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TEACHERS AND TECHNOLOGY: A TRANSFORMATIVE JOURNEY

Thesis submitted by

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in

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For the degree of
Doctor of Philosophy
in the School of Education,
James Cook University

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The research presented and reported in this thesis was conducted within the guidelines for research ethics outlined in the *National Statement on Ethics Conduct in Research Involving Humans (1999)*, the *Joint NH&MRC/AVCC Statement and Guidelines on Research Practice (1997)*, the *James Cook University Policy on Experimentation Ethics – Standard Practices and Guidelines (2001)*, and the *James Cook University Statement and Guidelines on Research Practice (2001)*.

The proposed research methodology received clearance from the James Cook University Experimentation Ethics Review Committee (Approval No. H1665).

(name)

July 11, 2005

(date)

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Abstract

Transformative learning is a process by which an adult learner critically questions previously-held beliefs, assumptions, values, and perspectives and thereby acquires a more open and better validated world view. The primary mechanism for this examination is critical reflection which results in a perspective transformation or a revision of a person's previous frame of reference. Due to its constantly-changing nature, educational technology is an ideal area in which to test the rigour of transformative learning by examining how adult learners' frames of reference change as they use, integrate, and teach technology.

The aim of this research study was to investigate the educational technology development of elementary school teachers through the lens of transformative learning theory. In particular, the research questions asked to what degree teachers experienced perspective transformations due to their development in educational technology, what external factors promoted or impeded the occurrence of perspective transformations, and whether transformative learning theory was a viable research framework to describe the teachers' development in technology.

The thesis employed a mixed-method methodology. The qualitative data were derived from reflective journal entries, a semi-structured interview, and my field notes. The quantitative data were derived from a teacher questionnaire, an administrator questionnaire, and two-tailed t-tests.

The 10 teachers did experience perspective transformations, there were distinct factors related to the perspective transformations, and transformative learning theory proved a viable theoretical framework to describe the teachers' development in technology. The four factors that promoted perspective transformations were collaboration on all levels, administrator support, time

practising ICT skills and strategies, and funding targeted in consistent ways the teachers saw as important. The three factors that impeded perspective transformations were the presence of a gauleiter (someone who is authoritative, overbearing, and megalomaniacal), an absent or weak infrastructure, and administrator pressure to engage in ICT for reasons other than the promotion of student learning. As well, the data revealed five dominant themes and 24 sub-themes related to perspective transformations. The most salient finding for transformative learning and educational technology research was the “working profile” of a transformative learner of technology. A transformative learner of technology is collaborative, open-minded and independent-minded, has a set of priorities for ICT, takes initiative, has teaching experience, is not necessarily equated to age, and possesses a predisposition for change.

The study has several implications: elements of transformative learning are suitable descriptors of technology development (theoretical), the complementarity of the data sources provided clear evidence of perspective transformations (methodological), and the professional development model used in my study ensured that teachers became engaged in, and conscious of, their own learning processes (andragogical).

The recommendations for further research include using a entire staff of teachers that would represent a cross-sample of technology experience, increasing the number of research studies that investigate not only the presence but also the degree of perspective transformation, examining whether gender is an issue in technology innovation and in technology collaboration, setting more concrete guidelines for attending workshops over a longer period of time—four to six months, revising the teacher questionnaire to clarify or exemplify each

transformative learning statement, making changes to the professional development model to ascertain whether specific transformative learning elements can be maximised, and examining the potential for making the study of transformative learning theory an integral part of pre-service teacher education.

