

Threshold / Troublesome Concepts: What MUST We Teach?

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TEACHING FOCUS

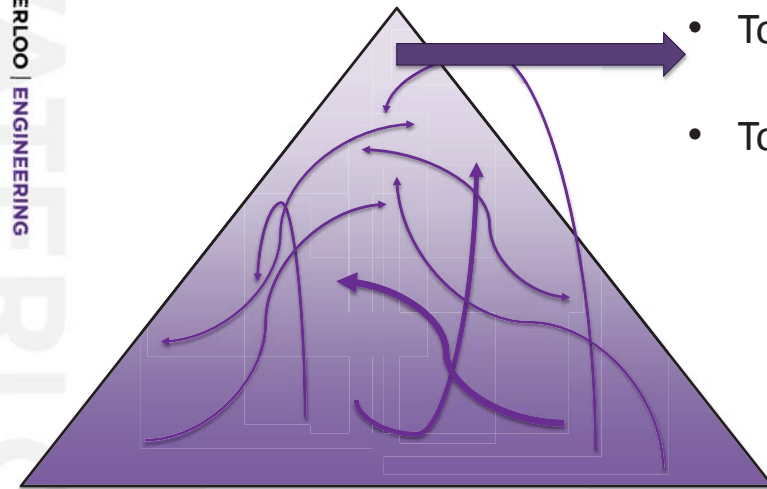
- The **orphan** topics we would cut?

OR

- What our students **must** know?



Specific topics



Foundation knowledge, skills, attitudes

Who will be **orphan**:

- Topic a
or
• Topic b

Session outline

- Introduction to threshold concepts and bottlenecks
- Individual work: What would your concept be?
- “Decoding” your threshold concept
- Wrap-up



Session learning outcomes

- Recognize that course content can be selected and organized to focus on learning vs. teaching
- Recognize that certain concepts within a course/program are more important than others and worthy of greater attention
- Identify a transformational concept in your course or program
- Gain awareness of the research on "Threshold Concepts" and "Decoding the Disciplines" which can inform this work



Handout

DEFINITION OF A THRESHOLD CONCEPT



WHAT IS A THRESHOLD CONCEPT?



Threshold concept features

- **Transformative** (causes a shift in learner's view of subject)
- **Irreversible** (unlikely to be forgotten or "unlearned")
- **Integrative** (exposes previously-hidden interrelatedness of something)
- Potentially **troublesome** (may cause learners to struggle or "get stuck")
- **Bounded** (demarcates the boundaries of a discipline)
- **Discursive, reconstitutive, liminality**

(Meyer & Land, 2003)



Example

Pain in Medicine

“...A professor of Physiology in a London medical school describes the way that an understanding of ‘pain’, as a threshold concept, serves to transform the professional thinking and discourse of medical undergraduates. From earlier understandings and accounts of pain as something negative, to be removed or diminished, the clinical practitioner learns to ‘see’ or read pain differently, as an ally that aids diagnosis and healing.”

(Meyer & Land, 2005, p. 374)



EXAMPLE THRESHOLD BOTTLENECK



Why look at threshold concepts?

- “Conceptual gateways” into the discipline
- Help us make the shift from teaching to learning
- “Jewels in the curriculum” enabling us design courses around troublesome, yet transformative, concepts
- Foster transformation in ways of knowing, being, and practicing
- Instigate development in ways of knowing
(Timmermans, 2010)
- Help make teaching and learning visible
- Way into scholarly teaching



