Work-integrated learning in Civil Engineering: an activity theoretical study

The aim of this research is to present recommendations for knowledge and practice relations between Further Education and Training (FET) colleges and Civil Engineering (CE) workplaces, and to present a work-integrated learning (WIL) model that could assist with the preparation of CE students for the workplace. Recently, FET colleges have been under the spotlight in terms of student preparedness for the CE workplace. Many questions have been posed by students studying at FET colleges and by CE workplace supervisors in respect of whether the current CE curriculum adequately prepares students for the workplace, or whether the curriculum has become obsolete in terms of knowledge and practice relations. The CE industry is of the opinion that students are insufficiently prepared in terms of skills and knowledge. In the light of this uncertainty, I researched the learning taking place at FET colleges and CE workplaces. I examined similarities and differences in the learning environment of the students. The research provides a theoretical overview of Activity Theory (AT) and its principle of contradictions. The lens of AT and its contradictions provide a versatile tool to enquire into various aspects of WIL, taking into account individual and institutional perspectives, as well as changes over time. Activity Theory and its principle of contradictions provide insights into how transformation may occur within Activity Systems (ASs) in a CE context. The study was conducted over a number of years with participants from three ASs, namely, the classroom, workshop/college yard and workplace. During the research, this study proposed a conceptual framework, rooted in AT, and substantiated by empirical evidence, for describing and analysing the learning taking place in the FET college sector and within the CE workplace environment. The analysis focuses on the perceptions of learning taking place in the ASs. Results reveal a knowledge and practice divide, mediated by AS elements of mediating artefacts, object, subject, division of labour, community and rules. Through a particular focus on the contradictions of the elements of an AS which occur, the objective for this study was to determine ‘knowledge and practice relations’. The components of knowledge and practice are extremely isolated, and by bringing the argument and the empirical findings together, the findings propose: • Links between knowledge("the classroom") and practice("the workplace") The surfacing of the disconnect between knowledge and practice between the FET college sector and the CE workplace supports the idea of establishing links between these two sectors. This collaboration could be the turning point in better preparing students for the workplace. • Policy formulation and implementation The need for policy review to enhance the integration of knowledge and practice relations in the sector has become apparent. Colleges are expected to undergo a radical transformation and to make major contributions to policy. However, these institutions are new and fragile, and are based on historically weak predecessors. Much of the reform process is oblivious of the connections between college and workplace. The research has established that both CE industries and FET colleges should ensure that they increase their involvement with and participation in the provision of adequately preparing students for the workplace in the Western Cape Province.