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Glen Patterson
University of Wollongong

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TEACHING AND LEARNING, PROFESSIONAL DEVELOPMENT
AND COMPUTER TECHNOLOGY: AN ACTION RESEARCH
CASE STUDY OF FIVE CLASSROOM ENVIRONMENTS.

A thesis submitted in partial fulfilment of the requirements for the
award of the degree

DOCTOR OF EDUCATION

From

UNIVERSITY OF WOLLONGONG

By

Glen Patterson
Dip Teach, BEd, MEd

Department of Education
2001

University of Wollongong

Abstract

Teaching and Learning, Professional Development and Computer
Technology: An Action Research Case Study of Five Classroom
Environments.

by Glen Patterson

Supervisory Committee: Professor Barry Harper & Dr Ted Booth

Abstract:

This study documents the evolving form of the collaboratively designed professional development programs and the changes that took place in five classrooms when computers and related technologies were available and integrated into the teaching and learning environment. It also investigates the impact that this had on the teacher's view of how students "learn best" and what implication this has for future learning.

Furthermore, the study investigates changes in student learning outcomes and tracked changes in classroom climate and student/student and student/teacher interactions within the classroom. It was anticipated that this data would assist as a further indicator of changes in teaching practice and how these changes impact on classroom practices.

This study encouraged teachers to look at how students learn best and what their role was as an educator in this process.

The introduction of computer technology into the learning environment provided rich data across each of the classrooms involved in the study. Some of the issues that affected this process included such things as:

- * Years of teaching experience (reflected in developed teaching strategies in the classroom and an understanding of student learning);

- * An individual's pedagogy and a commitment to evaluation and continued improvement of teaching practice;
- * Issues within the learning environment (including school culture and class climate);
- * A classroom and school climate that promoted and supported learning for staff and students;
- * A teacher's involvement in a negotiated development program that met specific identified needs;
- * Engagement in a training and development program that was situated in the participants' own classrooms (with components of computer skill sessions and sessions that directly related to teaching practice);
- * The teacher's initial level of personal computing skills.

Yocam & Wilmore (1995), found professional development approaches that had the most impact did the following:

- * involved small-group collaborations between teachers;
- * took place in working classrooms;
- * built on teachers' existing knowledge about curriculum and practice;
- * provided opportunities to experiment and reflect on new experiences;
- * provided ongoing support to help implement change and innovation.

Literature reviewed and data collected from this study enhanced Yocam and Wilmore's findings. Programs also need to:

- * be twofold, with discrete in-class and individual training sessions for teachers;
- * be collaboratively designed;
- * be part of a whole school program that focuses on constant improvement and evaluation;
- * take place in a school that has a climate and culture conducive and supportive of change and innovation;
- * be longitudinal with a minimum of one school year;

6. place participants in close proximity to each other to maximise the possibility of the exchange of ideas and the development of support structures.

If the integration of computers into classrooms is to be successful, current practices in professional development in some schools must change. This change must be supported from the highest level with schools being equipped to carry out meaningful change monitored over substantial time periods.

ACKNOWLEDGMENTS

The author wishes to acknowledge the support of my wife Leanne and two children Matthew and Caitlin through the "life" of this study. Thanks also extended to the two supervisors, Professor Barry Harper and Dr. Ted Booth.

CERTIFICATION

I, Glen P. Patterson, declare that this thesis, submitted in partial fulfilment of the requirements for the award of Doctor of Education, in the Department of Education, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

Glen P. Patterson

20 April 2001

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GLOSSARY

ESL - English as a Second Language

STLD - Support Teacher Learning Difficulties

LBOTE - Language Background Other Than English

NESB - Non English Speaking Background

ADHD - Attention Deficit Hypoactivity Deficit

SSP - School for Special Purposes

RFF - Release From Face To Face

KLA - Key Learning Area

Sci Tech - Science and Technology Key Learning Area

HSIE - Human Society and Its Environment Key Learning Area

IM - Intellectually Moderate

IO - Special Education Class for Intellectually Disabled Children

CD-ROM - Computer Device Read Only Memory

QSR - Quality Solutions and Research (makers of NUD*IST)

NUD*IST - Non-Numerical and Unstructured Data Indexing Searching and Theorising (Computer Software)

ACOT - Apple Classroom of Tomorrow

TILT - Technology in Learning and Teaching

Living Books - Interactive Computer Reading Software

Wiggleworks - Interactive Computer Based Reading Resource including on computer and off computer resources. Distributed by Scholastic Inc. (1994)

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