

Learning in the school workplace : knowledge acquisition and modelling in preparatory vocational secondary education.

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Abstract

This paper addresses the composite question of whether it is better in vocational education to allow students to design their own models and guide them while doing so, or to provide them with ready made-models. To answer this question we set up a design experiment in which students were asked to work on real-life assignments, guided by teachers in the process of designing their products while learning the necessary concepts and skills as they went along. The use of models was required during the design stage. The students were asked to design and build a tandem tricycle during a ten-week period. The experimental sample comprised 2 schools and 65 students, aged 15 years. A pretest-posttest control group design was used to determine the results. The two conditions differed in the way models were taught: in the experimental condition the models were co-operatively designed by the students under teacher guidance ; in the control condition ready-made models were provided. It was hypothesised that the students in the experimental condition would outperform their counterparts in the control condition on knowledge and modelling. However, it was found that both groups scored equally well on the post- knowledge test in science and mathematics, while the experimental group gained more on modelling. Implications for teacher guidance and school climate are discussed.

Keywords: vocational education, modelling, providing versus guided co-construction.