BEYOND OPEN ACCESS:

AN EXAMINATION OF AUSTRALIAN ACADEMIC PUBLICATION BEHAVIOUR

A thesis submitted in fulfilment of the requirements

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DECLARATION

I, Paul Angelo Mercieca, declare that this thesis, except where due acknowledgement has been made, is the result of my work and has not been submitted previously, in whole or in part, to qualify for any other academic award. The content of this thesis is the result of work, which has been carried out since the official commencement date within the PhD program. The study and work conforms to the ethics procedures and guidelines as outlined by RMIT University and as documented in the ethics approval received for this study (Register number 536 dated 23rd August 2005).

Signature:

Date:

ACKNOWLEDGEMENTS

The preceding declaration acknowledges that the work of this study is that of its author. While this is the case for the research, a PhD is seldom completed in isolation. Support and encouragement from peers, family and friends is usually needed to help in the journey of a PhD.

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My immediate and extended family have also been on this journey. Special thanks is given to my partner, Bernadette, and my daughter, Erin, for their help as they have witnessed the joys and frustrations of the PhD progress. My daughter has literally grown though this process and at the final write-up stages offered 'study and time advice' on how to get it finished.

And to the question often posed by my friends – 'have you finished it yet' – I can now say yes!

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DEFINITIONS

Australian and New Zealand Standard Research Classification (ANZSRC) is 'jointly produced by the Australian Bureau of Statistics (ABS) and Statistics New Zealand (Statistics NZ). ANZSRC is the collective name for a set of three related classifications developed for use in the measurement and analysis of research and experimental development (R&D) undertaken in Australia and New Zealand' (ANZSRC 2008, p. 3)

Australian Research Council (ARC) is a statuary authority under the Industry, Innovation, Science, Research and Tertiary Education portfolio that delivers and administers policy, including the ERA, associated with Australian research (www.arc.gov.au)

Australian Technology Network (ATN) is a network of Australian universities consisting of Curtin University of Technology, Queensland University of Technology, RMIT University, University of South Australia and University of Technology Sydney

Department of Education, Employment and Workplace Relations (DEEWR) is an Australian Commonwealth agency that provides 'national leadership in education and workplace training, transition to work and values in the workplace' (www.deewr.gov.au). DEEWR oversees policy relating to higher education and research within Australia

Department of Education, Science and Technology (DEST) is the predecessor to the Department of Education, Employment and Workplace Relations (DEEWR)

Department of Industry, Innovation, Science, Research and Tertiary Education is an Australian Commonwealth department established in December 2011 to take over aspects of the Department of Education, Employment and Workplace Relations (www.innovation.gov.au)

Directory of Open Access Journals (DOAJ) is an online list that aims to comprehensively 'cover all open access scientific and scholarly journals that use a quality control system to guarantee the content' (www.doaj.org)

Excellence in Research for Australia (ERA) is an Australian Commonwealth government policy, released in 2008 that aimed to identify research quality and output. ERA replaced the RQF policy

Fields of Research (FoR) is one of the research classifications that form ANZSRC. 'The categories in the classification include major fields of research investigated by national research institutions and organisations, and emerging areas of study.' (ANZSRC 2008, p. 4). The FoR codes consists of three hierarchal levels – the two-digit 'divisions', four-digit 'groups' and the six digit 'fields'. There are 22 divisions, 157 groups and 1238 fields (ANZSRC 2008, p. 5).

Grounded theory is 'theory that was derived from data systematically gathered and analysed through the research process' (Strauss and Corbin 1998, p. 12)

Group of Eight (Go8) is a network of Australian universities consisting of Monash University, The Australian National University, The University of Adelaide, The University of Melbourne, The University of New South Wales, The University of Queensland, The University of Sydney and The University of Western Australia

Mixed-method 'include at least one quantitative method (designed to collect numbers) and one qualitative method (designed to collect words), where neither type of method is inherently linked to any particular inquiry paradigm' (Greene et al 1989, p. 256)

Open access journal is a journal (usually available through the web) that does not seek payment from the reader for access to the published content

Open access literature is 'digital, online, free of charge, and free of most copyright and licensing restrictions' (Suber 2004)

Open access repository (or archive) is usually established at an institution / university or through a discipline area or professional association. Those established at an institution (Institutional Repository) attempt to capture the academic output of that institution. This can include academic papers, research reports and other scholarly content. Those established through a professional association tend to capture research and academic publications relating to the association's discipline focus. Submission to the repository is usually made by the author of the submitted work. The submitted work may be a pre-publication version of an article (pre-print) or a digital copy of the final published article. The final published article can usually be submitted as part of the author-publisher agreement with commercial publishers; however the licensed re-use of the final published article will vary between publishers. The content of the repositories is available for free access through the web.

Research Quality Framework (RQF) is an Australian Commonwealth government policy, released in 2005 that aimed to identify research quality and output

SUMMARY

This study explores the publication behaviour of academics from Australian universities and how this impacts on the adoption of open access models of scholarly publishing. Using grounded theory as its methodology, the study develops theoretical models that identify current publication practice and indicate how this practice has been influenced by ongoing changes in government policy associated with research recognition. While the government policies aim to improve Australian research quality, studies such as this thesis assist in determining the impact that new policies have on the research community.

The study examines data collected through three methods: focus groups held with Australian academics and publishers, an online survey of academics from Australian universities and interviews with Australian academics and university based e-press managers. In total, two hundred and eighty-one participants contributed to this study, including twenty-three in-depth interviewees and thirteen focus group participants. The survey participants represent a cross section of the Australian university community, whilst the focus groups and interviews represent academics from two universities, one from the Group of Eight and the other from the Australian Technology Network.

The outcome of this study is a number of theoretical models that suggests that the changing policies associated with research recognition have narrowed the publication behaviour of the Australian academic community and that this can be to the detriment of the adoption of alternative models of scholarly publishing. The publication behaviour, which has a focus on tiered journal listings, results in a dissemination pattern that is primarily directed to the academy. This is of concern for disciplines that have a practitioner-based research focus. Such disciplines could benefit from open access dissemination, yet a comparison between the journals identified as representing quality titles and the Directory of Open Access Journals indicates that open access journals have generally rated poorly on the journal-ranking list. Whilst the Australian Commonwealth government, towards the conclusion of this study, reviewed the journal ranking process, the outcome of this study still suggests that there is an unresolved conflict between policies that support open access and those that develop measurements for research quality.

In examining engagement with institutional repositories, the study highlights the importance of mediation in populating the content of repositories. It supports processes of permission-based mandates, where academics enter a non-exclusive agreement with their university or institution so that the university can manage copyright and repository submission processes on behalf of the academic. Mandates, associated with open access dissemination, have tended to focus on funding bodies or institutions stipulating that academics submit their research articles to repositories. Such mandates have led to changes in publisher agreements as increasingly publishers allow their authors to submit a version of the article to repositories. However, this still requires the academic to act on the submission process. This study suggests that mandates in themselves may not lead to academics working through the process of submission. However, if mandates are supported by intermediaries, who manage submission on behalf of the academic, then the patterns of institutional repositories population may change.

The reporting of research output within Australia is under constant change as new government policies make recommendations on how research output should be measured. While this study focuses on open access dissemination, it contributes to the debate associated with the impact that research recognition policies have on research distribution. This understanding can assist in determining how research policies may be implemented so as to support open dissemination.

CHAPTER 1: OVERVIEW OF THE RESEARCH

1.1 INTRODUCTION

This study examines the publication behaviour of the Australian academic community, with a particular emphasis on engagement with open access dissemination processes. The outcome of this research is the development of theoretical models that identify current publication practice and indicate how this practice has been influenced by ongoing changes in government policy associated with research recognition. This chapter provides an overview of the research focus and defines the scope and the limitations associated with the study. The context of the research focus is established by outlining the field of study associated with this investigation. The research questions and relevance of the research focus are also outlined. In essence, this chapter sets the scene and the framework for this investigation.

This study places an emphasis on examining the use of alternative publication models including open access journals, repositories and university based e-press initiatives. Open Access is presented within the literature as having two broad models or 'paths' (Harnad 2004). The 'gold path' refers to the development of scholarly journals that are accessible to the reader without costs. While traditional quality processes of peer-review are applied to these journals, the publication costs are met through business models based on author payment for submission of articles or by subsidies from universities or other funding bodies. The 'green path' refers to the development of institutional and discipline-based repositories. These repositories provide the infrastructure for archiving published research articles and research outputs such as working papers, pre-print articles and more recently raw research data. An aim of such repositories is to provide an avenue for open access to the research content. Suber (2004) provided a simple definition of open access as being literature that 'is digital, online, free of charge, and free of most copyright and licensing restrictions.'

The notion of open access dissemination of research can be traced back to the early 1990's and to Harnad's original notion of 'scholarly skywriting' (Harnad 1990) whereby the Internet and digital communication provided the possibility to change the way research was disseminated. The concept of open access journal and repository development was formalised by the Budapest Open Access Initiative in 2002. These concepts continue to be debated within the literature as publishers, librarians and researchers explore engagement with open access

dissemination. This study was commenced because of the perceived need to explore how the Australian academic community would engage with the investment into the development of institutional repositories and university based electronic presses, being made by Australian Commonwealth grant money and by Australian universities. By exploring publication practice as well as broader opinion about publication processes, the study examines the degree to which open access forms current publication behaviour. As this investigation was completed during a major period of change in government policies associated with research recognition, one of its main contributions to the debate of open access dissemination is exploring the degree to which these changes support open dissemination of research.

1.2   RESEARCH FOCUS AND FIELD OF STUDY

This study sits within the broad focus of exploring issues associated with the dissemination of scholarly research through formal publication processes. Remenyi (2007) suggested that in relation to research into business and management, the broad research focus should be considered as a 'field of study'. He suggested that considering the broad research focus as a 'field of study' and not as a distinct 'discipline area' allows for the research to sit and interact across different but potentially related discipline areas. Adopting this framework allows the research of this thesis to sit within the field of study of scholarly communication. This focus means that the research relates to areas of scholarly dissemination, traditional publishing, electronic publishing, library and information management and university electronic presses.

This thesis and its research focus have relevance to the stakeholder groups outlined in Table 1.1, however, the primary focus is on the Australian academic community. The research uses grounded theory as the methodology and theoretical framework for identifying the publication pattern or behaviour of this academic community. The theoretical statements developed through this study outline the key drivers that influence this publication behaviour. Understanding this publication behaviour can assist in commenting on engagement with open access initiatives as well as contribute to the discussion of the viability of e-press and repository infrastructures that have been established by Australian university libraries. These infrastructures have been developed for a variety of purposes, including the managing and storing of records for research reporting, storing of raw research data and the development of an archive of research output from an institution. However, the focus of this thesis is on use and engagement as identified primarily from academic staff and researchers. Thus the themes identified focus on academic engagement with publication and open access infrastructures.

Government policies associated with research recognition are identified as a major driver that influences the publication behaviour of academics. Within the context of this study, these policies were under review and the changes made were identified as having a negative impact on the take-up of open access dissemination models. It is important, however, that this thesis be read in the context of this changing policy environment. The results and the developed theory reflect the impact that the Research Quality Framework (RQF), released in 2005 (Expert advisory group for the RQF 2005) and the Excellence in Research for Australia (ERA), proposed in 2008 (Carr 2008 Feb. 26) had on the participants of this study. The ERA framework has been further refined (Australian Research Council 2011a) and the changes being made during 2012 may address some of the issues raised within this study. However, it is suggested that many of the issues raised will continue to impact and influence the publication behaviour until the changes in the policy frameworks are finalised.

Stakeholder group	Relevance of research focus
Australian academics	Australian academics form a major audience and source of data for this study, as the focus of the research is on how academics engage with traditional publishing processes and alternative models of open access dissemination
Australian scholarly publishers	Confirmation of the publication behaviour of Australian academics may assist in the business planning undertaken by Australian based scholarly publishers. Understanding the degree to which academics engage with alternative publication models can also assist in this planning.
Australian university libraries	University libraries have tended to be supporters of alternative scholarly communication patterns, as the academic library is usually the university body that must fund the purchase of scholarly content. Mapping the current publication behaviour of Australian academics will assist university libraries in continuing to establish varying ways to access scholarship and research.
Australian university e-press and repositories	Australian universities have established e-press and repositories as a means to foster dissemination of and access to the scholarly work of their associated academic communities. Understanding how Australian academics engage with publication practice can assist in the ongoing development of these e-presses and repositories.

Table 1.1: Stakeholder groups

1.3 RESEARCH OBJECTIVES, QUESTIONS AND METHODOLOGY

The focus of this study is to develop an understanding of the publication behaviour of academics from Australian higher education institutions and then determine the extent to which open access forms part of this pattern. The objective of the study is to develop theoretical models associated with the publication behaviour and open access engagement by the Australian academic community. These models can then assist in informing decisions associated with the ongoing development of scholarly communication infrastructure within Australian universities.

The primary research question can be simply stated as:

What influences the publication behaviour of the Australian academic community?

Subsidiary questions to this main focus are:

Q1. What are the current publication patterns for Australian academics?

Q2. To what degree do open access models form part of these publication patterns?

Q3. Is there a difference in engagement between open access journals and open access repositories?

Q4. Will policy established by funding bodies, government or institutions assist in increasing engagement with open access initiatives by Australian academics?

Q5. What impact may the research recognition policies have on the publication patterns and engagement with open access initiatives?

Q6. How do these publication patterns and engagement with open access initiatives impact on establishment of university-based electronic presses and repositories?

As this study uses grounded theory as the theoretic framework for conducting the research, the research questions are not transposed into hypotheses that are then tested or used to validate a preconceived theory. As Glaser and Strauss (1967, p. 194) suggested, 'the rule for generation of theory is not to have any pre-set or valued hypotheses, but to maintain a sensitivity to all possible theoretical relevances among the hundreds of possible runs afforded by large surveys'.

Instead, the focus of this study is explored through a mixed-methods collection of data that includes focus groups with selected publishers and academics, survey of a sample of the Australian academic community, and interviews with academics and managers of university based electronic presses and repositories. The framework of grounded theory is used to identify issues and themes from this data. These themes are then analysed and compared to develop

theoretical models. The study, therefore, is exploratory in nature and does not aim to explicitly test or answer the above questions. Rather it builds patterns from the data and uses them to develop the theories associated with publication behaviour by the Australian academic community.

1.4   SIGNIFICANCE OF THE RESEARCH

This study contributes to the exploration of engagement with open access publishing and repositories, by examining the publication behaviour of academics from Australian institutions. While Australian academics have contributed to international studies on engagement with open access dissemination, such contribution is aggregated with international data. The specific exploration of open access engagement by the Australian academic community has been limited to the investigations of three PhD studies, of which this is one.

As this exploration of publication behaviour has been conducted during a period of significant policy change associated with research recognition in Australia, it illustrates the impact that such changes have on publication patterns. While the changes in research policy aim to improve research quality, this study explores how open access dissemination is viewed within the new framework and the potential impact that the framework may have on open access dissemination.

The outcomes of this study are timely, as the research recognition policies are again to be reviewed and new models developed. This study raises the concern that any new policy will impact on, and redirect publication behaviour and research dissemination.

1.5   THESIS AND CHAPTER STRUCTURE

The structure of the thesis is presented in Table 1.2. However this structure needs to be placed within the grounded theory process of continually analysing data so that themes or categories can be identified, the relationships between these themes can be determined and theory developed. Strauss and Corbin (1998, p. 31) indicated that this process of analysis should also be applied when using mixed-methods for data collection, so that the 'interplay between qualitative and quantitative methods' can be identified. The data for this study has involved continuous analysis as a means to identify themes and to develop the resulting theory.

There is, however, a need to present a structure for this thesis that allows the reader to develop a sense of how the themes have emerged from the data. While this written structure is, in essence, linear the data analysis behind this structure has been continuous. There has been an

ongoing 'interplay' within and between the different data sources. The discussion of the data is presented in Chapters 4, 5 and 6, each of which focuses on one of the data gathering methods. Each chapter identifies themes that have emerged from the data source. The interplay between these themes is primarily presented in Chapter 8. While this structure implies a linear process of data analysis, the reality is that the analysis has been building upon itself on an ongoing basis.

Chapter 1	Overview of the research	Chapter 1 provides an introduction to the thesis and outlines the field of study to which the research contributes.
Chapter 2	Literature analysis	Chapter 2 provides an outline of the literature relevant to the debate of open access publishing and dissemination. While presented as a single chapter, the literature analysis has been conducted in two stages. An initial literature review was conducted as a means to develop a focus for the thesis. At the time, there was considerable debate associated with open access business models and repository infrastructure development. This initial literature analysis assisted in placing the thesis within the context of what research has already been completed. Grounded theory develops theory from the data and not necessarily from an extensive review of the literature. Therefore, further review of the literature was conducted after initial themes had been developed from the data analysis. This allowed the data to inform the development of the theory and minimised the impact that preconceived issues may have on the development of the theory.
Chapter 3	Research design and implementation	Chapter 3 outlines the methods used for data collection and analysis. This study employs a mixed-methods approach to data collection and grounded theory as a process of data analysis and theory building. Data is drawn from focus groups, a survey of academics and interviews with academics and university based e-press staff. This data is analysed so that themes are identified from each data source. This analysis is presented in chapters 4, 5 and 6.
Chapter 4	Themes from focus groups	Chapter 4 reports of two focus groups – 1/ of academic representative and 2/ e-press publishers. The chapter outlines the discussion from these participants and then identifies key issues that start to contribute to the development of the theoretical framework of academic publishing behaviour.

Chapter 5	Themes from a survey of the academic community	Chapter 5 discusses the results from a survey of academic staff. The data is presented as an analysis of the last article that the respondents had published, their responses to open access journal dissemination, their responses to open access repositories and the respondents' reaction to statements of academic's recognition and publication. From this analysis, further issues and themes are identified and these contribute to the development of the theoretical framework.
Chapter 6	Interviews with academics and managers of electronic presses	Chapter 6 identifies further publication issues through interviews conducted with Australian academics and university based electronic press managers. Further themes are identified through the analysis of these interviews. These themes build on those identified in Chapters 4 and 5.
Chapter 7	Comparison of ERA tiered journals and Directory of Open Access Journals	A major theme that emerged from the three data sources is the impact that government policies on research recognition have on directing the publication behaviour of academics and researchers. The initial ERA framework is identified as a major driver for publication. ERA used a ranked journal list as an initial means to identify quality journals. The degree to which the list incorporated open access journals may influence the submission pattern to such journals. This chapter presents a comparison between the Directory of Open Access Journals (DOAJ) and the ranked ERA journal list to determine the extent to which open access journals were recognised within the ERA framework.
Chapter 8	Theory of academic publishing behaviour	Chapter 8 draws the data analysis into a theory of academic publishing behaviour. The themes identified in chapters 4, 5, 6 and 7 are coded and compared so that core categories are identified as part of the grounded theory method. The relationship of these categories are discussed and presented as a conditional matrix, so that a model of how the identified categories influences publication behaviour is developed. This is presented as the primary theoretical model, a 'Theory of academic publishing behaviour'. Issues relating to open access journal publishing behaviour are discussed under this primary model. Two further 'sub theories' are also presented. The first relating to open access repository submission and the second relates to commissioning for university-based e-presses.

Chapter 9	Conclusion and further research	Chapter 9 summarises the study and indicates how the theories, that have been developed, can be further explored and tested. Recommendations relating to the stakeholders identified in Chapter 1 are also presented.

Table 1.2: Thesis structure

CHAPTER 2: LITERATURE ANALYSIS

2.1   INTRODUCTION

This chapter presents an exploration of the literature and professional debate associated with open access publishing. The advent of email, digital file sharing and online communication tools led Harnad to consider whether evolving digital communication applications could change the way that scholarship and research is disseminated (Harnad 1990, 1991). Part of this consideration was whether digital communication could 'open up access' to scholarship so that alternative models to those provided by commercial scholarly publishers could develop.

The topic of open access publishing has been debated within the literature as well as in opinion pieces and commentary presented through open web blogs, correspondence to journals and opinion articles published within journals. Since Harnad's initial reflection on alternative avenues for scholarly communication, other researchers and commentators have focused on the identification of open access business models (Arms 2000; Bird 2010) and ways that these models, including models of author payment, can be supported (Pinfield 2010). The impact that open access publishing models have had on the 'traditional' publishing processes of commercial and society publishers has also been discussed (Awre 2003; Toledano 2003; Falk 2004; Cooney-McQuat, Busch & Kahn 2010). Park (2010) examined publication business models, but within the framework of the impact of payment on access to content by non-university readers. Other literature compared citation and impact rates between open and commercial journals (Antelman 2004; Harnad & Brody 2004; Davis 2004; Davis 2011; Davis & Fromerth 2007; Kousha & Abdoli 2010; Xia & Nakanishi, 2012) and evaluated the development of digital repositories (Harboe-Ree 2005; Bradley 2006; Brown 2010; Quinn 2010; Bell & Sarr 2010; Cullen & Chawner 2010). The literature has also discussed the impact of mandates from research funding organisations, that stipulated that research that they fund should be made available through open access means (Harnad 2005a) as well as institutional policies on repository submission (Creaser 2010). There has also been debate about authors' engagement with open access publishing (Rowlands, Nicholas & Huntington 2004b; Rowlands & Nicholas 2005; Rowlands & Nicholas 2006; Swan 2003 and Swan & Brown 2004). This debate tended to focus on the opinions of senior academic staff about open access publishing. There has only been limited exploration of Australian author responses to open access publishing (Kennan 2007; Mercieca 2006a, 2006b, 2008; Kingsley 2008b).

This chapter outlines these issues; however emphasis is placed on the published literature associated with academic engagement with open access journals and repository processes. It focuses on the models of open access dissemination, the impact that these models have on the publishing sector, an overview of discussion relevant to the Australian environment, and the impact on authors. The discussion of author impact and engagement focuses on issues related to author-publisher agreements, mandating submission to open access, impact on academic recognition, and on citation of research.

The discussion of the literature needs to be placed within the context of how literature should be treated within research that uses grounded theory. Glaser (1992) and Strauss and Corbin (1998) differed in their view as to the way to incorporate a literature analysis into the framework of grounded theory. This difference has been acknowledged by a number of writers commenting on the application of grounded theory (Hickey 1997; Goulding 2002; Kelle 2005 and Mills, Bonner & Francis 2006). Glaser (1992, p. 31) recommended that 'there is a need not to review any of the literature in the substantive area under study', as doing so may influence the data analysis which would mean that the theory has not truly emerged from the data. Strauss and Corbin (1998) acknowledged that it is difficult to be truly removed from the literature and suggested that the literature can be intertwined into the theory building as another source of data. Goulding (2002) placed Strauss and Corbin's view of the literature into a practical context and indicated that:

> *The grounded theory researcher should read for ideas and conceptually connect these to the developing theory in order to enhance theoretical sensitivity. Nonetheless, only when the theory has substance should the researcher review the literature directly related to the field of study. (Goulding 2002, p. 71)*

This study adopts this approach to managing the review of related literature. The literature has been reviewed in two stages. The initial review was conducted as a means to broadly scope the topic of the study and to identify the research gap associated with the understanding of academic engagement with open access across the various levels of academic employment. A second review of the literature was conducted after the study's data had been analysed and themes identified through this analysis. This allowed the theory to emerge from the data, but also provided the opportunity for the ongoing literature review to act as comparison with the developing theory. While the review of the literature has been conducted in these stages, it is presented as a single narrative within this chapter. Recent literature has also been discussed in Chapter 8 so that the literature can be incorporated and compared with the theory that the

study has developed. The literature that discusses grounded theory as a method is presented in Chapter 3 Research design and implementation.

The following sections of this chapter focus on the literature associated with open access publishing and discusses:

- An introduction to the concept of 'scholarly skywriting', which is the forerunning concept to using Internet based communication tools for communicating research and scholarly debate
- Business and financial models that have been used to support open access dissemination
- Impact of open access on the publishing industry
- Discussion of open access publishing within Australia
- Authors and open access
- Mandating submission to open access dissemination
- Author-publisher agreements and publishing
- Impact of open access on citation of articles
- Academic recognition and open access

2.2   SCHOLARLY SKYWRITING

I have called this new medium "scholarly skywriting." In principle, all the interactions at the "pilot" stage of inquiry -- from informal brainstorming to participating in research symposia to circulating preprints for peer criticism before formally submitting them to an archival journal for peer review -- can now be accomplished by skywriting, not only at a great saving in travel and talking time, but with a speed, geographic scope, and scale of multiple interactiveness that no prior means of communication could even come close to providing. (Harnad 1990, p. 342)

In 1990 Harnad used the phrase 'scholarly skywriting' to refer to the ability that email and global communications could possibly provide in changing and enhancing the ways scholars, academics and researchers could communicate. Compared to traditional print based publishing processes, digital communication tools, such as email, online forums and webpage content, provided the opportunity to shorten the dissemination time of new research and to increase the possibility for global collaboration and debate. Harnad indicated that:

> *It usually takes several years, however, before the literature responds to an author's contribution, if it responds at all, and by that time the author, more likely than not, is thinking about something else. So a potentially vital spiral of peer interactions, had it taken place in "real" cognitive time, never materializes, and countless ideas are instead doomed to remain stillborn. (Harnad 1991, p. 44).*

By using email and Internet file sharing capabilities, Harnad's original notion of scholarly skywriting was to share research articles in a faster time frame than that of the traditionally printed journal (Harnad 1991, 1995). In an Internet posting Harnad (1994) presented his 'subversive proposal' where authors could share their published articles through an Internet archive. This proposal is the forerunner to the development of discipline and institutional repositories. The debate around the initial proposal was captured and published by Okerson and O'Donnell (1995).

