Threshold Concepts: Implications for Teachers

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You are the experts in your discipline

- You know the concepts that students find hard to grasp

- You design the learning opportunities that guide the student to the portal
• Uncomfortable space
• Difficult to get through
• A constriction/bottleneck
• Necessitates a struggle
• Highly unstable space
• Need exotic matter
• Difficult to remove
• Difficult to get back
Grasping the Threshold Concept

- What does it look like when a student has grasped a threshold concept?

- What does it look like when they haven’t?
What do students do?

- Ability
- Ability-action gap (Richards, 2004)
- Happy with ‘just-enough’ competence
- Learning goals limited to short term gain
- Borders crossings, difficult, manageable or smooth (Jegede and Aikenhead, 2004)
- Lack of interest to perform
- Coping strategies
- ‘I’ve never been good at’ syndrome
Insights into student learning and emerging understanding

(Perkins, 2000)
What do teachers do?

- Talk ‘above their heads’
- ‘Leapfrog’
- Tacit knowledge *(difficult to transfer to another person by means of writing it down or verbalising it. Not always known explicitly, even by expert practitioners, and which is difficult to explicitly transfer to users.)*
- Do we help to create the bottlenecks?
“It’s always ‘Sit,’ ‘Stay,’ ‘Heel’—never ‘Think,’ ‘Innovate,’ ‘Be yourself.’”
Disciplinary Practices

- Academic staff present content and hope students will pick up the rest
- Disciplinary practices are shaped by disciplinary ways of knowing (Shopkow, Diaz, Pace, Middendorf, 2011)
- Bottleneck interviews
- Decoding the disciplines
What should teachers do?

• Find ways of making the implicit explicit
• Identify the bottlenecks
• Align learning outcomes with threshold concepts
• Identify steps leading to the threshold concept
• They could be linear steps
• More likely to be ‘messy’
• Encourage recursiveness ‘over and back over conceptual terrain’ (Cousins 2006)
Discovering something for myself!

“When we were at Portrush discussing whether or not igneous rocks were precipitated out of sea-water. A few of us were discussing what could have happened. We came up with the idea that magma was coming out on top of marine environment mudstone and that with the heat it baked the mudstone into a fine grained splintery rock. It was an ‘ah-hah’ moment because it turned out to be right!”
Threshold concepts and integrative learning

• **Threshold Concepts are integrative** ...revealing the hidden inter-relatedness (Meyer and Land, 2004)

• **Integrative thinkers and learners** can see connections in seemingly disparate information, and draw on a wide range of knowledge to make decisions (Huber and Hutchings, 2004)

**Characteristics of the ‘integrative learner’**

• have a sense of purpose that keeps them on track with their learning.
• will fit fragmentary information into a ‘learning framework’.
• are self-aware and understand something of their own learning processes
• are self-directed learners with explicit learning goals
• can ask probing questions to help achieve their learning goal
• are skilled in the skills of learning
• can monitor and reflect on their own efforts
• can make choices that promote learning
• know when to ask for help
How can we encourage integrative learning?

By intentional teaching, where teachers:

• are integrative thinkers
• understand something of how students learn
• are comfortable with a range of teaching strategies from which they can draw
• design opportunities for students to connect up their learning
• make our purposes and explicit
• make integrative learning an explicit goal.
• encourage work-based/problem-based/enquiry-based learning
• use assessment methods that encourage integrative thinking and learning.
• are willing to take risks with their teaching, and where appropriate stand back and “gift the learning to the learner” (Malone, 2002)
We must allow students time, to linger under the portal, hangout in the wormhole, dance on the bridge, and take risks in the liminal space.