

HÖGSKOLAN VÄST

Co-constructing Expertise

Competence Development through Work-Integrated e-Learning in joint Industry-University Collaboration

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AKADEMISK AVHANDLING

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Abstract

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This thesis is inter-disciplinary and proceed from the ongoing challenges of the increased digitalization, automation and robotization that impact the manufacturing industry's emergent need of high-qualified practitioners. Digitalization also challenges universities to open up to external collaboration and to design blended e-learning targeting industry knowledge needs. The studies take up on such challenges and explore inter-organizational collaborations and forms of knowledge construction to strengthen engineering competences integrated in work in a way that enables manufacturing companies to remain effective and to be prepared for future industrial transformations. The objective is to explore how mutual construction of knowledge emerge through learning activities between multiple actors in a joint industry-university collaborative e-learning practice. The empirical setting is a new type of collaborative course concept developed within the project ProdEx. The project comprise a network of industries and one university in a longitudinal design and implementation process of blended and work-integrated e-learning. This initiative was explored with a collaborative action research approach integrated with five studies, from four perspectives, the industry managers, the practitioners, the research teachers and the course unit.

Negotiated knotworking, from cultural-historical activity theory, became a central theoretical concept and a working tool to examine how managers, practitioners and research teachers together negotiated production technology knowledge content and e-learning design towards future workplace transformations. This concept was used to further understand how co-construction of knowledge was developing over time into a richer concept. The results contributes to a wider understanding of how co-construction of knowledge in an e-learning design practice was developing into stronger relations between actors and into more stable courses. Real learning cases and digital labs support theory-practical intertwining of mutual learning of active participation between practitioners and research teachers. Initial e-learning technology failures and pedagogical mistakes in the courses were easier to overcome, than issues concerning continuous company support for course participation. Matching industry competence needs with university research fields is continuously challenging. Practitioners' aiming for personal continuous competence development on university level created critical and high-qualitative performances and valuable engagement throughout the process of co-construction of knowledge. The knowledge co-construction became a two-way development, pushing research teachers to active involve and consider practitioners' industry experiences concerning learning content, pedagogical strategies and e-learning forms.

While earlier research has discussed the problems of crossing boundaries between industry and university, overall findings show that industry and university actors are crossing boundaries when they mutually co-construct knowledge in an e-learning practice. Co-construction of knowledge entail mutual trust, sideways and interactive learning in a collaborative context. The main contribution suggested in the thesis is that co-constructing expertise entail three levels of activities among actors; to have insight into the purposes and practices of others (relational expertise), the capacity to transform the problems of a practice and together build common knowledge (distributed expertise), and finally the capacity of mutually co-construct knowledge acted upon in practice towards work-integrated transformations (co-constructing expertise).