

How do Project Managers
Acquire and Exchange Knowledge?
An Action Research Study
of Project Managers in Australia.

by

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A dissertation submitted in fulfilment of the requirements for a degree of
Doctor of Philosophy

Faculty of Design, Architecture and Building

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2014

'Knowledge is of no value unless you put it into practice.'

Anton Chekhov, Russian physician and playwright (1860-1904)

Table of Contents

TABLE OF CONTENTS	V
LIST OF FIGURES	X
LIST OF TABLES	XII
LIST OF DIAGRAMS	XIII
GLOSSARY OF TERMS	XIV
LIST OF ABBREVIATIONS	XVIII
ABSTRACT	XIX
PUBLICATIONS ARISING DURING THE RESEARCH	XXI
DOCTORIAL COLLOQUIUMS.....	XXIII
PROFESSIONAL EDITORIAL ADVICE	XXIV
CERTIFICATE OF ORIGINAL AUTHORSHIP	XXV
ACKNOWLEDGEMENTS	XXVI
CHAPTER 1: INTRODUCTION	1
1.1 INTRODUCTION	1
1.2 OUTLINE FOR THE THESIS.....	3
1.3 THE RESEARCH MOTIVATION	4
1.4 JUSTIFICATION FOR THE INVESTIGATION	5
1.5 IDENTIFICATION OF THE RESEARCH QUESTIONS	5
1.6 SELECTION OF RESEARCH METHODOLOGY	6
1.7 WHAT WAS DISCOVERED	7
1.8 CONTRIBUTIONS.....	8
CHAPTER 2: LITERATURE REVIEW	11
2.1 INTRODUCTION	11
2.2 PROJECT MANAGEMENT CONTEXT	13
2.2.1 <i>Project Management Definitions, Methodologies and Research Directions</i>	13
2.2.2 <i>Project Management Training, Education, and Competency Assessments</i>	15
2.3 MANAGEMENT OF PROJECT KNOWLEDGE	18
2.4 KNOWLEDGE ACQUISITION	23
2.4.1 <i>Explicit Knowledge</i>	25
2.4.2 <i>Tacit Knowledge</i>	27
2.5 KNOWLEDGE EXCHANGE	32
2.5.1 <i>Definition of Knowledge and Knowledge Exchange</i>	32

2.5.2	<i>Performance Improvement</i>	35
2.5.3	<i>Knowledge Conversion</i>	35
2.6	KNOWLEDGE ENVIRONMENT	37
2.6.1	<i>The Physical Environment</i>	38
2.6.2	<i>The Virtual Environment</i>	38
2.6.3	<i>Barriers and Enhancers to Knowledge Exchange</i>	40
2.7	KNOWLEDGE DRIVERS	43
2.7.1	<i>Personality, Motivation, and Behaviour</i>	43
2.7.2	<i>Learning Approaches</i>	48
2.7.3	<i>Skill and Competency</i>	52
2.8	SUMMARY	53
	<i>Appendix 1–Project Management Methodologies</i>	55
	<i>Appendix 2–Re-thinking Project Management–the five directions</i>	57
	<i>Appendix 3–Technical Project Management Qualifications</i>	59
	<i>Appendix 4–Higher Education Resulting in a Project Management Qualification</i>	61
	<i>Appendix 5–Expertise, Competence and Knowledge in Project Work and Management</i>	64
	<i>Appendix 6–Project Management Certifications in Australia</i>	67
CHAPTER 3: RESEARCH METHODOLOGY AND METHODS		71
3.1	INTRODUCTION.....	71
3.2	RESEARCH QUESTIONS.....	71
3.3	RESEARCH PARADIGM	72
3.4	RESEARCH FRAMEWORK	76
3.5	RESEARCH METHODOLOGY.....	80
3.5.1	<i>Methodological Models</i>	80
3.5.2	<i>The Research Model</i>	86
3.6	RESEARCH METHODS	90
3.6.1	<i>Research Sample</i>	92
3.6.2	<i>Research Environments</i>	96
3.6.3	<i>Interventions</i>	97
3.6.4	<i>Tools</i>	99
3.7	DATA COLLECTION AND ANALYSIS.....	102
3.8	QUALITY.....	107
3.8.1	<i>External Reference Group</i>	112
3.8.2	<i>Data Storage</i>	115
3.8.3	<i>Ethical Considerations</i>	115
3.9	SUMMARY	117
3.10	APPENDICES.....	119
	<i>Appendix 1–RPI</i>	120
	<i>Appendix 1–RJ</i>	121
	<i>Appendix 2–OP</i>	122
	<i>Appendix 2–OF</i>	126
	<i>Appendix 2–WCI</i>	130

