RECENT DISSERTATIONS

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"Globalizing the science classroom". Exploring development of students' conceptual understanding of climate change from international peer collaboration.

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Abstract

Climate change is not local, it is global. This means that many environmental issues related to climate change are not geographically limited and hence concern humans in more than one location. There is a growing body of research indicating that today's increased climate change is caused by human activities and our modern lifestyle can be a contributing factor. Consequently, climate change awareness and attention from the entire world's population needs to be a global priority and we need to work collaboratively to attain a sustainable future. A powerful tool in this process is to develop understanding of climate change through education. Recognizing this, climate change has been included in many science curricula as a part of science education in school. However, teaching a complex and global topic as climate change is not easy. The research in this thesis has been driven by this challenge.

The aim of the study is to understand the development of students' conceptual understanding of climate change from international peer collaboration. The research has used both quantitative and qualitative methods, through analyses of questionnaires, interviews and student text responses from 157 secondary students (age 16-19) from Canada (n=30), China (n=46), Sweden (n=52) and Norway (n=29). These students have been engaged for six weeks in an inquiry-based science module, Global Climate Exchange, which was developed for this study. In addition an assessment tool, the Ecological Understanding Tool, has been developed to enable tracing the development of students' conceptual ecological understanding.

The results from the studies in this thesis show that giving students opportunities to collaborate with international peers can be productive for them to develop a coherent understanding of the complexity of global climate change. The results also show that a way to allow and support this development is to implement an inquiry-based science module like Global Climate Exchange, and the Ecological Understanding Tool can be applied to assess this development.

The findings are valuable for development of secondary science education, in particular when teaching global and complex topics, like climate change. Additional is the development of the assessment tool a valuable contribution for analytic work in science education research.

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