These initial ideas from Harnad were ways to make scholarship and research publications more openly accessible. Two broad models of open access dissemination were presented in the literature. The first focused on the development of open access journals (gold path) while the second focused on the development of open access repositories (green path). Open access journals are scholarly journals that do not require a subscription payment in order to access and read the articles. Open access repositories are archives that provide access to a version of commercially published content. These two approaches were recognised in the 2002 Budapest Open Access Initiative.

> *Open access to peer-reviewed journal literature is the goal. **Self-archiving (I.)** and a new generation of **open-access journals (II.)** are the ways to attain this goal. They are not only direct and effective means to this end, they are within the reach of scholars themselves, immediately, and need not wait on changes brought about by markets or legislation. (Budapest Open Access Initiative 2002)*

While these two models or paths were presented as the main strategies for developing open access publishing, some commentators suggested that mixing these approaches should be considered as the means to foster sustainable open access initiatives (Guedon 2004, 2008). Therefore other models for open access scholarly dissemination have also been proposed or identified and these are discussed in the next section of this chapter.

In some ways the debate associated with open access publishing, has taken on a form of 'evangelical' discussion. For some commentators (Harnad in particular) dissemination of

scholarly content, which authors write for no personal financial return, should simply be made available through open access repositories. Other authors, however, questioned this (Aronson 2005; Crawford 2003) by raising the concern that open access journal publishing may not be sustainable and that there is the risk that such journals may then cease publication. Aronson (2005) debated whether there was an actual need for 'non-academic' use of formally published scholarly content. Aronson posed this in his commentary within the British Medical Journal.

> *But scientists' opinions should not frame policy without supporting evidence. We need to ask whether immediate free access to readers, with whatever method of payment is used, would benefit science (not the scientists or the grant giving bodies, who are also zealous about this idea) and hence society. (Aronson 2005, p. 759)*

Aronson's commentary reflected the view of an editor engaged with traditional publication processes. However it identified the concern that policy decisions, related to the dissemination of research and scholarship, were being made without detailed evidence and ongoing research to support these policy decisions. It is an aim of this study to contribute to the building of evidence relating to author engagement with open access.

Crawford (2003) argued that the aim of open access publishing to increase awareness of research was already being met by the commercial or traditional publishing process. Indexing services provided awareness of the published content and interlinking between content increased the ability for browsing between scholarly articles. Universities tend to provide access to a range of published content through the subscriptions managed by the university libraries. Where a specific article is not accessible through the library subscription, it can generally be accessed through a pay-per-view transaction or through inter-library lending facilities. Crawford stated that:

> *Expansion of reference interlinking through the application of the digital object identifier (DOI) technology and publishers' widespread participation in the not-for-profit organisation called CrossRef (www.crossref.org) has resulted in an extensive network of interconnected and easily navigated scientific information. (Crawford 2003, p. 1580)*

The implication of such comments is that the traditional publication models are meeting the needs of the academic community. Others questioned whether the general public actually wish to read the specialised content that tends to be published within the scholarly literature, which:

use professional, often highly specialized terminology, so it is really questionable whether those who are not part of the scientific community, and in many cases part of a rather narrow group of highly educated specialists, will benefit from the provided information. (Graczynski & Moses 2004, p 3)

This comment was made in relation to medical and scientific literature. While this may be the case for some discipline areas, other areas that have a practitioner-based research focus may benefit from open access. Cullen and Chawner (2008, 2010), in examining the development of institutional repositories in New Zealand, suggested that the early contributors to open access repositories were from new disciplines or disciplines such as nursing which had a broad workforce interested in research output. For disciplines that have a strong professional or practitioner base, such as nursing, business or social welfare, open access dissemination may be a means to turn research into ongoing professional practice.

2.3 MODELS OF OPEN ACCESS DISSEMINATION

The discussion of open access publishing generally focused on the two delivery models of developing open access journals and open access repositories. These two approaches to open access dissemination require financial support and a number of business models have been suggested for developing open access content. Chang (2006), Cockerill (2006a and 2006b), Schroter and Tite (2006), Björk and Hedlund (2009) and Boissy (2005) discussed business models for open access publishing. Part of this examination focused on determining the costs associated with publication processes and exploring new models that can be used to meet these costs (Arms 2000; Houghton 2000 and 2002; Willinsky 2003a and 2003b; King 2007; Wellcome Trust 2004; Clarke 2005 and Houghton et al. 2009).

One of the models for generating revenue for establishing open access journals is that of an author payment model, whereby the author pays a submission fee to an open access journal so that the publication costs of the article are met. In discussing author payment models, Cockerill (2006b) indicated that an advantage of article processing charges is that revenue is then directly linked to the number of articles that are submitted. This, therefore, matches the publication costs with the number of articles received for each issue.

> *A key benefit of the article processing charge model is that the revenue scales in proportion to the number of articles published, allowing open access journals to keep pace with the increasing number of research articles being published as research activity around the world gathers pace. Increasing numbers of articles create a problem for the traditional. (Cockerill 2006b, p. 151)*

King (2007) examined the literature associated with the costs of journal publication, including those linked with author payment models. King (2007, p 104) indicated that the literature presents a variety of costs associated with single article production and this is because the costing employed by different authors measures production costs and overheads differently. This makes it difficult to determine accurate costs that should be applied to author payment models for open access.

Concern was raised as to whether authors were willing to pay an author fee in support of open access, when existing commercial publishing models do not require such payments. Anderson (2004) argued that:

> *Given a choice between publishing in an OA journal at a cost of, say, $1500 and publishing in an equally prestigious non-OA journal at no cost to herself, ceteris paribus, an author would have to be either powerfully motivated by the moral arguments of OA or externally compelled to choose the OA option. (Anderson 2004, p. 289)*

In exploring potential open access models for Oxford University Press (OUP) journals, Richardson and Saxby (2004) suggested that an author payment model should have some flexibility so that it does not deter submissions from authors who cannot meet the payment fee.

> *We believe that authors should not be prevented from publishing in the journal of their choice, so any author-funded Open Access model would need to be supported by a waiver system thereby increasing the costs for well-funded authors. (Richardson & Saxby 2004)*

There are instances where academic libraries have tried to address this concern by contributing to the author payment for open access journals. Borchert and Cleary (2011) indicated that the Queensland University of Technology (QUT) has paid the author fees for contribution to selected open access journals. The selected journals were open access only journals so as to avoid the concern of paying an author fee to a hybrid open access journal, where the individual article may be open access but the library still has to pay a subscription for access to the whole journal. This approach may assist academics to meet the cost of submission to open access

journals. However, Borchert and Cleary (2011) indicated that the costs come from the library's acquisition budget. While QUT library may be able to meet such costs, this may not be the case for all university libraries. Joint (2009), in examining author payment by UK based academics, indicated that these fees could be addressed through a national approach to managing publication costs. This can be through policy statements that recommend how individual institutions manage author payment fees, or establish a centralised model of managing such fees (Joint 2009, p. 632). Brown (2010) indicated that SCOAP3 (Sponsoring Consortium for Open Access Publishing in Particle Physics) acted as a means to develop consortium funds that can be used to support author payment options for articles within the physics discipline.

> *The notion of a consortium of funders is novel for several reasons: first, it avoids shifting the burden of funding to individual authors; second, it provides a context in which funds from multiple sources – libraries as well as other funding agencies – can be aggregated and deployed to support the peer review and the publishing process; and third, by aggregating funds on behalf of authors, the consortium can exert the leverage of the marketplace to negotiate fees and control costs at an earlier point in the publishing cycle. (Brown 2010, p. 114)*

While author fees have been used to generate revenue for open access journals, the initial development of such journals also relied on financial subsidies and other revenue generation models. The Association of Learned and Professional Society Publishers (ALPSP) commissioned a study that explored the business models of scholarly journals. Data was collected through a survey of 500 journal editors and 20 interviews with journal publishers. The APLSP (2005, p. 10) report indicated that 'the most prevalent source of financial support for Full Open Access journals was display advertising income' and that 'most Full Open Access journals (52%) do not in fact charge any sort of author-side fees' (APLSP 2005, p. 10). The report suggested that subsidisation was met by a number of models that included support by society membership fees, support from sales of print versions of the journal, delayed open access (subscriptions to new content, but free access to archival material) and free subscriptions to individuals, supported by a subscription model for institutions (APLSP 2005, p. 17). Chesler (2004) questioned whether such subsidies are sustainable and asked what would happen if learned societies and funding bodies could not maintain support for the payment of publication costs.

Goodman (2004) questioned the impact that the management of publication subsidies may have on university infrastructure and raised the concern that universities cannot subsidise all potential articles that their research staff would wish to have published. Regazzi (2004)

extended the concern associated with the cost of managing author payment to the issue of sustainability of open access journals. He argued that while a subscription model meant that journal publishers needed to manage 'a few thousand institutional subscribers, author-pays means collecting fees from 1.2 million articles a year' (Regazzi 2004, p 278). Butler (2006) questioned the viability of open access journals by reviewing the revenue generation of the open access publisher, the Public Library of Science (PLoS). Butler (2006, p. 914) indicated that for the PLoS, 'total income from fees and advertising currently covers just 35% of its total costs'.

The process of learned societies supporting open access journals was challenged in the context that where such societies were the publishers of scholarly journals, the ongoing viability of the society may be dependent on the revenue generated from journal subscriptions (Waltham 2006). While learned societies may rely on journal revenue as an income source, Cooney-McQuat, Busch and Kahn (2010) have, however, indicated that most societies do not have an extensive journal list and that open access models may be closer aligned with a society's philosophy of research dissemination.

> *Portfolio size is critical in a subscription-based electronic marketplace. However, over 97% of society publishers publish fewer than three journals, with 90% publishing just one. Having so few publications translates into a series of challenges, including a limited availability of in-house publishing expertise as well as lack of resources and funds to invest in publishing activities. Overcoming the limited infrastructure to produce, market, sell, and distribute journals is especially challenging. (Cooney-McQuat, Busch & Kahn 2010, p. 101)*

They concluded with the acknowledgement that 'there is clear evidence that for some societies and in some contexts, OA can offer real solutions to the challenges that some societies are facing' (Cooney-McQuat, Busch & Kahn 2010, p. 105).

Graczynski (2004) questioned author payment models because academics are both authors and users/readers of scholastic content.

> *The current approach to the idea of open access publishing is far from an ideal solution, and in many cases may simply be providing politically attractive excuses to shift publication costs from readers to authors. Interestingly enough, however, readers and authors are often the same people. Everyone loses. (Graczynski 2004, p. 3)*

While Graczynski's observation is accurate, academics generally do not directly pay for access to content, as a university library manages this centrally. For academics, the subscription costs for

reader access to published content is generally 'hidden', as it becomes a centralised cost to the university. Moving this cost to the academic as an author will obviously highlight the cost associated with publication but this will not act as an incentive for supporting alternative models of dissemination – that is open access publishing.

Willinsky (2003a) identified variations to the author payment model by suggesting that payment models could also include professional associations paying for article submission or subsidising the costs of open access journals; developing countries paying for access to scholarly content on a subsidised per capita payment; and delayed open access whereby a commercial publisher makes archived articles openly accessible. Identifying these different models of open access indicated that 'each flavor of open access demonstrates how alternative knowledge economies have rapidly taken shape in journal publishing over the short life of the Internet' (Willinsky 2006, p 28).

Commercial publishers use some of the open access models as a means to 'tap into' the open access debate. Delayed open access has become a common model for commercial publishers to make some content openly accessible. In this model, the latest issue requires subscription for access, while archived content is made open access. Publishers such as Springer allow an author payment model to be applied to individual articles which are then published with no subscription charge for access, even though the submission may be to a commercial journal.

Esposito (2004) suggested that open access publishing should not just focus on modifying the existing publication business models, but rather should examine the broader impact of changing communication technology can have on scholarly dissemination.

> *Many of the proponents of OA seem to believe that the imminent OA regime will look very much like the current proprietary paradigm; senior academics chairing editorial boards, peers reviewing articles, established "brand names" (that is, publications that are highly prestigious) defining their fields, and tenure based in large part on research publications. Everything will be the same as the current proprietary model, that is, except for one thing: access to information will be free. This is the Change One Thing worldview. (Esposito 2004)*

Esposito sees that open access dissemination can be developed through the informal communication channels offered by Internet based telecommunication. This model, while reflecting Harnad's original concept of scholarly skywriting, pushes open access away from the

two main open access initiatives of open access journals and open access repositories. Esposito suggested that:

> *OA will happen (it is happening), but it will happen not primarily in the intellectually respectable and reasonably well–funded (so far) alternatives to proprietary publishing, but on the fringe, among the blogs and mailgroups, where for the most part the trappings of formal user–pays publications are not even dreamt of. (Esposito 2004)*

Harnad suggested a different approach to business modelling for open access content by presenting a financial benefit associated with changes in the citation impact of articles submitted to open access repositories. He suggested that the UK research community faces '£1.5bn worth of loss in potential research impact' through the impact of restrictive publishing processes (Harnad 2005b). 'The solution is obvious, and it is the one the RCUK is proposing: to extend the existing universal 'publish or perish' requirement to 'publish and also self-archive your final draft on your institutional website'.' (Harnad 2005b)

2.4   IMPACT OF OPEN ACCESS ON THE PUBLISHING INDUSTRY

The potential impact of open access dissemination on established publishers has been explored in relation to the impact that repositories may have on subscription to existing journals and whether libraries can replace commercially subscribed content with open access titles. Awre (2003) suggested that open access journals are in competition with commercial publications for submissions from researchers. Repositories, however, may not be, as they house the pre-published version and thus there is still the need for the article to be formally published. Rowlands and Nicholas (2005, p. 5), in surveying researchers and authors, suggested 'a clear majority of authors believes that mass migration to open access would undermine scholarly publishing'. The respondents to Rowlands and Nicholas (2005) survey also indicated that this undermining of the traditional publishing model was not necessarily a bad process as the cost of subscription and access to published research was becoming too high. Falk (2004) suggested that some university libraries within the US refused to renew subscriptions to bundled journal packages, especially those from Elsevier. This is primarily in response to 'inflexible bundling and the heavy penalties imposed for cancellation of individual journal subscriptions' (Falk 2004, p. 185). Falk suggested that open access journals may replace the gaps in subject areas that are caused by such cancellations.

Harington (2005) in outlining Blackwell Publishing's view on open access, raised concern that institutional repositories would lead to a decline in subscription to the published journal, as well

as cause confusion in identifying the final version of articles that are archived. The National Information Standards Organization attempted to address the concern of article version control by recommending a standard for identifying different versions of articles (NISO 2008). The standard recommended that metadata be associated with electronic articles so that the version of the article is easily identified (NISO 2008, p. 1). While this may assist in determining the publication status of an article (author's original document, accepted manuscript and so on), it still means that discrepancies between versions will still exist.

Publishers and editors of learned society journals questioned whether open access journals could provide the publication quality that is established through their publication processes (Lindblad 2004; Held 2003). Such comments were made to support the contribution to learned society journals and to question the need for open access journal development.

Bergstrom and Bergstrom (2006) reviewed the subscription fees of journals as a means to determine if the price difference between journals published by large publishers and those published by learned societies provided an advantage to the lower cost publishers. While not specifically focusing on issues of open access, Bergstrom and Bergstrom (2006) indicated that even though there was a difference in price throughout the scholarly publishing environment, this did not equate to a competitive advantage for low priced content. They stated 'copyright laws prevent a rival publisher from producing a competing journal as similar to the original journal as a television of one brand is to that of another' (Bergstrom & Bergstrom 2006, p. 492). Libraries cannot easily replace an established commercial journal title with a lower priced or open access alternative. Applying Bergstrom and Bergstrom's analysis to open access journals means that there may not be direct competition between the subscription and open access journals, as libraries may need to purchase the higher price content if it contains the research information needed by the university.

Bergstrom and Bergstrom (2004) compared author payment fees charged by open access journals, to determine if different levels of fees may impact on engagement with open access journal submission. They argued that 'if the entire market were to switch from Reader Pays to Author Pays, competing journals would be closer substitutes in the view of authors than they are in the view of subscribers' (Bergstrom & Bergstrom 2004). They suggested that if the author has to pay for submission, then the preference would be for supporting quality open access journals that charge the lowest submission costs. Bergstrom and Bergstrom's economic modeling suggested that if authors had to pay an author fee, then they would seek the lowest fee and thus the journals would then be forced to compete for article submission by

maintaining competitive fee structures. This is a different impact than the current commercial journal publishing model analysis (Bergstrom & Bergstrom 2006) where the academic's submission is not based on a financial incentive. This means that the journals that have attracted the key research can then place higher charges for access, as the library has little choice but to subscribe.

Lamb (2004) presented a different view by suggesting that the development of open access journals and content could force commercial publishers to review their subscription pricing models. The impact was not to change commercial titles into open access, but rather to limit the continued increase in subscription prices that commercial journals call for.

> *At a time when more and more information is available for free on the Internet and costs can be lowered through open source or inexpensive technologies, the rationale for continuously raising prices at rates above the costs of additional print journal pages becomes harder to justify. (Lamb 2004, p. 148)*

Guedon (2004) acknowledged that as academic and research staff have access to the literature through the subscriptions managed by the university library, such staff may not necessarily feel an impact of financial barrier to much of their literature needs. As the library meets the cost, then the access to the literature mimics a sense of open access for the individual academic. Guedon (2004, p. 318) suggested that 'this greatly distorts the market conditions and it artificially allows toll-gated articles better to compete with Open Access articles'. Harnad (2005a) critiques Guedon by arguing that comparisons should not be made between journals but rather between articles and thus questions Guedon's view of the market forces. Others (Poynder, 2004) however, recognised that academics, as readers of scholarly content, have 'free' access to this content, as they are not directly managing the subscriptions. Poynder (2004, p 2) suggested that 'in a bid to outflank the embryonic OA movement … publishers began to migrate their closed model to the new online environment, developing powerful new electronic platforms like ScienceDirect – designed to lock research papers behind a subscription firewall'. The use of the Internet by early supporters of open access content may have been one of the incentives for the larger publishers to move to electronic delivery.

While one of the aims of open access dissemination is to extend research beyond the academy, the OECD (2005) questioned whether an author payment model should be used in an environment where those outside of the academy could commercially benefit from the research.

With a shift from reader pays subscriptions to author pays open access, these readers become free-riders. BioMed Central is one example where university-based researchers pay to be published, while their readers, many of whom are in the private sector (e.g. pharmaceutical firms), access the work free of charge, and apply its findings in their business and professional practices. (OECD 2005, p. 65)

The OECD (2005) focused on the health sector, and suggested that this sector could afford to buy access to the commercially published research and thus questioned why dissemination costs should be transferred to the author or researcher. Other practitioner areas may not have the ability to use published research for commercial gain, thus the notion of the 'free-rider' may not be able to be extended to all disciplines.

Gass and Doyle (2005) indicated that the new models of open access were not necessarily a replacement for commercial models of publishing, but instead could complement closed access publishing. They argued that:

It is time to move beyond rehashing tired arguments about whether open access poses a threat to publishers, professional societies, or research budgets. We should begin to discuss how best to use what open access gives us: the unfettered availability of scholarly literature. The strongest evidence that open access to peer-reviewed articles is here to stay, at least in the life sciences, comes from two developments: the increasing number of agencies and foundations that have begun to require or encourage free online access to publications based on research they have helped finance; and the growing number of journals that allow authors to make their papers freely available. (Gass & Doyle 2005)

In reviewing the literature published up to 2009, on the impact of repository development on journal publication, Brown (2010, p. 139) suggested that 'it is still too soon, however, to say when open access and IRs [institutional repositories] in particular will erode into the journal subscription base and transform scholarly communications'. This suggests that both open and commercial access to scholarship will continue.

Cook et al (2011) presented business modeling completed in the UK to determine the impact of open access on scholarly communication. Their report viewed institutional repositories as a future risk, as increased repository content could lead to journal cancelations. Open access journals were seen as being a low risk as the scholarly publication system remains, but with a different funding source, that of author payment.

2.5   IMPACT OF OPEN ACCESS ON ACADEMIC LIBRARIES

Academic libraries have been involved in the development of infrastructure for institutional repositories as well as in the establishment of university e-presses that have been used to publish research from the institution's academic and research staff. These developments see academic libraries positioning themselves, not just as academic collections but as an active part of the process of scholarly communication. Harboe-Ree, Sabto and Trelor (2004)

> *coined the word digitorium, to reflect a radically changed role for libraries, one where they can participate fully in all forms of creation and distribution of, and provision of access to, information. (Harboe-Ree, Sabto & Trelor 2004)*

Part of the reason for support of open access dissemination was the 'serials crisis' that identified the ongoing increases in journal subscription costs as being a major concern for academic library budgets (Young 2009). Kyrillidou (1999), in examining serial cost statistics from the Association of Research Libraries, indicated that since 1986 the average increase for journal subscriptions had been 8.8%, which was higher than the consumer price index of 3.4%. Bergstrom (2001, p. 8), in comparing the cost of non-profit economic journals with those from commercial publishers, indicated that the 'average real subscription price to libraries increased by about 80 percent for the top ten nonprofit journals and by 379 percent for the top ten commercial journals'. Keller (2001) suggested that new economic models were needed to address the rising cost of serial subscriptions. Keller (2001, p. 388) presented the Scholarly Publishing and Academic Resources Coalition (SPARC) as a model for developing low cost journals, and the *New Journal of Physics* as an example of an open access model for addressing subscription costs.

As alternative funding models have been developed to support open access dissemination, academic libraries have reviewed their role in supporting open access dissemination. As Cryer and Collins (2011) suggested, library budgets can be used to support author payment fees for academic staff from their institutions who contribute to established open access publishers.

> *Collections librarians also have the option of using their budgets to support some of the more well known open access publishers and initiatives such as BioMed Central (BMC), the Public Library of Science and Sponsoring Consortium for Open Access Publishing in Particle Physics (SCOAP3). All three use institutional fees to offset the high costs of publishing and to replace the subscription model. (Cryer & Collins 2011, p. 105)*

There is the danger, however, that libraries may pay twice for the same content if they support open access content that is distributed as a 'hybrid' process by commercial publishers. This is where commercial publishers allow selected articles within a subscription journal to be open access. An author fee has been charged for the article and it is usually made open access to meet the requirements of a funding mandate. The issue for libraries is that if they assist in the author fee payment for such articles they may not only provide the upfront author fee, but also have to continue to pay an access charge through their ongoing subscription to the commercial journal. Academic libraries, such as that at Queensland University of Technology (QUT), attempt to address this by establishing author payment policies that are directed towards journals that are fully open access (Borchert & Cleary 2011).

Surveying the library directors from fifty-five UK higher education institutions in 2009, Pinfield (2010) explored whether institutions were establishing centralised funds for the payment of author fees. Eight of the responding institutions had a coordinated approach to managing payment of author fees for submission to open access journals.

> *Seven of the institutions which said they had an institutionally coordinated fund, said it was administered centrally, one stated it was 'devolved to schools/departments'. Of those which were managed centrally, three said the funds were managed by the library, three by the research support office, and one by the graduate school office. (Pinfield 2010, p. 43)*

Pinfield's survey highlighted the role that some university libraries had taken in managing the author payment processes for their institution's staff. The issue of whether academic libraries should divert part of their budget from payment for access through their subscriptions to journals to payment for publication through supporting author payment options is an issue that will continue to be debated.

Recent authors suggest that a primary role of the academic library is to act as an advocate for open access and to support the various policies being implement about open accessible content. Libraries can ensure that their catalogue and discovery layer (single search interface to the library's electronic resources) highlight open access content. They can also, as suggested by Cryer and Collins (2011), guide their academic and research staff in meeting any open access guidelines or mandates that have been established by funding policies.

Librarians at health sciences libraries, whose patrons' research funding primarily comes from NIH, now field many questions about compliance, submission procedures and rationale for the NIH policy. In order to support faculty needs, librarian roles at some institutions now include educating faculty concerning these inquiries. At many institutions, however, educating faculty about the NIH policy falls under the jurisdiction of the offices responsible for grants administration. Consequently, coordinating educational efforts between university offices and libraries is an important consideration. The responsibility of coordinating with other university offices will often initially fall to the library director. (Cryer & Collins 2011, p. 104)

Ghosh (2011) moved the challenge for academic libraries away from the development of infrastructure for scholarly community to one of fostering a cultural change that can promote open access as a model for research dissemination.

The most significant challenge facing academic libraries undertaking IR projects is not technical but instead, it is cultural. The current environment provides an opportunity for librarians to play a key role in developing OA culture not only in their own institutions but also on a global scale. (Ghosh 2011, p. 22)

2.6   OPEN ACCESS PUBLISHING WITHIN AUSTRALIA

An initial reason for this study's focus on academic engagement with publication processes and open access dissemination was the lack of a strong focus on discussion within the Australian academic environment. At the commencement of this study, research on academics' engagement with open access tended to focus on UK and US investigations. Australian academics had participated in international surveys, however their responses tended to form part of the aggregated data and there was little direct exploration of issues as they related to the Australian environment. The exploration of the literature and the Australian publishing environment, conducted at the start of his study, indicated a changing environment as institutional repositories were being funded and new university based e-presses being established. As this study developed, the Australian Government proposed new policies for research recognition.

These events illustrate the drivers or pressures that were developing in relation to scholarly communication within Australia – drivers associated with attempts to implement open models for access to Australian scholarship; uncertainty in the ongoing process for recognition and reward of research and scholarship; funding for the establishment of repository infrastructure

and how the academic community was to respond to these drivers. Understanding these pressures and the changing communication environment became the focus for this study and its identified research gap.