Appendix 3–KEI.....	131
Appendix 3–RJ.....	134
Appendix 4–FG.....	135
CHAPTER 4: DATA COLLECTION AND ANALYSIS	137
4.1 INTRODUCTION.....	137
4.2 RESEARCH QUESTIONS.....	139
4.3 RESEARCH PARTICIPANTS	139
4.4 CHRONOLOGY OF CONTACT	143
4.5 DATA COLLECTION AND TRANSCRIPTION	145
4.5.1 Action Research Cycle 1: Examination of the Existing Situation.....	148
4.5.2 Action Research Cycle 2: Implementation of Change.....	163
4.5.3 Action Research Cycle 3: Evaluation of Implementation of Change.....	170
4.6 DATA ANALYSIS	173
4.6.1 Part 1: How Do Project Managers Acquire Knowledge?.....	180
Intervention One Analysis: Interviews.....	180
4.6.2 Part 2: How Do Project Managers Exchange Knowledge?.....	189
4.6.3 Research Participant Reflections	223
4.6.4 External Reference Group Reflections	234
4.7 ETHICS.....	239
4.8 SUMMARY	240
4.9 APPENDICES	244
Appendix 1–2.....	246
Appendix 1–3.....	247
Appendix 1–4.....	248
Appendix 1–6.....	249
Appendix 2–P.....	250
Appendix 2–P/C.....	251
Appendix 2–A.....	252
Appendix 2–A/C.....	253
Appendix 2–B.....	254
Appendix 2–B/C.....	255
Appendix 2–M.....	256
Appendix 2–M/C.....	257
Appendix 2–1.....	258
Appendix 2–2.....	259
Appendix 2–4.....	260
Appendix 2–5.....	261
Appendix 4–B/SDS.....	262
Appendix 4–D/SDS.....	263
Appendix 4–L/SDS.....	264
Appendix 4–M/SDS.....	265
Appendix 4–S/SDS.....	266

<i>Appendix 4–W/SDS</i>	267
<i>Appendix 4–1</i>	268
<i>Appendix 4–2</i>	269
<i>Appendix 4–3</i>	270
<i>Appendix 4–4</i>	271
<i>Appendix 4–5</i>	272
<i>Appendix 1–DAQ</i>	273
<i>Appendix 4–DAQ</i>	287
CHAPTER 5: DISCUSSION	299
5.1 INTRODUCTION	299
5.2 RESEARCH CLAIMS	299
5.3 SUPPORTING EVIDENCE	301
5.3.1 <i>Part One: Project Management Context</i>	304
5.3.2 <i>Part Two: Knowledge Acquisition</i>	305
5.3.3 <i>Part Three: Knowledge Exchange</i>	310
5.3.4 <i>Part Four: Knowledge Environment and Drivers</i>	315
5.4 THEORETICAL FRAMEWORK.....	320
5.4.1 <i>Social Exchange Theory</i>	323
5.4.2 <i>Theory of Action</i>	327
5.4.3 <i>The Theory of Reasoned Action</i>	330
5.4.4 <i>Summary of Theoretical Considerations</i>	332
5.5 VALIDATION.....	335
5.6 RIGOUR	337
5.7 EVALUATION.....	338
5.8 SUMMARY.....	338
5.9 APPENDICES	340
<i>Appendix 1–Sequential Development and Refinement of Research Framework</i>	340
<i>Appendix 2–Divergence and Convergence between the Knowledge Acquisition Literature and Data</i>	344
<i>Appendix 3–Divergence and Convergence between the Knowledge Exchange Literature and Data</i>	348
<i>Appendix 4–Divergence and Convergence between the Knowledge Environment and Drivers Literature and Data</i>	351
<i>Appendix 5–Divergence and Convergence between Social Exchange Theory and the Literature and Data</i>	358
<i>Appendix 6–Divergence and Convergence between the Theory of Action and the Literature and Data</i>	363
<i>Appendix 7–Divergence and Convergence between the Theory of Reasoned Action and the Literature and Data</i>	367
CHAPTER 6: CONCLUSIONS AND IMPLICATIONS	371
6.1 INTRODUCTION	371
6.2 RESPONSE TO THE RESEARCH QUESTIONS	371

