Copyright is owned by the Author of the thesis. Permission is given for a copy to be downloaded by an individual for the purpose of research and private study only. The thesis may not be reproduced elsewhere without the permission of the Author.

From Preservice Teacher Education to the Primary Classroom: An Investigation into Beginning Teachers' Experiences with Information and Communication Technology

A thesis presented in partial fulfilment of

the requirements for the degree of

Doctor of Education

at Massey University, Palmerston North

New Zealand

Anne-Grete Nøhr Elliot

2011

ABSTRACT

This thesis investigates the conditions that may help or hinder beginning primary teachers in using *information and communications technology* (ICT) in the classroom. A dearth of research exists on beginning teachers' experience and sense of readiness to use *ICT* for teaching and learning (and administration). Thus, there is limited knowledge of the challenges beginning teachers face and support they may benefit from to take advantage of the possibilities of ICT. The thesis sought to address this gap in the literature. It seeks to understand the experiences of eight beginning teachers from one New Zealand preservice teacher education institution during their first year of teaching.

An interpretative, qualitative methodology is employed to answer the overarching research question, which considers the nature of beginning teachers' experiences when they incorporate ICT into the teaching and learning process. Data were collected in 2005 using two main methods: a written questionnaire and two interviews—one a *photo-interview*.

The findings suggest the meaningful use of ICT requires beginning teachers to possess a high level of complex knowledge, including pedagogical content knowledge. They also highlight the importance of a supportive *school culture*, strong leadership and *induction* systems for beginning teachers' development. Notably, participants report relatively fragile conceptions of the potential of ICT for learning and lack knowledge of national and school policies in this area. Most of the beginning teachers were unable to make connections between their work as teachers and the broader policy goals for education. Although participants report they had limited opportunities to learn about

ICT during their *preservice teacher education*, they all wished they had been better prepared to utilise the potential of technology in schools.

Overall the study offers valuable insights into the experiences of a group of beginning teachers over their first year of teaching, which has implications for tutor teachers, principals, teacher educators and policy makers. Through a new line of research, the thesis reveals the complexity of learning to be an ICT-using teacher and the type of factors that contribute to teacher development. Although the thesis identifies a number of possible future initiatives, it concludes that more substantial research is needed from which generalisable findings may then be applied to beginning teachers, schools and the teacher education sector as a whole.

A postscript describes developments in the field since the fieldwork was carried out. It addresses the currency and contribution of this study to the field in light of the timeframe in which the original data were collected with reference to the stakeholders.

ACKNOWLEDGEMENTS

I am indebted to the support and encouragement of my supervisors, my friends and my family. I wish especially to thank my supervisors: Mark Brown for his unfailing support, invaluable guidance, insightfulness and lucid comments. The stimulating conversations via Skype were vital to a student studying at a distance. And John O'Neill for guiding me to see alternative ways of 'doing research' and for his perceptive comments and suggestions.

I thank my participants who gave so willingly of their time. They allowed me to 'see' into their classrooms and try to understand and learn from their teaching practice.

I sincerely wish to thank Meg Davidson for being a critical reader, Shirley Gillett for being willing to 'talk shop,' Susan Sandretto for helping me through a sticky patch and Adrienne Bisset for material help.

Lastly, I am grateful to my husband Bales for his unfailing support through thick and thin.

TABLE OF CONTENTS

ABSTRACT i
ACKNOWLEDGEMENTS iii
TABLE OF CONTENTS iv
LIST OF TABLES vii
LIST OF FIGURES viii
GLOSSARY OF ACRONYMS ix
GLOSSARY OF TERMS x
CHAPTER ONE: INTRODUCTION
Introduction 1
Context 2
Debates about the Use of ICT in Schools 3
Definition of Key Terms 5
Research Problem 6
My Personal Journey 7
Structure of the Thesis 10
Chapter Summary 12
CHAPTER TWO: LITERATURE REVIEW
Introduction 13
The Literature Search 14
Learning to be a Teacher 17
Learning to be an ICT-Using Teacher 25
Conceptions and Beliefs about ICT 29
Preservice Preparation and ICT 35
New Zealand Research on the Context for Beginning Teachers 47
New Zealand Research on ICT in Preservice Teacher Education 54
Chapter Summary 60
The Focus of the Research 62
CHAPTER THREE: THE RESEARCH PROCESS
Introduction 65
Framing the Research Questions 66
Theoretical Framework 67
Ethical Considerations 78
Issues of Validity 81
Research Methods 83
Data Analysis Procedures 99

