An integrated framework for clinical education: Situating practice in the classroom

Katherine Alison Proudfoot B SPath (Newcastle)

Submitted for the degree of Doctor of Philosophy (Speech Pathology)

May, 2012

Statement of Originality

This thesis contains no material which has been accepted for the award of any other degree or diploma in any other university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published by another person, except where due reference has been made to 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.

Katherine Alison Proudfoot

Acknowledgements

I would like to take the opportunity to thank my supervisor Professor Alison Ferguson for her enthusiasm and guidance. Her insightful comments have always challenged and motivated me and have greatly enhanced the quality of my work.

I would also like to thank my family, particularly my parents, Richard and Brenda Proudfoot for their ongoing support and encouragement. Dad, I particularly want to thank you for all the time and effort you have devoted to helping me edit and format this thesis.

Contents

ADSTRACT				
Chapter	1:	Learning, Expertise and Clinical Education	2	
1.1	Introdu	uction	2	
1.2	Theori	Theories of Learning		
	1.2.1	Theories of Learning Emphasising the Individual	5	
	1.2.2	Theories of Learning Emphasising Socialisation	8	
	1.2.3	Contributions of Theories of Learning	11	
1.3	Theori	es of Expertise	13	
	1.3.1	Models of Expertise in the Classroom	14	
	1.3.2	Intelligence, Abilities and Expertise	15	
	1.3.3	Cognitive Task Analysis and Theories of Expertise	17	
	1.3.4	Collaboration, Problem-solving and Theories of Expertise	18	
	1.3.5	Expertise Development in Health Professionals	19	
	1.3.6	Contributions of Theories of Expertise	21	
1.4	Theories of Practice			
	1.4.1	Professional Practice and Clinical Education	23	
	1.4.2	Becoming a Professional	24	
	1.4.3	Knowledge	26	
	1.4.4	Reflection	29	
	1.4.5	Professional Practice and Artistry	32	
1.5	Implica	ations for Educators	33	
1.6	Recon	ciling the Approaches	35	
1.7	Summ	ary	38	
Chapter :	2:	An Integrated Framework for Clinical Education	40	
2.1	A Con	structivist Perspective	41	
	2.1.1	The Individual	41	
	2.1.2	The Community	45	
2.2	A Soci	iocultural Perspective	46	
	2.2.1	The Community	46	
	2.2.2	The Individual	49	
2.3	An Inte	egrated Framework	50	
2.4	Conte	xt as the Mediator for Learning	55	
2.5	Learni	ng and Transfer	60	
	2.5.1	Learning and Retrieval as a Process of Transfer	61	
	2.5.2	Traditional Views of Transfer	63	
	2.5.3	Transfer as Preparation for Further Learning	64	
	2.5.4	Transfer and Sociocultural Perspectives on Learning	66	

2.	.6 E	Educational Implications of an Integrated Approach		
	2	2.6.1 The Continuum of Authenticity and Instructional Des	sign 71	
	2	2.6.2 Challenges to Implementing Authentic Learning Exp	periences 78	
	2	2.6.3 Developing Optimal Learning Environments	81	
2.	.7 S	Summary	86	
Chapt	er 3:	Authentic Learning	89	
3.	.1 V	Vhy Examine Authenticity?	89	
3.	.2 D	Defining Authentic Learning and Assessment	90	
3.	.3 F	Frameworks of Authenticity		
	3	3.3.1 Authenticity Frameworks for Curriculum Design	91	
	3	3.3.2 A Five Dimensional Authentic Assessment Framewo	ork 93	
3.	.4 C	Combining Technology and Authentic Learning	94	
3.	.5 Ir	nstructional Models of Open Learning Environments	99	
3.	.6 D	Developing the Online Learning Module	100	
	3	3.6.1 Learning Through the Eyes of a Clinician	100	
	3	6.6.2. Why Select Psychometrics?	101	
	3	3.6.3 Psychometrics and Instructional Design	102	
	3	3.6.4 Designing the Learning Model	106	
	3	3.6.5 Developing an Authentic Context	111	
	3	6.6.6 Ensuring Realistic Presentation of Materials	113	
	3	8.6.7 Incorporating Expert Assistance into the Learning M	odule 114	
	3	6.6.8 Incorporating a Variety of Perspectives	114	
3.	.7 S	Summary	115	
Chapt	er 4:	Overview of Research Methodology	116	
4.	.1 A	nims, Hypotheses and Study Design	116	
4.		Ethics Clearance	119	
4.	.3 S	Structure of Remainder of this Thesis	119	
Chapt	er 5:	Determining the Authenticity of the Online Learn	ina Module120	
5.		Determining the Authenticity of the Learning Module	120	
5.		Participants	120	
5.		/lethodology	121	
5.		Data Collection		
5.		Results	121 122	
٥.		5.5.1 Parent Interview	122	
		5.5.2 Teacher Interview	123	
		5.5.3 Psychometric Questions	124	
5.		Clinical Educators' Comments and Harriman's Authenticity F		
5.	.8 C	Clinical Educators' Comments and Herrington and Oliver's P Learning		
5.		Discussion	130	