Perceivably because of this gap, interest in Australian academics and open access also became the focus for two other PhD studies. This is evident by the work of Kennan (Kennan & Wilson 2006; Kennan 2007; Kennan & Cole 2008) and Kingsley (2007, 2008a, 2008b). Kennan (2007) explored open access issues at the University of New South Wales and used that environment as a case study and longitudinal study of engagement with that institution's repository.

Kingsley (2007) explored publication engagement of academics at the University of New South Wales and the Australian National University by conducting interviews with academic staff from the disciplines of chemistry, computer science and sociology. Kingsley's study compared disciplinary differences in relation to open access engagement.

As these two PhD investigations were conducted at a similar time to this study, there is the potential that they addressed similar issues to those identified in this thesis. This study, however, uses grounded theory to explore overall publication behaviour and its impact on open access dissemination. This exploration is completed during a period of change in government policy on research recognition and therefore draws into examination the potential impact that these changes may have on publication behaviour. The research of Kennan and Kingsley focused on academics from one Australian university network, the Group of Eight (Go8) universities. This thesis has collected data from across all of the Australian academic institutions and thus provides a broader framework of analysis by incorporating responses from a number of the university networks. The three studies, however, collectively add to debate about open access publishing within Australia and confirm the importance in developing an understanding of how Australian academics may be engaging with open access initiatives.

Research regarding open access dissemination within Australia focused on the development and use of repositories as the Australian university environment had established a number of repository infrastructures, some of which had been developed through specialised funding released by the Australian government (McGauran 2003). A part of this funding was assigned to explore collaborative development of infrastructure so that expertise could be shared across universities. Harboe-Ree (2005), Payne (2005), Mercieca (2006), Treloar and Payne (2006) and Henty (2007) outlined the development of these collaborative projects, including the Australian Research Repositories Online to the World (ARROW) project (www.arrow.edu.au) and the

Australian Partnership for Sustainable Repositories (www.apsr.edu.au). The advantage of these projects was that the repositories implemented by the member universities were built and developed around a common infrastructure. This also fostered the development of the ARROW Discovery Service, a repository metadata harvesting and search service managed by the National Library of Australia (search.arrow.edu.au). ARROW represented a collaborative approach to the development of repository infrastructure and searching for content held within repositories. The projects also explored whether repository infrastructure could be used to manage the centralised storage and access to research data (Buchhorn & McNamara 2006). In some instances, the repository infrastructure has been used as a publication platform for open access publication of new titles, as illustrated by the Australian National University (www.anu.edu.au) publication process. In some ways these initial collaborative projects paved the way for other online content discovery services such as the National Library of Australia's Trove service (trove.nla.gov.au). As many of these projects were established just prior to this study, part of the aim of this research is to determine the extent to which the Australian academic community was engaging with the repository infrastructure that had been developed. In addition, the study questions whether collaboration could also be applied to the new Australian university e-presses as a means to foster the development of new titles. This has been raised as a way to support the ongoing development of journal titles for as Bjork noted, 'in the longer run the publishers of individual journals would benefit a lot from pooling resources, for instance by sharing software applications, or using collaborative Web hosting' (Bjork 2005). Bjork was commenting on Nordic peer-reviewed journals, but the shared concept could be applied to the Australian environment as a number of small e-presses have been developed within individual Australian universities.

As with open access repository development around the world, the repositories within Australia were hindered by the low contribution rate. Woodland and Ng (2006) described the implementation of espace@curtin (the Curtin University repository) and acknowledged the difficulty in attracting submissions to repositories. Sale (2006) examined the deposit patterns at a number of Australian universities and suggested that submission of content was low unless the university had established a mandate for submission. Mandates are presented in the literature (discussed in section 2.9) as being a possible solution to increasing submission to institutional repositories.

2.7   AUTHORS AND OPEN ACCESS

The exploration of authors' responses to open access publishing has focused on surveys of predominantly UK and American researchers. Two key research interest groups completed these surveys. The studies conducted by the first group of researchers was based on surveys of authors who had contributed to highly ranked academic journals that had been identified through ISI (now Thomson Reuters Web of Knowledge) journal listings (Rowlands, Nicholas & Huntington 2004a and 2004b; Rowlands & Nicholas 2005 and 2006; Nicholas, Huntington & Rowlands 2005; Nicholas, Jamali, Huntington & Rowlands 2005). Other researchers compared the publishing opinions between authors who had submitted to commercial journals and those who had submitted to open journals (Swan 2003; Swan & Brown 2004). Swan and Brown (2005) also reported on author attitudes towards institutional repositories.

Nicholas, Huntington and Rowlands (2005, p. 515) suggested, 'the biggest finding to emerge from the study is the general ignorance of OA publishing on the part of relatively senior scholarly authors'. This may be as the data for their study was collected during 2003 and 2004, the initial years after the Budapest open access proposal was established (Budapest 2002). Their study also indicated 'that those authors [who are] part of a strong publishing system have less need to learn about alternative publishing systems' (Nicholas, Huntington & Rowlands 2005, p 516).   As their research targeted senior authors and researchers, they acknowledged that their findings may not represent the general academic or research community.

Rowlands, Nicholas and Huntington (2004, p 10) stated that the primary criterion for selecting the journal for submission was that a 'particular title was perceived to offer the author access to a highly targeted, but not necessarily the largest, readership'. In his analysis of the publication costs, Houghton (2002) linked this criterion for journal selection with 'promotion, tenure and funding allocations in universities and research institutions [which] are often linked to publication in a few, leading, refereed journals'.

Swan and Brown (2004) surveyed the author's attitude to open access journals and compared the responses of those who had published in open access journals with those who had not. In examining why authors had not submitted to open access journals, the issue of journal impact (69% of respondents) and perception of low prestige (69% of respondents) were contributing factors. However, of the authors who had not contributed to open access journals, 71% indicated that they would submit if open access journals addressed the perceived shortcomings identified by the participants (Swan & Brown 2004).

In exploring submission to repositories, Swan and Brown (2005) indicated that the technical infrastructure may be a barrier to submission, as 20% of their survey participants had difficulty in submitting their first article to a repository. Swan and Brown (2005, p. 63) also explored whether their respondents would support a mandate to submit to repositories and indicated that 81% would willingly comply, 13% reluctantly comply and 5% would not comply. They linked repository submission patterns to awareness of repositories.

> *The more prolific an author — that is, the more articles s/he publishes — the more likely they are to self-archive their work on websites or in institutional repositories. (Swan & Brown 2005, p. 71)*

Park and Qin (2007) explored whether authors were willing to accept open access dissemination and identified factors that may influence open access journal submission. These were linked to issues of journal quality and whether open access was viewed as having the same level of quality as commercial journals; author submission costs and whether the respondents viewed open access as a way to improve access to research.

As low submission rates to repositories remain an issue for open access repository development, Xia (2011) suggested that research is required to determine the scholars' needs in the development of such repositories.

> *New repository initiatives keep adding to the IR list today. But until one can figure out the real concerns of scholars and create the services that can really benefit the scholarly community, it will result only in an increase in the number of repository projects. (Xia 2011, p. 87)*

Xia (2011, p. 81), in reviewing the open access literature from an anthropological perspective, indicated that studies of scholars' engagement with open access could be classified into three categories: librarians or information professionals advocating open access engagement; disciplinary scholars exploring digital scholarly communication and third parties commissioned by government or organisations to conduct specific investigations. This study contributes to the second category as it explores the Australian academic community's engagement with open access dissemination, within the framework of the community's overall publication practice. As previously indicated, during the completion of this study and the development of its associated grounded theory, other research was conducted into Australian authors' engagement with repositories and open access dissemination (Kennan 2007; Kennan & Cole 2008; Kingsley 2007, 2008). Together, these studies contribute to discussion of open access within the Australian

environment. However, this thesis is deemed important as it contributes to the understanding of the concerns of the scholars, and their broader publication needs as well as identifying responses relevant to both open access journals and open access repositories. This has been completed during changes in policies associated with research recognition and therefore illustrates the impact that the Australian research policies have on publication behaviour.

2.8 MANDATING SUBMISSION TO OPEN ACCESS DISSEMINATION

The OECD (2005) and the European Commission (Dewatripont 2006) released reports that analysed the scientific and scholarly publishing sector, especially in relation to the impact of digital communication on the publishing process. Incorporating the business modelling work of John Houghton, the OECD report suggested that funding bodies could influence changes within the scholarly communication environment (OECD 2005, p. 79-80). The European Commission report (Dewatripont 2006, pp. 87-88) recommended support for funding bodies to mandate submission to open access repositories. Such mandates mean that funding agencies would stipulate that research generated through their grant and fund allocations should be freely accessible, either through open access journals or through submission to open access repositories. A number of funding bodies have adopted mandates, for example the Research Councils UK (RCUK) recommend that:

> *Where research is funded by the Research Councils and undertaken by researchers with access to an open access e-print repository (institutional or subject-based), Councils will make it a condition for all grants awarded from 1 October 2005 that a copy of all resultant published journal articles or conference proceedings (but not necessarily the underlying data) should be deposited in and/or accessible through that repository, subject to copyright or licensing arrangements. (RCUK 2005, p 5)*

Other funding agencies, including the Wellcome Trust (2007), have introduced similar mandates for research that is funded by their grants. Harnad sees mandating as the major incentive for increasing submission rates to open access repositories. Harnad (2008b, p. 65) indicated that 'OA policies always fail if they are merely recommendations or requests, even strongly encouraged … The only thing that will embolden and motivate all researchers to self-archive is self-archiving mandates'. Gargouri et al (2010) also suggested that an enforceable mandate can increase submission to institutional repositories. Gargouri et al (2010, p 1) stated that 'only about 15–20% of the 2.5 million articles published annually worldwide are being self-archived by their authors', but then suggested that where mandates have been applied, there is a 'deposit rate of 60%' (Gargouri et al 2010, p 3).

Mandating statements, such as that from the RCUK, have been criticised by some publishing associations, such as the UK STM (International Society of Scientific, Technical and Medical Publishers) and ALPSP (Association of Learned and Professional Society Publishers), as being an attempt to force an alternative model of publishing and thus potentially undermining the revenue flows of scholarly publishers. Harnad suggested that the responses of the UK STM and ALPSP highlight a belief that open access repositories are a threat to the traditional publishing environment (Harnad 2005a). However, publishers are recognising the impact of funding body mandates and sixty-four percent of publishers provide some level of support for submission of articles to open access repositories (Sherpa 2011).

The impact of mandates, however, needs to be explored. In commenting on a survey conducted by the OAK Law project, Austin, Heffernan and David (2008) suggested that only 75 respondents (from a total of 509) had received government funding that stipulated that the research results should be disseminated through open access means. The literature that reports on repository submission indicated that the growth of repository content is slow. Woodland and Ng (2006), in reviewing the Curtin University repository, stated that 'interested individuals continue to contribute, but the uptake from the academic community is low at best'. This was similar to Queensland University of Technology where even a mandate policy had not lead to extensive submission of content (Callan 2004). Cornell University has established a DSpace repository that is structured around discipline-based collections. Davis and Connolly (2007) examined the submission patterns and use of that repository and indicated:

> *The DSpace repository as a whole is enjoying steady growth, with approximately 1,000 items added over the past year; however, only a small number of collections display a steady growth pattern. Instead, it appears that most collections are being used to build archival collections as either one-time deposits or periodic batch additions of material ... There is little evidence to suggest that individual faculty are making significant contributions of regular scholarly output to the repository. (Davis & Connolly 2007)*

This is also evident in other repository development, as illustrated by University of Toronto:

> *We have several communities who have no or only a small number of items in our repository. Despite their initial enthusiasm, they, and we, have not been able to find an implementation model that fits within their workflow and priorities. (Devakos 2006, p. 178)*

Kennan (2011a and 2011b) compared the repository implementation and mandates within two Australian universities and indicated that support for, and awareness of, the institutional repository was greater within the university that had implemented a mandate. However, establishing a mandate or policy for support of open access repositories may not necessarily lead to greater awareness if the policy itself is not adequately promoted to institutional staff. Creaser (2010) reported the results of a survey of thirty-nine UK universities regarding institutional policies on self-archiving of published content. The results indicated that even where formal policies had been established, many of the survey respondents were not aware of these policies.

> *Eight responding institutions (21%) reported that self-archiving in the institutional repository was mandatory, with a further 22 (58%) noting that this was encouraged. However 46% of researchers did not know their institution's position, with only 8% noting that deposit of material was mandated. Self-archiving in subject based repositories was less well supported by institutions, with none mandating this, and 15 (43%) encouraging it. More than half of the researchers (57%) did not know their institution's position. (Creaser 2010, p. 11)*

Harvard University's Faculty of Arts and Sciences received considerable press (Schwartz 2008; Guterman 2008; Harnad 2008a) when it announced a policy that mandates submission to the university's institutional repository. The policy is reported to be a copyright agreement that:

> *grants to the President and Fellows of Harvard College permission to make available his or her scholarly articles and to exercise the copyright in those articles. In legal terms, the permission granted by each Faculty member is a nonexclusive, irrevocable, paid-up, worldwide license to exercise any and all rights under copyright relating to each of his or her scholarly articles, in any medium, and to authorize others to do the same, provided that the articles are not sold for a profit. (Harnad 2008a)*

Academic staff may opt out of submission for individual articles if a reason is provided and the directive is waivered by the faculty. This policy acts as a directive to guide the faculty's academic staff to publish in journals that support the submission of articles to repository infrastructure.

While the Harvard agreement is a non-exclusive copyright agreement, it does aim to gather rights of copyright management for each article published, with the ability to use this copyright in any medium. This is primarily an agreement to secure rights to academic articles in a digital format that is suitable for submission to the Harvard digital repository. Commentators on open

access business models indicated that this is a 'permissions' mandate, where Harvard academics are providing the university with the right to submit their articles to the institution repository (Suber 2008). This is different to other mandates that attempt to place the onus on the individual academic to submit their articles to the repository and, in some cases, forcing academics to try to negotiate author-publisher agreements that allow them to then meet a mandate.

The Harvard model seeks the non-exclusive copyright within the work written by Harvard academics and researchers. As this is a non-exclusive agreement, the authors can then submit their work to other publication processes, primarily scholarly journals and conferences. However, in practice, this 'permissions' mandate means that academics will need to publish in journals whose author-publisher agreements seek non-exclusive right to the article. The assignment of copyright through such agreements will vary from publisher to publisher. For example, Elsevier seeks exclusive rights from authors that submit articles to its various journals (Elsevier 2009), which means that Elsevier manages the copyright within the published article. Elsevier has established publication policies that support funding body requirements for the submission of the final published article to special repositories such as PubMed Central (Elsevier 2008). However, Elsevier manages the submission process and does not provide an automatic agreement for institutional repository submission. Instead their policy stated:

> *If an institution requires that all papers published by its staff be deposited in its institutional repository, a special arrangement or agreement with Elsevier is required. (Elsevier 2008)*

Thus, without a direct agreement with Elsevier, the final published versions of articles cannot be submitted to an institutional repository. Elsevier does support submission of pre-print versions of articles to institutional repositories. Drawing this back to the Harvard example of a mandate means that Harvard academics can submit their own version of articles to the institutional repository. However, if the Harvard mandate were to seek submission of the final published version, then this would only be achieved for articles published through Elsevier, if there was a direct negotiated agreement between Harvard and Elsevier.

Commentators, such as Suber (2008), suggested that the Harvard mandate is important because it has the potential to change publishers' reliance on exclusive agreement. Permissions-based mandates start to alter the negotiation 'power' when dealing with author-publisher agreements and the rights retained by authors. Suber (2008) suggested that as the Harvard mandate assigns

copyright management to Harvard, then Harvard as a whole may have a stronger negotiation power to change publisher's agreements, than individual academics.

2.9   AUTHOR-PUBLISHER AGREEMENTS AND PUBLISHING

Author-publisher agreements, therefore, can directly impact on submission to open access repositories. Taylor (2007, p. 234) indicated that 'copyright is a two-way street: it is there to protect authors from losing control of their work as well as to allow free and effective communication of that work'. Author-publisher agreements vary between publishers; however it has traditionally been an agreement where copyright within the published article is handed over to the publisher. The terms, however, are changing as new agreements allow authors to retain more rights for reuse of the content.

> *An example of an attempt to create an acceptable author-publisher balance would be the rights which the authors of journal articles retain to deposit their work in institutional and subject repositories and to re-purpose their work in other publications of their own. Another example would be the willingness of many publishers to experiment with Open Access, author-pays or funding-agency-pays publishing models. (Taylor 2007, p. 234)*

The rights of article reuse vary, but may include the ability for the author to use the article for teaching and learning purposes, to submit a version (pre-print or post-print) to a repository or to retain all rights to the article. While new agreements provide some support for submission of a version of the article to an institutional repository, Bjork (2005) suggested that such support could change if repositories reach a critical mass of content that would be a serious threat to publishers' subscription revenue. This is also supported by Colin Steele's investigation into open access initiatives within Australia. Steele (quoted in a news release by Salleh 2005) stated 'while 92% of the world's publishers currently allow copies of papers to be archived, this currently doesn't present them with any threat because few academics take advantage of the option, If they all did it, the publishers would probably then restrict it' (Salleh 2005).

Hoorn and van der Graaf (2006) surveyed authors who have contributed to open access journals and sought opinion on how rights should be assigned under author-publisher agreements.

> *Open Access journal publishing has created a number of entirely new copyright models.*
> *... In general terms, the survey shows that authors publishing in Open Access journals*
> *appear to be no longer satisfied with assigning copyrights to publishers. ... A creator's*
> *right to let his or her work to be used in order to advance science and culture is seen as*
> *very important, and the survey therefore emphasises that the views of authors should be*
> *taken into account when determining copyright models. (Hoorn & van der Graaf 2006)*

The OAK Law project, based at Queensland University of Technology, explored issues associated with copyright, author-publisher agreements and open access dissemination (Fitzgerald 2006; Austin 2008; Fitzgerald et al. 2008). This project initially provided the Australian Commonwealth Department of Education Science and Training (DEST) with a review of the range of agreements that were used by the scholarly publishing sector (Fitzgerald 2006). The project surveyed academics during 2007 to determine their awareness of copyright and author-publisher agreement processes and the results suggested a general lack of awareness of open access rights under such agreements (Austin 2008, p 32-33). The belief that these agreements are a signing of full rights in an article to the publisher remains an ongoing deterrent to building institutional repository content (Asamoah-Hassan 2010).

2.10 IMPACT OF OPEN ACCESS ON CITATION OF ARTICLES

Harnad et al (2004a, p. 310) acknowledged that citation of an author's work is one measurement of the impact and potential quality of the author's research and therefore determining the impact that open access can have on citation counts can support open access development. Measurement of citation impact of articles is usually drawn from the data collected for the Institute for Scientific Information (ISI) databases. The ISI databases originally consisted of the *Arts and Humanities Citation Index* (A&HCI), *Science Citation Index* (SCI) and *Social Sciences Citation Index* (SSCI) but since 1997 these citation databases are searched as part of Thomson Reuters' *Web of Knowledge* index. The index is used to indicate the degree to which articles are cited and this then assists in determining the research impact of authors as well as the ranking of individual journals. The assumption is that if articles from specific journals are being heavily cited, then this indicates a form of acceptance of quality by academic peers.

Supporters of open access dissemination have argued that removing barriers to access can lead to an increased use of the published research and thus increase the citation numbers of the work. Comparisons of the citation counts between open and closed articles has been used to suggest that articles that are made open have a higher citation count than articles that are closed. The literature, however, varies on the degree of this impact.

Lawrence (2001) conducted one of the early comparisons of citation counts by exploring the citation rates of 119,924 computer science conference articles. The comparison was made between conference articles published in print and articles made freely available online.

> *[This comparison] suggests that online articles are more highly cited because of their easier availability. This assumption is likely to be more valid for top-tier conferences with very high acceptance standards. Restricting our analysis to the top 20 publication venues by average citation rate gives an increase of 286% (median 284%) in the citation rate for online articles. (Lawrence 2001, p. 521)*

Antelman (2004) analysed the citation rates of selected journal articles from the four disciplines, mathematics, electrical and electronic engineering, political science and philosophy. For each discipline, ten leading journals, as identified by ISI data of 2002, were selected. A comparison of citations was made between articles that were only available through the commercial journal and those articles which also had a version accessible through an open access repository or the author's personal website. The comparison indicated an increase in citation counts of articles that were openly accessible. However this increase was not to the extent of that recorded by Lawrence (2001).

> *The relative increase in citations for open-access articles ranged from a low of 45 percent in philosophy to 51 percent in electrical and electronic engineering, 86 percent in political science, and 91 percent in mathematics. (Antelman 2004, p. 376)*

Antelman was comparing citations of closed access print articles with open access electronic copies and concluded that open access is an easier way to access content and thus leads to increased use and citation.

> *As more research is available online, readers lower the threshold of effort they are willing to expend to retrieve documents that present any barriers to access. This indicates both a "push" away from print and a "pull" toward open access, which may strengthen the association between open access and research impact. (Antelman 2004, p 377)*

While this comparison supports the notion that open access leads to increased citation of research, care may be needed in the interpretation of this early research. At the time of these comparisons, online access to journal and research content was still developing. The research of Lawrence (2001) and Antelman (2004) were, therefore, not only comparisons between open and closed access to content, but were also comparison between electronic access and print

access to content. Lawrence's analysis focused on the impact of online articles being cited more because of their 'easier availability'. At the time of this analysis, 'easier availability' may not have only been because of a removal of subscription to access, but also because of an ease of access through digital means instead of through a print based collection.

Since 2001, the increasing availability of online journals as either open or subscription based models of access, means that citation comparisons can be made without format (print versus digital) influencing the perceived ease of access. In January 2005, the journal *Nucleic Acids Research (NAR)* adopted a full open access publication model. Previously this online journal provided open access to its archive, but required a subscription in order to access the articles from the most recent six months editions of the journal. The user logs were analysed to determine the impact of moving to open access might have on content use (Nicholas, Huntington & Jamali 2007). The overall access to the journal increased by 10%, however 'OA led to a significant increase in the usage of newer articles, the ones that had been previously embargoed' (Nicholas, Huntington & Jamali 2007, p. 13).

Other comparative studies of the citation rates of open access and closed access journals suggested that any differences in citation may be more pronounced in an 'immediacy index' – that is an increase in citation of the most recent articles within a journal. However, this difference may not be consistent across all discipline areas. McVeigh (2004), as part of a Thompson-ISI report, compared citation counts of open and closed journals as listed in ISI database as at 2003. The main impact of open access journals on citation counts was a potential increase in use of the most recent content.

> *In Physics, Engineering & Mathematics, and in Medicine, recent articles in OA journals receive a higher percentage of total citations than recent articles in traditional access journals. Interestingly, this effect extends through articles that are two or three years old, effectively covering the period of analysis of both key journal performance metrics, Immediacy Index and Journal Impact Factor. In Chemistry, and Life Sciences, there is no indication of a difference between OA journals and traditional access journals in the age of cited articles. (McVeigh 2004, p. 9)*

McVeigh (2004) however, concluded that the academic value of content has a greater impact on citation than simply the removal of access barriers.

> *Access to an article, by any path, is a necessary pre-condition for citation, but access, by itself, is not sufficient for citation. Each article must be found to provide some specific*

value to the work under consideration before it is cited and thus entwined with other published works. (McVeigh 2004, p. 16)

Thompson-ISI commissioned other comparisons that suggested that 'OA journals have a broadly similar citation pattern to other journals, but may have a slight tendency to earlier citations' (Testa & McVeigh 2004). When comparing citation counts for articles published in pharmacology journals between 1999 and 2002 Testa and McVeigh (2004) identified an increase in citations, but this was common to both open and closed access pharmacology journals. They stated that:

The articles in the OA journals are not cited appreciably more quickly than those in comparable, traditional journals. For both OA and traditional publishing model journals, pharmacology journals show a rapid increase in citations for three years post-publication. (Testa & McVeigh 2004)

Åström (2009) stated that it was difficult to conclusively determine if open access impacts on the material actually being cited. Articles that have compared the citation impact of open access journals very in the extent of the possible impact that open access may have on journal citation. The conclusions tend to suggest that when comparing citation counts of open and closed access journals, the overall citation of content seems to be similar. Where there is a difference, this tends to be an increase in the earlier citation of the newer content. In comparing the citations of articles published commercially and those published within the same journal but openly accessible through an author payment business model, Eysenbach (2006) also indicated that the advantage of open access is earlier citation of articles.

However, Davis (2011) challenged the notion of earlier citation of open access articles by suggesting that:

Free access to scientific articles increases readership (as measured by article downloads) and reaches a broader audience (as measured by unique IP addresses) but has no effect on article citations within the first 3 yr after publication. (Davis 2011, p. 2132)

Davis (2011, p 2132) indicated that monitoring downloads is a measurement of general interest in an article and is different from using the article as a citation within a new document. The benefit of open access is the increased availability of publication to those outside of the research community, not necessarily an increase in citations by the research community.

Harnad and Brody (2004) questioned processes that compare citation counts between open access and closed access journals. They argued that:

> *The way to test the impact advantage of Open Access (OA) is not to compare the citation impact factors of OA and non-OA journals but to compare the citation counts of individual OA and non-OA articles appearing in the same (non-OA) journals. Such ongoing comparisons are revealing dramatic citation advantages for OA. (Harnad & Brody 2004)*

Brody (Brody et al 2004; Brody 2006) selected physics journals from the ISI list and compared the citation counts of articles that were only available in the published journal with the counts of articles that also had a version available through the arXiv.org open access physics repository. This comparison suggested that 'OA enhances citation impact substantially e.g. between 2-2.5 times as many citations for the Physics subject' (Brody 2006, p. 144). Brody concluded with:

> *These results suggest that open access to research papers provides a citation impact advantage (at least in the transitional stage where only part of the literature is open access) and reduces the citation latency (because papers are accessible sooner). Because electronic access makes older papers more accessible so they will be read (and cited) more, hence highly-cited open access papers will not only be cited sooner (and more) but also for longer. (Brody 2006, p. 156)*

Gentil-Beccot et al (2009) also examined the citation impact of arXiv.org and indicated that a main advantage of the discipline-based archive is that 'citation begins well before publication occurs'. Gentil-Beccot et al (2009) examined the High-Energy Physics (HEP) community and suggested that this community has a strong engagement with open sharing of research, even before more formal infrastructures such as arXiv.org had been established. This research sharing is based around a discipline community and could suggest that engagement with discipline-based repositories may be more favourable than institutional based ones.

