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Learning by Collaborative Designing

Traditional models of instruction do not account for richness and complexity of designing (and its objects) particularly its contextual and multidisciplinary nature. The present project focuses on examining to what extent students without sufficient motivation or are underachievers at school are able to participate in collaborative learning through designing. Based on our previous research concerning design expertise we have developed Learning by Collaborative Designing (LCD) -model to facilitate design processes and students' design thinking. The purpose of the project is to integrate three lines of inquiry: 1) Within the LCD framework the applicants will set up networked learning environments in contexts involving several levels of education, and intensively analyze and model the students' design activities and teachers' pedagogical practices, 2) Through change-laboratory interventions, we will engage teacher communities in assessing and developing their evolving instructional practices. We will examine how and under what conditions, a school successfully adopts practices of innovative knowledge communities to support LCD practices; 3) We will investigate how a new type of teacher professionalism and pedagogical practices based on teamwork and LCD develop, especially considering the role and significance of teacher education.

The main research questions are the following; 1) To what extent elementary school students are able to participate in challenging collaborative design process. 2) To what extent students with varying cognitive skills and motivational disposition are able to take part in process and develop their generic and domain specific skills 3) What are the pedagogical models and scaffolding structures that enable and enhance participation in collaborative designing.

We will use a multi-method approach, which is based on a series of long-term case studies (i.e., design experiments) where each study is followed at least two years in order systematically to grasp the systemic features of the learning by collaborative design. The basic investigative approach will be the combination of qualitative and quantitative methods in order to provide a multi-faceted and comprehensive picture of the research objects and task in question.

The results can be utilized immediately for developing pedagogical models and design principles for collaborative designing and learning. On the basis of intensive empirical research, the project will further produce and deliver practical guidelines, design principles and assessment tools for teachers to build and organize communities of inquirers within LCD framework. The project will deepen our understanding how students with varying cognitive skills and motivational disposition are able to participate in LCD-like inquiries.