In this project we examine the effects of self-regulated learning through scripting students’ argumentative interactions during collaborative “multimedia-enriched skeleton concept mapping” on meaningful learning. Each concept in the enriched skeleton concept map (ESCoM) contained annotated multimedia-rich content (pictures, text, animations or video clips) that elaborated on the concept, and an embedded collaboration script to guide students’ interaction. The project will be performed in a Physics course of the Bachelor of Industrial Design programme. All first-year students (approx. 200) participate and work together in dyads on an ESCoM, guided by the scripts. Interim qualitative feedback on the scripts will be developed by means of a rubric.

Objective

- To foster self-regulated science learning through scripting students’ argumentative interactions during ESCoM mapping to the ESCoM method wide to roll out to other faculties and boxes.
- To foster the peer feedback between students.
- To develop interim qualitative feedback on the scripts by means of a rubric.

Context

With the redesign of the Bachelor at the TU/e, education is provided in larger classes. Some teachers were used to groups of 20 students and are faced with groups up to 280 students now. This provides pedagogical challenges such as giving and organising feedback at students. Skeleton Mapping may be a solution to stimulate deeper learning.

To start-up Skeleton Mapping you need:
1. Subject matter experts to select the key concepts they consider essential to understanding the knowledge domain, and to design the ESCoM.
2. Subject matter experts to add the multimedia content to the key concepts they considered essential to understanding the key concept.
3. The concept mapping software tool Mindjet’s MindManager (with the the built-in progress indicator).

Practice

The project will be executed in the period November 2014 – February 2015, in a Physical Sciences course of the Bachelor of Industrial Design programme. All first-year students (approx. 200) will participate.

Results

Not yet available.

An example of an attached script to the concept “Newton’s third law” as used within ESCoM “Newton’s Law”:

3-Step Concept Script (Alternate the lead roles of Student A and Student B;)
1. Student A and Student B: Formulate individually the meaning of the concept.
   1a. Meaning Student A: (Student A: use of the course book).
       \[ \ldots \] (Student B: use other (video clips / internet) resources).
   \[ \ldots \]
2. Student A and Student B:..
   First, discuss and prove critical questions regarding the meaning of the concept. Second, improve your formulational by additional descriptions, elaborations and/or comments. Finally formulate jointly the meaning of the concept upon which they agree.
   \[ \ldots \]
3. Student A and Student B: Find a characteristic problem illustrating the concept, and apply it in practice.
   \[ \ldots \]

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Blended Learning