RECENT DISSERTATIONS

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Science teachers' meaning-making of teaching practice, collaboration and professional development

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Abstract

The aims of the research presented in the thesis are three-fold: 1) To gain an insight into challenges and needs related to Danish science teachers professional development (PD), 2) to understand Danish science teachers' meaning-making when involved in PD designed according to criteria from international research and 3) a research methodological perspective: to adapt, and discuss the use of a specific tool for analysis and representation of the teachers' meaning-making.

A mixed method approach is taken: The empirical research includes a cohort survey of graduating science teachers repeated in their 2nd year in practice, and two case studies, where one examines the meaning-making of teachers from a science team collaboratively inquiring into video and other artifacts from local classrooms, the other the meaning-making of a group of 4th year student teachers involved in collaborative video inquiries. Two of those are followed until their 2nd year in practice. Findings across papers point to an activity-orientation towards science teaching being widespread among the Danish science teachers. They focus on the students, but on their activities and engagement, not their learning. Furthermore a lack of confidence in having sufficient subject matter knowledge to teach science is widespread. There are significant variations between teachers with various science specializations, but nearly a third of the cohort teachers do not teach science in their 2nd year in practice among other things due to lack of confidence.

The case-studies provide examples where science teachers' develop a growing confidence, and begin to focus on students' learning by manipulating *both* science ideas and equipment. The teachers involved in artifact-mediated interactions refer to gaining insight into students' conceptual understanding by purposely experimenting in practice and by sharing their experiences. Scrutiny related to concrete incidents shared with peers seems to be a driving force in their awareness of a need to develop own teaching and in relation to agency looking forward, but confidence and agency also seems to be supported by new tools, theoretical lenses and ideas for transcending practices from the external domain.

Finally it is discussed how analysis and representation using an adapted meaning-making model supported an insight into these complex interplays.

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