TABLE OF CONTENTS

Abstract	7
TABLE OF CONTENTS.....	10
LIST OF FIGURES.....	15
LIST OF TABLES	16
PREFACE	17
INTRODUCTION.....	19
Setting the Context	19
Purpose of the Study.....	20
Research Questions.....	20
Definitions	21
Rationale.....	22
Scope and Limitations of the Study.....	24
Organisation of the Study	26
CHAPTER 1	32
LITERATURE REVIEW	32
Transformative learning theory	33
<i>Early development</i>	33
<i>Criticisms</i>	46
<i>Revision of the theory</i>	49
<i>Transformative learning studies</i>	59
Transformative learning in practice	66
Adult-learning principles	69
<i>Active participation</i>	70
<i>Build on past experiences</i>	71
<i>Climate of respect</i>	71
<i>Collaboration</i>	71
<i>Critical attitude</i>	72
<i>Declaration of assumptions</i>	72
<i>Diverse methods</i>	73
<i>Empowerment</i>	73
<i>Genuine feedback loop</i>	73
<i>Group and cooperative learning</i>	74

	11
<i>Immediate application</i>	74
<i>Motivation</i>	75
<i>Practice-based activities</i>	75
<i>Self-directed learning</i>	76
Professional development of adults and transformative learning	78
Technology innovation and school change	81
Transformative learning and technology	91
Conclusion	106
CHAPTER 2	109
RESEARCH DESIGN	109
Overview	111
Selection of the participants	116
<i>Teachers:</i>	117
<i>Consent:</i>	118
Description of the Schools	119
Description of the Teachers	119
Data Collection	120
<i>Professional Development model</i>	122
<i>Professional Development action plans</i>	125
<i>Reflective journal writing</i>	126
<i>Teacher questionnaire</i>	127
<i>The semi-structured interview</i>	129
<i>My field notes</i>	131
Coding and Categorising	132
<i>Reflective journal writing</i>	135
<i>Teacher questionnaire</i>	137
<i>The semi-structured interview</i>	138
<i>My field notes</i>	139
<i>Pooled data</i>	141
Conclusion	141
CHAPTER 3	148
RESEARCH RESULTS	148
Overview	150
<i>Schools</i>	150
<i>School A</i>	153
<i>School B</i>	154
<i>School C</i>	155
<i>Comparison of results by school</i>	156
<i>Comparison of results from research instruments</i>	161
Teacher Results	164

<i>Professional Development Action Plans</i>	164
<i>Individual teachers and the transformative learning statements</i>	168
Teacher A – 1.....	169
Teacher A – 2.....	169
Teacher A – 3.....	170
Teacher A – 4:	170
Teacher B – 1.....	171
Teacher B – 2.....	171
Teacher B – 3.....	172
Teacher C – 1.....	172
Teacher C – 2.....	173
Teacher C – 3.....	173
<i>Research instruments and the transformative learning statements</i>	177
Reflective journal.....	177
Teacher questionnaire	179
Semi-structured interview	182
Field notes.....	184
Conclusion	186
CHAPTER 4	189
DISCUSSION	189
External Factors Related to Perspective Transformation	191
School Culture	191
School Culture Summary	197
<i>Systemic External Factors</i>	197
Collaboration	199
Administrator Support	205
Time.....	208
Targeted Funding	213
Gauleiter	214
Infrastructure.....	216
Administrator Pressure	219
Systemic External Factors Summary	222
External Factors Related to Perspective Transformation Summary	222
Individual Themes of Perspective Transformation	223
<i>Disorienting Dilemma Overview</i>	227
Disorienting Dilemma: Negative.	228
Disorienting Dilemma: Positive.....	232
<i>Summary: Disorienting Dilemma</i>	233
<i>Altered Sets of Meaning Schemes Overview</i>	234
Altered Sets of Meaning Schemes: Comfort.....	234
Altered Sets of Meaning Schemes: Past Experiences.	236
Altered Sets of Meaning Schemes: Adaptation.	238
Altered Sets of Meaning Schemes: Questioning.....	240
Altered Sets of Meaning Schemes: Application.	242
Altered Sets of Meaning Schemes: Resources.....	244
Altered Sets of Meaning Schemes: Outside Expectations.	246
<i>Summary: Altered Sets of Meaning Schemes</i>	247
<i>Revised Frames of Reference Overview</i>	248
Revised Frames of Reference: Taking Action.	248
Revised Frames of Reference: Role Change.....	251
Revised Frames of Reference: Transformative Journey.	254
<i>Summary: Revised Frames of Reference</i>	255
<i>Types of Learning and Learning Processes Overview</i>	255
Types of Learning: Instrumental Learning.	256