Chapter 6:		An Inve	stigation into the Role of Context in Individual Learning	133
6.1	Particip	pants		133
6.2	Method	odology		
6.3	Data C	Collection		
6.4	Pre-tes	st Data An	alysis and Results	135
	6.4.1	Psycholo	ogy Students	135
	6.4.2	Speech	Pathology Students	136
6.5	Post-te	est Data Ar	nalysis and Results	137
	6.5.1	Psycholo	ogy Students	137
	6.5.2	Speech	Pathology Students	138
6.6	Learnii	ng Module	Questions Data Analysis and Results	138
	6.6.1	Online L	earning Module Question 1	142
	6.6.2	Online L	earning Module Question 2	149
	6.6.3	Online L	earning Module Question 3	156
6.7	Results	s of the St	udent Surveys	157
6.8	Prelimi	inary Discu	ussion	161
Chapter :	7:	An Inve	stigation into the Role of Interaction in Learning	168
7.1	Particip	pants		169
7.2	Method	dology		169
7.3	Data C	Collection		169
7.4	Data A	nalysis		170
7.5	Result	S		171
	7.5.1	The Onli	ne Learning Module	171
	7.5.2	Pre-test		177
	7.5.3	Comparison of Online Learning Module and Pre-test Tasks		
	7.5.4	Interaction	on between Clinical Educator and Students	184
		7.5.4.1	Providing Scaffolding	184
		7.5.4.2	Student Attitudes Towards Psychometrics	193
		7.5.4.3	Facilitating More Advanced Learning	195
		7.5.4.4	Authenticity of Cases	200
7.7	Prelimi	inary Discu	ussion	201
Chapter 8	3:	Discuss	ion	204
8.1	Summa	ary of Key	Findings	206
	8.1.1	The Imp	ortance of Authenticity and Context in Learning	206
	8.1.2	New Per	spectives on Assessment and Transfer	212
	8.1.3	The Edu	cational Framework	214
8.2	Limitat	ions of Cu	rrent Study and Directions for Future Research	218
8.3	Conclu	ısion		221
Appendix	c 1:	The Onl	ine Learning Module	222
Appendix	(2 :	Clinical	Educator Survey Content	245

References		271
Appendix 5:	Content Analysis of Learning Module Questions	261
Appendix 4:	Pre/Post-Test Results	255
Appenaix 3:	Pre/Post-Test Questions	247

Figures

Figure 1:	The individual	41
Figure 2:	The learning process in a constructivist approach	44
Figure 3:	A constructivist framework for learning	45
Figure 4:	The community	48
Figure 5:	The process of learning in sociocultural learning theory	49
Figure 6:	A sociocultural framework of learning	50
Figure 7:	An integrated educational framework	53
Figure 8:	Constructivist loop dominant	54
Figure 9:	Sociocultural learning loop dominant	54
Figure 10:	Learning processes and the continuum of authenticity	56
Figure 11:	Appropriation in the integrated educational framework	57
Figure 12:	The authenticity continuum and instructional design	72
Figure 13:	Application of open learning environment design components to the olearning module	nline 107
Figure 14:	An example of the tutorial phase of the online learning module	109
Figure 15:	Example of embedded scaffolding	110
Figure 16:	Extracts from the online learning materials on index scores	110
Figure 17:	An extract from a phone call	114
Figure 18:	Clinical educators' perceptions of the realism of the parent interview b on number of students supervised	ased 122
Figure 19:	Clinical educators' perceptions of the realism of the teacher interview on number of students supervised	based 123
Figure 20:	Clinical educators' perceptions of the importance of the psychometric content of the pre/post test for interpretation of standardised assessm based on number of students supervised	ents 125
Figure 21:	Distribution of psychology students' pre-test scores (q1)	136
Figure 22:	Distribution of speech pathology students' pre test scores (q1)	137
Figure 23:	Psychology and speech pathology students' perceptions of the useful of the learning module as a learning resource	ness 158
Figure 24:	Psychology and speech pathology students' perceptions of the useful of case studies in facilitating learning	ness 159
Figure 25:	Psychology and speech pathology students' perceptions of whether the learning module made statistics more interesting	ne 159
Figure 26:	Psychology and speech pathology students' perceptions of whether the learning module enhanced their understanding of how statistics related test interpretation	