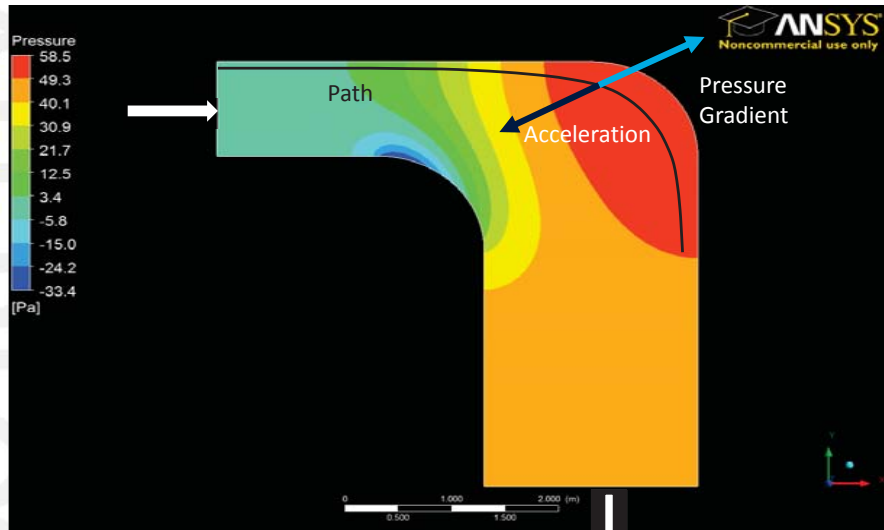
Pressure – Flow : Intuitive View



Local pressure squeeze creates flow



Pressure – Flow : Expert View



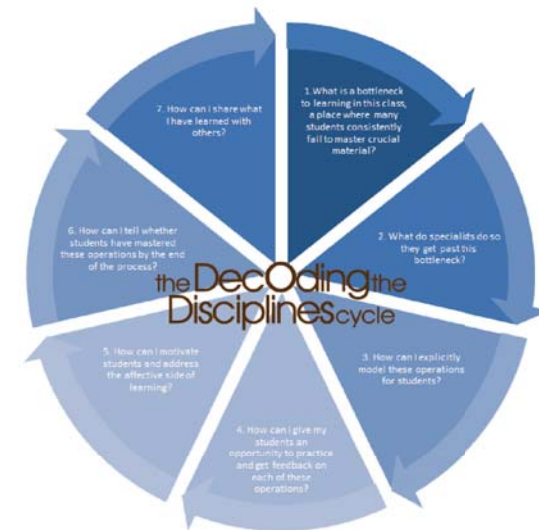
Spatial pressure changes balance ...

HOW CAN WE HELP STUDENTS LEARN THRESHOLD CONCEPTS?

Worksheet

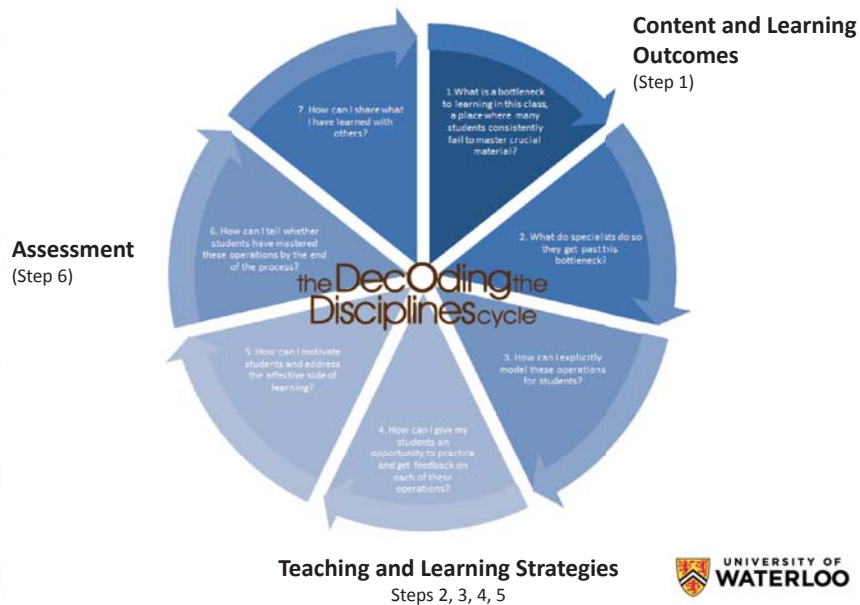
IDENTIFYING A POTENTIAL THRESHOLD CONCEPT IN YOUR COURSE

Decoding the Disciplines cycle



Reference:
Diaz, A., Middendorf, J., Pace, D., & Shopkow, L. (2011). *Definition of Decoding the Disciplines*. Retrieved from: <http://decodingthedisciplines.org>

Relationship between Decoding the Disciplines cycle and course design process



Focus on Decoding the Disciplines Cycle Step 2

MAKING EXPERT THINKING EXPLICIT



Decoding a threshold concept

- Review decoding interview process
- Model process
- Practice decoding interview
- Consolidate steps

Decoding a threshold concept: The Decoding interview

Probing techniques:

- Focus on what the expert does and not on the content.
- Repeat what the expert has told you and probe further.

Ask the questions:

- “How do you do that?”
- “Just how are the students supposed to do that?”
- “What does that instruction assume that students are able to do?”

Caty Pilachowski (Astronomy) interviewed about how to graph the properties of a star:

<http://decodingthedisciplines.org/disciplines/pilachowski.html>



CONSOLIDATING THE STEPS



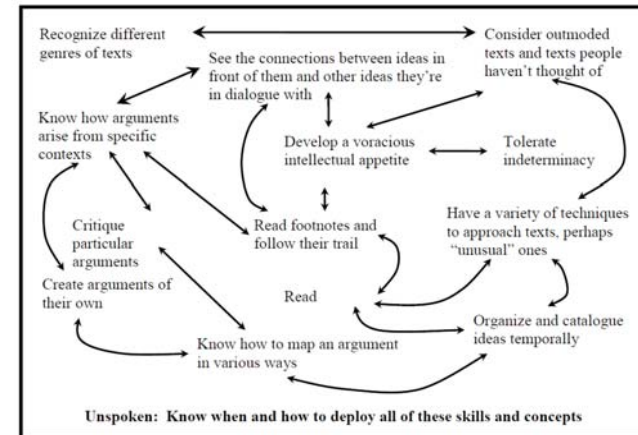
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Beginning to map the expert's process

What Does a Student Have to Do to Write an Essay in Gender Studies?



Reference: Middendorf, J. & Pace, D. (2010, August). "Decoding the Disciplines" Workshop at Elon University, Handout 4. Retrieved from <http://www.elon.edu/docs/e-web/academics/teaching/Bridging%20the%20Needs%20of%20First%20Year%20Students%20and%20Faculty.pdf>