It was also suggested that bibliometric data analysis should not rely so heavily on the ISI citation indexes (Meho 2007; Maharana et al 2006). Meho suggested that as research articles increasingly become web accessible, other measurements of use, including statistics from Google Scholar should be employed. The incorporation of such download statistics would further assist in identifying use of articles that are sourced from repositories and academic's personal webpages and will then complement ISI's focus on journal citations. SciVerse Scopus (www.info.sciverse.com/scopus) provides the citation information for the ERA evaluation

process (Australian Research Council 2011b) and has started to incorporate citation information from university webpages, selected discipline repositories and open access journals to complement the citation information of commercially published journals (Elsevier 2011). Institutions can also request to have their repositories indexed in Scopus and this starts to see content, other than the published version of an article, being tracked for citations.

One of the perceived benefits of open access journal and repository development is the improvement of access to scholastic material for developing countries as universities and academics from such countries may not have the financial resources to purchase extensive collections of journals. Willinsky (2003a) indicated that one model of open access journal development is that of a per capita payment for developing countries. While this is still a subscription to content, the subscription is heavily subsidised by the publishers. Frandsen (2009) explored whether open access journals influenced the citation patterns of academics from developing countries. If open access journals are used more within developing countries, then it could be assumed that academics from such countries will cite from open access journals. Frandsen (2009), however, indicated that the citation patterns between authors from developing and developed countries are similar. The availability of open access journals is not a major factor that influenced citation patterns between the two country groups.

While citation comparisons between open and closed content have been used to justify the value of open access content, some commentators on open access see the focus on citation counts and bibliometric data as reinforcing traditional models of academic recognition and thus supporting commercial models of dissemination.

> *The search for higher citation rankings plays into the hands of increasingly dominant multinational publishers, whose main loyalty is to shareholders rather than to academe, which by and large gives away research and copyright in an increasingly frantic rush to publish or perish. (Steele 2007)*

Steele (2007) viewed the reliance on citations and journal rankings as a reinforcement of traditional publication models and a detriment to the potential of open access publishing initiatives. Park (2010) has also suggested that publishers have established barriers that support traditional publication models and access to scholarly content. However, this was raised in relation to access to content by those outside of academia. Park (2010) suggested that while non-institutional readers have an interest in scholarly content and that publishers provide

transaction or pay per view access to readers outside of academic institutions, such access is seldom used.

> *Quite simply, publishers have created many barriers and friction points for these non-institutional users as the web- site experience has been designed to serve users and librarians at academic institutions. Consequently, based on our findings, less than 0.2% of non-institutional visitors to a publisher website convert into a transaction despite the fact that these visitors represent more than half of the total traffic. (Park 2010, p. 327)*

Park's (2010) analysis identified audiences outside of academic institutions and suggested that the current commercial publication models restrict access to content for these audiences. Open access models would remove barriers of access for readers outside of the academy.

2.11 ACADEMIC RECOGNITION AND OPEN ACCESS

Government policies on education are managed within Australia through the Commonwealth Department of Education, Employment and Workplace Relations (DEEWR), though in December 2011 aspects of this department's work was migrated to the Commonwealth Government Department of Industry, Innovation, Science, Research and Tertiary Education. Research grants and recognition policies are managed by the Australian Research Council (ARC), which is a statutory authority that now sits within the new department. The predecessor to the DEEWR is the Department of Education, Science and Technology (DEST). As Butler (2003) indicated, DEST originally administered processes for recording research output from Australian universities.

> *Australian universities began supplying details of their research output to the Department of Education, Science and Technology (DEST) and its predecessors in 1993, initially through the Australian Vice-Chancellors Committee (AVCC), and more recently directly to the department. The research funding formula was expanded in 1995 to include output measures — publication counts and higher degree loads and completions — and was also used in the allocation of postgraduate awards. (Butler 2003, p. 39)*

Butler (2003) suggested that the focus on publication counts by DEST in 1995, led to an increase in publication output from Australian universities. The research output measures were based on publication counts and, as Harzing (2005) indicated, while there was a different weighting between output formats (books, book chapters, journals and so on), there was no differentiation made within each of these format types.

However, in 1994 the formula for distributing infrastructure funding was supplemented with research output measures (i.e. the number of publications). The quality of publications was not taken into account. Each publication was given the same weight, although books were weighted more heavily than journal articles, conference proceedings and book chapters. (Harzing 2005, p. 184)

In drawing this issue back to the literature, comparison can be made with the UK Research Assessment Exercise (RAE). While the RAE was discarded after the 2008 assessment and replaced with the Research Excellence Framework (REF), the ERA framework mimics the RAE evaluation process. The literature that explored the RAE focuses on the impact of the assessment exercise on selected discipline areas. While not specifically addressing issues of open access, commentary on the UK's RAE acknowledged that practitioner-based disciplines have research dissemination requirements that were not favourably recognised by the research assessment processes (Banatvala, Bell & Symonds 2005; Anthony 2005; Bence & Oppenheim 2004a and 2004b). This is partly because such disciplines, while being assessed under a research quality framework, also have a need to disseminate research to their practitioners, who may be a non-academic audience.

Practice disciplines need to be credible not only in academia, but within the clinical area. (Anthony 2005, p. 4)

However, Anthony (2005) conceded that the RAE will change the publication focus of such disciplines as they position themselves for further RAE implementations.

While one may wish to attend conferences and give papers for dissemination and networking, it may be wise to ensure that submissions to the next RAE are based on journal publications, and target the most prestigious, and those with a high impact factor. (Anthony 2005, p. 12)

Joint (2008) acknowledged that the RAE had forced a focus on publishing primarily within established prestigious journals. However, Joint then qualified this impact by suggesting that repository infrastructure development provided the opportunity to make this published content openly accessible.

At the same time, a climate of evaluation has also led to a need to make research as visible as possible – for research to be deemed ''high quality'', it has to be seen as such by as large a community of peers as possible. Open access is the perfect tool for this. (Joint 2008, p. 574)

Banatvala, Bell and Symonds (2005) saw the RAE as having a negative impact on medical schools within the UK and viewed the RAE as being directly linked to the closure of academic departments. Gordon (2005), however, questioned such a direct impact. While this debate is focused on the impact that the RAE has on department funding, it illustrates the link between research output and departmental growth, which may be of concern for departments that focus on practitioner-based research.

Australian Commonwealth Government policies associated with research quality and recognition have continued to be developed. The research recognition policies, originally associated with the DEST based output measures of 1995 (Butler 2003, p. 39), went through two major changes during the period of this thesis. These policy changes aimed to improve on the quality of the research and publication output, from Australian universities and research centres. The Research Quality Framework (RQF) was proposed in 2005 (Expert advisory group for the RQF 2005). However, a change in Commonwealth government in 2007 led to the Excellence in Research for Australian (ERA) policy being proposed in 2008 (Carr 2008, Feb. 26). The Australian Research Council (ARC) administers the ERA framework. The ERA framework was also modified in 2011 (Australian Research Council 2011a), with changes being implemented towards the conclusion of this study. Although the RQF and ERA were different in detail, these policies frame formal research evaluation exercises. Therefore the impact that these policy changes have on publication behaviour of the Australian academic community is explored in this study.

2.12 SUMMARY OF THE LITERATURE'S KEY DEBATE

This chapter summarises aspects of the debate surrounding open access dissemination of published research. The early literature related to the benefit of open access dissemination and the development of 'paths' associated with new open access journals and open access repositories. The benefits identified within the literature tended to relate to the impact of open access on reuse of research content and specifically on the development of citation counts for individual articles and journals. The stated level of citation impact varies between research reports on the topic; however there seems to be an acknowledgement that open access leads to an increase in citations to articles as they are newly published.

In developing open access strategies, the literature presented a number of business models for developing sustainable open access journals and dissemination processes. A main focus of such models relates to author fees and payment charges that shift the publication costs to the author and away from the reader. The main research into business models for open access has

explored the financial costs associated with publication processes with an attempt to determine the 'financial value' of open access dissemination. The literature has also explored the development of institutional and discipline based repositories that can be used to archive published articles and to make such content openly accessible. Linked to this discussion is the issue of mandating submission to such repositories. Advocates of open access dissemination view mandates that are established by funding agencies and institutions as a necessary part of fostering submission of content, especially to open access repositories. These mandates are recognised by publishers, many of whom have changed author-publisher agreements to allow a version of the paper to be submitted to repositories. However, authors still tend to view these agreements as a signing of copyright to the publishers and thus believe that they do not have the rights in the article to submit to a repository.

One motivation for this study was the need to determine whether the Australian academic community was engaging with open access dissemination and especially with the repository infrastructure and university based electronic presses that the Australian government and universities had invested in. This investment had been made without a clear understanding of whether the actual academic community would engage with the infrastructure. The initial review of literature, conducted as a means to define the study's focus, indicated that only a few studies had explored the view of authors and academics towards open access dissemination. These studies focused on established researchers who had been identified through citation rankings and journal lists. While academics from Australian universities had been included in these studies, there had not been a specific focus on the views of the Australian academic community. At the commencement of this study, a focus on the Australian academic community and author attitudes to open access was primarily being investigated by PhD studies. This study's author, having an interest in the Australian publishing sector, the academic library environment and the scholarly dissemination processes of academics, commenced the study with the aim to explore the publishing behaviour of the Australian academic community. Specifically, an aim was to explore whether the community will engage with the open access infrastructures that were being implemented by government and university funds.

As the study progressed, a secondary motivation for the research emerged. A consistent theme identified through each of the data sources was the impact that changes in Australian government policies on research recognition was having on the publication behaviour of the Australian academic community. The Australian policies associated with research recognition were in constant change during the period of this study and thus the study offers an exploration

of how these changes influenced the publication behaviour of an academic community. The establishment of the open access infrastructure within Australia and the impact of changing policies on academic and research recognition act as the major motivations for this study.

2.13 CONCLUSION

This chapter outlined the literature associated with open access publishing and dissemination. The discussion has been presented as a single narrative, even though the literature was reviewed in two broad stages. The first, conducted at the commencement of the research, acted as a means to scope the study and then a further review was conducted once themes had been identified from the data analysis. This approach to the literature review assists in maintaining the grounded theory process of drawing issues from the data being investigated. Aspects of the literature are revisited in the later chapters of this thesis as the grounded theory is presented. The next chapter outlines the research design for this study and discusses how grounded theory has been applied to the analysis of the data for this study.

CHAPTER 3: RESEARCH DESIGN AND IMPLEMENTATION

3.1 INTRODUCTION

This chapter outlines the overall research design of this study and discusses the various methods that have been used for data collection and analysis. This study focuses on scholarly communication and more specifically the publication practice of the Australian academic community. As this is a social process, this study uses the research methods associated with social science research, as such methods tend to focus on people and their interactions with each other, in this case the interaction associated with the formal dissemination of published research. An interpretive model of research is adopted for this study, as Kaplan (1988) indicated:

> *interpretive researchers attempt to understand the ways others construe, conceptualize, and understand events, concepts, and categories, in part, because these are assumed to influence individuals behavior. (Kaplan 1988, p. 572)*

A positivist model of research is usually applied to scenarios where variables can be tested, preferably within a controlled environment. Instead, interpretive research draws 'categories and meanings from the data' (Kaplan 1988, p. 573) and does not aim to test pre-developed hypothesis based on a pre-conceived interpretation of the research environment. This study explores the environment that impacts on the dissemination decisions that academics make when publishing their research and whether open access publication models form part of this environment. This exploration is based on the academics' reflection on their publication patterns as practiced within their current university and research centres. Thus this research is not exploring data through an experimentation process in a controlled environment, but rather drawing on data collected 'from the field'. The study uses grounded theory as the theoretical framework for conducting this research, which analyses data by using three methods: focus groups, survey, and interviews.

The use of an interpretive focus and grounded theory encouraged the researcher to adopt a mixed-methods approach in the research. This chapter outlines why the use of a mixed-methods approach has been adopted and details how the various methods have been used in

this study. The chapter revisits the study's research questions and outlines the way that grounded theory has been used to analyse the collected data and identify the themes that have emerged from the study.

3.2 THE RESEARCH FOCUS

In 2003, the Australian Commonwealth government released twelve million dollars to establish institutional repositories and to investigate alternative ways to manage digital research and information resources (McGauran 2003). Part of the aim of these services was to increase access to research conducted by Australian universities and the institutional repositories meant that such research could be made openly accessible. The development of these repositories, and the associated services of metadata harvesting and centralised search services, generated an initial interest for this study, as to whether these services will change the publication behaviour of the Australian academic community. This interest focused around the issue as to whether the Australian academic community will disseminate their research findings through open access means and whether they will, in turn, access and use content published in open access journals or submitted to repositories.

As this initial interest developed further, it became a focus on identifying the issues that influence the publication behaviour of the Australian research community, including where articles are submitted for publication and whether open access forms part of this pattern. This focus has been refined to the primary research question of:

> What influences the publication behaviour of the Australian academic community?

As outlined in Chapter 1, this focus led to a number of subsidiary questions, which include:

Q1. What are the current publication patterns for Australian academics?

Q2. To what degree do open access models form part of these publication patterns?

Q3. Is there a difference in engagement between open access journals and open access repositories?

Q4. Will policy established by funding bodies, government or institutions assist in increasing engagement with open access initiatives by Australian academics?

Q5. What impact may the research recognition policies have on the publication patterns and engagement with open access initiatives?

Q6. How do these publication patterns and engagement with open access initiatives impact on establishment of university-based electronic presses and repositories?

This study is exploratory in nature and addresses these questions by examining actual publication practice.

3.3 GROUNDED RESEARCH

Martin and Turner (1986) stated that:

> *Sometimes a social researcher can approach an area of inquiry with a prior, well-formulated theory that so accurately describes it that the research can concentrate on the accumulation of information applicable to the existing theory. Many inquiries, however, do not fit this pattern. Frequently, no relevant theory exists at all, and even when theories concerned with a topic do exist, they may be too remote or abstract to offer much guidance or assistance. (Martin & Turner 1986, p. 142)*

The research associated with this thesis reflects this latter approach to theory development. Adopting the process of grounded theory, the aim is to identify patterns associated with publication process by academics and to develop theoretical frameworks around this publication behaviour.

Grounded theory was originally proposed by Glaser and Strauss (1967, p. 6) where 'generating a theory from data means that most hypotheses and concepts not only come from the data, but are systematically worked out in relation to the data during the course of the research'. While methods based on testing hypotheses usually collect data after the hypotheses have been stated, Glaser and Strauss (1967) reversed this process. That is, Glaser and Strauss stated that data 'is usually collected beforehand because most discovery and generation is a secondary analysis of data collected for other purposes, and because the hypotheses come after the analysis – they are suggested from findings, not tested with them' (Glaser & Strauss 1967, p. 194). This approach to theory development attempts to separate the researcher from pre-analysis, thus enabling new hypotheses and theory to emerge from the data itself.

Strauss and Corbin (1998) suggested that grounded theory is 'theory that was derived from data systematically gathered and analysed through the research process. In this method, data collection, analysis, and eventual theory stand in close relationship to one another' (p. 12). In defining what constitutes theory, Strauss and Corbin (1998, p. 22) suggested that 'theory denotes a set of well-developed categories (e.g. themes, concepts) that are systematically interrelated through statements of relationship to form a theoretical framework that explains some relevant social, psychological, educational, nursing, or other phenomenon.' This approach to research means that the researcher aims to understand a current environment and, from this

understanding, draw relationships that can assist in the future development of the environment or to identify trends that may be adopted by other organisations addressing similar issues. This is relevant to this study as it aims to determine how academics publish their research and how this pattern will impact on the development of open access journals, repositories and university based electronic presses. There is a need to understand the current practice instead of applying a pre-conceived theory.

Where an established theory is applied to a new research problem, the literature tends to play an important part in developing the hypothesis that will be tested. The use of literature in relation to the development of grounded theory is viewed differently, as there is a need to balance the process of theory building from the data, with prior knowledge that the researcher may bring to the investigation. Strauss and Corbin indicated that:

> *There is no need to review all the literature in the field beforehand, as is frequently done by analysts using other research approaches. It is impossible to know prior to the investigation what the salient problems will be or what theoretical concepts will emerge. Also, the researchers does not want to be so steeped in the literature that he or she is constrained and even stifled by it. (Strauss and Corbin 1998, p. 49)*

While Eisenhardt (1989) restated the importance that 'theory building research is begun as close as possible to the ideal of no theory under consideration and no hypothesis to test' (p. 536), she admits that 'it is impossible to achieve this on a clean theoretical slate' (Eisenhardt 1989, p. 536). Strauss and Corbin (1998) provided an outline of how literature can be used during grounded theory research (pp. 48-52) and indicated that 'before beginning a project, a researcher can turn to the literature to formulate questions that act as a stepping off point during initial observations and interviews' (Strauss & Corbin 1998, p. 51). They also suggested that 'when an investigator has finished his or her data collection and analysis and is in the writing stage, the literature can be used to confirm findings *and,* just the reverse, findings can be used to illustrate where the literature is incorrect, is overly simplistic, or only partly explains phenomena' (Strauss & Corbin 1998, pp. 51-52).

As suggested in Chapter 2, maintaining a clean slate for a topic such as 'open access publishing' is difficult as there is a wide spectrum of debate associated with the development of open access dissemination models. The literature was initially used to define this study's focus on academic engagement with open access journals and repositories. This broad focus was then been refined and redirected as data was collected. Further searching of the literature was

conducted towards the end of the data collection period. The data was constantly analysed as it was collected and the literature was used in this latter period for comparison with the themes and theory emerging from the data analysis.

This process reflects Strauss and Corbin's use of the literature as well as Eisenhardt's acknowledgement that:

> *Investigators should formulate a research problem and possibly specify some potentially important variables, with some reference to extant literature. However, they should avoid thinking about specific relationships between variables and theories as much as possible, especially at the outset of the process. (Eisenhardt 1989, p 536)*

While the literature assisted in the identification of the topic focus for the thesis, the commencement of 'relationships between variables and theories' started with the focus groups.

The 'research problem' centres on issues of whether Australian academics engage with open access publication models. Locke suggested, 'the grounded theory style adapts well to capturing complexities of the context in which action unfolds, enabling researchers to better understand all that may be involved in a particular substantive issue' (Locke 2001, p95). Locke also indicated that grounded theory is useful for providing a link between theory and practice because the theory generated is based on observation or exploration of practice and that this may then provide 'employees and managers a way to identify and institute changes that might improve their situations' (Locke 2001, p. 96). This process can assist in identifying relationships within the data which may then be used to advise changes to organisations which act as the data source.

While the notion of 'publish or perish' seems to be an established metaphor for academia, the degree to which this pressure supports open access models needs to be explored. The debate about open access seems to hold a strong degree of emotive positioning as various 'camps' defend their position and viewpoint. Grounded theory provides a framework for attempting to gain a clearer understanding of the changing patterns of publication, if such changes are occurring. Hutchinson (1988, p. 125) indicated that 'grounded theories are guided by the assumption that people do, in fact, have patterns of experience. They order and make sense of their environment'. Grounded theory is seen as a valid method for examining the patterns associated with publication processes. By developing theory from actual practice, and, as Locke suggested, building theory based 'on new substantive areas as they arrive on the organizational scene' (Locke 2001, p. 96) you can explore an area that is dynamic or possibly under change.

While scholarly publishing processes are well established, new models for communication and the changing attitudes of government policy (especially that of the ERA framework) mean that there is a need to determine if the established patterns will be maintained or change because of these new influences.

3.4   RESEARCH DESIGN

At its simplest level, research design needs to consider how data can be collected and then how this data can be analysed. For grounded theory, these two processes are intertwined, as there is an ongoing comparison and analysis of the data, even as it is collected. In discussing the research design for this study, this section outlines the actual data collection methods. Section 3.5 outlines the way that grounded theory techniques was applied to the data analysis, so that theoretical statements could be developed.

3.4.1   USING MIXED-METHODS

Greene et al (1989, p. 256) defined mixed-method design as 'those that include at least one quantitative method (designed to collect numbers) and one qualitative method (designed to collect words), where neither type of method is inherently linked to any particular inquiry paradigm'. Thus using mixed-methods within a research design aims to provide multiple viewpoints of the investigation so as to gather a stronger understanding of the problem, issue or concept that is being studied. One of the reasons for the use of mixed-methods is that this allows for the development of triangulation of the data, so as to enhance the outcome of the investigation. Moran-Ellis suggested, 'in social science, triangulation initially referred to the claim that comparing findings from two or more different research methods enables the researcher to conclude whether an aspect of a phenomenon has been accurately measured' (Moran-Ellis 2006, p. 47). Fielding and Fielding (1986, pp. 24-25) indicated that the main advantage of data triangulation is that it allows the researcher to critically examine the data so as to build confidence in the data. Fielding and Schreier (2001) reinforced this by suggesting that researchers who employ qualitative methods tend to also use quantitative approaches to support their research approach.

Greene et al (1989, p 259) explored the literature associated with the use of mixed-methods and identified advantages other than data verification through 'triangulation' of analysis, when using mixed-methods within research. The main advantage is the ability for a researcher to use the most appropriate method of data collection and analysis for different aspects of the

investigation. Creswell (2003) suggested that using mixed-methods could assist in developing a deeper understanding of the topic under investigation.

Therefore the use of mixed-methods is not just a means of confirmation of internal validity of raw data, but also a process of trying to increase understanding of the various dimensions of the investigation. It is on this basis that mixed-methods were used for this study. By using a combination of methods, including focus groups, surveys and interviews, this thesis attempts to develop a detailed 'picture' of academics' engagement with open access publication processes.

This study employed a grounded theory methodology to develop its theoretical statements. Goulding (2002) indicated that grounded theory could employ a number of data collection processes as this assists in the ongoing analysis of themes as they are identified when developing theory.

> *While there is nothing that prohibits the combination of quantitative and qualitative forms of data collection when using grounded theory, their purpose should be made clear, as should their methods of analysis. Grounded theorists do not follow the traditional quantitative canons of verification. They do, however, check the developments of ideas with further specific observations. They make systematic comparisons and often take research beyond the initial confines of one topic or setting.* (Goulding 2002, p163)

The discussion of the results of the study is presented primarily as a narrative that aims to identify the interconnected relationships between themes that emerged from the data. This narrative reflects the use of qualitative methods for the presentation of the results from the data analysis. The study also draws on quantitative methods associated with the use of survey method, as a means to create a broad picture of academic practice. Where quantitative analysis is completed on the survey data, this has been used to determine if the survey responses are consistent across the respondent groups of academic level and broad disciplines. The overall survey responses and the open commentary made by the respondents are coded and analysed along with the qualitative data from the focus groups and interviews.

This study's use of mixed-methods allows for the development of broad themes from a variety of data sources. The themes are then continually compared and analysed so as to develop understanding of issues that influence scholarly publishing and open access engagement.

3.4.2 OUTLINE OF THE METHODS USED

As previously stated, the research design incorporated the use of 'mixed-methods' as a means to explore issues associated with academic publishing behaviour. Table 3.1 summarises the methods used for data collection. It is presented in a sequential order that approximates the data collection order. This study was conducted over a six-year period of time, during which government policies on research recognition and open access initiatives had changed. The table, therefore, indicates when each method was applied and data was collected. However the reality is that the data was continuously analysed as it was collected, so as to identify and develop theoretical themes for the study. Grounded theory incorporates a process of constant comparison of the data (Strauss & Corbin 1990, p. 62) so that connections and relationships within the data can be identified. Each method is discussed further in the following sections of this chapter.

Research method	Description	Collection period
Literature review and analysis	The initial literature review was used as a process of scoping the research focus. A secondary literature review was conducted after initial themes had been identified from the analysis of the data collected through the various methods used by the study.	Initial review - first quarter of 2005 Further review – 2010 onwards
Focus group – academic representatives	Through a focus group of academic representatives, initial issues were identified. These were developed into broad themes associated with academics' view of publication practice.	Last quarter of 2005
Focus group – publishing representatives	The publishers' focus group included representatives from large international scholarly book and journal publishing companies as well as three Australian companies, one focusing on specialised research publications; one a university based press and lastly an independent scholarly publishing agency. Themes associated with publisher's views of scholarly publishing and open access dissemination were identified.	Last quarter of 2005
Survey Australian academic community	A survey of Australian academics from across academic disciplines and university types provided the main quantifiable information relating to current publication behaviour and perceptions of open access publishing.	Last quarter of 2006

Interviews Australian academic community	The interviews assisted in confirming, and add to, the theoretical themes identified through the survey and focus groups. The interviews also provided more depth of information that assisted in determining aspects of the interrelationships between the identified issues and themes.	Second quarter of 2008
Interviews with Australian university e-press and repository representatives	These interviews allowed for representatives of e-press and repository initiatives to comment on the publication patterns identified by the survey and interviews of academics.	Third quarter of 2008
Comparison between the draft list of ERA journals and the DOAJ	Part of the emerging theoretical issues related to the impact that changing policies associated with research recognition may have on open access journals submissions. A comparative analysis of the journal lists assisted in further developing this aspect of the inter-relationship of research recognition and open access engagement.	Initial ERA list - Third quarter of 2008 Final ERA list - Second quarter of 2010
Ongoing examination of the data from the various methods	The comparison of all data assisted in developing the theoretical framework of the thesis and identified the interrelationships between the issues that had emerged from the data analysis.	Ongoing

Table 3.1: Research design elements

3.4.3 LITERATURE REVIEW

An analysis of the literature associated with scholarly publishing and open access dissemination was conducted as a means to develop the initial focus of this thesis. The literature is reviewed and discussed in Chapter 2. The nature of the topic for this thesis, that of issues associated with open access publication, meant that not only was the more formal or traditional academic literature consulted but so too were other sources for debate about the topic. Such sources included monitoring academic blogs maintained by leading supporters of open access publishing, exploring content submitted to open access repositories and the use of open web searching to locate scholarly material published on open source journals and professional conferences. A thesis exploring whether open access publication processes forms part of the Australian academic publication behaviour, should use open as well as commercial scholarly resources as a means to complete a review of the academic debate.