6.2.1	<i>How Project Managers Acquire Knowledge</i>	372
6.2.2	<i>How Project Managers Exchange Knowledge</i>	372
6.2.3	<i>What knowledge sources are used to acquire and/or exchange project management knowledge?</i>	373
6.3	JUSTIFICATION	373
6.4	RESEARCH CONTRIBUTIONS	375
6.4.1	<i>Contributions to Theory</i>	378
6.4.2	<i>Contributions to Methodology</i>	379
6.4.3	<i>Contributions to Practice</i>	383
6.4.4	<i>Contributions to Policy</i>	383
6.5	RESEARCH LIMITATIONS AND FURTHER RESEARCH	385
6.6	PERSONAL REFLECTIONS.....	388
	REFERENCES	391

List of Figures

FIGURE 1: RESEARCH FRAMEWORK	12
FIGURE 2: INTEGRATED KNOWLEDGE MANAGEMENT CYCLE, (DALKIR 2005, P. 43)	20
FIGURE 3: ACTIVITIES IN THE KNOWLEDGE EVOLUTION CYCLE (ZOLLO & WINTER 2002, P. 343)	23
FIGURE 4: ESSENTIAL ELEMENTS OF BEHAVIOURAL CONTROL (DESS, LUMPKIN & EISNER 2010, P. 317)	47
FIGURE 5: KOLB’S EXPERIENTIAL LEARNING CYCLE (1984)	49
FIGURE 6: INITIAL RESEARCH FRAMEWORK INCLUDED BROAD HEADINGS AND GROUPED AREAS FOR REVIEW IN THE LITERATURE	78
FIGURE 7: FINAL RESEARCH FRAMEWORK DEMONSTRATING THE DYNAMIC EVOLUTION OF THE RESEARCH FOCUS	79
FIGURE 8: RESEARCH APPROACH UNDERPINNED BY THE FMA MODEL (CHECKLAND & HOLWELL 1998, P. 13).....	82
FIGURE 9: APPLICATION OF THE FMA MODEL TO THIS RESEARCH	82
FIGURE 10: A REPRESENTATION OF THE RESEARCH ACTIVITY AS A KNOWLEDGE CREATION PROCESS AND THE INTERCONNECTEDNESS BETWEEN ITS KEY ELEMENTS (CICMIL 2006, P. 29)	84
FIGURE 11: ACTION RESEARCH VIEWED AS A DUAL CYCLE PROCESS OF SOLVING A PROBLEM WHILE ADDRESSING A RESEARCH INTEREST (MCKAY & MARSHALL 2001, P. 52).....	85
FIGURE 12: THE FIRST ITERATION OF THE ACTION RESEARCH METHODOLOGY ADAPTED FROM THE PROBLEM RESOLVING ACTION RESEARCH (PRAR) MODEL (PIGGOT-IRVINE 2001, P. 155).....	87
FIGURE 13: THE FINAL ITERATION OF THE METHODOLOGY DEMONSTRATING A DYNAMIC CHANGE TO THE ACTION RESEARCH APPROACH AUGMENTING THE PROBLEM RESOLVING ACTION RESEARCH (PRAR) MODEL (PIGGOT-IRVINE 2001, P. 155)	88
FIGURE 14: THE DATA COLLECTION AND ANALYSIS APPROACH OVERLAID ON THE AUGMENTED PROBLEM RESOLVING ACTION RESEARCH (PRAR) MODEL (PIGGOT-IRVINE 2001, P. 155).....	103
FIGURE 15: DATA COLLECTION, ANALYSIS AND THEORY EXAMINATION STEPS	104
FIGURE 16: EXTERNAL REFERENCE GROUP AND RESEARCHER REFLECTION SEQUENCE.....	112
FIGURE 17: DELINEATION OF DATA COLLECTION AND ANALYSIS.....	137
FIGURE 18: RESEARCH PARTICIPANT INITIAL CONTACT PLAN	144
FIGURE 19: RESEARCH PARTICIPANT EVOLVED CONTACT PLAN	144
FIGURE 20: INDIVIDUAL AND GROUP DATA ANALYSIS PERSPECTIVES—RESEARCH PARTICIPANT, WORK COLLEAGUE AND RESEARCHER	146
FIGURE 21: DATA COLLECTION AND TRANSCRIPTION APPROACH—STEPS 1 AND 2	147
FIGURE 22: DATA ANALYSIS APPROACH—STEP 3.....	175
FIGURE 23: DATA ANALYSIS PROGRESSION	178
FIGURE 24: DATA ANALYSIS PROGRESSION	179
FIGURE 25: QUESTION 1—HOW RESEARCH PARTICIPANTS BECAME A PROJECT MANAGER	183
FIGURE 26: QUESTION 5—RESEARCH PARTICIPANT RESPONSES.....	192
FIGURE 27: OBSERVATION OF KNOWLEDGE EXCHANGE ACROSS ALL STATUS LEVELS BY CATEGORY OF RESPONSES	199
FIGURE 28: DEMONSTRATING WHAT THE OVERALL GROUP OF RESEARCH PARTICIPANTS DID WHEN EXCHANGING KNOWLEDGE IN A ‘PLANNED’ (PVF) AND ‘IMPROMPTU’ (IVF) MANNER.	200
FIGURE 29: WORK COLLEAGUE RESPONSES TO HOW THEIR RESEARCH PARTICIPANT EXCHANGES KNOWLEDGE WHILE WORKING ON PROJECTS ACROSS THE ORGANISATION.....	203
FIGURE 30: PROCESS OF COMPARING INTERVENTION 1 AND 2 DATA TO DEMONSTRATE THE SIMILAR CATEGORIES EMERGING FROM THE CONCEPTUAL CODES.....	206
FIGURE 31: CROSS COMPARISON OF WHAT THE GROUP SAID, DID, AND WHAT THE WORK COLLEAGUE SAID ABOUT HOW KNOWLEDGE IS EXCHANGED	207
FIGURE 32: INITIAL RESEARCH FRAMEWORK.....	302
FIGURE 33: THE FINAL RESEARCH FRAMEWORK	303
FIGURE 34: THEORY EXAMINATION, CONFIRMATION AND EXTENSION—STEP 4	322