Types of Learning: Dialogic Learning.....	258
Types of Learning: Self-reflective Learning.....	259
<i>Summary: Types of Learning</i>	262
Types of Processes: Learning Within Present Meaning Schemes.....	262
Types of Processes: Learning New Meaning Schemes.....	263
Types of Processes: Learning Through Meaning Schemes.....	266
Summary: Types of Learning Processes.....	268
<i>Summary: Types of Learning and Learning Processes</i>	269
<i>Critical Reflection Overview</i>	269
Critical Reflection: Content Reflection.....	270
Critical Reflection: Process Reflection.....	274
Critical Reflection: Premise Reflection.....	278
Critical Reflection: Objective Reframing of Narrative Assumptions.....	281
Critical Reflection: Objective Reframing of Action Assumptions.....	284
Critical Reflection: Subjective reframing of Critical Self-reflection on Assumptions.....	289
<i>Summary: Critical Reflection</i>	295
Individual Themes of Perspective Transformation Summary.....	296
Transformative Learning as a Research Framework	296
<i>Initial Learner Empowerment</i>	297
<i>Critical Self-reflection</i>	298
<i>Transformative Learning</i>	300
<i>Autonomy</i>	301
Transformative Learning as a Research Framework Summary.....	303
Transformative Learner of Technology	304
Transformative Learner of Technology Summary.....	308
Implications of this Research Study	308
Theoretical.....	308
Methodological.....	309
Andragogical.....	312
Conclusion	313
CHAPTER 5	318
CONCLUSIONS AND RECOMMENDATIONS	318
Research Question One	319
<i>Given professional development opportunities consistent with sound andragogy, to what degree do teachers experience a “perspective transformation” due to their development in technology?.....</i>	319
<i>What factors and personal characteristics external to the professional development program appear to promote or impede their perspective transformation?.....</i>	321
Research Question Two	322
<i>Is transformative learning a viable research framework to describe the teachers’ development in technology use, integration, or teaching?.....</i>	322
Recommendations for Future Research	324
Theoretical.....	324
Methodological.....	325
Andragogical.....	326
Conclusion	327
REFERENCES	332

APPENDIX A	351
APPENDIX B	355
APPENDIX C	357
APPENDIX D	368
APPENDIX E	379
APPENDIX F	390
APPENDIX G	392
APPENDIX H	396
APPENDIX I	408
APPENDIX J	410
APPENDIX K	412

LIST OF FIGURES

<i>Figure 1.</i> Diagrammatic representation of Mezirow’s (1985) revised transformative learning theory	43
<i>Figure 2.</i> Diagrammatic representation of the three types of reflection, their related actions, transformations, and depths of change (Mezirow, 1995)	51
<i>Figure 3.</i> Diagrammatic representation of Mezirow’s (1998) taxonomy of critical reflection of and on assumptions	53
<i>Figure 4.</i> Diagrammatic representation of Mezirow’s (2000) revised transformative learning theory	57
<i>Figure 5.</i> Diagrammatic representation of Mezirow’s (2000) four types of learning, reflecting the revised theory of transformative learning	58
<i>Figure 6:</i> Mixed-methodology timeline of research methods used over a twelve-month period	112
<i>Figure 7.</i> An example of an NVivo-coded document using the coding stripes feature	133
<i>Figure 8:</i> Diagrammatic representation of the individual themes and external systemic factors in perspective transformation	225

