Viktor Holm-Janas Research Profile

Narrative Based Education

Narrative based teaching is a branch of scenario didactic, where the students gain competencies in a subject by engaging in an authentic scenario where they have to solve problems in the same manner as professionals. In narrative based teaching we expand on this principle by creating a narrative around the scenario where the students are also asked to put on the persona of the expert, thus removing them from the setting of the classroom. Our research indicates that there are several advantages to this approach, for instance it can help students forget the pressure of grades or social heracies in the classroom, thus giving them an alibi for participating. This allows the students to engage in a scientific discussion without having to think about the consequences of “saying the wrong thing”. Other advantages could be an enhanced motivation for the students since the narrative can give a more authentic frame for the assignment, or the narrative can enhance student memory of the subject, by tying it to events in the narrative.

To investigate the effect of a narrative approach to teaching we have created a teaching material called Marsbasen. This covers all the mandatory physics in upper secondary education, and is though through a story of the colonization and exploration of Mars, where the students take the role of colonists. As part of our research of narrative based education we have developed a tool to ensure thematic coherence in narrative teaching. This will help educators who want to try a narrative approach create lessons where the assignments are set in the diegesis of the narrative. This will help students stay in the narrative and strengthen the alibi for participation.

Possible Research question:

- What are the requirements for integrating national science curricula with thematic coherence in Narrative Based Teaching?
- How do students engage with inquiry based science education in a narrative teaching approach?
- How does a narrative approach to science education affect student attitudes towards science.

Quantifying Classroom Interactions

Didactic investigations of in situ classroom interventions are often complicated and littered with pitfalls. Classroom observation and audio transcriptions are very time consuming and come with an inevitable bias of the observer, self reporting from or interviews of students and teachers affects the subjects of the investigation. Furthermore, automated data collection and treatment systems are often reductive and have difficulties describing a complex social situation like a classroom. Despite this, we still need to investigate how teaching works if we don’t want

teaching methodology to be developed on the basis of dogmas stemming from tradition or anecdotal evidence.

In this area we are trying to formulate what observations are needed to quantify whether inquiry based teaching is happening in a classroom setting. So far this work has focused on combinations of binary observation of classroom interactions in a time sequence. The binary nature of the observation helps to minimize observational bias. The time sequence of observations can be represented as a directed, and cluster analysis can be applied to find and classify structures in the classroom interactions. We aim to expand our methods to also include automatic trincribation of audio recordings that can then be represented by word networks to give an overview of the verbal content of the teaching.

Possible Research question:

- How can we minimize observational bias through the design of observation protocol?
- What observations are needed to classify different kinds of classroom activity?
- What tubes of data can be recorded in the classroom to support classroom observations?