Figure 27:	Psychology and speech pathology students' perceptions of whether the learning module enhanced their understanding of how index scores are		
	applied to test interpretation	161	
Figure 28:	An integrated framework for clinical education	216	

Tables

Table 1:	Summary of the application of authentic activities to the learning modu	le 112
Table 2:	Range of clinical experience of clinical educators	121
Table 3:	Harriman's (2008) authenticity framework	127
Table 4:	Relationship between clinical educators' comments and Herrington and Oliver's (2000) critical elements of situated learning	d 130
Table 5:	SOLO taxonomy stage descriptions for history	140
Table 6:	Relationship between SOLO taxonomy stage descriptions & O'Neil's le of test interpretation	evels 141
Table 7:	Content of psychology responses to question 1	143
Table 8:	Content of speech pathology responses to question 1	144
Table 9:	Examples of student responses to question 1 related to the SOLO taxonomy	146
Table 10:	Content of psychology responses to question 2	150
Table 11:	Content of speech pathology responses to question 2	151
Table 12:	Examples of student responses to question 2 related to the SOLO taxonomy	153
Table 13:	Content of psychology responses to question 3	156
Table 14:	Content of speech pathology responses to question 3	157
Table 15:	Relationship between clinical educator actions and student level of experience	171
Table 16:	Function of clinical educator's statements in online learning module	172
Table 17:	Relationship between student actions and student experience during of learning module	nline 173
Table 18:	Function of students' statements in the online learning module	174
Table 19:	Relationship between type of exchange and level of student experience the online learning module	e in 176
Table 20:	Relationship between clinical educator actions and student experience pre-test	on 177
Table 21:	Relationship between student actions and level of students experience the pre-test	on 178
Table 22:	Relationship between type of exchanges and student experience on the pre-test	e 179
Table 23:	Comparison of clinical educator actions in learning module & pre-test to	asks 180
Table 24:	Comparison of student actions in learning module & pre-test tasks	182
Table 25:	Comparison of exchanges in learning module & pre-test tasks	182

Abstract

In a departure from traditional approaches to learning which often heighten the divide between theory and practice, this thesis proposes that the core aim of health science courses is to foster the emerging development of professional artistry to a level of competency sufficient for students to enter the workforce. The development of professional artistry is a complex, multifaceted process which requires the integration of theoretical knowledge in practice, development of a professional identity and recognition of the influence that past experience, both personal and professional, has on each student's learning and understanding of practice. Recognising the development of professional artistry as the core educational goal requires a reassessment of how best to facilitate learning. Implicit in adopting this view of learning is the recognition that the authenticity of learning contexts is essential for ensuring that theoretical knowledge is sufficiently integrated with clinical practice. The context of learning must also situate theoretical knowledge into authentic clinical scenarios in a manner that encourages role taking to foster the development of professional identity. In this thesis an educational framework is proposed that describes both individual and social processes of learning and how they combine to facilitate the development of professional artistry. The challenge of how to situate learning in authentic contexts outside of clinical placements is discussed through the development of an online learning module based on an integration of principles of authentic learning, situated learning and instructional design. The importance of learning in authentic contexts was explored by examining the influence of context on the performance of 44 psychology students and 43 speech pathology students when they independently completed the online learning module. Results indicated that exposure to the online learning module resulted in a significant improvement in test performance for speech pathology students but no significant difference in performance for psychology students. The role of collaborative learning in facilitating the development of professional artistry was also explored by examining interactions between a second-year, third-year and fourth-year student when paired with a clinical educator to complete the online learning module. Research revealed important insights into the role of socialisation and interaction in the development of professional artistry and how this process evolves as student experience increases. Future research directions and implications for education are discussed.

Abstract Page 1