FIGURE 35: THEORY OF REASONED ACTION (FISHBEIN & AJZEN 1975, P. 16)	330
FIGURE 36: MAP CONFIRMING OR EXTENDING THEORY BASED ON CONVERGENCE WITH LITERATURE AND DATA.....	334
FIGURE 37: EVOLUTION OF THE ROLE OF THE RESEARCH PARTICIPANT FROM RESEARCH INFORMANT TO RESEARCH PARTNER..	374
FIGURE 38: THEORETICAL FRAMEWORK TO UNDERPIN HOW PROJECT MANAGERS ACQUIRE AND EXCHANGE KNOWLEDGE	378
FIGURE 39: THE FIRST ITERATION OF THE ACTION RESEARCH METHODOLOGY ADOPTED FROM THE PROBLEM RESOLVING ACTION RESEARCH (PRAR) MODEL (PIGGOT-IRVINE 2001, P. 155).....	381
FIGURE 40: THE FINAL ITERATION OF THE METHODOLOGY DEMONSTRATING A DYNAMIC CHANGE TO THE ACTION RESEARCH APPROACH AUGMENTING THE PROBLEM RESOLVING ACTION RESEARCH (PRAR) MODEL (PIGGOT-IRVINE 2001, P. 155)	382

List of Tables

TABLE 1: SKYRME (2001) KNOWLEDGE LEVERS ADAPTED BY GROFF AND JONES (2003, PP. 68-9)	19
TABLE 2: POSITIONING KNOWLEDGE ACQUISITION AND EXCHANGE IN KNOWLEDGE MANAGEMENT CYCLES	21
TABLE 3: KNOWLEDGE MANAGEMENT STRATEGIES AND PROJECT MEMORIES (KASVI, VARTIAINEN & HAILIKARI 2003, P. 572)	24
TABLE 4: THE ESSENTIALS OF REFLECTIVE PRACTICE (DEWEY 1916) AND (SCHÖN 1987).....	30
TABLE 5: VIRTUAL TEAM PRINCIPLES (LIPNACK & STAMPS 1999, P. 19)	40
TABLE 6: FIVE PERSONALITY TYPES ADAPTED FROM GOLDBERG (1993) AND BARRICK AND MOUNT (1991)	45
TABLE 7: THE FIVE STAGES OF INTERNSHIP (BRACE-GOVAN & POWELL 2005, P. 127)	50
TABLE 8: DEFINITIONS OF SKILL AND COMPETENCE	52
TABLE 9: RESEARCH PARADIGMS ADOPTED FROM VOCE (2004, PP. 2-5)	75
TABLE 10: SEVEN CORE VALUES OF ACTION RESEARCH, ADAPTED FROM ZUBER-SKERRITT (2005, P. 53).....	90
TABLE 11: RESEARCH PARTICIPANT SUMMARY.....	95
TABLE 12: METHODS OF TRUSTWORTHINESS BETWEEN NATURALISTIC AND RATIONAL RESEARCH (GUBA & LINCOLN 1982, PP. 246-9).....	108
TABLE 13: QUALITY STRATEGIES FOR THIS ACTION RESEARCH STUDY	110
TABLE 14: QUALITY CHOICE-POINTS	111
TABLE 15: ETHICAL CONSIDERATIONS FOR RESEARCH	117
TABLE 16: RESEARCH PARTICIPANT CRITERIA DESCRIPTIONS	140
TABLE 17: RESEARCH PARTICIPANT CATEGORY QUOTES	190
TABLE 18: COMPARISON OF WHAT THE RESEARCH PARTICIPANTS SAID, DID, AND WHAT THEIR WORK COLLEAGUE SAID THEY DID TO EXCHANGES KNOWLEDGE	212
TABLE 19: RESEARCH CLAIMS AND COUNTER CLAIMS	300
TABLE 20: DIVERGENCE AND CONVERGENCE BETWEEN THE LITERATURE AND DATA ON KNOWLEDGE ACQUISITION	307
TABLE 21: DIVERGENCE AND CONVERGENCE BETWEEN THE LITERATURE AND DATA ON KNOWLEDGE EXCHANGE	312
TABLE 22: DIVERGENCE AND CONVERGENCE BETWEEN THE LITERATURE AND DATA ON KNOWLEDGE ENVIRONMENT AND DRIVERS	316
TABLE 23: DIVERGENCE AND CONVERGENCE BETWEEN SOCIAL EXCHANGE THEORY, THE LITERATURE AND DATA.....	325
