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# Information and Communication Technology in Secondary Schools:

A study of factors relating  
to the integration of ICT  
into the curriculum areas of  
English, mathematics,  
social studies and science

by

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## ABSTRACT

New Zealand schools have been using ICT, especially computers, for more than two decades yet there is a lack of research in the secondary school area, of how and if, these technologies are being integrated into the curriculum. It has been well documented that the main use of ICT in secondary schools is for studying *how* the computer works, rather than using it to enhance student learning. The main question this study investigates is: to what extent are secondary schools integrating ICT into the core curriculum areas of English, mathematics, social studies and science? Areas such as teacher attitudes, professional development, access, policies, success factors and barriers were investigated. Student perceptions on the use of ICT were also sought. The findings from this study have the potential to assist school managers and teachers to understand how ICT can be successfully integrated into the curriculum.

A multi-dimensional research approach was used employing both quantitative and qualitative methods of data collection. A survey was conducted of 18 urban secondary schools. Data were collected from Heads of Departments of the target curriculum areas, and from one teacher in each department whom the HOD perceived to be an ICT-using teacher. From these data one school, perceived to be a successful ICT-using school, was selected according to set criteria, to be the subject of a case study. Interviews were conducted with the principal, the HOD ICT, the Librarian, a software consultant, as well as the HOD and a teacher from each curriculum area. Students from two year levels were also interviewed. This approach enabled an overview of ICT use in a range of secondary schools to be sought, followed by an in depth study of strategies used in one school.

Data were analysed according to a theoretical framework adapted to reflect the hierarchical situation in a secondary school. The macro, mesa and micro environments were analysed to understand the interrelationships that occur between these levels. Results from the study confirm a generally low level of ICT use in these curriculum areas and highlights a number of issues which impact at each level of a secondary school, with ramifications for the use of ICT

in teaching and learning programmes. These issues include: school systems - policies and procedures, professional development, pedagogical knowledge of teachers, the role of the teacher, and access to, and location of, ICT equipment, especially computers. There is a complex interaction between all of these issues which need to be understood, for the meaningful integration of ICT into the curriculum to occur.

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## **DEDICATION**

This thesis is dedicated to my mother,  
Marjorie Constance Cornwall  
1920 – 1983

who never had the opportunities  
of the next generation.

## DECLARATION

I declare that this thesis represents my own work, except where due acknowledgement is made, and that it has not been previously included in a thesis, dissertation or report submitted to this University or to any other institution for a degree, diploma or other qualification.

Signed

*M. Halliday*

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