Presenting the Findings 101
Chapter Summary 102
CHAPTER FOUR: THE PARTICIPANTS
Introduction 104
John 105
Lucy 107
Susan 108
Kay 109
Arnold 111
Annabel 112
Mary 114
Pam 115
Chapter Summary 116
CHAPTER FIVE: FINDINGS
Introduction 118
Awareness of ICT Policy 119
Views on the Role of ICT in Schools 120
Beliefs about Schools' Expectations for ICT 124
Conceptions of ICT in Classroom Practice 126
School Culture and Mentoring 134
Experiences that Contributed to Self-Perceptions of ICT Competence 146
Reflection on ICT in Preservice Teacher Education 162
Chapter Summary 168
Overview of the Findings 171
CHAPTER SIX: DISCUSSION
Introduction 173
Knowledge of ICT Policies for Schools 174
Understanding of ICT's Role in Teaching and Learning 176
Impact of the Work Environment 181
Factors that Influence Beginning Teachers' ICT Self-Efficacy Beliefs 186
Lessons for Preservice Teacher Preparation in ICT 192
Chapter Summary 197
CHAPTER SEVEN: CONCLUSION AND IMPLICATIONS
Introduction 200
The Study 201
Reflecting on the Research Questions 202
Contribution of this Study 203
Limitations of this Study 204
Implications for Policy, Practice and Future Research 206
Final Thoughts 209
CHAPTER EIGHT: POSTSCRIPT
Introduction 210
Recent Developments in Preservice Teacher Education 210

Recent Developments for Beginning Teaching, Mentoring and School Leadership 213
Recent Policy Developments and Research Reports on ICT 216
Recent Theoretical Developments in ICT 219
Concluding Statement 221
REFERENCES 223
APPENDICES 255

LIST OF TABLES

Table 3.1. The research process 68
Table 3.2. Composition of the participants' contexts in initial sample 91
Table 3.3. School type 91
Table 3.4. Number of students in participants' schools 92
Table 3.5. Final sample 93
Table 3.6. Data gathering timeline 94
Table 4.1. Participants' school and classroom contexts 105
Table 5.1. Participants' views about the role of ICT in schools 120
Table 5.2. Conceptions of ICT held by individual participants 127
Table 5.3. Access to computers, Internet and data projector 133
Table 5.4. Participants' reported experiences of support and mentoring 134
Table 5.5. Prior experiences with ICT 147
Table 5.6. Extent of ICT use modelled by lecturers and associate teachers 149
Table 5.7. Classroom ICT use during participants' practicum 151
Table 5.8. Self-assessed ICT skills and experiences at graduation 153

LIST OF FIGURES

Figure 3.1. Process of developing the sample 89

Figure 3.2. Process of collecting and analysing the data..... 94

GLOSSARY OF ACRONYMS

ERO	Education Review Office
Gen Y	'Generation Y' — young people born between the early 1980s and 2000, who are said to have grown up with technology, or, in the words of Tapscott (1996), have grown up as 'digital natives.'
ICT	Information and Communication Technology
ISTE	International Society for Technology in Education
PCK	Pedagogical Content Knowledge
PRT	Provisionally registered teacher. The status of a beginning teacher during the first two years of teaching after graduation
TELA	Laptops for Teachers Scheme
TKI	Te Kete Ipurangi—A bilingual education portal which provides quality assured educational material for New Zealand teachers, school managers, and the wider education community.
TPCK *or* TPACK	Technological Pedagogical Content Knowledge *or* Technological, Pedagogical, and Content Knowledge

GLOSSARY OF TERMS

Associate teacher	A school-based co-operating teacher.
Advice and guidance programme	A jointly planned and documented programme of mentoring and professional development of a provisionally registered teacher guided by an experienced colleague—'tutor teacher'—and which leads towards full teacher registration.
College of Education	A faculty of preservice teacher education within a university.
Contributing primary school	A school that caters for Year 0 (sometimes referred to as New Entrants) to Year 6 students, aged between 5 and 10 years.
Beginning teacher	Refers generally to a graduate in his or her two first years of teaching. This thesis has adopted the term 'beginning teacher' to signify newly qualified teachers in his or her first year of teaching.
Education Review Office (ERO)	A government department whose purpose is to evaluate and report publicly on the education of students in schools and early childhood centres.
e-learning	Learning and teaching that is facilitated by or supported through the innovative use of information and communication technologies.
Full primary school	A school that caters for Year 0 to Year 8 students, aged between 5 and 12 years.
Information and Communications Technology (ICT)	Technologies such as computers, software and peripherals. Includes the facilities and features for communication, digital cameras and other artefacts used in conjunction with a computer.
Intermediate school	A school that caters for students Year 7 and Year 8.
New Zealand Teachers Council	Formerly Teachers Council and Teachers Registration Board. An autonomous Crown entity. The regulatory body for registered teachers and the approval of preservice teacher education programmes.
Pākehā	A term used to describe non-indigenous New Zealanders.

Practicum	A preservice teachers' school-based teaching experience under the supervision of an experienced teacher—the 'associate teacher.'
Preservice teacher education	A teacher education programme that leads to provisional registration as a teacher.
School term	The school year in New Zealand runs from the beginning of February to mid-December and is divided into four terms.
Secondary school	A school that usually caters for students Year 9 to Year 13.
College	A secondary school that caters for students Year 7 to Year 13.
Teacher educator	A lecturer who teaches in a preservice teacher education programme.
Tutor teacher	A school-based mentor, usually an experienced teacher.
Web 2.0	A term used to describe a series applications on the World Wide Web that allows interactive experience in the form of blogs, wikis, forums, etc.