TABLE 24: DIVERGENCE AND CONVERGENCE BETWEEN THE THEORY OF ACTION, THE LITERATURE AND DATA.....	328
TABLE 25: DIVERGENCE AND CONVERGENCE BETWEEN THE THEORY OF REASONED ACTION, THE LITERATURE AND DATA	332
TABLE 26: RESEARCHER VALIDITY ALIGNED TO ETHICAL AND SUBSTANTIVE VALIDITY (ANGEN 2000)	336
TABLE 27: RESEARCH CONTRIBUTIONS TO THEORY, METHODOLOGY, PRACTICE, AND POLICY ACCORDING TO THE LITERATURE AND THE RESEARCH.....	377

List of Diagrams

DIAGRAM 1: THE INTERRELATIONSHIPS BETWEEN MULTIDISCIPLINARY KNOWLEDGE CREATION PROCESSES (FONG 2003, P. 484).	37
DIAGRAM 2: A MODEL FOR DEVELOPING CREATIVE CHANGE LEADERS (PUCCIO & GONZALEZ 2004, P. 406)	53
DIAGRAM 3: KNOWLEDGE EXCHANGE INSTRUMENT	165

Glossary of Terms

Term	Explanation
Action Research	'... a flexible spiral process which allows action (change, improvement) and research (understanding, knowledge) to be achieved at the same time. The understanding allows more informed change and at the same time is informed by that change. People affected by the change are usually involved in the action research. This allows the understanding to be widely shared and the change to be pursued with commitment' (Dick 2002a, p. 1).
<i>ad hoc</i>	'... 2. Impromptu; an ad hoc decision is one made with regard to the exigencies of the moment' (The Macquarie Dictionary 2009, p. 19)
Cognitive apprenticeship	An experiential learning cycle linking an abstract concept to an active experiment, thus providing a concrete experience and then an opportunity to reflect (Kolb 1984).
Constructive disruption	Overt behaviour to identify if all work details are being managed, and all options investigated.
Education	'The act or process of educating; the imparting or acquisition of knowledge, skill, etc.' (The Macquarie Dictionary 2009, p. 533).
Experience	'Knowledge or practical wisdom gained from what one has observed, encountered, or undergone' (The Macquarie Dictionary 2009, p. 583).
External Reference Group	An experienced and senior group of academics and project management leaders who generate additional insights, and enhanced the quality of research to guide the researcher through the advance of the action research through multiple cycles.
<i>in situ</i> observations	Observations captured by the researcher of the research participants in their usual place of work. Researcher observations were of research participants' daily activity including interactions with others in the workplace.
Knowledge	A fluid mix of framed experience, values, contextual information and expert insight to provide a framework for evaluating and incorporating new experiences and information (Davenport & Prusak 1998).