The library and information management profession has explored issues associated with open access publication, university based e-press development and institutional repository developments. While such issues are being debated within traditional academic journals, the emphasis on 'practice' by this profession also means that such issues have been debated within conference and seminar environments. And thus the review of the literature has also drawn on information gathered from such forums.

Of course, the literature analysis was an ongoing process that was informed by the theoretical issues that emerged from the data analysis. The literature assisted in the formation of the focus on academic engagement with scholarly publishing and how academics, in general, contribute to and use open access sources. There seemed to be a 'gap' in this aspect of the debate on open access, and this thesis may be able to contribute to 'filling this gap'.

3.4.4 FOCUS GROUPS

Focus groups were used at the start of this study so that issues associated with open access engagement could quickly be identified and initial broad themes developed. Bryman and Bell (2003, p. 368) suggested that a focus group consists of two methods, that of a group interview and that of a focused interview. Morgan (1997, p. 7) indicated that focus groups combine two qualitative data collection techniques, that of participant observation and that of open-ended interviews. Lichtenstein and Swatman (2002), in discussing the use of focus groups for research into e-business, acknowledged that the use of focus groups as an academic research method has been criticised because of concerns of 'forming conclusive opinions' and of the influence that the researcher may have on the participants' discussion. However, Lichtenstein and Swatman (2002) argued that focus groups provide an advantage of improving participant representation, especially in multi-disciplinary areas, are quick to organise and provide the ability to uncover new issues quickly as the participants interact with each other.

Bryman and Bell (2003) indicated that the process of a group interview allows for a number of topics or issues to be discussed, while a focused interview allows for commentary from people who have been selected because they have some involvement or expertise in the issues being investigated. As the participants were engaged with issues of scholarly publishing – either as academics and authors or as scholarly publishers – the focus groups reflect Bryman and Bell's (2003) notion of these two methods. That is, the open discussions from the participants equates to a 'group interview', while the participants' expertise in relation to the field of study offer

valued commentary to this early stage of the thesis development and thus equates to a 'focused interview'.

This study benefits from the use of focus groups as an initial method as they provided the opportunity to quickly identify initial themes, to generate discussion from different academic disciplines and different stakeholders within the scholarly publishing process.

Two focus groups were conducted: one group included representation from academic staff, while the other included a selection of managers from scholastic publishers. The discussion between academics and that between publishers was kept as two separate focus groups so as to foster a more open and freer debate within each of the two aspects of the scholarly communication process. Cooper and Schindler (2003, p 156) suggested that this homogeneous approach tends to 'promote more intense and freer discussion'. In this instance, the academic focus group represented authors and content creators, while the publisher group represented the process of formal scholarly dissemination. Maintaining two separate groups allowed academics to freely comment on their experiences with publishers and the publication processes, while the publishers could comment on alternative models that authors have available for the dissemination of their scholarship.

Eight participants attended the focus group of academic representatives. These participates were from the researcher's home institution, and represented disciplines associated with business, design and communication. Participants were identified through personal contact as well as from the institution's web directory. The participants were selected so as to represent a range of academic levels and experience from different disciplines.

Senior executives from five commercial scholarly publishers attended the publisher focus group. The publishers were drawn from the researcher's professional network, but represented a cross section of publishers involved within the distribution of Australian research. This included international publishers who have representation within Australia, a university based electronic publisher, and specialised and niche publishers.

The outcome of the focus groups is presented in Chapter 4, along with the detail of the participants and the process for managing the discussion.

3.4.5 SURVEY OF ACADEMICS

In the last quarter of 2006 a survey was distributed to the Australian academic community, with the purpose of developing further theoretical themes for this study. Remenyi (2005, p. 150)

suggested, 'the main purpose of questionnaire research is to obtain information that cannot be easily observed or that is not already available in written or computerised form'. The survey aimed to identify the publication practice of academics within the Australian university environment, as well as their opinion of open access dissemination or research.

A database of the contact details of academics from the thirty-nine universities within Australian was used to generate a sample that provided representation across the university sector and across academic levels of employment. At the time of conducting the survey, a detailed commercial database of the Australian academic community was not available. Instead a database was generated by extracting contact details from the web directory of each of the Australian universities and this was used to generate the survey sample. The sampling process led to 2500 invitations being emailed. A total of 245 usable responses were received, thus forming a response rate of 9.8%. The responses provided representation from each academic level - lecturer to professor; and as well as across broad discipline groups associated with humanities and social science, sciences and medicine, and business. Chapter 5 provides further details about the respondents.

The survey was presented in four sections. The first analysed publication practice of the respondents' most recent journal article that had been published. The second section of the survey focused on the respondents' awareness of open access journals and whether they had engaged with open access journal submission. The third section focused on the respondents' awareness of open access repositories and archives. The final section identified whether government policy on research recognition would change the publication behaviour of the respondents.

The survey questions (Appendix 2) were primarily presented as five point Likert scale questions. Other questions provided the opportunity for open-ended responses and commentary on the issues being identified. The respondents provided extensive commentary on publication processes and on their engagement with open access dissemination. This led to additional theoretical themes to emerge as these comments were coded and analysed with the transcripts from the interview data collection process.

Slater and Atuahene-Gima (2004) outlined processes for confirming the validity of surveys as a research tool. These processes include the use of a panel of experts to determine the relevance of questions, to establish a process to review questions for meaning and to pre-test the questions (Slater & Atuahene-Gima 2004, p. 239). Prior to administering the survey for this

study, it was tested for validity through the following processes. The draft survey was distributed to a number of academics within the School of Business Information Technology at RMIT for review. Commentary and feedback was used to make alterations to the survey questions. The survey was then reviewed by practitioners who provided access to repository and scholarly publishing infrastructure. While the survey was distributed to the academic community, it aimed to seek the community's response to issues of journal and repository submission. The review by the practitioners assisted in confirming the relevance of the questions being raised in the survey and acted as a panel of experts as suggested by Slater and Atuahene-Gima (2004). A paper-based version of the survey was then tested by academics from RMIT for final validation. The survey was then 'marked up' as a web based survey by the Website Manager at RMIT Business. The webpage questions were compared to the final paper based version to confirm that the conversion of the questions had not led to changes or errors in the question text. Test data was entered into the web-based survey to confirm that the survey captured responses correctly and that responses were being recorded into the correct data fields. This test data was used to confirm that the format of the web-based survey matched the question and field labelling that had been established for importing the data into SPSS for analysis. The website was tested a number of times to confirm the validity of these technical processes. Once these tests were completed, the survey was published for access by the participant invitees.

3.4.6 INTERVIEWS

Interviews were conducted with academic staff and with managers of university based electronic press and repository services. The interviews aimed to delve further into the key issues raised by the focus groups and survey and to provide an additional data source for the ongoing comparative analysis of the emerging themes that form the theoretical framework for this study. Locke (2001, p. 116) suggested that when presenting grounded theory research, the narrative should present 'illustrative "live" excerpts from the setting'. The interviews presented such 'live' examples and reinforced the commentary from the other methods, by providing further detail as to 'why' the respondents engaged in certain publication patterns. This assisted in identifying the causal relationships between the theoretical elements that are identified in this study.

Twenty-three interviews were conducted with seventeen academic staff and six managers of university based electronic presses. Strauss and Corbin advised that 'to ensure openness, it is advantageous not to structure data gathering too tightly in terms of either timing or types of

persons or places, even though one might have some theoretical conceptions in mind, because these might mislead the analysis or foreclose on discovery' (Strauss & Corbin 1998, p. 206). In relation to the interviews, the study addressed the notion of 'open sampling' by conducting the interviews over a period of time and with academic staff from across different employment levels. Interviews were conducted with lecturers, senior lecturers, associate professors and professors. The professoriate participants were also Heads of Schools, Research Directors or Deans of Faculties and their comments did not just reflect their own publication behaviour, but also contributed to reflection on issues across the wider university environments. These senior staff were invited to participate because of their expertise, while other participants were invited in order to gather a broad spectrum of input. This breadth aimed to address the need to maintain 'openness' to theory generation, however there was a need to place some restrictions around the data collection process, as interviews could not be conducted at every university. Instead, participants were drawn from two universities, one a member of the Group of Eight (Go8) and the other a member of the Australian Technology Network (ATN). This assisted in determining if there was consistency in responses between research intensive and teaching intensive universities.

Interviews were also conducted with representatives of university based electronic presses. Participants were identified through personal contacts and 'cold calling' of press managers. The participants represent publishers that were associated with universities, either linked with the university library or operating as independent units.

The interviews were semi-structured which, as suggested by Bryman and Bell (2003, p. 342), tends to place 'much greater interest in the interviewee's point of view'. Questions were prepared as a means to initiate the interview process, and these questions are presented in Chapter 6. The questions derive from the themes that emerged from the other data collection methods. The questions were not given to the interviewees, but rather acted as a guide and prompt for the investigator to initiate the interview process and to maintain discussion when deemed necessary. Each interview commenced with a question that asked the participant to reflect on and describe the types of journals to which they submit their articles for publication.

The interview process allowed the participants to raise issues and direct discussion, thus provided the opportunity for theoretical elements and themes to emerge from the participants' reflection and discussion. Strauss and Corbin (1998, p. 205) acknowledged a need to enter into an interview process with some prepared questions, however, they cautioned against the use of

a highly structured approach to data collection that is intended to explore participant experience and generate theory based on this experience.

> *If one enters the field with a structured questionnaire, then persons will answer only that which is asked and often without elaboration. Respondents might have other information to offer, but if the researcher does not ask, then they are reluctant to volunteer, fearing that they might disturb the research process. (Strauss & Corbin 2003, p. 342)*

As the interviews used semi-structured questions, the interviewees directed much of the discussion. It is acknowledged that the survey method was a more structured data collection instrument. However the survey captured extensive commentary in response to the open-ended questions that were asked. Each of the data methods used in this study collected commentary from the participants and therefore the issues and themes that have emerged represent concerns identified by the study's participants.

Chapter 6 outlines the themes that have been identified from the interviewees. The chapter also outlines the broad characteristics of the interview population as well as providing further detail on the questions posed during the interviews.

3.4.7 COMPARISON OF JOURNAL LISTS

One of the themes that emerged from the data analysis was the impact that policies associated with research recognition may have on engagement with open access journal submission. In June 2008 the ARC released a draft list of journals, which formed the recommended journal ranking for each discipline, under the ERA framework. A final journal list was released in March 2010. During this study, one of the themes that emerged from the data is that the ERA journal list acted as a major influence on the publication behaviour of the academics contributing to this research. In order to further explore the impact of this journal list on engagement with open access journals, the ERA journal list was compared with the Directory of Open Access Journals. This was deemed an important comparison as it assisted in determining the extent to which academics may engage with open access journals.

3.5 DATA ANALYSIS AND THEORY DEVELOPMENT

The data collected from the various methods was analysed as an ongoing process of identifying emerging issues and determining the connectivity between these issues. This constant comparison forms the underlying process of developing relationships within the data and the

development of theory that is 'grounded' within the data. This process of ongoing analysis led to the identification of themes and concepts that then inform the theoretical framework for the study (Strauss & Corbin 1998, p. 22). In summarising the process of grounded theory development, Locke (2001, p. 45) identified the stages as being 'comparing incidents applicable to each category; integrating categories and their properties; delimiting the theory; and writing the theory'. The actual implementation and analysis of data is formed by an ongoing comparison between the data elements.
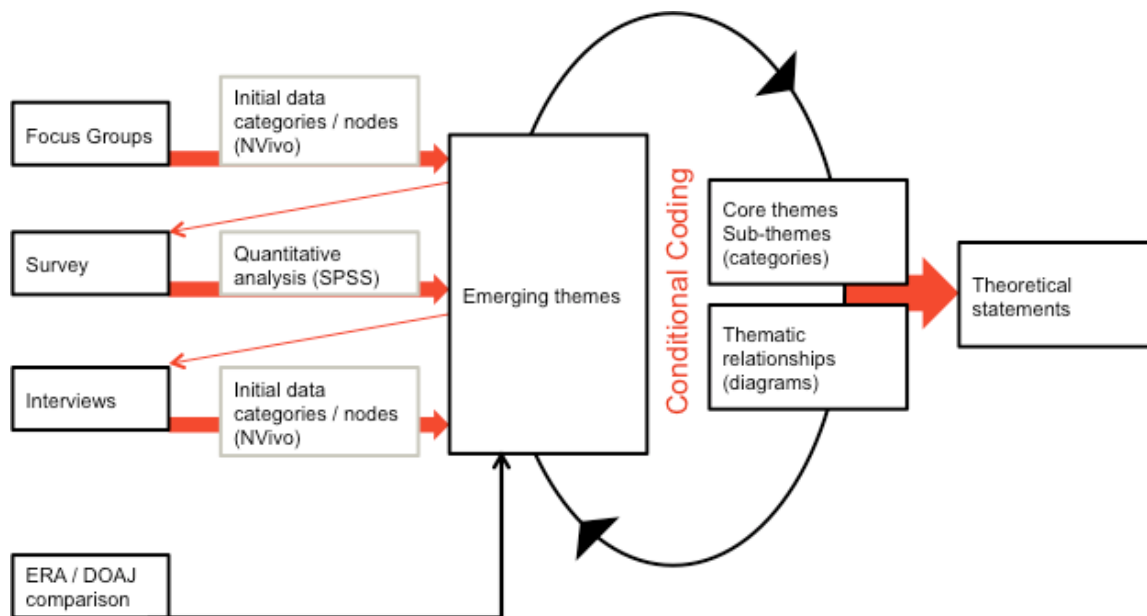
Figure 3.1: The process of data analysis and conditional coding

Figure 3.1 outlines the data analysis process used for this study. NVivo 8 was used to manage the coding process for the qualitative data and SPSS was used for analysing the quantitative responses from the survey. Transcripts from the focus groups and interviews, along with notes and memos made during data collection, were coded so as to identify initial categories and broad themes. Commentary from the open-ended survey questions was also incorporated into this coding process.

Strauss and Corbin (1998, p. 57) referred to data coding as a process of microanalysis that has the aim to generate initial categories and to identify the relationships between these categories. They indicated that 'analysis is not a structured, static or rigid process. Rather, it is a free-flowing and creative one in which analysts move quickly back and forth between types of coding, using analytic techniques and procedures freely and in response to the analytic task before analysts' (Strauss & Corbin 1998, p. 58). This fluidity is evident in the coding and analysis

processes for this thesis. While coding for grounded theory focuses on analysis of qualitative data, this thesis also coded and analysed quantitative data from the survey. Thus, the ongoing comparison between data and the emergent themes was not only within the textual data of the interview and focus group transcripts, but also with the thematic issues that emerged from the survey results, so that the benefit of mixed-methods could be fully exploited.

Free nodes were created in NVivo as a means to capture initial issues of thematic categories and to start the process of open coding. Open coding acts as a starting point in the process of data analysis for grounded theory as the aim is to identify concepts and properties within the data (Strauss & Corbin 1998). Strauss and Corbin (1998, p. 57) indicated that 'sometimes [coding] is referred to as "line-by-line" analysis, [however] the same process also can be applied to a word, a sentence, or a paragraph'. The coding for this thesis focused more on the analysis of sentences and paragraphs as 'nodes' were developed.

As part of this process, memos based on the emergent themes were also developed and these memos were compared with new data as it was collected. Strauss and Corbin (1998) indicated that memos act as a record of the researcher's thoughts and interpretations of the data and the categories that evolve from the open coding. The preparation of memos was important for the incorporation and comparison of the quantitative data from the survey with the qualitative data collected through the other methods. While statistical analysis of the quantitative data was completed using SPSS, memos were written as a means to describe the patterns that formed from this data analysis. Statistical analysis was used primarily to determine if these patterns were consistent across the whole respondent population or whether they varied between academic levels, broad discipline groups and universities with different emphasis on teaching and research. This statistical analysis is presented in Chapter 5 as frequency tables. As trends were identified, Chi Square tests for relatedness were also completed to determine if there was a difference in responses between academic levels of employment; broad discipline groups or between university sectors.

Trends identified from the survey were recorded within NVivo as theoretical memos. In this manner, issues emerging from the statistical analysis were also coded and compared with the qualitative data as part of the theory building. As Locke suggested, this forms part of the process of trying to conceptualise the environment that is being investigated.

The descriptive world captured in researcher's field notes, interview transcripts, and documents is given an organization, a shape and an overall coherence that could not be perceived before the act of conceptualization. (Locke 2001, p. 36)

As suggested by Figure 3.1, the coding and analysis of the data was an ongoing process that identified initial themes, then categories and subcategories of themes. This reflects Strauss and Corbin's (1998) process of coding where 'categories are related to their subcategories to form more precise and complete explanations about phenomena' (Strauss & Corbin 1998, p. 124). Within NVivo, free nodes were restructured into tree nodes, so that main categories and subcategories of data were identified. The development of tree nodes within NVivo assisted in the process of axial coding which allows the researcher to 'look for answers to questions such as why or how come, where, when, how, and with what results, and in so doing they uncover relationships among categories' (Strauss & Corbin 1998, p. 127). The naming structure for the nodes was derived from the textual data being analysed. As initial issues started to be identified these were recorded as free nodes. The ongoing analysis of these issues started to identify relationships and thus themes that could form the theory emerging from the data. These relationships were then recoded as tree nodes within NVivo. This comparison and identification of relationship was made across the various data sources (focus groups, survey and interviews), but also within each of the sources. For example, the interviews were encoded into NVivo on an ongoing basis, so that potential trends identified by the earlier interviews can contribute to the later interviews. There was not a specific process of conducting multiple rounds of interviews, but the interviews were conducted over an extended time period and constantly analysed through NVivo.

Diagrams were then developed to identify and map the interrelationship between the emerging themes. These diagrams are the outcome of conditional coding that aimed to determine how the themes impact on each other and how this ultimately directs the publication behaviour of the Australian academic community. This analysis is based on Corbin and Strauss 'conditional/consequential matrix' (Corbin & Strauss 1996; Strauss & Corbin 1998). Corbin and Strauss (1996, p. 142) indicated that the process of conditional/consequential matrix analysis is to firstly define the phenomenon that is to be studied and then to determine what actions or interactions impact on the phenomenon. Corbin and Strauss (1996) placed this process into a framework that seeks to determine if the phenomenon, and the issues that interact with it, are personal, organisational, national or international. In examining the conditional/causational matrix for this study, the personal or individual action of seeking to publish one's research was

examined in relation to the organisational and national influences that act on this process of publication.

The outcomes of each of the data methods are presented as separate chapters within this thesis. The narrative of each chapter builds upon the data sources so that the developed themes are progressively presented. As Locke suggested, this is an attempt to alternate 'between 'telling' and 'showing' as the manuscript attempts to take the reader analytically forward to the developed theoretical elements and back to the data fragments that instanced the theory' (Locke 2001, p. 116). The coding and analysis for each chapter led to an identification of themes that contribute to the theory building. The relationships between the themes are presented in Chapter 8 where the core and sub-categories are discussed. It is here that Strauss and Corbin's conditional matrix is used as a way to identify the relationships between the themes. The chapter also presents the diagrammatic representation of these relationships and discusses the interplay between the themes and categories. These relationships form the basis for the development of the formal theoretical modeling that has emerged from the data analysis.

3.6 CONCLUSION

This chapter has outlined the research design and data collection processes used by this study. The study employs grounded theory as the method for data analysis and the development of theoretical statements that describe the publication pattern and behaviour of the Australian academic community. The data was collected through a number of methods including the use of focus groups as an initial way to define the study's focus; a survey of the Australian academic community as a means to develop a breadth of collected data and interviews that allow discussion of issues to emerge.

The discussion of the data and the themes that have emerged from each method is presented over the next four chapters. Chapter 4 discusses the focus group responses. Chapter 5 the survey responses and Chapter 6 the responses from interviews. The comparison of the ERA journal list and the DOAJ is presented in Chapter 7. The themes that are identified from each of the data methods are then compared so that interrelationships of the themes can be identified. This analysis is presented in Chapter 8, where the theoretical statements that emerge from this analysis are developed. Chapter 9 acts as a conclusion to this study and draws this analysis into recommendations for further research.

CHAPTER 4: THEMES FROM THE FOCUS GROUPS

4.1   INTRODUCTION

This chapter discusses the responses from the first research method: that of focus groups conducted with academic staff and with scholarly publishers during the last quarter of 2005. The primary aim of the focus groups was to use the expertise of the participants as a starting point to the process of identifying issues and themes associated with the practice of scholarly publication. The focus group of academics explored issues that impact on their publication patterns and identified the decisions that informs their publication behaviour. The publication behaviour and the degree of engagement with open access dissemination is the primary focus of this study. The group of representative scholarly publishers counterbalanced the views of the academics by providing insight into the concerns that publishers have with how academics may engage with current publication models and with alternative models being developed as part of the practice of open access dissemination.

This chapter starts with an outline of the demographics and participant details of the two focus groups. It then presents the questions used to initiate the focus group discussion. These questions act as a way to commence the discussion, however the participants were encouraged to raise any issues that they viewed as relevant to publication processes and open access engagement. The chapter outlines the broad issues that were raised by the focus group participants and starts to identify initial themes that contribute to the theoretical models that are developed through this study.

4.2   FOCUS GROUP DEMOGRAPHICS

Two focus groups were conducted: the first representing academics and the second representing scholarly publishers.

4.2.1 ACADEMIC FOCUS GROUP

The academic focus group was attended by eight participants from RMIT University. This is the 'home' institution of the investigator of this study. RMIT is structured around three Colleges – RMIT Business; Design and Social Context; and Science, Engineering and Health. Each College is divided into schools and the focus group participants were drawn from a number of these schools. While attendance was primarily from the RMIT Business and the Design and Social

Context College, the focus group still provided the opportunity to identify and explore a number of issues related to publication processes. The academic levels of the participants ranged from lecturer to professor.

Personal contacts, as well as the university's web directory, were used to identify potential participants for the focus group. Initial expressions of interest to participate were gathered through phone conversation, while the formal invitation and ethics documentation was emailed to each participant. Commentary from the academic focus group participants was coded as *AF*, along with a sequential number and the academic level of employment, for example *AF1: Associate Professor*.

4.2.2 PUBLISHER FOCUS GROUP

The publisher focus group consisted of senior executives from five commercial scholarly publishers. Two of the publishers, while focusing on Asia Pacific content, were from large international scholarly book and journal publishing companies. The remaining three publishers were Australian based, one focusing on specialised research publications; one a university based press and the last participant was from an independent scholarly publishing agency. Each publisher focuses on Australian content and collectively publish across the major discipline areas, including sciences, humanities, business and medicine. While the publishers had an emphasis on scholarly journal publication, they also published scholarly books and had a strong list of electronic based publications. These participants were drawn from personal contacts of the investigator, with invitations and documentation emailed to the participants. Commentary from the publisher focus group participants has been coded as *PF*, along with a sequential number and the size of the publishing unit, for example *PF1: Small Publisher*.

4.3 THE STARTING QUESTIONS

Both focus groups were conducted in a semi-structured manner (Bryman & Bell 2003; Frey & Fontana 1991). Frey and Fontana (1991, p. 180) viewed focus groups as being a form of group interview and indicated that the process for conducting this interview can vary from using unstructured open-ended questions to conducting a fully pre-planned interview. Adopting a semi-structured approach to the focus group meant that the invitation documentation sent to the participants included initial questions to be used as a starting point for the participants to consider. However the actual focus groups were conducted in a manner that allowed participants to lead the discussion and raise new points, questions or issues.

The questions included in the invitation documentation for the focus group with academic staff were:

- What are the drivers that influence the desire or need to publish scholarly content?
- How should the costs of the publishing process be met or funded?
- Have you published in an open access journal or would you deposit your articles in an open access archive (or repository)? Why?
- What are the sources you use to access published scholarship – are they open or closed?
- How do you think that open access affects scholarly publishing?

The questions included with the invitation documentation for the publishers' focus group were:

- What do you think is the impact of the open access movement on Australian scholarly publishing?
- Some commercial publishers have experimented with aspects of open access models (e.g. author pays model for some journals). Should commercial publishers experiment with OA models?

These questions were provided to the participants beforehand, but were only used as a guide to start the discussion. The participants generated discussion independently of these questions and thus a range of themes and issues emerged from the focus groups.

The two focus groups were conducted independently, so as to foster a more open debate. Cooper and Schindler (2003, p. 156) suggested that this homogeneous approach tends to 'promote more intense and freer discussion'. In this instance, it allowed academics and authors to seperately comment on their experiences with publishers and the publication processes, while the publishers could comment on alternative models that authors have available for the dissemination of their scholarship. While this discussion was conducted as two separate focus groups, there were common issues and themes emerging from both groups. The publishers often commented on issues from the perceived perspective of the authors and academics that they represent. While the focus group data was collected independently, the discussion presented here is a combined narrative that is presented around the themes that have emerged from the study.

