Exploring threshold concept when teaching Systems Thinking and Soft Systems Methodology

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Content

• Introduction
  o What this is about – scope of presentation
  o Why is this important, i.e., threshold concepts and systems thinking
  o Current situation in teaching ST & SSM (our problem with teaching systems thinking)
• Definitions – threshold concept, characteristics, and why we think this is promising
• Threshold concept in Systems thinking and SSM – discussion of what we have experienced to be the main concepts
• What did we do to teach these concepts (adhering to the difficulties) – course structure
• Discussion of our finding related to our definition (threshold concept)
Threshold concept (mainly from Meyer and Land 2003)

A threshold concept: opening up a new and previously inaccessible way of thinking about something; represents a transformed way of understanding, or interpreting, or viewing something without which the learner cannot progress.

• Transformative

• Integrative

• Irreversible

• Potentially troublesome
Threshold Concepts and Systems Thinking and SSM

- Systems thinking, parts, whole, relations
- The difference between hard and soft (systems methodology)
- Thinking in models
- Worldview – *Weltanschauung* – purposeful action
- Human Activity Systems
- A learning system – no problem solving, just changes (structures, processes, mental models) that might be improvements for some.
Flipped classroom

The purpose of a flipped classroom pedagogy is to introduce students to course content outside of the classroom so that students can engage that content at a deeper level inside the classroom.

• benefits: students perform better on exams, are more engaged and take ownership of their learning, display highly developed team-based skills, the motivation of acquiring new knowledge increases,

• changed role for lectures: take the position of facilitators or managers of the discussion rather than being the central point of the overall learning process; therefore design a learning environment that supports activating students and take responsibility for their own learning.

• on the other side: demand on instructor time, lack of institutional funding and on-going support, student resistance to change, etc.
Flipped classroom and real world case that relates to own experience

• First, get to know the concepts (outside of classroom)
• Then, in class, work in groups on applying these on well known tasks
  • What do you do when you find information for an assignment
  • Teachers analyzed their answers in terms of technology, sources and processes
  • Discussion of relationships between these facets of information and their systemicity, and discussion of different approaches
  • Case study in groups, applying systems thinking and the SSM-process
• Reflection on their learning
Case Assignment: UBT Knowledge Center

Project carried out in groups of 4 and during class meetings

- **Scope:**
  - The University for Business and Technology Knowledge Center aim is making local knowledge visible for the purpose of creating more local knowledge, for the benefit of the university community, Kosovo society, and global inquiry.

- **Task:**
  - Build on the previous work as reported in papers by developing the internal work processes, and internal and external search processes, from the points of view of UBT professors, UBT administrators, UBT students, Kosovo citizens, and worldwide researchers.

- **Process:**
  - Follow the phases of Soft Systems Methodology (SSM): Finding Out, Modeling, Comparing/Debating, and Taking Action

- **Examination and Assessment:**
  - Report of app. 4000 words or 8 A4 pages including references (Harvard Style)

Intermediary reports during class meetings
Course participant reflections

Course design

• “gave us a new spirit different from what we have been taught earlier”

• “good organization and coordination from professors helped us understanding,”

• “it is important to note that the professors created a learning environment where all student skills were represented and all students were able to succeed.”

• “Flipped learning certainly addresses some issues that professors and students face - time, resources, learning styles, etc. The concept of flipped learning can lead to us as students to learn easier, more efficient, engaging, and meaningful.”
Course participant reflections

Transformative, integrative, irreversible (past what used to be ‘troublesome’)

• “I learned how to learn.”
• “this will not only help me in my career but also in personal and academic life,”
• “learning is a process that never stops … learning is something as a universe, infinite and vast…”
• interdisciplinarity (Computer Science and Information Systems) - expansion of ideas and skills translated by tackling the problem from different perspective
• ‘near-peer mentor’ - both graduate and undergraduate students in group work
What next !!?

- Explore this area more, both threshold concepts and teaching systems thinking
- Teach both ST and SSM and reflect on the course design
- Explore threshold concepts in other courses and the design of these
- Interdisciplinarity and near-peer mentoring – reflect on their importance
References, selection


Thank you
and
Questions and Comments