LIST OF TABLES

Table 1: <i>Mezirow's (1978a, 1978b) 10 phases of transformative learning</i>	34
Table 2: <i>The influences on Mezirow's early transformative learning theory and its related facets</i>	35
Table 3: <i>A summary of Mezirow's transformative learning theory by year and salient element</i>	41
Table 4: <i>A summary listing of the adult education learning principles from influential andragogical studies</i>	70
Table 5: <i>Transformative learning in practice: Summary of key findings</i>	95
Table 6: <i>King's (2002a, 2002e) Journey of Transformation</i>	97
Table 7: <i>Modifications to the LAS – PD TECH (King 2002a, 2002e, 2003) for the present study</i>	127
Table 8: <i>Summary of NVivo codes used and the related indigenous typologies</i>	133
Table 9: <i>Summary of the Technology Façade Checklist for Schools A, B, and C (raw score followed by percentages in parentheses)</i>	151
Table 10: <i>Pooled data totals by school and overall total</i>	157
Table 11: <i>Mean of pooled data totals and calculated by school (table t-value = 2.09)</i>	160
Table 12: <i>Pooled data totals by research instrument, overall totals in rank order (greatest to least) and cluster</i>	161
Table 13: <i>Summary of participants' educational technology professional development action plans</i>	165
Table 14: <i>Summary of the demographic information for each participant</i>	168
Table 15: <i>Summary of transformative learning statements by school and by teacher (in raw number)</i>	174
Table 16: <i>Number of times a coded statement was reported by the participants in their reflective journals (by raw number and totals)</i>	178
Table 17: <i>Participant responses to LAS – PD – TECH teacher questionnaire (“✓” = selected; “-” = not selected)</i>	180
Table 18: <i>Number of times a coded statement was reported by each teacher in his or her semi-structured interview (by raw number and ranked by totals)</i>	183
Table 19: <i>Number of times a coded statement was extracted from my field notes (by raw number)</i>	185
Table 20: <i>Culture- and contract-based regimes (Hargreaves, 2003) by school</i>	193
Table 21: <i>External factors within school cultures that promote and impede the occurrence of a perspective transformation (by descending order)</i>	198
Table 22: <i>Summary of the five transformative learning themes and the corresponding number of comments (in raw number)</i>	226
Table 23: <i>Summary of high and low degree of perspective transformation by teacher and overall totals (in raw number)</i>	304

PREFACE

To set the context for this thesis, this preface appeared to be necessary so that readers understood why I have chosen to complete another Ph. D. so soon after completing my first doctoral degree.

My first doctoral thesis topic and research were very distinct from the research contained in this thesis; however, the lessons I learned about academic writing, library and on-line researching, analysing data, and purporting a sound argument were invaluable to me. When I began a doctoral program at a North American university, I was driven to complete as quickly as possible but burned out very quickly. It was not a pleasant experience for me and I had promised myself that I would complete another Ph. D. when the timing was right. This thesis is an indication that the time was perfect to obtain another doctoral degree.

The timing became perfect to pursue a doctorate in educational technology as I was conducting research on what professional development models in educational technology were successful and felt that channelling that research into another degree would be beneficial in so many ways. I was fortunate enough to find a university that would allow me to complete the degree at a reasonable cost and to locate two extremely supportive and knowledgeable supervisors.

I never lost my passion for my first thesis topic and the research it entailed but felt let down by the university system and its bureaucracy. Gender differences in poetry imagery had fascinated me since my teaching training and then, later, as I taught teenaged students the joys of the English curriculum. My thesis involved a questionnaire to Grade 10 students followed by one-on-one sessions with 12 students. During these sessions, the students described the images evoked by two poems and their descriptions were tape-recorded. Later statistical analysis revealed several

significantly-significant differences between the image-descriptions of the males and females. The findings were published in a prestigious refereed journal and I became a popular speaker to teachers and teacher-educators. Eventually these connections with teachers and schools led me to professional development in technology as so many male teachers appeared to dominate the teaching of educational technology and the female teachers seemed to be disempowered. This thesis does not investigate the gender differences as my interests became more related to adult learning principles; however, the notion of empowerment in educational technology is a constant theme in the chapters that follow.