than inspire them, since it strikes at the heart of everything they have so far understood in their literary studies. In our view, rather than start the teaching by postulating this troubling concept, a sounder approach will be taken if we ‘start from where the students are’ and (as Davies says) ‘start with the process of generating the insights’, making the articulation of the concept the point of arrival. A simple but effective example of how this might be done can be illustrated from the well-known first paragraphs of Charles Dickens’s novel *Bleak House*.

Dickens describes the streets of London as slippery, covered in ‘mud’ and ‘mire’, and the Thames as smothered in ‘fog ... up the river...down the river...a nether sky of fog, with fog all around’. In so doing he creates an impression of confusion, obscurity and lack of clarity, these being the ideas he wants to associate with the Court of Chancery, the central motif of the novel. By the fifth paragraph the reader arrives at that point of association ‘Never can there come fog too thick, never can there come mud and mire too deep, to assort with the groping and foundering condition which this High Court of Chancery... holds this day in the sight of heaven and earth’ (Dickens, 1853). For our purposes, this fragment of text powerfully illustrates an aspect (albeit a simple one) of the concept of ‘intertextuality’, and we believe that students are able to discover this for themselves without the teacher having to utter the word. To achieve this, the teacher asks students to talk and work together in small groups and carry out the following sequence:

- (i) make everyday associations between words (fog, mire, mud) and the feelings they evoke;
- (ii) come up with further evidence of this from everyday sayings (e.g. ‘I was in a fog’, ‘it was as clear as mud’, ‘he was mired in confusion’);
- (iii) discuss their findings in plenary group and display examples; these of course show consensus because these are phrases and sayings in everyday use;

- (iv) *then, and only then*, the teacher gives the students the first few pages of Dickens's text;
- (v) they are then asked to locate where Dickens uses the words they have been discussing, and to find the thoughts and feelings with which he associates these words;
- (vi) they are also asked to follow the key words through to the association Dickens makes with the Court of Chancery.

Thus far, the work will have posed no problems for the students – they have done the work for themselves ('autonomy'), they have used learner-to-learner talk ('relatedness') and shared their existing knowledge of ordinary language and how it works (confidence, competence, mastery). They have then been set a puzzle, even though a fairly easy one, of locating similar words and associations in Dickens's language, and because puzzles create curiosity, they tend to awaken intrinsic motivation.

### **The 'threshold moment' as the point of arrival**

So far the design has exploited students' existing sense of competence and mastery, allowed them a degree of autonomy, and awakened their curiosity, all at the level of learner-learner talk (McCulloch and Field, 2014). However, for students to grasp the *significance in disciplinary terms* of what they have done, the work of the classroom has to move up to the level of teacher-learner talk (McCulloch and Field, 2014). To prepare for this the teacher will likely use other examples that allow the point to be re-demonstrated and repeated, and she will gradually re-describe the students' activities to them in terms of the underlying process they are carrying out. They have seen for themselves that the words and associations of Dickens's text had a previous existence in ordinary language, that this constituted a shared meaning between the author and themselves-as-readers, and that it was the pre-existence of these webs of meaning that enabled the text to communicate successfully. The *significance* of this is that it subverts the idea that the author is the sole creator of meaning (what Barthes calls the Author-God), because it shows that the reader brings their own history of language knowledge with them. This insight thus reinterprets/repositions the status of any text, which must be similarly implicated in pre-existing webs of meaning.

The 'threshold moment' for the students will come when they grasp this significance, and ideally, it is only when the teacher is satisfied on this point that she will mention the word 'intertextuality'. In this way the threshold concept has become the point of arrival for the students, and the destination for this particular learning journey, and hopefully the students have negotiated the journey with confidence, thanks to the careful scaffolding and structuring of the learning. In fact, a version of the Bleak House example given above was successfully used for many years by one of the authors (McCulloch, 1994), as an introductory exercise for students embarking on literary study for the first time. It invariably gave students a feeling of confidence about the studies ahead and a sense that they already had competencies to bring to the subject (McCulloch, 1994). There is what we would like to call a 'threshold competence' moment for the students, in the recognition that they have done the evidence-finding for themselves through the activities they have undertaken. Self-determination theory tells us that a feeling of competence is all important in maintaining and supporting students' well-being, and no time is more critical than when they take their first independent steps towards the new world view of their discipline.

This teaching example constitutes only a tiny step in the complexity of the discipline, and indeed in the complexity of intertextuality itself, but it may be a giant step for the new student, for whom these first ‘thresholds’ will appear frighteningly high. However, it does show that, as teachers, we can start from where the students are, use their existing knowledge and competences, and ‘scaffold’ their entry into a new discipline in ways that maintain autonomy, relatedness, confidence and ultimately student well-being.

## **Conclusion**

We have argued in this paper for two things: firstly, if threshold concepts are viewed as points of arrival not points of departure, then teachers can draw on and modify their existing repertoire of activities and interventions to help their students surmount them, rather than feel they need to search for some entirely new branch of pedagogy, ‘teaching a threshold concept’. Secondly, we suggest that SDT may offer additional set of criteria for evaluating the setting up and the effectiveness of a teaching sequence. In our view it is not enough just to quantify whether or not a student has reached the learning goal through a test or other assessment; it is equally important that students be empowered to achieve learning goals as ‘active participants in their own learning process’ (Cubukcu, 2009, p. 54). This is capacity building that allows them to ‘personally activate, alter, and sustain their learning practices in specific contexts’ (Zimmerman, 1986, p. 307). We believe that we have offered in this paper an appropriate and theoretically informed paradigm within which to locate the teaching of threshold concepts and the maintenance of student well-being.

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