

Threshold concepts

Imagine you are student in a metaphorical 'room' of learning. For example, students might have developed a fairly comprehensive knowledge of the history of World War One but feel there is more to know and that they need to connect to events which preceded and followed it. They feel the need to understand it in a wider context and to discover some key themes which might apply to other areas of history, but they feel a bit stuck. Key ideas such as nationalism, imperialism and militarism can become doors to other rooms of understanding and, to use a constructivist metaphor, will help them to build a structure of connected knowledge and understanding. These ideas are 'threshold concepts.'

The development of the theory and practice of 'threshold concepts' is particularly associated with the work of Meyer and Land ¹, who state that:

"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."

Threshold concepts represent more than just the acquisition of new ideas or knowledge, they are conceptual shifts in the thinking and understanding of the individual learner. The key to understanding threshold concepts is the notion of going through a door into a new room of understanding which, once discovered is unlikely to be forgotten. Meyer and Land speak of 'liminal states' during which students occupy a kind of in-between space on the threshold of new understandings. Those

who negotiate the doorway successfully will have their learning enhanced, possibly transformed; those who hover and step back will experience difficulty whenever they encounter these concepts and their understanding is likely to be limited as a consequence., Robin Blackburn ² states that philosophy is a kind of ‘conceptual engineering’ and that “Our concepts and ideas form the mental housing in which we live.” If, to extend the metaphor, we live and feel comfortable in the mental structures we have built, we might feel apprehensive or unwilling to construct new one. Like moving to a new house, moving to a new concept can be ‘troublesome’.

Threshold concepts offer a way of overcoming the ‘stuffed curriculum’. There is a tendency among teachers is to stuff their curriculum with detailed content, burdening themselves with the task of transmitting bulk packages of knowledge and their students of absorbing and reproducing this bulk. Focusing on ‘threshold concepts’ can help to teachers to identify what is fundamental to students’ grasp of the subject.

Three of the key features of threshold concepts are that they are:

- *transformative* – in that they involve an ontological as well as a conceptual shift. They make a difference to who we are and how we perceive the world.
- *irreversible* – once understood they are unlikely to be forgotten. Teachers can find it difficult to recall a time before they themselves understood these concepts and, therefore, might find it difficult to empathise with students who are struggling with them.
- *integrative* – they help students to make connections. Grasping a threshold concept can enable a learner to make connections that were hitherto hidden from view. ‘Ideology’ is an example of a threshold concept from sociology. Initially difficult for students to grasp, once mastered it provides a basis for

understanding much of sociology and other social science disciplines. It is transformative, irreversible and integrative.

Examples of threshold concepts in other disciplines include:

Economics - *opportunity cost; elasticity*

Pure Mathematics - *complex numbers; limits*

Electrical Engineering - *frequency response*

Statistics - *sampling distribution*

Computer Science - *object oriented programming*

Another feature of threshold concepts, as defined by Meyer and Land is that they involve 'troublesome knowledge'. Knowledge is 'troublesome' in the sense that whilst individuals are coming to grips with this new knowledge it may seem alienating, counter-intuitive, or just plain scary. Once the student has passed through this 'liminal' state of partial understanding, they may feel transformed. If they get stuck, they may only partially understand the concept and, consequently, encounter barriers to further understanding. Academic discourse can be a barrier for students when they first encounter it. They may feel locked out (the room and building metaphor again) by language which makes engagement and understanding 'troublesome'. As Meyer and Land state: "Specific discourses have developed within disciplines to represent (and simultaneously privilege) particular understandings and ways of seeing and thinking. ... The discursive practices of a given community may render previously 'familiar' concepts strange and subsequently conceptually difficult.

The use of the term 'culture' within first year Social Anthropology, for example, has been reported to us as problematic in this way."

We should remember that students cannot just be told about these threshold concepts in particular subjects and disciplines. They have to be introduced and explained to them and they must be given learning opportunities (e.g. discussion, case studies, problem-based learning) which allow them to apply and experiment with them in a variety of contexts until they become second nature.

1. Meyer, J. and Land, R. (2003) *Threshold Concepts and Troublesome Knowledge: Linkages to Ways of Thinking and Practising within the Disciplines ETL Project Occasional Report 4*: Edinburgh: Teaching and Learning Research Project (TLRP)
2. Blackburn, S. (1999) *Think Oxford*: Oxford University Press

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