

Summary of Thesis

submitted for Doctor of Education degree

by Robin Sarah Bradbeer

on

An Evaluation of the Effectiveness of Studio-based Teaching for a First Year Electronic Engineering degree course

This thesis presents the results of a six-year study conducted on two equivalent groups, one group taught in traditional mode, i.e. lecture/tutorial and laboratory; and another group taught using a studio-based methodology that integrated these three into a unitary whole.

The courses studied were two, linked, first year introductory courses in electronic engineering, taught over two semesters. They were part of the Manufacturing Engineering, and Mechatronic Engineering degree programmes at City University of Hong Kong (CityU).

The first part of the thesis attempts to place the evolution of studio-based teaching into two major streams of educational development over the past century - the move towards collaborative and co-operative learning in small groups, and the integration of computing and the internet as enabling technologies in learning.

Next, the equivalence of the control group (non-studio-based) and experimental group (studio-based) is established. Then, an analysis of the assessments is carried out, which demonstrates that the experimental group not only achieved higher grades, but also achieved deeper learning.

A qualitative analysis of responses from the groups at City University is then discussed, complemented by a similar analysis of students studying on a studio-based electronics course at Rensselaer Polytechnic Institute (RPI), Troy, New York, USA. Responses from other studies of students on studio-based courses at RPI and CityU are also included for comparison.

The next section considers similar, but not so comprehensive, studies of studio-based teaching at institutions other than CityU and RPI. Then, learning style theory is considered as one way of attempting to explain why some students dislike the studio-based classes while continuing to get better results. It is concluded that although learning-styles may be helpful in explaining some of the contradictions in the results, further work is needed before any firm conclusions in this area can be reached.

THE UNIVERSITY OF DURHAM

An Evaluation of the Effectiveness of Studio-based Teaching for a First Year Electronic
Engineering degree course

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in the University of Durham, School of Education

by

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