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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

*Nat Halliday*

## **TABLE OF CONTENTS**

i)	Abstract	ii
ii)	Acknowledgments	iv
iii)	Dedication	v
iv)	Table of Contents	vii
v)	List of Tables	x
vi)	List of Figures	xiii
vii)	List of Appendices	xiv

## **CHAPTER ONE – INTRODUCTION**

Introduction	1
Background	1
Statement of Purpose	5
Organisation of the Thesis	5

## **CHAPTER TWO – LITERATURE REVIEW**

Introduction	7
Policy Directions in New Zealand	7
Definition of Information and Communication Technology	13
Integrating ICT into the Curriculum	14
ICT in New Zealand Secondary Schools	29
ICT in Secondary Schools Overseas	37
Themes to Emerge	43
Statement of the Problem	47
Significance of the Study	48
Summary	48

## **CHAPTER THREE – METHOD**

Introduction	50
Research Questions	50



Research Methodology	51
Nature of the Research	52
Research Design	54
Justification for the Research Design	54
Research Definitions	55
Research Population	57
Justification for Examining ICT in English, Mathematics, Social Studies and Science in Secondary Schools	57
Linking information Gathering Strategies to Specific Research Questions	58
Phase One	61
Phase Two	66
Ethical Considerations	83
Methodological Limitations	86
Summary	87

## **CHAPTER FOUR – RESULTS PHASE ONE**

Introduction	88
Background of Participants	88
Attitudes and Opinions of teachers about the use of ICT	92
ICT Use in the Classroom	100
Professional Development	117
School Systems	123
Summary	126

## **CHAPTER FIVE – RESULTS PHASE TWO**

Introduction	129
Background	130
School Policy, Procedures and Support Systems regarding ICT use	130
ICT Use in English	149
ICT Use in Mathematics	157
ICT Use in Social Sciences	162

ICT Use in Science	168
Extra Dimensions to the Case Study School	174
The students	176
Summary	178

## **CHAPTER SIX – DISCUSSION**

Introduction	180
School Systems: Policies and Procedures	181
Professional Development	185
Pedagogical Knowledge	190
Role of the Teacher	196
Access and Location	197
A Model of Acquisition	201
Limitations of the study	202
Summary	203

## **CHAPTER SEVEN – CONCLUSION**

Conclusion	205
------------	-----

<b>REFERENCES</b>	208
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<b>APPENDICES</b>	217
-------------------	-----

## LIST OF TABLES

### CHAPTER THREE

Table 3.1	Information gathering strategies used to answer sub questions	59
Table 3.2	Types of secondary schools in the sample area	61
Table 3.3	Percentage response rate for each group	64
Table 3.4	An aggregation of each school's reported weekly and monthly use of ICT	68
Table 3.5	An aggregation of each school's responses on selection criteria for a successful ICT using school	69
Table 3.6	People interviewed at the case study school	77

### CHAPTER FOUR

Table 4.1	Sample of HODs and teachers from each curriculum area	89
Table 4.2	Gender breakdown showing position and curriculum area	89
Table 4.3	Length of time that HODs and teachers have been teaching.	90
Table 4.4	Length of time as an HOD	90
Table 4.5	Extent to which HODs and teachers think that integrating ICT into their curriculum area is important.	93
Table 4.6	Main benefits for student learning identified by HODs and teachers	94
Table 4.7	Success factors to enable the successful integration of ICT tools into the curriculum.	96
Table 4.8	Percentage of HODs and teachers in each curriculum area who have used the World Wide Web and email in the previous 4 terms	101
Table 4.9	Frequency of use by HODs and teachers of ICT with Years 9 and 10.	104
Table 4.10	Overview of recent successful experience using ICT	

	in teaching and learning	106
Table 4.11	Recent successful experience using ICT reported by English HODs and teachers: writing processes	108
Table 4.12	Recent successful experience using ICT reported by English HODs and teachers: writing and visual language processes	109
Table 4.13	Recent successful experience using ICT reported by English HODs and teachers: research	110
Table 4.14	Recent successful experience using ICT reported by Mathematics HODs and teachers	111
Table 4.15	Recent successful experience using ICT reported by Social Studies HODs and teachers	112
Table 4.16	Recent successful experience using ICT reported by Science HODs and teachers: use of data capturing equipment	114
Table 4.17	Recent successful experience using ICT reported by Science HODs and teachers: use of simulations	115
Table 4.18	Recent successful experience using ICT reported by Science HODs and teachers: research	115
Table 4.19	Number of participants currently engaged in ICT professional development	118
Table 4.20	Number of participants attending ICT professional development in the previous two years	118
Table 4.21	Staff currently engaged in ICT professional development	119
Table 4.22	Type of professional development programmes HODs and teachers attended in 1999 and in the previous two years	120
Table 4.23	Number of responses indicating duration of course	121
Table 4.24	Number of responses indicating where the course was taught	121
Table 4.25	Number of responses indicating where the providers Originated	121
Table 4.26	Number of responses indicating the range of outside providers	122
Table 4. 27	Leadership strategies HODs reported using to encourage	

the integration of ICT into their curriculum areas	125
--	-----

## CHAPTER FIVE

Table 5.1	Number of networked computers in the case study school as at July 1999	142
Table 5.2	Summary of <i>RMSmart-Tools</i> functions	147

## **LIST OF FIGURES**

### **CHAPTER TWO**

Figure 2.1	Ecology of the ICT-using Learning Environment in a Secondary School	28
------------	---	----

### **CHAPTER THREE**

Figure 3.1	Summary of information sent to schools	63
------------	--	----

### **CHAPTER FOUR**

Figure 4.1	Self reported experience levels of HODs and teachers in the use of ICT personally and in their work..	91
Figure 4.2	Self reported experience levels of HODs and teachers in the use of ICT in teaching and learning	91
Figure 4.3	A comparison of ICT use between the English and social studies curriculum areas	102
Figure 4.4	A comparison of ICT use between the mathematics and science curriculum areas	103
Figure 4.5	Frequency of use by HODs and teachers with Years 9 and 10	105
Figure 4.6	Frequency of use by HODs and teachers with Years 11, 12 and 13	105
Figure 4.7	Where ICT are mainly accessed from for each curriculum area	117
Figure 4.8	Where HODs and teachers reported gaining their most knowledge about ICT	123
Figure 4.9	Percentage of departments which have ICT mentioned in their schemes	124
Figure 4.10	HOD and teacher ratings of school support for the integration of ICT into curriculum areas	126

## APPENDICES

1. Government ICT Strategy 218

### PHASE ONE

2. Letter of explanation to the Principal 220
3. *Information for Principals* sheet 221
4. Consent form to sign and return 222
5. Instruction sheet for HODs 223
6. *Information about the Research for HODs* sheet 224
7. HOD questionnaire 225
8. *Information about the Research for Teachers* sheet 226
9. Teacher questionnaire 227
10. Reminder letter to HODs 228
11. Thank you letter to Principals who had returned  
*Permission to Participate* form 229
12. Thank you letter to Principals and asking them to  
sign *Permission to Participate* form 230

### PHASE TWO

13. Letter to Principal 232
14. Subject Information Sheet 233
15. Student and Parent/caregiver Information and Consent form 234
16. Subject Consent Form 235
17. Principal Interview Questions 236
18. HOD Interview Questions 237
19. Teacher Interview Questions 238
20. Librarian Interview Questions 239
21. Student Interview Questions 240
22. Transcriber Confidentiality 241
23. Letter to Participants for transcript approval 242
24. Interviewee Declaration 243
25. Letter of thanks to case study Principal 244
26. ICT Implementation Plan 1999 – 2000 245