Term	Explanation
Knowledge Acquisition	Occurs when information or ideas from other people are accessed, captured, processed and retained, adding to an individual's tacit knowledge.
Knowledge Drivers	Knowledge intensive culture in the form of a process involving transaction between the person and the environment through personality, motivation, behaviour, learning, skills, and competencies.
Knowledge Environment	The environment in which the research participants worked where the individual '... influences and is influenced by the environment ... with which he or she interacts' (see Nonaka, Toyama and Konno 2000, p.8).
Knowledge Exchange	Knowledge exchange is a social process contingent on histories, professional perspectives and local conditions where interaction results in a systematic mutual approach to identify, capture and share tacit knowledge in order for it to become explicit knowledge.
Knowledge Exchange Instrument	Tool used by the research participants to consistently implement the exchange of knowledge in various situations in five key areas: organisation; individuals; relationship; tools; and project.
Knowledge Management	'... the application of principles and processes designed to make relevant knowledge available to the project team' (Reich 2007, p. 8).
Knowledge Sharing	Factors affecting knowledge sharing in organizations, such as organizational culture, trust, incentives, and technology. Explicit knowledge sharing occurs when explicit knowledge is made available to be shared between entities. Tacit knowledge sharing occurs through different types of socialisation.
Knowledge Sources	The artefacts used to exchange knowledge, such as databases, internships, coaching, mentoring, personal knowledge, reflection, communities of practice, and storytelling.
Knowledge Transfer	To transfer knowledge from one part of the organization to another. It is complex as much of it is tacit and resides in organizational members, tools, tasks, and networks.
Literature Clusters	Specific ideas relating to the research which are grouped under four central themes explored in the literature which link back to the research concerns.
PMBOK® Guide	Project Management Body of Knowledge.

Term	Explanation
Project	A temporary, unique endeavour to deliver a change. A project is not routine or repetitive (Larson & Gray 2011, p. 6), and is not a group of related projects identified as a program (Project Management Institute 2013, p. 4). A project is managed in most industries and disciplines within a project life cycle which describes a period of time when a project is initiated, planned, executed, and closed.
Project Environment	The environment in which the project manager may acquire and exchange knowledge.
Project Knowledge	A skill required for project managers to deliver their projects against agreed objectives by acquiring, constructing, and exchanging knowledge.
Project Management	The application of knowledge, skills, tools, and techniques to project activities to meet project requirements (Project Management Institute 2013, p. 5) within a specified period of time.
Project Management Competencies	Defined criteria of project management competency in terms of standards and bodies of knowledge used to assess if a person is competent, qualified and capable.
Project Management Context	Includes relevant definitions and methodologies underpinning the management of projects in Australia, including education and assessing the competency of a project manager, Australian project management training and education, and industry association driven competency assessments in Australia.
Project Manager	The person assigned by the performing organisation to lead the team which is responsible for achieving the project objectives and will '... plan, schedule, motivate, and control' (Larson & Gray 2011, p. 10) a finite piece of work in an ever evolving environment.
Research Informant	Research participant as the subject of the research.
Research Participant	One of six experienced Australian project managers. 'Social actors' in their organisation, their project(s) and within the project management community.

Term	Explanation
Research Partner	Research participants' secondary role in the progress of the research where the research participant engaged in collaborative discussion and collective exchange of knowledge with a sense of belonging to a community that had undergone a unique experience.
Storytelling	'Storytelling is probably the oldest art form, [where] people think in terms of metaphors and learn through stories' (Martin 2000, p. 10).
Training	'The development in oneself or another of certain skills, habits and attitudes' (The Macquarie Dictionary 2009, p. 1746).
Work Colleague	Colleagues of the research participant working in the same organisation and are familiar with the research participant.