4.4 MOTIVATION TO PUBLISH

Both focus groups considered the reasons that academics and researchers publish. Identifying the decisions that are made when developing a publication strategy or selecting where to submit content for publication can inform how publication behaviours may develop.

4.4.1 RESEARCH RECOGNITION THROUGH DEST POINTS

At the time of conducting the focus groups, research publication within Australia was recognised by a funding model based on points being allocated for different publication types: peer-reviewed conference papers, journal articles, book chapters and so on (Butler 2003). Universities collected evidence of publication, usually a copy of the publication, and recorded the number of papers published under each format, for example the number of journal articles published in a twelve-month period. The result of this collection of publication evidence was then reported to the Australian Department of Education, Science and Training (DEST). The reporting model was referred to as 'DEST points' as it allocates different points to the various types of publications. This meant that the reporting model recognised a variety of publication outlets for research and scholarship, whether it was a book, book chapter, and journal or conference paper. While different weighting (points) were given to different publication types, there was no difference made within the same type of publication. Therefore all journal articles received the same number of points, regardless of the journal in which the articles were published.

This points system was acknowledged as a key driver for developing and maintaining a publication pattern.

> There's one particular Australian driver and it's not to publish in itself but where to publish or what to publish which is the DEST points. And that system influences the decisions of most academics I know who publish. (AF1: Associate Professor)

One academic implied that DEST points were a type of research 'currency' that are earned instead of a financial profit that is generally used as a success measure for business.

> The university is not doing it to earn a profit per se. They are doing that to earn DEST inputs from the government, for prestige.   We're operating in a non-profit environment. (AF2: Associate Professor)

While different publication types received different points, the point system meant that academics could target conferences, book chapters, books as well as peer reviewed articles. The

question then becomes whether alternative publication processes, such as open access journals and repositories, can be recognised under a research recognition process.

> *The end the day you need a profit motive or an incentive system or something to get people to produce stuff. Only if giving it away for free is part of some other objective is open access going to be [accepted]. (AF2: Associate Professor)*

The DEST publication recognition model was not based on the business model of publication. Some publications, especially those from online conference proceedings may be open access. The commentary from AF2 Associate Professor suggests that a stronger link between DEST type recognition processes and open access dissemination models may assist in supporting the development of open access content. Submission of research content to discipline or institutional repositories would not be recognised as a publication under the DEST recognition process. DEST would recognise a formally published article, but not a copy submitted to a repository.

However, the participants also suggested that the DEST system was a measurement of output not necessarily a measurement of quality. The DEST points were seen as a means for academics to quantify their research output.

> *I think in Australian all the measures of research output have been quantitative and the standards are pretty low I think and it causes Australian academics to be held in fairly low esteem by some overseas academics because we publish a lot of garbage. (AF3: Senior Lecturer)*

The DEST research recognition process creates a need to publish, as the publication process is linked to research recognition. However, this link is then questioned as it may have actually been at the detriment to maintaining a degree of quality within the published research.

4.4.2 READERSHIP AND PUBLICATION

Open access dissemination has a focus on broadening readership by removing the access barriers associated with commercial publications. Thus a potential motivation to adopt open access dissemination strategies would be to increase the number of readers to this content.

However, the academic focus group participants suggested that readership of their content was not necessarily a motivation for this publication process.

> *Academic publishing is a producer-orientated process. (AF4: Lecturer)*

> *The objective is to publish. The end point is really seeing it come out in print, then I forget about it. (AF1: Associate Professor)*

The participants acknowledged that the only audience that they were certain that read their publications were the reviewers of the journal. While the article may be written to a particular audience or reader, the reality is that:

> *I don't know if it's ever going to get to them. The audience often in the first instance is the reviewers of that journal. They're the people you know are going to read it and who you've got to please. Beyond that you don't know. (AF1: Associate Professor)*

> *We work in a producer-orientated system. The act of production is enough for us. I publish in a journal … I don't care what happens after that you know. (AF2: Associate Professor)*

While the respondents could identify who they would want to read their research, there was also a strong emphasis on the 'act of publication' as being a driver. The need to publish seemed to override the needs of the potential readers and audiences for the published content. If this were the case, then open access dissemination, which focuses on easing reader access to research, would not be a major concern of academics whose main focus is simply the act of publication. The extent to which academics simply focus on the act of publication and not on the needs of their potential readers will be explored further in later data sources and analysis.

4.5   INDICATORS OF RESEARCH QUALITY

Both focus groups identified the branding of publishers and individual journal titles as a measurement or indicator of the quality of the articles that are published. The issue is whether open access journals and dissemination are seen as having the same level of quality as they compete with the established commercial journals.

4.5.1   REPUTATION OF THE PUBLISHER

The publisher was viewed as being a 'quality filter' as they must select which articles to publish. Research articles also benefit from being published in journals that have an established branding within the discipline.

> *I may be a luddite but I think that the brand is important. I think it adds real value. It's a filter. (AF3: Senior Lecturer)*

Publishers build the brand of individual journals by measuring citation numbers and determining the frequency of which articles in individual journals are cited over a set period of time. This determines the impact factor of the journal and articles published in journals with high impact benefit from the branding and perceived quality of that journal. Branding of journals is also built around the editorial board and peer-reviewing processes of the journal. Even where the participants raised concerns about peer review processes, (*all sorts of dreadful things happen,* AF2: Associate Professor) they acknowledged that it is the current model for assessing research quality through publication.

Acceptance of articles within journals with strong branding assists in building the research profile of individual academics. However, the focus group participants also viewed the journal branding as assisting the reader. The branding and journal reputation acts as a filter to published content and can assist the reader in identifying relevant or quality research articles. The participants transposed this branding and filtering process to the open web and open access, suggesting that some form of branding is needed to navigate through the amount of material being electronically published.

> *There's so much content out there surely the consumer wants some kind of Google A, Google B, otherwise you can't sort through the amorphous mass of content. (AF3: Senior Lecturer)*

In this instance, the open web is seen as providing extensive access to content and that there is a need to direct the reader to the content that is perceived to be of 'better quality'. Google Scholar is a filter, but the participants also suggested that journal branding and publisher branding are also filters to scholarly published content.

The publishers see their role as developing the brand for a journal and establishing strategies that will improve the impact factor of a journal and possibly its ranking within the academic disciplines.

> *How do you make a journal better than another journal? How you get an impact factor? How you raise impact factor? It's about the level of the peer review. Who are your editors? Who's on your editorial board? What's the policy, the strategic direction of the journal? How's it marketed. The PR around individual articles. Just a whole [lot] of stuff that a publisher will do. (PF5: Large publisher)*

The publishers raised concern as to whether the newly established university based electronic presses could meet the goal of fostering the prestige of their journals.

> *All of which, a little university based publisher won't do. Won't have that ability, won't have those resources. (PF1: Small publisher)*

The new electronic presses were employing a variety of access models for their content. Some adopted open access models as a means to promote the research from their institution while others were seeking a cost recovery model for publications. These presses need to compete with the established publishing environment, so as to attract new journals and new content. However, the participants viewed this as being difficult because established publications already had the branding that attracted article contribution.

This notion of branding was, however, questioned in the light of electronic access to content. In an online environment and in an environment that provides the ability for open access to content, one of the participants questioned whether the quality measures associated with journals is still valid.

> *The question now is, especially with open access I guess is, does the prestige of that journal matter anymore when you can just Google it. (PF3: E-press Publisher)*

Whereas print access to content is based on browsing and reading specific journal issues, electronic access can be direct to specific articles. This is the case with aggregated full text databases and open access repository content where access would tend to be through a search for subject content that leads to a list of potential articles. Participant PF3 (E-press Publisher) questioned whether, in these instances, the journal prestige is still relevant. Many publishers allow their indexing or citation information to be searched by open web search engines such as Google Scholar. Institutional repositories are also allowing such engines to harvest their citation data. This means that it is possible for people searching for content to be directed to individual articles, from a variety of journals. Thus, from the point of view of the searcher or reader, does the journal branding still hold importance? The publishers suggested that the citation information provides the article with its quality 'branding' as it indicates the journal in which the article was published. Therefore, the branding of the journal is carried over to the article. However is branding really just an issue for the author instead of, as participant PF3 (E-press Publisher) suggested, a concern of the reader who is just searching the open web and Google engines?

4.5.2 Reputation of open access journals

The academic participants had submitted content to open access journals; however their view of the quality of open access dissemination varied. One view was that submission to open access journals was treated like any other journal submission and judged on the reputation of the journal, not on its distribution and business model.

> *Some of the stuff that I publish has been in journals which are available freely on the web, but my motivation for publishing there weren't really any different to anywhere else. It was the best journal in the field. (AF1: Associate Professor)*

Open access journals, especially those listed by the DOAJ provide peer-review and editorial management so that they duplicate current publishing quality measurements. Thus, for some of the academic focus group participants, decisions to publish in open access journals were not based on support for open distribution, but on the perceived quality of the journal.

Where there was a direct decision to support open access distribution, this was only done for articles deemed not to be the best quality. Open access distribution and publishing was, therefore, seen as a secondary publication process used as a means to disseminate the participant's 'lesser' quality articles.

> *I put some stuff on open access but they aren't what I consider my best output. Because I have a mechanism of publishing that in a more reputable perceived high quality journal why do I have to put it there [in open access]. (AF7: Senior Lecturer)*

While this issue is explored further when it is compared to other data sources, the focus group discussions generally implied that open access dissemination was seen as representing a low quality publication. This may be a perception that open access equated to open web content. Therefore, open access journals were not viewed as being a filter or indicator of quality research.

4.6 Discipline differences

The focus groups acknowledged that academic recognition, primarily identified as the research reporting for DEST, is a main driver or motivation for publishing. The DEST system of research recognition allowed for a range of publication types to be recorded as evidence of research output. However, the participants suggested that disciplines differ in their approach to publishing, especially in the value assigned to the different types of publications.

> *I think there's difference between the STM you know high impact factor, ISI journal publishing and the humanities and even the social sciences. I think there are a lot of different drivers in those different disciplines. (AF5: Senior Lecturer)*

The participants indicated differences between various disciplines, in the value placed on some publication types, especially the output from conferences. Some participants acknowledged the value in sharing initial research through conferences, while others argued that this may then restrict the ability to publish in a referred journal.

> *Like economics and finance, for example, you would never put anything into a refereed conference proceeding because you cannot then publish again in a journal. (AF4: Lecturer)*

> *In humanities that's not that case. Humanities is almost the opposite I think. That people are publishing as a trigger for new discussion and that does actually trigger a new round of thinking. (AF5: Senior Lecturer)*

> *And those which have established track records don't bother; they go straight to the top journals. (AF6: Lecturer)*

These comments illustrated the conflict between publishing within recognised journals as a means for establishing research track record, and publishing as a means to generate debate and discussion around specific research areas and findings. The publication behaviour may vary as disciplines focus on different types of publication (books, scholarly journals, conference papers and trade publications) for different audiences. An assumption would be that open access dissemination may be a suitable publication pattern for some disciplines, especially those that are practitioner-based or who use publication processes as a means to generate discussion instead of just as a final means to report research finding.

4.7   CITATION OF, AND ACCESS TO, RESEARCH

As outlined in the literature review (Chapter 2, section 2.11), supporters of open access dissemination argue that open access journals and repositories increase the citation rates of newly published articles and research content. This implies that academics and researchers are prepared to access and use content published in open access journals or open access repositories. In considering their own access to the published literature, increased accessibility through open access dissemination was not an incentive for the participants to engage with open access publishing. They viewed their current level of access to the literature as adequate.

While open access dissemination may provide more content, there is a need to filter access so that 'quality' content is identified and this is seen as being part of the role of the commercial publication process. Thus there is a preference to have access to less content that has been through the process of commercial publication, than having access to a breadth of content that could be openly accessible, but would need to be evaluated for quality.

4.7.1 CITATION OF RESEARCH

The academic participants tended to focus on the act of publication and suggested that readership was secondary to having their work formally published. They did, however, acknowledge the need to consider the impact of citation numbers on measuring the value of the published work. However this issue was raised in regard to the need for 'better metrics' to measure this impact of value.

> *I have one reservation about quality and the number of times you have been referenced because the number of times you have been referenced is the result of the marketing of your work. … Our working papers [are] cited a number of times [more] than our top primed journal articles so the process of publishing your working papers [even though] it's not finalised yet, but a lot of people come to the internet, they get it, and they cite it. (AF7: Senior Lecturer)*

This commentary raised a number of potential issues, including whether simply counting citations is a true measure of quality and whether open accessibility impacts on this citation processes. It is implied that as the working papers are cited more than the journals, open accessibility is leading to more citations. However, the notion of quality is linked to the 'top primed journals' and not to the increased number of citations of the working papers.

Publisher participants acknowledged the need for alternative metrics for measuring the use of research article.

> *But there is something new coming along and it's called download data. So in another couple of years we will actually have two metrics by which we can judge journals or articles. One will be citations and one will be downloads. And we need more. (PF5: Large publisher)*

Downloads were seen as being an alternative measure as publishers who provide electronic access to journals can measure usage and access at an article level. However, they also cautioned how alternative metrics have been used to support open access.

There was a paper at the STM conference in Frankfurt in October where a physicist showed downloads as it related to pre prints, from arXiv the physics database. Showed all this wonderful stuff how citations [increased]. But once it got into the journal, it was interesting, all the reference to [the arXiv pre-print] died away and then the references were just to the article in the journal. So it almost shows that prior to publication there's a use for [repositories], getting the material up and getting it talked about, getting it peer reviewed in the broader sense of the word, then when it's published it [the published article] becomes the product. Then your article, that is sitting on your repository or on your own site, becomes less relevant. (PF5: Large publisher)

Open access repositories may support citations of initial content or pre-print content. However when there is a need to formally cite research content, this publisher suggested that the citation is made to the version of the paper that is published and not to the repository copy. The published version represents the 'quality controlled' version of the article.

The discussions on citations was not focused on the need to get research content to an appropriate audience for ongoing use, but rather a discussion about the metrics associated with counting this use.

4.7.2 ACCESS TO RESEARCH ARTICLES

Discussion occurred around whether the respondents believed that they had access to the published content they needed for their research and teaching. The respondents acknowledged that, because of their university's subscriptions to content, they tend to have access to the research material that they require. They viewed journal subscription and commercial publishing models as being more of a barrier for people outside of academia.

So in a sense as an academic there's no inhibitor to access. If you go in as an individual there is because they [publishers] ask you to pay for it. (AF3: Senior Lecturer)

While there was an indication that universities could not provide access to all published content, what is provided meets the requirements of access and needs of the academic community. This is partly due to a belief that generally academic institutions are providing access to similar content and thus there is not a disparity between academics having different level of access to published research.

> *I seek knowledge in order to create. And I'm fairly happy with what I get. I mean even if I'm only getting 12% of what I could be getting, I don't even use that whole 12%. And if I found that 12% well gee I know everybody else has found that 12% as well. (AF2: Associate Professor)*

There was a qualifier placed on this discussion of access.

> *There's this massive content but to me there's too much. There's too much open access. But I'm perfectly happy with that 12% [of commercial content]. What I'd like to know is that that 12% is terrific. (AF3: Senior Lecturer)*

The participants acknowledged that they only have access to part of the commercially published research; however, such research has been filtered through the publication process and thus offers the possibility of being the 'best' aspects of reported research.

4.8 REFLECTIONS ON OPEN ACCESS DISSEMINATION

The focus groups discussed open access under the broad framework of making content freely available across the Internet. In some instances, open access was presented as posting content to a public website and this perception of open access publishing may be a reason for a concern at the lack of 'quality' being associated with open access dissemination. As the discussions unfolded, the definition of open access publishing was further developed and the participants started to differentiate the various elements of open access dissemination. They acknowledged that some conferences provide open access to their proceedings, that open access archives and repositories are used to disseminate working papers and that some journals have developed openly access business models.

The academic participants indicated that they had engaged with open access dissemination; however this was minimal and selective. Engagement with open access dissemination focused on two examples. One participant promoted their publications through their professional website and linked bibliographic information to articles that they have had published in conference papers that were freely accessible. Another participant used a discipline specific repository. However, the content submitted to the repository was working papers. Other pre-print or final journal publications were not submitted.

> *Well to the extent that I want it available to the world, it already is. I've put my working papers onto a social science research network, they email that out to the whole world every morning. (AF2: Associate Professor)*

These examples are not presented as a primary model for the dissemination of the participants' research articles. Working papers were seen as a potential 'give-away' that could be accessed by anyone. However, formally published content was viewed differently. The audience for such content was the academic and research community and the needs of people outside of this community were not actively considered.

A potential barrier to submission to open access repositories was a concern about copyright in published content. There was a perception of a conflict between the rights assigned under a commercial publishing agreement and the ability to submit to a repository. One respondent indicated that they would not contribute to a repository because:

> *One, the publisher won't allow me because of copyright. And two, if I've provided that content freely and the research quality assessment is looking at where you have published, then there is a compromise there. (AF7: Senior Lecturer)*

Open access was acknowledged as being a process that facilitates 'sharing' of research and scholarship and that this model was different to drivers that lead to formal publishing. If this is the case, the participants likened open access to a process of knowledge management and the facilitation of sharing of content between smaller groups or 'communities of practice'.

> *Probably open access might work more in a community of interested kind of group, rather than in a commercially orientated publisher model. They have two different philosophies. (AF7: Senior Lecturer)*

This perception suggests that open access, especially open access repositories, is seen as a separate distribution model to that of commercially published scholarly journals. The comment implied that open access or free distribution should not focus on 'broadcasting' to the open web, but rather be used as a means to share content between research communities of interest. This suggests a form of 'partial open access', in that the respondents would support the sharing of content between an identified research group or community, but would not open this to the wider populace or even to the wider university environments. The current commercial access would continue to service these environments.

4.9   SUSTAINABILITY OF OPEN ACCESS JOURNAL PUBLISHING

One of the concerns raised by the participants was whether open access journal models were sustainable. There was a general awareness of an author payment model being used by some open access journals. However, the experience with author payments tended to be submission

fees within the vicinity of $300. The participants had not paid the full publication costs associated with open access journals, which for some journals are within thousands of dollars. However, even with a submission fee of a few hundred dollars, there was a reluctance to pay. The common response to journals that demand submission payment was: *I refuse to ever send anything there (AF2: Associate Professor).*

Sustainability of open access journals was questioned within the framework of revenue generation models. Open Access publishing was seen as:

> *a cost recovery model which is fine in itself but publishing traditionally has been a more entrepreneurial profit making model which is why I don't think open access will work. (AF3: Senior Lecturer)*

The participants indicated that business models based on an author payment process would only produce a fixed level of income. While this may guarantee income that can cover production costs; there is not the ability to increase this revenue through further promotion and sale of new subscriptions. The participants, therefore, questioned whether such journals could grow. The model may be suitable for single journals produced by a society or university department, but it was not seen as a sustainable model for the current commercial publishers.

However, one of the specialised scholarly publishers lamented that open access models that guaranteed an income could be a useful financial model. This publisher had strong submission rates, yet sales and subscriptions had been relatively consistent or stable. If an author fee model could guarantee a revenue growth that matched author submissions, then this publisher would see that as sustaining publication processes.

> *I mean our submissions have gone up 14 to 15% a year for the last 4 or 5 years. It's all vanity publishing. Our sales growth is mostly tracking up is it not? If we're under a OA model and if we are completely and utterly honest, what a wonderful situation to be in. (PF4: Specialist publisher)*

This was, however, not viewed as a viable option for the publisher. When questioned as to why this publisher has not adopted an open access model, the response was that 'there's no money'. The implication is that Australian authors would not pay for publication.

To overcome the concern of revenue generation, the publishers suggested that if there is a shift from subscription to author pays, then there should be a shift in university budgets to support

publishing processes. Specifically, the publishers would support a shift in budget allocations from libraries paying subscriptions to universities paying author/submission fees.

> *So if a library is getting free [access] and an author is paying to have it published, then all that money that used to go to libraries should be redirected to the research authorities to help pay for publication. At the moment we're [publishers] getting that government money at the end of the process from governments from all over the world. Move that government money to the front, we're going to make the same money and continue to provide the services. (PF5: Large publisher)*

4.10 IMPACT ON COMMERCIAL PUBLISHERS

The publishers acknowledged the need to develop business models that maintained their ongoing viability. If open access journal publishing was simply a migration of revenue from a post production subscription to a pre-production submission payment, then some of the publisher participants would consider such a model. In considering the potential impact that open access may have on commercial journal publishing, the academic participants identified two broad issues.

The first related to an acknowledgment that some of the larger commercial publishers have employed author fees as a means to make some content open access. The participants saw this as being a way for the larger commercial publishers to acknowledge, and possibly appease, the open access movement. The participants did not believe that this would lead to a 'mass migration' to open access business models for these publishers.

The second issue may have a stronger impact on commercial publications. This is a concern associated with the time taken to publish journal content and the possibility that open access may alleviate this concern.

> *The competition from the speed of being able to put something on your own webpage might prompt the commercial journal publishers to speed up the process from submission to publication a bit. (AF1: Associate Professor)*

While the comment refers to personal webpages, it could also be applied to open access repositories. If content starts to be made available through repositories, then would this impact on how commercial journals manage the publication cycle and thus shorten the time to publication? The respondents hypothesised that while current academics may be prepared to wait for publication, because of an acceptance of the delay associated with targeting high

impact journals, new academics may be frustrated with this and seek alternative ways to disseminate their publications.

> *Well if you're prepared to wait 3 years to have an article produced in a journal, how many other people are sitting back, the new ones coming through, that are saying stuff waiting 3 years. (AF6: Lecturer)*

Participants in the focus group of publishers were concerned about the potential impact that institutional repositories may have on the publishing industry.

> *But the thing every university wants to put in is an institutional repository. Once they start doing that and are able to network it around the world, the publisher is dead. Hopefully a way of running parallel with that will be the business model in place, but the institutional repositories are the biggest threat to our existence than anything going in my view. (PF4: Specialist publisher)*

The counter argument to this is whether repositories can represent the quality and research recognition that is currently associated with formally published content.

> *I don't think we are dead because anything that comes from outside of the university needs to be branded. There needs to be some measure of saying is it reputable. Is it good? Is this going to meet requirements? That brand behind the publisher will make sure we survive. (PF5: Large publisher)*

The publishers identified the circular impact that repositories may have on publication practice. Material submitted to repositories as pre-prints, do not have the status of a peer-reviewed and published article. The publishers saw the quality and status of the content as being dependent on it being accepted and published within a journal. However, if all published content was accessible through a repository, then the ongoing viability of the journal may be threatened. In which case, the quality measures would therefore be lost and repositories would remain as archives for non-published content. Thus the repository development may be dependent on the branding of quality journals and this interrelation needs exploration as repository content grows.

Because if an author can stick his article up on the university repository and then Google Scholar can find that article then the threat is, will we still be able to sell the articles as published in the journal? If you take it to the logical conclusion, there will be no New England Journal of Medicine left to publish articles. You, as an author, are going to have a real problem because when you stick it up on your website or in the university repository there's going to be no badge that says New England Journal of Medicine. (PF5: Large publisher)

Yet this publisher had changed their author-publisher agreement from one of assignment of all rights to the publisher to a license that stipulated author rights for reuse. When questioned about this change, there was acknowledgment that repositories were being established and that publishers can only work with these repositories by stipulating how authors can engage with the repositories.

We're going down the middle and we've got the journal on one side and we've got the repositories on the other or the authors websites and we're actually putting rules around how you can post it, when you can post it, the version you can post. (PF5: Large publisher)

4.11 THE DEVELOPMENT OF UNIVERSITY ELECTRONIC PRESSES

The publishers also raised questions about the university electronic presses that had started to be established within a number of Australian universities. These presses focused on publishing content from academics employed within their own institutions. The presses operate under a number of business models, including open access or cost recovery, and have tended to emerge from the university library taking greater roles in managing scholarly communication processes.

These presses were not necessarily seen as being a threat to the current publishers. Instead, the publishers questioned the ongoing sustainability of the presses, and the actual need for the development of these publication processes.

There's one reason why they [university e-presses] won't survive and that model cannot survive is you want your article published and you want to say this went into a international journal or something that's recognised internationally. You're not really interested in whether it's local. So as long as research is internationally focus a small E Press out of [an Australian university], is totally irrelevant in my opinion. (PF5: Large publisher)

The publishers also suggested that the university electronic presses cannot compete with the technology investment that has been made by the established publishers.

> *The investment Blackwell, Springer, Elsevier, Wiley, have done is phenomenal. The functionality that's available online is so good to the end user, libraries are just the portal to get at all of that stuff. What's there is great. So the buy in for a small E Press … they can't do it. (PF4: Specialist publisher)*

While open source applications, such as E-prints, provide university presses with a strong technology foundation for managing their content, the publishers viewed their investment in digital content management and author support as providing greater functionality than that possible through the university presses.

One of the concluding comments from the academic focus groups holds particular relevance to this thesis.

> *I think that it's important to distinguish between the philosophical statements that come from academics and academia about what should happen and the behaviour of academics and institutions which is often vastly different. (AF1: Associate Professor)*

Open Access has been debated in the literature in a manner that indicates a philosophical support for the 'good' of open accessibility. There is a need to determine whether support for open access is different to actual engagement, as suggested by this participant (AF1: Associate Professor).

