

**A Study Examining the ICT Literacy Levels of
Music Educators in the New South Wales
Department of Education & Training**



Submitted in fulfilment of the requirements for the degree of
Master of Arts (Music) in the School of Drama, Fine Art and Music

by

Nathan Benjamin Scott

BMus, GCertPTT

The University of Newcastle (Australia)

August 2012

Statement of Originality

The thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. I give consent to this copy of my thesis, when deposited in the University Library**, being made available for loan and photocopying subject to the provisions of the Copyright Act 1968.

(** Unless an Embargo has been approved for a determined period.)

Nathan Scott

August 2012

Acknowledgements

A deep appreciation is extended to all those who have contributed to the development of this project either directly or indirectly. Gratitude is particularly attributed to:

- Dr Phillip McIntyre (Principal Supervisor - The University of Newcastle)
- Professor Richard Vella (Co-supervisor - The University of Newcastle)
- Reg Newitt (Manager, Creative Arts, Curriculum K-12 Directorate, NSW Department of Education and Training)
- Margaret Bradley (Music Consultant, Curriculum K-12 Directorate, NSW Department of Education and Training)
- Brendon Murphy (Solicitor, The University of Newcastle Legal Unit)
- Anne Wisdom (Music Technology Education Consultant)

Table of Contents

Statement of Originality	iii
Acknowledgements	v
List of Figures	ix
List of Tables.....	x
Abstract	xi
1.0 Introduction	1
1.1 Research Questions	3
1.2 Significance of the Research	5
1.3 Limitations of the Research	6
2.0 Literature Review	9
2.1 Technology and Education.....	9
2.2 Studies Into ICT Application and Integration.....	23
2.3 ICT and Music.....	33
2.4 ICT Standards in Music Education	35
2.5 Information and Communications Technology	37
2.6 Interpreting ‘Literacy’	41
2.7 Concepts of ICT Literacy.....	48
2.8 ICT and Gender.....	53
2.9 Conclusion.....	55
3.0 Methodology and Process	56
3.1 Research Approach	56
3.2 Perception Versus Reality	59
3.3 Collection Methodology.....	60
3.4 Sample Group.....	64
3.5 Data Collection Method	67
3.6 Survey Questions	69
4.0 Responses and Analysis	95
4.1 Introduction.....	95
4.2 Section One – Participant Data	96
4.3 Section Two – Rated Responses	98
4.4 Section Three – Open Questions.....	154
4.5 Methodological Reflections	164
4.6 Observations from the Data Analysis	166
5.0 Conclusion.....	173
5.1 Summary	173
5.2 Considerations.....	175
5.3 The Future	179
5.4 Conclusion.....	180
Bibliography.....	182
Appendices.....	188
Appendix A – Teacher ICT Skills (WADET Study).....	189
Appendix B – Survey Question Responses (Q1-Q48).....	190
Appendix C – Survey Free Text Responses (Q49-Q50).....	194
Appendix D – Survey Information Sheet.....	198

