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Theories of difficulty: can
they help explain the areas
that students find
problematic?

Overview

- Why focus on difficulty?
- Theories of difficulty
- An example of a difficulty

"Bringing attention to the epistemological challenges that students may face in engaging with a subject suggests a need to widen conceptions of pedagogic content knowledge"

(Anderson and Hounsell 2007)

- Pedagogic content knowledge includes “the most useful forms of representation of those ideas, the most powerful analogies, illustrations, examples, explanations and demonstrations”
- Lecturers should know what makes topics easy or difficult and “the conceptions and preconceptions that students of different ages and backgrounds bring with them”

(Shulman,1987)

Theories/ideas of difficulty

- Professional socialisation
- Troublesome knowledge
- Threshold concepts
- Delayed understanding - Scherja (2006)
- Others e.g. Piaget

Troublesome knowledge

- Perkins (1999, 2006, 2007)
- Social Constructionism
- 5 "types" of troublesomeness
 - Alien
 - Conceptually Difficult
 - Inert
 - Ritual
 - Tacit
- Cousin (2006) adds emotional capital

Threshold Concepts

- *"akin to a portal, opening up a new and previously inaccessible way of thinking about something"*

(Meyer & Land
2003)



Criteria of a Threshold Concept

- Integrative
- Transformative
- Irreversible
- Troublesome
- Bounded



Threshold Concepts and Liminality



- Betwixt and between
- Mimicry
- Preliminal, liminal
postliminal, subliminal
variation (Meyer et al
2008)

Method

- Semi-structured interviews with staff and students of prosthetics at two universities in the UK
- Questionnaires for students on placement
- 8 members of staff and 18 students (aimed for 3 from each year of study)
- Interpretive Phenomenological Analysis

Results

■ Difficult

- Maths based
- Shades of grey
- Why are we learning this?
- Little boxes

■ Are there any threshold concepts or troublesome knowledge in prosthetics?

Learning to talk: learning the language

- *"I might not know all the Latin names for everything, sticky out bit there and a, you know, a bony bit there"*

Helen

- *"it's almost like there was one word and they thought oh, well the opposite we'll just change it slightly"*

Suzanne

- *"it's the definition of what part is considered the adducted part, so it was the distal part rather than the proximal 'cause the way that, well some peoples head were aligned it was that it will be, well it was particularly me, was it was more of the proximal part, so if I saw the proximal part I would say well that's going this way so it must be that"*

Tom

- *"Like some words you already know what they mean like superior and inferior, they're more common words"*

Tom

- *"in first year um, getting the coronal and transverse and saggital planes, just because they're all new words to me, even though I did know about planes, they'd just been x, y and z to me before that. "*

Marian

- *"that was my mum that taught me that. Ad is together and ab, because if it's adduction then it's towards you and ab is the other"*

Suzanne

- *"I thought was called one thing suddenly found out that it wasn't"*

Edward

- *"it was only half way through the second year that I realised that this wasn't your stifisternum it was your xiphisternum"*

Suzanne

- *"But as you got used to hearing it, it just became a standard thing that even if you'd never heard a word before, like because um, I suppose in the degree at first, they mix and match in different words that you'd be able to associate with something else and be able to roughly figure out what the person was talking about even if you didn't know [the word]"*

Tom

Learning to talk: learning to communicate

- *"...being around other medical professions or being at lectures and conferences and obviously they are using all these terminologies"*

Tom

- *"... from the first year you, you're sort of nervous with patients, whereas you come to the 3rd year and your just talking to them all as if they're just one of your mates almost."*

Edward

- *"...usually it doesn't come, like you wouldn't say "oh you hurt my lateral arm, or part of my arm" you wouldn't say that, you'd say "you hurt my arm"""*

Tom

- *I think probably Tesco's is the one that's helped the most in terms of talking to people and um, maybe biting your tongue when you don't agree with what they're saying or they believe they're right and they're not and getting, getting round that, getting them to come, to see the light or to accept that that's the way it is.*

Suzanne

■ *"I'd be like "no, you can't be doing that", so I kind of learnt confidence and, you know, just how to get along with different people"*

■ *Tom*

- *"I wrote about communication, effective communication and I think that was quite important because you don't realise until you look into it that when you are working with such a big group of people that it is going to be very important that you do practice effective communication."*
- *Edward*

Conclusion

- Learning to talk - a threshold concept?
 - Troublesome?
 - Bounded?
 - Integrated?
 - Transformative?
 - Irreversible?

Conclusion

- Can troublesome knowledge and threshold concepts give us new insight into student learning?