4.12 SUMMARISING THE DISCUSSION AND IDENTIFIED ISSUES

Table 4.1 summarises the focus group discussion by listing the issues that have been identified through this chapter. A primary issue is related the link between publication and government policies associated with research recognition. Meeting the needs of the research recognition policies influenced the publication behaviour of the focus group participants. The act of publication becomes the focus, not necessarily the needs of the reader. This focus means that open access distribution models, that aim to increase access for the reader, were not of a high importance for the focus group participants. The participants' engagement with open access was incidental, with only a limited number of articles submitted to open access journals. Repository submission was evident, but this was primarily for working papers, not for the submission of the final published version of journal articles. A barrier that was identified relates to copyright and the assignment of publication rights through author-publisher agreements. The

respondents assumed that they had assigned all rights to the publisher and thus did not believe that they could then submit published content to repositories. In viewing alternative publication and distribution models, especially open access and new university based electronic presses, the focus group participants were concerned with the ongoing sustainability of these publication processes. This then means that they were reluctant to engage with these publication processes.

Discussion and identified issues	Emerging Themes
Research recognition through DEST points	Academic and research recognition is a main driver for publication
Readership is not a primary motivation for publication	The act of publication is important, not necessarily the actual dissemination to the reader
Reputation of the Publisher and Journal quality and branding linked to measurements of research quality	Quality / branding of publication is a secondary driver for submission
Reputation of Open Access journals is not generally viewed as having the same level of quality or branding	Open access not viewed as holding quality and branding, seen as representing 'lesser quality research'
Discipline differences in where research is published	DEST research recognition policies supported different publication types – journals, conferences, books
Academics have access to adequate scholarship and publications and thus do not see open access as being a benefit Open access may be achieved through personal webpages and networks and thus not requiring formal open access journals and repositories	Open access engagement is incidental and not an actual strategy for dissemination
Copyright may be a barrier to open access repository submission	Copyright, author and publication contractual agreements may be a barrier to open access engagement
Sustainability of open access journals questioned Impact of open access on current publishers is still to be debated – main threat is repository development Sustainability of University based e-presses is questioned	Sustainability of new models of scholarly communication and distribution

Table 4.1: Summary of issues from focus group discussion

The issues raised by the focus group participants are used as a means to start to identify themes that can contribute to the development of grounded theoretical models. While Table 4.1 lists these emerging themes, section 4.15 of this chapter presents an initial outline of the themes. This is the beginning of the identification of issues and themes that will build across each of the data methods and contribute to the development of theoretical models.

4.13 A RESPONSE TO THE FOCUS GROUP QUESTIONS

This section summarises the focus group discussion under the initial questions posed to the participants. Not all questions were addressed by the discussion, and at times the discussion was broader than the initial questions. The first five questions are those posed to the academic focus group, while the latter two had been posed to the focus group of publishers.

4.13.1 ACADEMIC FOCUS GROUP QUESTIONS

WHAT ARE THE DRIVERS THAT INFLUENCE THE DESIRE OR NEED TO PUBLISH SCHOLARLY CONTENT?

The primary driver for publication was the need to maintain research recognition. This driver was created by the DEST point system that allocated recognition to a range of scholarly publications. Academics targeted a range of peer-reviewed scholarly publications including research conferences, scholarly books and journals. The mix of publication types was seen to be dependent on disciplines. Readers of the content, while acknowledged, were not a primary driver for publication. Scholarly publishing was not an act of dissemination of research, but rather an act of publication to accumulate DEST points.

HOW SHOULD THE COSTS OF THE PUBLISHING PROCESS BE MET OR FUNDED?

The aim of this initial question was to seek discussion around the business models being posed for open access dissemination. There was not extensive discussion around the costs associated with publication. However, the academics discussed author submission charges and tended to show reluctance to the payment of author submission fees. This suggests that the academic participants would be reluctant to support author payment models for scholarly publication.

HAVE YOU PUBLISHED IN AN OPEN ACCESS JOURNAL OR WOULD YOU DEPOSIT YOUR ARTICLES IN AN OPEN ACCESS ARCHIVE (OR REPOSITORY)? WHY?

The academic focus group participants had disseminated their research through open access methods; however this was not a major distribution method. Open access journals were used if they were seen to be the best journal to publish a particular article. There was some use of a discipline specific repository, however this was from just one participant. This repository was for

economics literature, primarily used for the distribution of working papers. There had been no submission of final published papers to this repository.

The academic participants had published through a number of publication types, including journal articles, book chapters, conferences proceedings. Some of the conference proceedings had been made available through the open web. Participants had linked their personal websites publication lists to these open accessed conference proceedings. However, this had not been done for the working papers that had been submitted to the economics repository.

While the respondents were aware of open access journals and repositories, they tended to equate these publication and distribution methods to the 'open web'. Because of this, they made the assumption that open access publication lacked the quality control offered by traditional publications.

WHAT ARE THE SOURCES YOU USE TO ACCESS PUBLISHED SCHOLARSHIP – ARE THEY OPEN OR CLOSED?
The academics relied on the scholarly sources provided through the university library. While they acknowledged that the university had paid for access to these resources, they viewed their own access as being unhindered by commercial subscription. The concept of open access being a way to increase the accessibility to content was not deemed important by the academic participants. The assumption was that, through the university, they had access to the content that they needed. The respondents acknowledged that the university and university library could not provide access to all published scholarship. However, as this was viewed as being a problem across all universities, there was not a sense that other academics had an advantage over the participants. It was assumed that academics across Australian universities tended to have access to similar publications and resources. If there was some variation in this, then the participants simply used their professional networks to seek a copy of an article that their own university did not have access to.

The participants, therefore, relied predominantly on commercially published content and did not view subscription payment as being a major detriment to access to the scholarly content that they required.

HOW DO YOU THINK THAT OPEN ACCESS AFFECTS SCHOLARLY PUBLISHING?
The main impact that the academics viewed open access having on scholarly publishing was to change the speed taken to publish content. If content could be made accessible through open web and repository submissions then this may act as an incentive for traditional publishers to decrease the time taken to publish content.

While this question was not specifically asked at the publisher focus group, the publisher participants did focus on the impact that open access may have on scholarly publishing. The main concern was the possibility that repository submission could lead to a decline in subscription to the source commercial journals.

4.13.2 PUBLISHER FOCUS GROUP QUESTIONS

WHAT DO YOU THINK IS THE IMPACT OF THE OPEN ACCESS MOVEMENT ON AUSTRALIAN SCHOLARLY PUBLISHING?

The publishers questioned whether open access was a threat to the Australian publishing environment. They viewed the push for open access as emerging from the university library sector that has been positioning their role within the process of scholarly communication. The threat emerged from the perception that the establishment of institutional repositories would lead to a decline in submissions to journals. While repository content may have been submitted for publication within commercial journals, the availability of this content in repositories could lead to the cancelation of subscriptions to the published journal. While the publishers saw this as a real threat, they also acknowledged that academics rely on the journal reputation as an indication of quality of the published article. Thus this issue is not a threat associated with submission of content by academics, but rather one where subscription revenue could be threatened by university libraries cancelling purchase of the journal.

The publishers presented their 'branding' as being important for filtering scholarly content. This branding was built through the 'value adding' that publishers provide through editorial work, marketing and infrastructure development, including infrastructure for electronic dissemination. The open access movement was seen as being separate to this branding and value adding as it was predominantly seen as being a distribution process based on the use of open web access.

SOME COMMERCIAL PUBLISHERS HAVE EXPERIMENTED WITH ASPECTS OF OPEN ACCESS MODELS (E.G. AUTHOR PAYS MODEL FOR SOME JOURNAL). SHOULD COMMERCIAL PUBLISHERS EXPERIMENT WITH OA MODELS?

The publishers were concerned with ongoing revenue generation, especially within the Australian market, which is generally seen as being a smaller market for scholarly content. The publishers represented in the focus group had not established open access business models and thus their revenue relied on subscription and sale models. However, for the smaller or specialised publishers present, there was a concern that subscriptions were not being sustained

by the Australian marketplace. While authors were providing increasing levels of content for publication, new sales and subscriptions were not increasing at the same rates. Within this environment, shifting the revenue stream to the authors was seen as a potential way to maintain income. However, this was the view of only the smaller publishers. The larger publishers saw author payment models as being a fixed revenue base. These publishers preferred the ability to increase revenue through building new markets and thus new subscriptions and sales.

The issues identified in Table 4.1 and their discussion in relation to the questions posed to the focus group participants, starts to identify themes that can contribute to the building of theory for this study.

4.14 THE START OF THEORY BUILDING

This section presents these issues and themes as the start to the development of a theory of publication behaviour. From this process further questions are posed and these are explored in the later data collection processes. The emerging themes are progressively developed across the next chapters until theoretical statements are presented in Chapter 8.

4.14.1 ACADEMIC RECOGNITION AS THE MAIN DRIVER FOR PUBLICATION PROCESSES

The DEST point system for recording research was acknowledged as a main driver that impacts on decisions as to where to publish. This research recognition system identified a number of publication formats, including journal articles, books, book chapters and conference papers, as representing research dissemination. The ability for open access dissemination to be recognised as part of this research recognition process, will impact on how academics engage with open access publication processes. Therefore, one of the ongoing foci for this thesis is what impact academic recognition may have on engagement with open access publishing and how to reconcile the driver of academic recognition with alternative models for scholarly research dissemination?

4.14.2 QUALITY OF PUBLICATIONS IS SEEN AS A SECONDARY DRIVER

Publication quality and branding were identified as being filters that then support the perceived quality of the research being published. How publication quality is identified will impact on whether open access journals and dissemination methods are seen as being of 'quality'. The participants of the focus groups viewed open access content has having a lower sense of quality than the established commercial journals and publishers. This may partly be due to many of the

open access journals being new titles and thus still establishing a branding. As publication quality has been identified as a key issue for the participants, an ongoing question for the other data methods relates to how the broader Australian academic community views the quality and reputation of open access journals and content.

4.14.3 COPYRIGHT AS A BARRIER TO OPEN ACCESS REPOSITORY ENGAGEMENT

The academic participants identified the assignment of copyright to publishers, as a reason for non-submission to institutional repositories. The belief that the academics had handed over all rights to the publishers meant that there was uncertainty as to whether they could then submit a copy to a repository. The publishers, however, recognised the push of the open access movement to provide authors with some rights over their published works. Thus, the publishers indicated that their author-publisher agreements have changed so that they were providing some rights, primarily for pre-prints, to be included within repositories. The extent to which academics understand their rights under these agreements will impact on their engagement with institutional and discipline repositories.

4.14.4 PUBLICATION IS THE MOTIVATION, NOT DISSEMINATION

Surprisingly, the focus groups suggest that the process of 'getting published' is the primary goal of scholarly communication. The concepts of readers, access and dissemination were presented as being secondary concerns. This focus is linked to the process of academic recognition and the extent to which this focus is recognised by the broader academic community will impact on engagement with open access dissemination. Open access aims to broaden the dissemination and reader access to published research articles. If the focus of Australian academics is on targeting places to publish, then the ability of open access to increase dissemination, may not act as an incentive for academics to engage with new publication methods.

4.14.5 OPEN ACCESS ENGAGEMENT AND USE

Engagement with open access publishing processes was 'incidental'; that is there was not an active decision to support open access dissemination models. Where repositories were supported, this was for 'working papers' and for research seen as lesser quality and thus a 'give away'. There was not an indication that academics have used content from repositories. The publishers showed stronger concern for the impact of repository development. While the publishers viewed their role as a 'filter' or 'branding' of quality, they were concerned that if

repositories gained increasing submissions, then this may eventually lead to a decline in subscriptions to the journals to which the articles had originally been submitted.

Some of the academics had submitted to open access journals; however this was not an active support for open dissemination. The open access journals were in competition with other journals and simply met the submission criteria, as would any other journal. Thus dissemination models were not seen as an influence for where academics submitted their articles for publication.

This level of engagement with open access publishing led to a questioning of the sustainability of open access business models, especially those associated with open access journals. This question of sustainability has also been applied to the electronic presses that have been established in a number of Australian universities.

4.14.6 THEMES TO FURTHER EXPLORE AND DEVELOP

These themes have emerged from the focus group discussion and contribute to the ongoing development of grounded theoretical models that explore the publication behaviour within the Australian academic community. These themes, and the issues that inform them, also continue to contribute to the broad questions that this study is exploring. The ongoing comparative nature of the grounded theory method means that further issues emerge as data is collected and analysed. The following questions build on those originally posed for this study, but illustrate some of the issues that are drawn from the focus group so as to be further explored through the analysis of the other research methods used for this study.

> If academic recognition is a primary driver that guided the decisions as to where to submit articles for publication, what impact does this have on engagement with open access dissemination? After the focus groups were conducted, Australian Commonwealth government policies on academic and research recognition started to change. What impact does this change have on engagement with open access dissemination?

> Can publication behaviours be identified that illustrate where Australian academics disseminate their research articles? Then can the degree to which open access forms part of this be indicated?

> Where do the potential readers of academic research 'fit' into the publication behaviour and process? The academic focus group implied that academics do not have a strong

emphasis on the readers needs, as their primary focus is to 'get published'. If this is the case, then the philosophy of 'opening access' would not form part of the decisions associated with publications. Thus the motivation for publication needs further exploration as a means to determine its impact on open access engagement.

The focus group respondents tended to talk about open access as a single process. While they mentioned open access journals, repositories and personal websites as open access distribution, they were not comparing these models of open access. Is there a difference in how academics engage with these two paths, open access journals (gold path) and open access repositories (green path)?

4.15 CONCLUSION

This chapter presents the discussion from the academic and publisher focus groups. Publication, not surprisingly, is a main avenue for identifying research quality. The publishers viewed their roles as developing brands that then assist in differentiating publishing quality. Academics acknowledged that a difference in quality existed between publication types (books, journal articles and so on), however each of these publication types were seen as contributing to their academic standing. While academics have contributed to open access journals, such journals were not a primary means that the academics used to distribute their research articles. Open access journals were in competition with established journals and contribution was made only if the open access journals were the best journal for a specific article.

Contribution was made to open access repositories; however this was for working papers and other content seen as being 'give away' content. The repositories were not seen as being an alternative way to distribute publisher content. The academic participants were of the belief that they did not have the right to submit the published articles to repositories as they saw author-publisher agreements as a handing over of all rights within the submitted article.

The focus groups have started to identify barriers or possibly hurdles that may limit engagement with open access publication and repository submission. The broad themes identified through the focus groups will be explored further as additional data is collected through the survey and interview methods. The next chapter outlines the responses from a survey distributed to academics within the Australian university and higher education sector.

CHAPTER 5: THEMES FROM A SURVEY OF THE AUSTRALIAN ACADEMIC COMMUNITY

5.1 INTRODUCTION

The focus group analysis, as presented in Chapter 4, suggested that Australian academics based their publication processes around the requirements of the DEST policy for reporting research output. While open access journals would have generated DEST recognition along with the more established or commercial journal titles, the academic focus group participants themselves had minimal engagement with open access journals. Any submissions to open access journals were incidental, in that the journal had been selected because of reasons other than it being openly accessible. The focus group academics had not actively decided to participate in a new model of scholarly communication.

In the previous chapter, the academic participants discussed open access as a single concept with little differentiation in issues between the various models of open access. They demonstrated a general awareness of web based delivery of published articles and tended to view this as being open access. The academics did not distinguish between open access journal, open access repositories, author payment models for open access development or indicated an awareness of the debate within the literature regarding citation impact and open access. Copyright was identified as a reason for non-engagement with alternative methods of dissemination as the academics believed that they had passed the copyright in their article to the traditional publishers and publication processes.

There was stronger awareness by the publisher participants, of the varying open access models. However, the publishers viewed increasing engagement with open access dissemination as a potential threat to their own sustainability. The focus group raised issues of quality in regard to open access dissemination, regardless of whether this was through formal journals that were open or archival repositories.

Chapter 5 continues to explore these issues by detailing the results of the second data collection method, a survey distributed to academic staff from Australian universities. The survey was structured around four broad issues: the publication behaviour associated with the respondents' last published article; opinion, engagement and use of open access journals; engagement and use of open access repositories and potential impact of research recognition

policies on publication practice. The chapter is structured around these four foci. The chapter commences with an outline of the survey's focus and details the demographics of the participants. The analysis is then discussed around the four foci of the survey. The chapter concludes with the identification of further theoretical themes that contribute to the development of the models associated with publication practice and open access engagement.

5.2   THE FOCUS OF THIS SURVEY

This survey sought responses about the participants' actual publication practice as well as their opinion about open access models of dissemination. In order to differentiate between actual practice and personal opinion, the survey was presented in four sections:

Analysis of actual publication practice

Respondents were asked to consider the last journal article that they had published and provide detail of the publication practice of the journal. This description outlined the types of journals that the respondents had published in, whether the journal was commercial or open access and whether the journal allowed for reuse of the submitted article especially for resubmission to an open access archive.

Awareness and opinion of open access journal publication

The second section of the survey focused specifically on open access journals and sought to determine the respondents' awareness of such journals and whether they had engaged with open access journal submission.

Awareness and practice related to open access repositories

This section of the survey focused on the respondents' awareness of open access repositories and archives. The focus group tended to discuss open access as a single model, identifying little difference between open access journals, repositories and other models of open dissemination. The literature, however, differentiated the models of open access journals (gold path) and open access repositories (green path). The survey, therefore, sought responses regarding both models so that comparison could be made on the engagement with each approach to developing open access content.

Identification of the perceived impact that changes in academic recognition may have on publication practice

As this survey was being developed, the Australian Commonwealth government announced the introduction of the RQF as a new policy for research recognition. This section of the survey

focused on identifying how the participants believed that the framework would impact on their publication behaviour.

The survey questions are presented in Appendix 2. Statistical analysis conducted on the results of these questions is primarily presented as frequency counts and, where appropriate, Chi-Square tests. Chi-Square tests are used to compare observed frequency data with an expected frequency count and is used to confirm a null hypothesis, that there is no difference been the expected and the observed data. For this study, the text was conducted to determine if variables such as academic level, university sector or broad discipline areas influenced the responses. The analysis aimed to determine trends from the survey data that could contribute to the identification of further themes that form part of the grounded theory analysis. These themes are discussed in the later sections of this chapter.

5.3 DEMOGRAPHICS OF THE SURVEY RESPONDENTS

This survey was accessed through a web page hosted on the website of RMIT University, School of Business Information Technology (now School of Business IT and Logistics). A sample of academic staff from each Australian university was emailed an invitation to participate in the survey. The invitation list was drawn from a compiled database of academics from each of the Australian universities. While the invitation list was primarily drawn randomly from the database, there was a degree of manual selection so that the invited sample represented different academic schools, universities and academic levels.

The sampling process led to 2500 invitations being emailed. A total of 245 usable responses were received, thus forming a response rate of 9.8%. This response rate was received after reminder emails had been sent to the invitation list. Table 5.1 provides the descriptive information relating to the survey respondents. The responses are representative of all levels of academic employment and university environments.

Responses were received from each of the Australian levels of academic employment: Lecturer through to Professor. As would be expected, the response rate from Lecturers and Senior Lecturers was higher as more staff are employed within these levels of academia. Information about the participants' discipline area was collected through the use of the Research Fields: Courses and Disciplines Classification (RFCD) codes (Australian Bureau of Statistics 1998). This classification identifies twenty-four discipline areas. However, the distribution of the survey responses across these twenty-four areas meant that many of the specific codes had only one or two respondents listed. In order to make some comparison between broad discipline areas,

the responses were re-coded into the three areas representing the humanities, the sciences and business disciplines.

Academic level	Lecturer	Senior Lecturer	Associate Professor	Professor		Total	Non-response
Frequency	75	69	47	39		230	15
Percentage	32.6	30.0	20.4	17.0		100	
Broad discipline groups	humanities / education / social science	sciences / medicine / engineering	business / law / information systems				
Frequency	63	95	79			237	8
Percentage	26.6	40.1	33.3			100	
University network	Group of Eight – Go8	Australian Technology Network - ATN	Innovative Research Universities - IRU	Other network	Not acknowledged (either 'No' or 'Don't know' response)		
Frequency	78	45	17	20	85	245	
Percentage	31.8	18.4	6.9	8.2	34.7	100	
Gender	Male	Female					
Frequency	94	148				242	3
Percentage	38.8	61.2				100	

Table 5.1: Survey respondents – descriptive information

The Australian university environment consists of a number of university networks where teaching and research collaboration is maintained between the participating member universities. Three of these networks are the Group of Eight (Go8) www.go8.edu.au, the

Australian Technology Network (ATN) www.atn.edu.au and the Innovative Research Universities (IRU) www.iru.edu.au. Representation was received from each of the university networks.

5.4 ANALYSIS OF PUBLICATION PRACTICE

This section presents the publication behaviour associated with the last article that the respondents had published. By focusing on the analysis of the publication of a respondent's single article, the actual practice and decisions associated with the process of scholarly publishing can be explored. As previously quoted in Chapter 4 a pertinent comment from the focus groups hinted at the difference between 'philosophical' acceptance of an idea and actual implementation and practice of that idea.

> *I think that it's important to distinguish between the philosophical statements that come from academics and academia about what should happen and the behaviour of academics and institutions, which is often vastly different. (A22: Associate Professor)*

Thus, focusing on the publication pattern of a single article starts to identify actual publication practice, which can then be compared with the philosophical view of open access dissemination, gathered through later sections of the survey.

5.4.1 PUBLICATION PATTERN OF THE RESPONDENTS' RECENT PUBLISHED ARTICLE

In examining the publication practice of the respondents' last published article, support for open access journals was only provided by a small number of the respondents (9%) as shown in Table 5.2. Most of the articles (83%) have been published in subscription-based or closed access journals.

	Frequency	Percentage
Subscription access	189	83%
Open access	21	9%
Uncertain	19	8%
Total	229	100%

Table 5.2: Last article: Subscription versus open access (frequency, %)

The low frequency count of 21 articles submitted to open access journals does not lend itself to an extensive statistical analysis. However there is the possibility that the open access submissions could be clustered within a particular discipline area. A Chi-square test of open access journal submission across the three broad discipline groups of Sciences; Business and

Humanities indicates that there was no difference between the groups, x^2 (4, N=222) = .808, p=.937.

While the articles were predominantly published in subscription-based journals, they could become openly accessible if the journal incorporated a 'delayed open access' publication model. Delayed open access business models provide protection to the publisher's financial investment in the most recent articles, as a subscription is paid for access to new content. However, after a period of time, the articles are archived and can be accessed at no cost. Various embargo periods are used to protect the initial investment in the published content. This model of open access has been adopted by a number of publishers (such as HIghWire Press) or for selected journals (such as *Learned Publishing*, the society journal of the Association of Learned and Professional Society Publishers). This model is controlled by the publisher as the article remains on the publisher's website and automatically becomes open access after a set embargo period.

Two questions were asked about the potential for delayed open access to the respondents' published article. The first sought to determine if the journal's business model would allow the article to become open access after the completion of an embargo period. The second asked the respondents whether, they, as authors, would actually want their article to be made available through such a business model.

Will your article be made freely available after a set period of time or an embargo period?			Do you want this article to be made freely available after an embargo period?		
	Frequency	Percentage		Frequency	Percentage
It will remain subscription based	68	31%	No	4	2%
Open access will be provided after 6 months embargo	3	1.5%	Yes, after 6 months	72	33%
Open access will be provided after 12 months embargo	11	5%	Yes, after 12 months	55	25%
Open access will be provided after 24 months embargo	2	1%	Yes, after 24 months	19	9%
Uncertain	134	61.5%	No opinion	69	31%
Total	218	100%	Total	219	100%

Table 5.3: Embargo policies for submitted articles

As presented in Table 5.3, the majority of the respondents (61.5%) were uncertain as to whether the article was published under an open access embargo. This illustrates a lack of

awareness of, and possibly a sense of apathy towards the publication and access policies of the journals to which they had submitted their work. It also suggests a lack of awareness in the ongoing management of articles once they have been published. It reinforced the notion that publication was primarily a production process and that once an article is published, issues of access to that article were not importance to the respondents.

This lack of awareness of the publishers' policies on embargo periods makes it difficult to accurately determine the number of articles that may become open access after an embargo. Some of the 'uncertain' responses may represent articles that have been published in journals using an embargo open access policies. However, the trend from the responses suggested that the majority of the articles will remain subscription access. Only 7.5% of the articles will become openly accessible after an embargo period, with 12 months embargo applied to most of these articles.

While the articles will tend to remain subscription based, two-thirds (67%) of the respondents indicated that they would support their article becoming open access after an embargo period of six or twelve months. Only four respondents (2%) would not support a delayed open access model, expecting their article to remain closed. While commercial journals were the submission focus for the article, the respondents do not have a specific interest in maintaining the article as a closed access document.

The respondent's last article could also be made openly accessible, if submitted to an open access repository. Submission may be the author's original paper, a pre-print copy (the original submission including editorial changes) or a post-print copy (a copy of the article as published in the commercial journal). The version of the article that can be submitted to a repository is dependent on the author-publisher agreement that the academic signs with the journal publisher. While publishers are increasingly supportive of submission to repositories, actual submission by authors would be based on their understanding of the degree to which their agreement provides a right to reuse their content, as well as the academics' willingness to submit their articles to a repository.

As outlined in Table 5.4 the majority of the respondents (64%) did not have a clear understanding of the author-publisher agreement rights that may allow reuse of their published article. This may then have an impact on whether Australian academics would believe that they have the ability or right to submit to repositories. The survey did not seek qualification on the reason for the uncertainty – it may simply be that respondents have not checked how they can

re-use their submitted articles. However this issue has a potential to impact on how academics engage with repositories.

Of the respondents who were aware of their reuse rights (n=80), forty-seven (59%) indicated that they could not submit their last article to a repository. Therefore, while publishers are recognising the development of repositories and are increasingly allowing (primarily pre-print) copies of articles to be submitted, for these respondents, their published article will remain closed.