List of Figures

Figure 1 – World Illiteracy Rates - UNESCO Data (1970-2005) (Lundberg, 2009).....	44
Figure 2 – Gender Distribution of Surveyed Cohort.....	96
Figure 3 – Age Distribution of Surveyed Cohort (in Ranges).....	97
Figure 4 – Perceived Level of Technological Use.....	98
Figure 5 – Usage of Technology in Work Environment.....	99
Figure 6 – Competency With Scanner Hardware.....	100
Figure 7 – Computer Scanner Competency.....	102
Figure 8 – Digital Video Camera Competency.....	103
Figure 9 – Video Editing and DVD Competency.....	104
Figure 10 – Usage of Email.....	106
Figure 11 – Use of Real-Time Internet Based Communication.....	108
Figure 12 – Maintaining a Web Page Profile.....	109
Figure 13 – Capability of Using Internet Search Engines.....	110
Figure 14 – Ability to Download Music Material.....	111
Figure 15 – Use of E-Commerce Technologies.....	112
Figure 16 – Portable Data Storage/Management.....	113
Figure 17 – Comprehension of blogs/podcasting.....	114
Figure 18 – Usage of Personal Music Players.....	115
Figure 19 – Familiarity with Windows OS.....	117
Figure 20 – Familiarity with Mac OS.....	118
Figure 21 – Usage of Technology in Music Performance.....	119
Figure 22 – Operation of Vocal PA.....	120
Figure 23 – Operation of Band PA.....	121
Figure 24 – Ability to Edit Audio with Software.....	122
Figure 25 – Audio Recording Competency.....	123
Figure 26 – Familiarity with Music Notation Software.....	124
Figure 27 – Ability to Create and Use Graphics.....	125
Figure 28 – Competency with Sequencing Software.....	126
Figure 29 – Ability to sync Audio/video content.....	128
Figure 30 – Knowledge of Aural Software.....	129
Figure 31 – Familiarity with Musicianship Software.....	131
Figure 32 – Familiarity with Loop-Based Music Software.....	132
Figure 33 – Familiarity with Advanced Music Composition Software.....	133
Figure 34 – Familiarity with VST Technology.....	135
Figure 35 – Familiarity with Music Software Design.....	136
Figure 36 – Familiarity with Multimedia Production Software.....	137
Figure 37 – Familiarity with Music Accompaniment Software.....	138
Figure 38 – Use of Technology in Music Assessment.....	140
Figure 39 – Familiarity with Administrative Technology.....	141
Figure 40 – Familiarity with Technology Advancements/Application.....	142
Figure 41 – Use of the Internet as a Support Mechanism.....	143
Figure 42 – Level of Technological Support.....	144
Figure 43 – Ability to Assist Others Using Technology.....	145
Figure 44 – Availability of Training.....	147
Figure 45 – Time for Technological Training.....	148
Figure 46 – Use of Technology in Workplace.....	149
Figure 47 – Comprehension of Music Technology in Education.....	150
Figure 48 – Coping with Technological Progression.....	151

Figure 49 – Satisfaction with Technological Literacy	152
Figure 50 – Factors Influencing the Use of Technology in the Work Environment	156
Figure 51 – Reservations About Using Technology	161

List of Tables

Table 1 <i>Mapping of ICT Skills in Revised Mandatory Stages 4 and 5 Syllabuses</i>	11
Table 2 <i>Data from Question 49 (Influences on Using Technology)</i>	155
Table 3 <i>Data from Question 50 (Reservations About Technology)</i>	160

Abstract

The use of technology in the Australian secondary school education system has increased considerably over the last two decades. While technology may effectively be implemented at a general level, the uptake in specific disciplines such as music often lags behind. This is significant as a limited use of technology can impact on the success of a student's studies, future opportunities of employment or education, and, importantly, overall career paths.

Issues of technological integration in education are not new. It was highlighted in 2004 when the Australian Federal Minister for Education, Science and Training, the Hon Dr Brendan Nelson MP, commissioned a report into the delivery of music education in the Australian schooling system. The report, co-ordinated by Murdoch University and released publicly in November 2005 entitled *The National Review of School Music Education* (Australian Government Department of Education, Science and Training, 2005), indicated that technology should be a mandatory part of the music education process and that music educators must equip themselves with the necessary skills to deliver such education.

Central to this implementation is the technological competency of the music educators themselves. In order to ascertain information about certain aspects of competency, this study considers the perceived level and range of technological familiarity of a selection of secondary school music educators working in the New South Wales (NSW) Department of Education and Training. It also considers attitudes towards technology.

The study, while somewhat limited in scope, noted that most of the music educators surveyed possessed a good level of general technological literacy and many were fluently using this in their teaching. There was also a smaller element that evidenced an amount of disconnect between

their personal use of technology and its application in an educational context. Additionally, it identified a number of possible factors that may be affecting technological implementation in music including curriculum, resourcing, familiarity with current technology, training and educational practice itself.