List of Abbreviations

Abbreviation	Expansion/Explanation
AIPM	Australian Institute of Project Management
CoP	Community of Practice
DIKW	Data, Information, Knowledge, Wisdom Model
DOD	US Department of Defense
ERG	External Reference Group
FMA	Framework, Methodology and Action Model
LFA	Logical Framework Approach
NATO	North Atlantic Treaty Organization
NSW	New South Wales
PALS	Parallel Action Learning Structures
PMI	Project Management Institute
PMBOK®	Project Management Body of Knowledge
PMOs	Project Management Offices
PMIS	Project Management Information System
PRAR	Problem Resolving Action Research Model
RC	Research Claim
RCC	Research Counter Claim
SET	Social Exchange Theory
SNA	Social Network Analysis
ToA	Theory of Action
ToRA	Theory of Reasoned Action

Abstract

This research study is based on a concern in the project management community, and Australian industry in general, about intergenerational loss of project management knowledge because of a talent exodus, resulting in a loss of capability within organisations. The results of an investigation conducted to understand how knowledge is acquired and exchanged in the delivery of projects in Australia by project managers are presented in this thesis. Two primary research questions were formed for this investigation: 1. How do project managers *acquire* project management knowledge?; and 2. How do project managers *exchange* project management knowledge? A secondary research question was developed to identify the knowledge sources which project managers use to acquire and exchange project management knowledge. The research also aims to demonstrate how a project manager's personal behaviour, and the environment, influence how they acquire and exchange knowledge.

An approach was required to separate what transpired during the acquisition and exchange of knowledge from the act of managing projects. The experiential approach is also used to examine the rhetoric of project managers, compared to observing actual behaviour. In the context of being situated in the workplace, conducting the investigation using an interpretivist research paradigm allowed themes to emerge and contribute to theory.

A review of contemporary project management literature and practice resulted in a research framework based on a review of project management training, education and competency, and the areas underpinning knowledge acquisition and exchange. To structure this approach, four clusters were constructed to allow for interpretation covering knowledge acquisition; knowledge exchange; knowledge environment; and knowledge drivers. As the research evolved, emerging information and related topics to address the research questions, could be accommodated within these clusters.

To accommodate the research paradigm an action research methodology was selected for the study, which involved iterative cycles of interaction and reflection to examine the project manager's situation. Within these cycles, changes were made in order to evaluate how project managers could exchange knowledge more effectively. Several spin-off cycles were also employed to generate timely input from an external reference group to augment the rigour of the investigation. To identify research participant led, themes a systematic process was designed to collect, transcribe, and analyse the data, while recording the researcher's reflections

for interpretation. The themes relating to how project managers acquire and exchange knowledge were compared to the literature to identify divergence or convergence, and compare theories of social exchange, action, and reasoned action.

The evidence from the research indicates experienced project managers in Australia acquire knowledge primarily from workplace experiences and interaction with, and guidance from, work colleagues. Further, project managers in the study were observed using formal ways to exchange knowledge and did so in an impersonal manner. However, in the exchange of knowledge, inconsistencies existed between project managers' observed behaviour, opinions of their work colleagues, and the project managers' view of themselves, indicating different perspectives of practice.

Findings from the research contribute to social, action, and reasoned action theory relating to project management, with opportunities to apply the action research methodology to project management research, and to embed knowledge acquisition and exchange in project management policy. The research advances the practice of project management by establishing how knowledge is exchanged at project manager level.

Publications Arising during the Research

Research Award

IPMA-PMI 2013 Best Student Paper Prize for 'Designing Research to Understand Knowledge Exchange among Project Managers', *International Research Network on Organising by Projects (IRNOP) XI Project Research Conference*, Oslo, Norway.

Refereed Journals

Algeo, C. 2014, 'Exploring Project Knowledge Acquisition and Exchange through Action Research', *Project Management Journal*, vol. 45, no. 3, pp. 1-11.

Refereed Book Chapters

Algeo, C. in print, 'Action Research in a Project Environment', in D. Coghlan & M. Brydon-Miller (eds), *Action Research in a Project Environment, Action Research Encyclopedia*, Sage, Thousand Oaks, CA, USA, pp. 1-9.

Refereed Conference Papers

Algeo, C. 2014, 'Developing Professional Project Managers: The use of practice-oriented learning', paper presented to the *8th International Technology, Education and Development Conference (INTED2014)*, Madrid, Spain.

Algeo, C. 2013, 'The Researcher-Participant Relationship In Action Research: A Case Study Involving Australian Project Managers', *6th International Conference of Education, Research and Innovation (ICERI2013)*, Madrid, Spain.

Algeo, C. 2013, 'Designing Research to Understand Knowledge Exchange among Project Managers', *International Research Network on Organising by Projects (IRNOP) XI Project Research Conference*, Oslo, Norway.

Algeo, C. 2012, 'Action Research in Project Management: An Examination of Australian Project Managers', *5th International Conference of Education, Research and Innovation (ICERI2012)*, Madrid, Spain.

