

Applying Threshold Concepts in Interdisciplinary Subjects

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Abstract

Interdisciplinarity is expanding as a pedagogical approach within higher education. This text examines how the model of threshold concepts can address the advantages, and possible limitations, interdisciplinarity brings. It concludes that whilst threshold concepts are important, they are at times a complicated factor in the design of effective learning environments within interdisciplinary subjects. Regardless of the various obstacles discussed, such as the value of threshold concepts for a curriculum that aims to be creative, the overall notion remains a valuable one toward some form of curriculum benchmarking. Wherever present they illustrate a clear, and perhaps neglected, focus for evaluating teaching strategies and learning outcomes.

Keywords

Interdisciplinary learning; threshold concepts

Interdisciplinarity, the combination of two or more academic disciplines in pursuit of a common task (Warwick International Higher Education Academy, 2022), is expanding as a pedagogical approach within higher education. Some institutions even offer Interdisciplinary Studies as part of their programme portfolios. So, as Educators, how can we use the model of threshold concepts to address the advantages, and possible limitations, interdisciplinarity brings?

By definition, threshold concepts open up new and previously inaccessible ways of thinking about something, without which the learner cannot progress (Meyer and Land, 2003). By actively teaching these concepts and purposefully integrating them into curriculum design, we can help improve student learning. However, such transformed understanding can lead to a privileged or dominant view and therefore a contestable way of interpreting something.

One of the characteristics of threshold concepts is that learning should be troublesome, as truly understanding a theory requires intellectual struggle or tenacity (Perkins, 1999; Meyer and Land, 2003). The notion of inert knowledge, information a person knows but does not fully understand and so can only recognise, express, or use it in limited ways, could be seen as pedagogically troublesome (Perkins, 1999). This is more frequent than not. For example, students commonly learn ideas about society and self in the Social Sciences but make no connections to today's events or family life (Thornton, 2005). This failure to connect may well relate back to the integrative characteristic of threshold concepts i.e., you need to acquire the knowledge before you can integrate, but once you have this knowledge you need to be persuaded to see it in different ways (Davies, 2019). The careful choices of the Educator, considering context, student abilities and preferences, are key to the effectiveness of this. Therefore, module design needs to recognise how threshold concepts can be used to further advance a field of study. Even then, a curriculum is an inanimate object until it is in place in each learning environment; only then does it awaken and progress. Therefore, Educators should attempt to distinguish threshold concepts and spiral them into module(s) gradually (Harden, 1999; Johnston, 2012).

Another approach is teaching the importance of being uncertain. As threshold concepts are troublesome, students' understanding will be an iterative process. In making this clear, we help create an environment where students are comfortable in navigating 'the unknown'. To complement this, Educators could integrate a social constructivist approach to learning to allow students to grow in 'liminal spaces'. This space between the knowing and unknowing is an important time for learners to experiment with applying and connecting concepts, seeing or unseeing relationships and asking questions (Meyer and Land, 2006). Activities such as group work, presentations and debates could be used as formative assessments to initiate thinking (Walsh, 2020).

Nevertheless, there are disadvantages to using threshold concepts. Whilst learning always requires content, purpose and direction, 'what' is a threshold concept is debatable in any discipline as, to a certain extent, they are context specific. For interdisciplinary subjects, it can be disputed that because of the variability in how individuals conceptualise their disciplines, and the preferred way content is organised and taught, the ability to come to consensus on what is a threshold concept can be difficult, if not impossible.

This consensus can include ways of thinking and practising that students are expected to achieve or perform to enter a particular disciplinary or professional community of practice. A threshold concepts approach, or indeed other curriculum design approaches might, as analytic tools, help with the clarification of these factors. Yet, such clarification is not always well established and the identification of these important points of transformation in the curriculum, and their nature, is one helpful role that Educators must play. Consequently, we need to demonstrate a clearer relationship between activities/ assessment and module aims/ learning outcomes.

Still, there are questions as to the value of threshold concepts for a curriculum that aims to be creative. Some literature claims that it requires us to reduce disciplines down to core sets of unchanging beliefs (O'Donnell, 2010; Saracevic, 2014; Entwistle, 2017). The push to have students 'think like an x' could have a negative impact on critical and innovative thinking.

However, there is a case for knowing the 'rules' of the related discipline first to break or create new ones. Ideally, Educators should assist students in navigating the current professional landscape by engaging with existing threshold concepts, and then being in a better position to move beyond them. Of course, this is debatable, but I believe that to make change happen, individuals need to know about what needs to change first.

Educators also need to be aware of the readiness of their students to address material at a given level of challenge. A core problem for threshold concepts is that they are agent-relative (Rowbottom, 2007); what is transformative or troublesome for you might not be the same for me. It appears that the idea of threshold concepts, especially in interdisciplinary subjects, is problematic as it reduces the curriculum to a set of dominant ideological concepts. Therefore they, arguably, have added value in disciplines where there is a more positivistic approach to learning (Hinchey, 2010). This could be mitigated by respecting individual learners and promoting active participation, so knowledge is personally experienced rather than acquired or imposed from outside.

So, while threshold concepts would seem to be more readily identified within disciplines where there is a greater degree of consensus on what constitutes a body of knowledge, it might still be that what some teaching encapsulates, in terms of thinking and practising, also constitutes a crucial threshold function in leading to a transformed understanding. Therefore, while some threshold concepts relate more explicitly to the understanding of a discipline's actual knowledge, some relate more to the learning or professional attributes required. The latter could be more generic, or interdisciplinary, in nature and perhaps more useful when working with students studying interdisciplinary subjects. In addition, they can be more helpful than learning outcomes, which seek to predict what should be unpredictable results and cannot capture abstract consequences.

To conclude, threshold concepts are an important, but sometimes complicated factor, in the design of effective learning environments within interdisciplinary

subjects. In the Social Sciences, for example, such concepts can be integrated to indicate the connection between thinking and practise. Regardless of the various obstacles this learning theory presents, the idea of a threshold concept(s) remains a valuable one toward some form of curriculum benchmarking. Wherever present they illustrate a clear, and perhaps neglected, focus for evaluating teaching strategies and learning outcomes.

Authors' Disclosure Statement

All materials included in this article represent the authors' own work and anything cited or paraphrased within the text is included in the reference list. This work has not been previously published nor is it is being considered for publication elsewhere. No conflicts of interest exist which might have influenced us in reporting our findings completely and honestly.

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