Abstract

This paper is based on a research project currently being undertaken. The aim of the project is to find, and validate, possible explanations for the differential level, manner and patterns of use of ICT (Information and Communication Technologies) as learning tools in the New Zealand Secondary School classroom both within and between schools. Currently the government, and our schools, are spending large amounts of money on both ICT infrastructure and staff professional development. Yet, despite the high level of implementation that has resulted the level of integration into the classrooms and the use of ICT as a learning tool is still disappointing at best.

Introduction

This study focuses on the impact of teacher philosophies, values and practices on their use of ICT and what Cuban (2001) calls the "contextually constrained choices" they make. Even though there is some validity in the slow revolution theory, in that ICT usage is increasing, questions need to be asked as to whether the level of change and the quality of use justifies the expenditure by the government, schools, and in some instances private corporations. Similarly there is no denying there are issues with the structure and traditions of our secondary school system such as the division into subjects and the rigid timetable. However, neither of these arguments explain why, or how, some teachers have managed to overcome any obstacles and are using technology in exciting and innovative ways while others are using it for administration only.

The rationale for the study therefore lies in the need to understand why teachers have made the decisions they have regarding the use of ICT in their classroom as a learning tool in order to explain the differential use apparent in other studies undertaken. It cannot be refuted that many secondary schools have made enormous strides in terms of the implementation of ICT. ERO reports show that both the ratio of computers to students and the level of connectivity in our schools have improved considerably; they also show that Boards of Trustees see ICT as their highest priority in terms of in-service training. Their 2000 ICT report stated that 76% of all schools had committed financial resources to ICT training. Given this level of commitment, the question then needs to be asked why there has not been a greater level of integration of ICT into the curriculum in Secondary Schools and why current patterns of use still suggest that the dominant use of computers is in teaching computer skills rather than enhancing the learning in curriculum areas.

Both Becker and Cuban, in very different studies in the United States, raise the issue of type and quality of use rather than quantity of use. It is Cuban's contention that:

"When it comes to higher teacher and student productivity and a transformation of teaching and learning, [however] there is little ambiguity. Both must be tagged as failures. Computers have been oversold and underserved." [3]

While a proponent of the slow revolution theory, which claims that over time, and with improvements in hardware and software, the integration of ICT will increase, Becker also expresses some concerns over the current use of computers. In 1999 he surveyed more than 4100 teachers in over 1100 schools in the United States. A substantial body of his survey data supported Cuban's claims that there has been, in reality, limited impact in the classroom from computers in education. [1] A study by the National Center for Education Statistics showed similar results with 78% of teachers using computers to create instructional material and only 36% using them to present to the class using multi-media. [5] From his study of schools in the Silicon Valley, where infrastructure was not a major issue Cuban found that only 2 out of 10 secondary school teachers were what he described as "serious users" of ICT, with 4 out of 10 using computers once a month and the rest never using them. [3]

Clark in a review of early work on teachers' thoughts and beliefs and their impact on their actions claims that

"a complete understanding of the process of teaching is not possible without an understanding of the constraints and opportunities that impinge upon the teaching process". [2]

This emphasis is echoed by Becker who states that:

"the final and critical piece may yet turn out to be teachers' philosophies of learning and teaching and whether they can be brought around to be supportive of constructivist applications of computer technology". [1]

The Study

The project takes a case study approach and is in two phases using multiple data collection
methodologies such as questionnaires, interviews, observation and document analysis. Data collected during the first phase will be used to purposefully select participants and areas of focus for Phase Two as well as the development of data collection tools. During Phase One a questionnaire will be used to study the following areas:

- The level of infrastructure in the school
- ICT use by teachers
- School contextual factors
- Teacher values and beliefs

The findings from this questionnaire provide the foundation for Phase 2 during which the constraints and opportunities that exist for teachers to use ICT will be probed more deeply using a problem based methodology approach. That is it will attempt to determine the reasoning behind what Cuban (2001) calls the “constrained choices” teachers make as to how and why they use ICT with their students. Dialogue with the teachers selected will be the primary source of data collection for this phase.

The results of phase 1 will be written up as case studies of the use of ICT in schools and will add to the current literature, which describes this and considers the barriers to further use.

It is intended that phase 2 will provide a more in-depth understanding of the factors that impact on why teachers use ICT as they do and will ultimately be discussed in terms of the variables that account for the different patterns of usage within a school as well as those implicated in the different patterns across schools.

References