Algeo, C. 2012, 'Embedding Project Knowledge through Reflective Practice', *Project Management Institute (PMI) Research and Education Conference*, Limerick, Ireland.

Algeo, C. 2012, 'Learning In a Social Context to Develop Reflective Practitioners', *4th International Conference on Education and New Learning Technologies (EDULEARN12) Conference*, Barcelona, Spain.

Algeo, C. 2011, 'Do You See What I See: A project manager's knowledge nightmare', *Project Management Australia (PMOZ) Conference*, Sydney, Australia.

Algeo, C. 2011, 'Developing Reflective Project Managers', Panidea Global Webinar.

Doctorial Colloquiums

Date and Location	Panel	Discussion
14 July 2012, University of Limerick, Ireland	<p><u>Svetlana Cicmil</u>, Director of Postgraduate Research, Faculty of Business and Law-University of the West of England, Bristol, UK</p> <p><u>Derek Walker</u>, Professor of Project Management at RMIT University, Melbourne, Australia</p> <p><u>Rodney Turner</u>, Professor of Project Management-SKEMA Business School, Euralille, France</p> <p><u>Barbara Edington</u>, Director, Center of Excellence in Project Management, St. Francis College, Brooklyn, NY, USA</p> <p><u>Brian Hobbs</u>, Pro Vice-Chancellor (Research), University of Glamorgan, Cardiff, UK</p>	Experiences with action research as a methodology, outline of the data collected, and the approach to analysing the data to propose recommendations
25-26 February 2011, Monash University, Melbourne, Australia	<p><u>Bob Galliers</u>, Professor, Information and Process Management, Bentley University, Massachusetts, USA</p> <p><u>Carla Messikomer</u>, Manager, Academic Resources-Project Management Institute, Newtown Square, PA, USA</p> <p><u>Andrew Sense</u>, Associate Professor, University of Wollongong, Wollongong, NSW, Australia</p>	Refined research question and methodology, research participant profiles, and proposed outline for confirmation of candidature
19-20 February 2009, University of Technology, Sydney, Australia	Audience of 49 academics from Australian Universities, representing each State and Territory	Research questions, methodology, and literature review

Professional Editorial Advice

I certify that this thesis has had the benefit of professional editorial advice in the form of proofreading and formatting by Dr. Bronte Somerset.

The thesis was proofread and formatted in accordance with the Australian Standards for Editing Practice, and the University of Technology, Sydney (UTS) specific requirements for thesis presentation and submission.

Signature of Student:

Date:

Certificate of Original Authorship

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

Signature of Student:

Date:

Acknowledgements

'A Teacher affects eternity; he can never tell where his influence stops.'

Henry Adams, American historian (1838-1918)

The completion of this research thesis was instrumental in my transition from project management to academia. I am immeasurably grateful for the guidance and continued support of the people involved with me throughout this transition, and whose influence has been unceasing. I would particularly like to recognise my Supervisors Dr. Shankar Sankaran and Dr. Goran Runeson. Shankar gave his time and advice, prompting and suggesting, and at times directing me to areas needing to be addressed, always with a positive attitude to keep my research 'on task'. Goran gave succinct and sanguine suggestions from the beginning of my research and ensured I did not over-engineer my work. I am deeply grateful to both Shankar and Goran for their ongoing dedication and perseverance to seeing me complete this research.

The University of Technology, Sydney, supported and encouraged me to undertake this research, and I would like to express my appreciation to the Faculty and School, in particular the Dean, Professor Desley Luscombe, the Associate Dean Research, Professor Peter McNeil, and the Heads of School, Associate Professor Heather MacDonald and Professor Perry Forsythe.

The project management community has given unconditional guidance and friendship throughout the research. I am indebted to those who participated in the actual research, my academic colleagues, the doctoral colloquium panellists, and the industry association stalwarts—I humbly thank you.

During this journey I said goodbye to two central characters in my research. They were both close friends and colleagues, and unselfishly gave their time and wisdom to guide me along this journey. Dr. Jill Owen and Brian Kooyman—this work is a living testament to your insights.

The ongoing love and support of my family gave me the physical and emotional space to complete this research with the unvarnished honesty I sometimes required. I dedicate this thesis to my husband and mentor Tom Algeo, my father Dr. John Twyford, and all my children.

However, with the support from so many people, I accept full responsibility for any errors and/or omissions in this research.