	Frequency	% of total responses N=221	% of respondents who are aware of reuse rights N=80
The article cannot be submitted to an open access repository	47	21%	59%
A pre-print version – the original version submitted for publication, before editorial changes by the publisher – can be submitted	16	7%	20%
An edited pre-print version – the original version of the article, with annotations of the suggested editorial changes – can be submitted	6	3%	7%
A post-print version – a copy of the article that is identical to that which will be published – can be submitted	11	5%	14%
Uncertain – agreement to allow repository submission	141	64%	

Table 5.4: Author-publisher agreement's recognition of repository submission

This then leads to the question as to whether the respondents, whose author-publisher agreements provided the ability to submit a copy of the article to a repository, had submitted a copy? Only twenty-nine articles (13% of the respondents, n=226) had been submitted to a repository. As so many respondents were uncertain whether they could submit their last article to a repository, then there would not be a high expectation for submission of articles.

	Frequency	Percentage
Yes	29	13%
No	197	87%
Total	226	100%

Table 5.5: Was the last article submitted to a repository?

Thirty-three respondents (Table 5.4) were aware that their author-publisher agreement allowed for a version of the article to be submitted to a repository and twenty-nine respondents (Table 5.5) submitted their article to a repository. An assumption would be that those academics who

were aware of their right to submit to repositories, would be the ones who submitted their last article. However, of those articles submitted to repositories, thirteen (46%) were by respondents who had indicated 'uncertainty' in regard to whether their agreement maintained their right to submit to a repository. These frequency counts are too small to enable extrapolation to the wider academic community. However these counts hint at a notion that a lack of awareness about their author-publisher agreement may not prevent authors in re-using their content and submitting to a repository.

5.4.2 CRITICAL FACTORS FOR JOURNAL SELECTION

Open access dissemination was not a major focus of the publication pattern of the respondents' last published article. Other drivers were influencing the decisions being made as to where the respondents submitted this article. These drivers were explored through the rating of a series of statements against a five point Likert scale. The statements (survey question B3) were developed from an analysis of the literature, commentary from the focus groups and feedback from initial survey testing.

The statements formed three broad areas or groups of issues. The first related to that of journal quality, presented through the following statements:

- Leading journal in the discipline area
- Has a strong impact factor
- Peer review is part of the journal's publication process
- Published by a society or professional association linked to the respondents' discipline area

The second is also related to journal quality but has an emphasis on the needs of the author as an academic or researcher. This is addressed through the statements:

- Journal's prestige or branding will assist in establishing/maintaining academic standing
- The journal was easy to be published in
- Publication frequency of the journal is important

A third focus related to considering access to the article, the reader of the article and ongoing use of the article, including possible open access. This is addressed through the statements:

- Large distribution and readership

- Free reader access to the article

- Ability to re-use the article for other purposes

A five point scale ranging from 1 = 'very important' to 5 = 'not at all important' was used to rate each statement's importance in relation to the journal selected for this last article. In determining the mean for the scale, the responses were re-coded in SPSS, so that the scale was reversed, that is ranging from 1 = 'not at all important' to 5 = 'very important'. The responses are presented in Figures 5.1.

5.4.2.1 PUBLICATION QUALITY

The respondents' submission decisions were based on traditional measurements of publication quality, including the use of peer-review and the branding and impact factors of the journal. With a mean of 4.71 and with 96% indicating a level of importance (80% indicating very important and 16% quite important, n=229), peer review represents the key influence in journal selection. This is not surprising in an environment or profession where it is accepted that your peers confirm the value of your research.

The focus group participants identified the DEST points system as a main driver for publication. The DEST system recognised a variety of publication types (books, book chapters, journal articles and so on) as contributing to research recognition. While the DEST point system did not rank publications within each type, the survey respondents did see journal ranking as a factor in the selection of the journal for submission. This was evident in the responses to the statements regarding the notion of 'leading journal' and issues of the 'impact factor' of the journal. The statement that the journal was a leading journal in their discipline has a mean of 4.09 and an indication of importance by 81% (42% very and 39% quite important, n=226) of the respondents. The 'impact factor' of the journal has a mean of 3.91 and was viewed as an important influence for journal selection by 71% (35% very and 36% quite important, n=226) of the respondents.

However, the measurement of the journal quality is based on the publication process (peer-review and impact factor) and not the journal's association with a discipline or professional body. The branding of a journal through a link with a professional association or society received a mean of 3.6 and thus this was not one of the main drivers for journal selection.
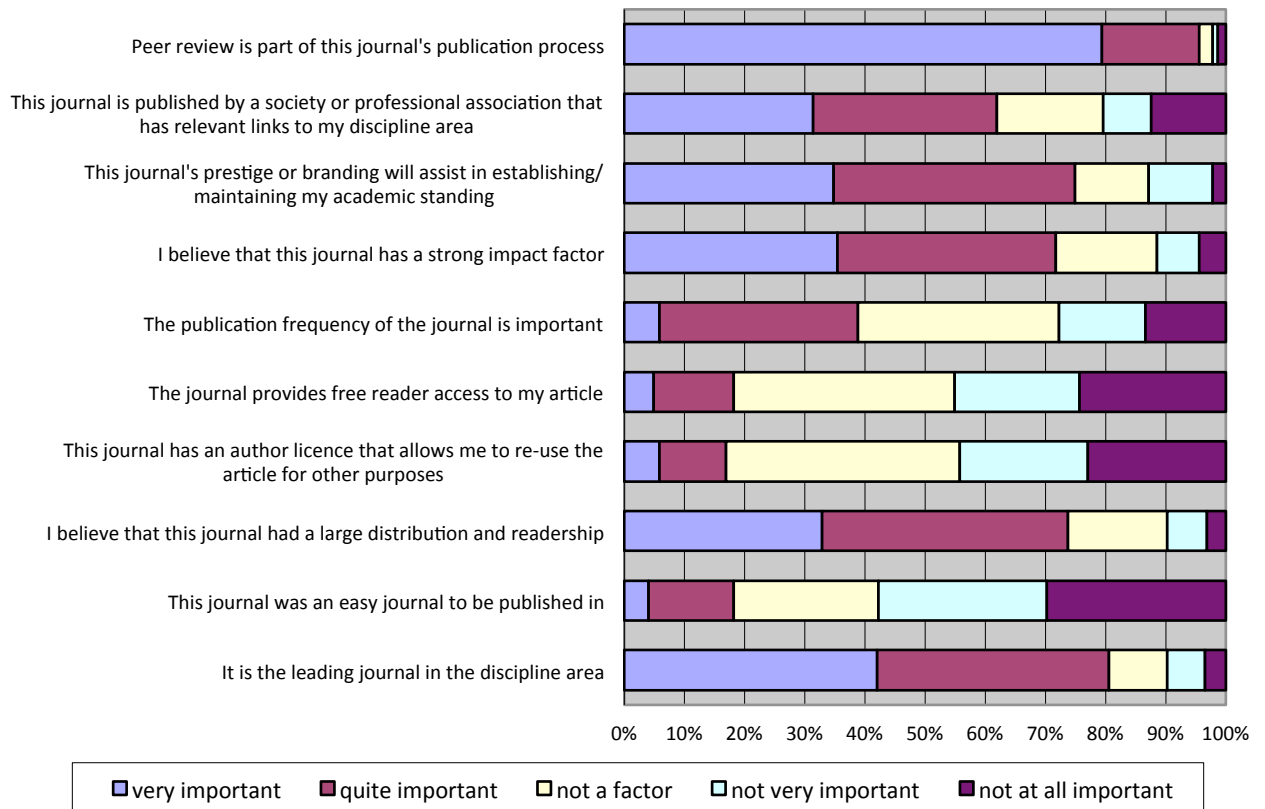
Figure 5.1: Reasons for selecting journal

The second aspect of quality related to whether the journal supported the needs of the author. The issue of publication quality was evident in the link between the journal's prestige and developing and supporting the academic's career. The ability for a quality journal to maintain 'academic standing' was seen as an important factor in selecting the journal. This statement has a mean of 3.94 and was viewed as important by 75% (35% very and 40% quite important, n=227) of the respondents.

If an academic's publication strategy is to increase the 'quantity' of their publications, then one could assume that some academics would target journals that were 'easy' to have papers accepted. However, this was not the case as 'being an easy journal to publish in' has a mean 2.34 and was viewed as an important influence by only 18% (4% very and 14% quite important, n=225) of the respondents. Thus there is a preference to target journals that have academic standing and quality instead of targeting journals simply to get articles published.

5.4.2.2 ACCESS TO THE ARTICLE

The focus groups did not have a strong emphasis on the readers of the published article. If this attitude were also to be displayed in the survey responses, then the potential distribution and readership of journals would not be a major factor that influences journal selection. However this is not the case with the survey responses. The statement that the journal has a 'large distribution and readership' base received a mean of 3.93 and support by 74% (33% very important and 41% quite important, n=225) of the respondents. It would appear that the survey respondents do have a concern of 'what happens after' the article is published.

It is acknowledged that the statement is a broad comment about the dissemination of the article, with a simple focus on whether it is reaching a wider audience. The statement does not indicate who the intended readers are, but the response does suggest that the respondents identified an advantage to journals having a wide distribution factor.

While the value of large readership is supported, this is not extended to providing free access to the articles' potential readers. Only 18% (5% very and 13% quite important, n=226) of the respondents indicated that the journal providing free readership of their article was important when deciding where to publish. This statement has a mean of 2.53. Selecting journals for submission based on the ability to reuse the article was rated as important by only 17% (6% very and 11% quite important, n=226) of the respondents. This statement has a mean of 2.55.

While not specifically referring to open access dissemination, these two statements aimed to determine if the underlying principles of the gold and green paths to open access would be an influence for journal selection. Thus, while the respondents acknowledged strong readership as a factor in selecting a journal for submission, developing or extending this readership through alternative models of distribution – open access journals or through re-use of the content in open access repositories or personal websites – is not seen as being a high priority for influencing journal selection.

Instead, the statements that received the highest levels of 'importance' reflect factors that focus on the identification of 'quality' and on the impact of the publication process on the academic as an author. Peer review, journal branding and impact factors were reasons for selecting the journal. These factors are viewed along with the ultimate need to maintain the recognition of the academic.

5.4.3 AN EMPHASIS ON INTERNATIONAL PUBLICATION

Since 2005 a number of Australian University libraries have established presses and publishing units as a means to assist in the dissemination of Australian scholarship. These presses aimed to support the publication output from their institutions. For this to occur there is the need to attract authorship from Australian academics. The publication and dissemination of scholarship is, obviously, an international process and the extent to which Australian academics publish in Australian journals compared to overseas journals would impact on the viability of Australian presses, especially the smaller university electronic presses.

As presented in Table 5.6, only 26% of the respondents had submitted their last article to a journal that was published in Australia. The publication behaviour has an emphasis on publishing in European journals (42%), though articles were also submitted to North American journals (27%).

	Frequency	Percentage
Australia	59	26%
Europe	97	42%
North America	63	27%
Asia	8	4%
Uncertain	3	1%
Total	230	100%

Table 5.6: Publication behaviour – location of journal to which the respondents' last article was submitted

The need for international academic standing means that it is not surprising that Australian academics publish within international journals or journals that have an international readership. However, the extent to which Australian research is submitted to journals published outside of Australia must impact on the ability for Australian electronic presses to attract contribution. In this instance, the Australian based scholarly publishing industry attracted approximately a quarter of the research articles submitted by the survey participants.

Figure 5.2 presents the comparison of submission to Australian and overseas journals across the various levels of academic employment. The 'overseas' percentage was calculated by combining the locations 'Europe', 'North America' and 'Asia' into a new category - 'overseas'. This chart illustrates a gradual increase in submission to overseas journals as one progresses up the academic employment levels. All academic levels submit to overseas journals, however, just under 90% of the articles published by Australian full Professors, is done so off-shore. Within Australia, staff holding professoriate employment represents the leading levels of research

contribution. The survey responses suggested that such leading research is predominantly published outside of Australia. This will impact on the development of Australian based e-presses as they would potentially not be attracting research articles from the leading Australian professors to their presses.
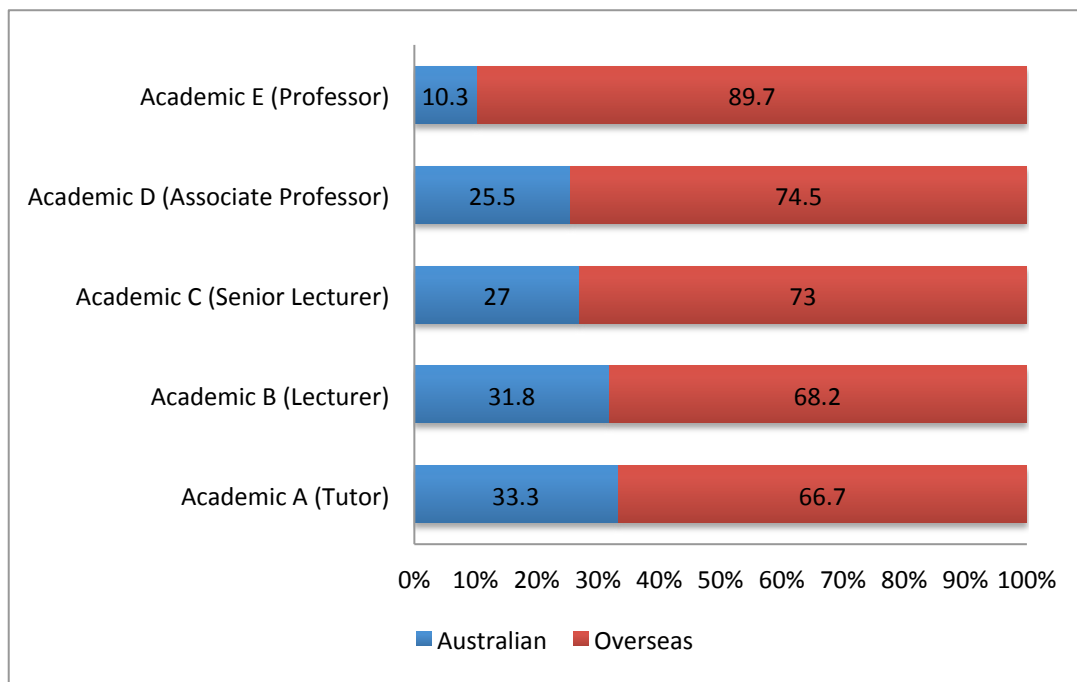
Figure 5.2: Comparison of submission to Australian and overseas journals across academic levels

5.4.4 SUMMARISING THE PUBLICATION PRACTICE

Focusing on the publication of a single article by each of the respondents, in essence, captures a 'point in time' response to where this sample of the Australian academic community published and whether this pattern of publication included open access models. The aim of this process was to identify the actual publication practice that the respondents performed, so that it acts as a 'reference point' for the discussion of later sections of this thesis.

This analysis indicated that the selection of journals is based on 'traditional' processes of journal prestige and impact factors. The respondents selected journals for article submission because the journals were leading in their discipline area, had a high impact factor and strong readership and assisted in developing their academic standing. While there was engagement with open access journals, this was by a small percentage of the respondents, as the majority of articles were published in subscription-based journals. While some of these articles were then made available through open access repositories, the reality is that the bulk of the articles were within closed access or commercial based publications.

There was an emphasis to target journals that are published outside of Australia, as a means for Australian research to be part of international debate and to seek recognition through publication in international journals. This can then impact on the local scholarly publishing community, especially in regard to commission of content by Australian based publishers and presses.

There appeared to be potential apathy by the respondents in managing their intellectual property rights in regard to author-publisher agreements. Many of the respondents demonstrated a lack of awareness as to whether they retained the right to reuse their published content for other purposes, specifically for distribution through open access repositories. It could be argued that having a stronger awareness of the rights under these agreements is necessary if alternative ways of accessing scholarly content is to develop. Because of pressure from research funding bodies, publishers have started to provide for the right to submit versions of the published paper to open access repositories. However as many of the survey respondents were not aware of the terms of their author-publisher agreement, then even if the agreement allowed for submission, the authors still believed that copyright was held with the publishers.

This section focused on the publication pattern of a single article that had been published for each participant. The next sections of this chapter specifically focus on open access dissemination and explore the respondents' overall view of open access publication models.

5.5 AWARENESS AND OPINION OF OPEN ACCESS JOURNAL PUBLICATION

Part C of the survey focused specifically on open access publishing. The respondents were asked to consider their whole publication history and to respond to questions related to open access journals (gold path) and open access repositories (green path).

5.5.1 OPEN ACCESS JOURNAL SUBMISSION

Thirty percent of the respondents have submitted articles to open access journals. Half of these respondents stated that they have a preference for open access journals as being a main way to publish their articles. This potentially suggests that there can be a core number of academics who attempt to target open access journals as a main part of their publication strategy.

	Frequency	Percentage
Yes - Open Access Journals are my preferred option for publication	36	15%
Yes - I have published in Open Access journals, but it is not my preferred option	36	15%
No	150	62%
Don't know	20	8%
Total	242	100%

Table 5.7: Submission to open access journals

Table 5.8 compares the respondents who have indicated support for open access journals, with whether they had submitted their last published article to an open access journal. While thirty-six respondents indicated that publishing in open access journals was their preferred way to publish their articles, only fourteen of these had their last article published in an open access journal. Thus, even if there is a preferred support for open access journals, this does not guarantee a commitment to submission.

The respondents who had engaged with open access journals, but not as their main preference for publication, had predominantly published their last article within a commercial journal (83% submitting to a subscription based journal). Therefore, while there is support for open access, this is not a consistent practice and even where respondents stated a preference for open access journals, submission was not necessarily followed. The practice of publication does not match the promise of support for open access.

		Yes - Open Access Journals -preferred	Yes - Open Access journals, but not a preference
Requires payment for access (subscription access)			
	Count	18	30
	%	51%	83%
Provides free access to readers (open access)			
	Count	15	4
	%	41%	11%
Uncertain			
	Count	3	2
	%	8%	6%
Total			
	Count	36	36
	%	100%	100%

Table 5.8: Comparison of OA journal preference with last article published

Comments supporting open access were presented from a range of academic levels. The focus was that open access was a way to 'get knowledge out there'. There was also the hint of the 'philosophical' belief in open access, reflected in commentary suggesting the need to remove the commercial restrictions on access to research. However, the philosophical support tended to be reflected in comments from early level academics.

My view is that the knowledge should be out there ASAP. (S66: Professor)

And:

Knowledge should be free not commodified. (S107: Lecturer)

Two main issues were raised about open access journals. The first related to whether open access journals were available within their specific research area.

Love open access - not many established open access journals in my field. (S44: Lecturer)

At the time of the survey data collection, the DOAJ listed 2,452 open access journals. While that number of open access journals would not cover all specific or highly focused research areas, the DOAJ does indicate that the journals available in 2006 were spread across all broad discipline areas. Thus while the issue of a lack of open access journals for specific disciplines, has validity, if there was a real need or preference to publish in open access journals, then there were broad discipline level open access journals available.

The second issue relates to the perception that open access journals have not demonstrated an appropriate level of prestige or quality.

Open access journals at present tend not to be the most prestigious or influential journals; and I principally choose journals on this basis. (S3: Associate Professor)

The responses also indicated a general lack of awareness of the development of open access journals. Some comments suggested that the survey itself has increased awareness of open access dissemination and raised publication options that some respondents had not previously considered.

I am rather ignorant about these options! Your survey is making me ask questions about the possibilities. (S215: Senior Lecturer)

I tend to match the journal to the article - and have not considered the issue of open access as a priority but thanks to this research I am more alert to this issue - and will now highly rank journals with open access. (S32: Associate Professor)

Submission to open access journals does form part of the publication behaviour for the respondents, however this is not a consistent engagement. Where respondents were supportive of open access journal development, and even indicated such journals as their preferred model of publication, follow through with submission was not guaranteed. For some participants, a simple lack of awareness of open access journals and dissemination is a barrier to adoption. For other participants, the perception that open access journals lack quality was a main reason for non-engagement with open access journals.

5.5.2 MOTIVATION FOR SUBMISSION TO OPEN ACCESS JOURNALS

The survey also explored motivation factors that may assist in increasing submission to open access journals. These factors include whether:

- Mandating submission will be adhered to by the respondents
- Readership and access to content can act as a motivation to support open access journals
- Journal quality, as identified by current publication practice, is applied to open access journals
- The respondents will engage with university based electronic presses, and
- The respondents hold any 'philosophical' views of open access dissemination

5.5.2.1 MANDATING SUBMISSION

One model for increasing submission to open access dissemination is for funding bodies to mandate that research that they support should be made available through open access models. The notion of research funding bodies mandating submission to open access journals was supported by 23% (8% strongly and 15% somewhat) of the respondents. A third of the respondents had a neutral response, while 44% (18% somewhat disagree and 26% strongly, n=241) disagreed with the process of mandates. Thus, while funding bodies are using mandating as a means to try and increase submission to open access models of scholarly dissemination, the survey respondents did not view the use of mandating policies favourably.

	I would submit my articles to an open access journal only if my research funding body or source requires it	
Agree strongly	8	%
Agree somewhat	15	%
Neutral	33	%
Disagree somewhat	18	%
Disagree strongly	26	%
Mean	2.61	

Table 5.9: Mandating submission to open access journal –
Likert (%) and mean

A Chi-square test for independence was used to determine if there is any relationship between academic level and the response to the statement about mandating submission. The result of X^2 (12, N = 227) = 7.843, p = .797 suggests that academic level is not an influencing factor as there was a consistent response across the cross tabulation used for this calculation. Comparing the three discipline groups of humanities, sciences and business with the responses to the mandating statement received the results of X^2 (8, N = 234) = 8.051, p = .429. This also indicates that broad discipline groups are not a variable that influenced the response regarding support for mandates.

5.5.2.2 ISSUES OF READERSHIP AND ACCESS

Supporters of open access dissemination suggest that one advantage of open access is the potential to increase the citation impact of published articles (Harnad & Brody, 2004; Harnad, 2005; Antelman, 2004). The survey respondents were asked to consider whether open access journals could increase readership and citations of their articles. In addition, the ideal of 'universal open access' or the ideal of all research being submitted to open access journals, was explored to determine whether the participants saw this as benefiting and assisting them in access to research and information.

	Open access journal will increase readership of my research	Open access journal will increase citation rates of my research	It will make it easier to obtain articles that I need for my research and/or teaching
Agree strongly	35 %	27 %	34 %
Agree somewhat	42 %	38 %	33 %
Neutral	16 %	26 %	23 %
Disagree somewhat	7 %	8 %	5 %
Disagree strongly	1 %	2 %	5 %
Mean	4.03	3.82	3.87

Table 5.10: Open access journals and Issues of readership and access – Likert (%) and mean

The potential to increase readership was acknowledged as an incentive that could lead the respondents to submit to open access journals. Table 5.10 indicates that 77% of the respondents agreed with this statement (strongly agree 35%, somewhat agree 42%, n=242). The respondents have associated open access journal models with the ability for more people to access and read the published content.

The respondents acknowledged that open access may increase citation rates of articles, as this Likert question was supported by 65% (strongly agree 27%, somewhat agree 38%, n=242) of the participants. When compared to the statement about readership, the issue of 'increased citations' had more neutral responses. This may suggest that while open access is viewed as a potential means to increase readership, there is some uncertainty as to whether all of this 'new readership' would lead to further or increased citations.

The statement that open access journal submission will lead to easier access to articles by the respondents was supported by 67% (34% agree strongly and 33% somewhat) of the respondents. The focus group participants indicated that they already had access to the content that they needed through the existing journal publication models. As universities pay for access to subscription journals, individual academics do not necessarily have a barrier to journal access. However, the survey respondents showed general support for the philosophical notion that if all researchers participated in open access journals, then this may improve accessibility to content. Whether academics actually use open access content is explored in later questions.

Chi-Square tests were also conducted to determine if either broad discipline or academic levels influence the results for these statements. However these tests indicate that they were not an influence on the ranking of the Likert scale for each question.

	OA journals increase readership	OA journals increase citations
Disciplines	X^2 (8, N = 235) = 6.03, p = .644	X^2 (8, N = 234) = 9.172, p = .328
Academic levels	X^2 (12, N = 228) = 7.32, p = .836	X^2 (12, N = 227) = 5.125, p = .954

Table 5.11: Chi-Square tests for fitness –
Readership and Citations compared with disciplines and academic levels

5.5.2.3 INFLUENCE OF PUBLICATION QUALITY ON OPEN ACCESS JOURNALS

Journal quality was raised by the focus groups as a main factor in selecting the journal for article submission. The need for open access journals to reflect traditional measures of publication quality was explored through the link with peer-review and academic recognition processes.

Peer review is an ingrained part of the quality process of scholarly communication and thus it is not surprising that 94% (64% strongly and 30% somewhat) acknowledged the need for open access journals to use peer review as a means to maintain academic quality.

	I would submit my articles to an open access journal if that journal provided scholarly authority of peer-review and editorial control		I would submit my articles to an open access journal if that published work could be submitted as part of the RQF	
Agree strongly	64	%	43	%
Agree somewhat	30	%	34	%
Neutral	5	%	16	%
Disagree somewhat	0	%	4	%
Disagree strongly	1	%	3	%
Mean	4.55		4.12	

Table 5.12: Issues of quality – Likert responses (%) and mean

The Directory of Open Access Journals stipulates that to be listed the open access journal must display scholarly quality control through the processes of peer-review or editorial board membership (www.doaj.org). The survey respondents may not have been aware that open access journals generally employ peer review processes as part of their publication practice. This may be a factor in the perception that open access journals reflected a lower quality than commercially publicised journals.

The respondents were asked whether recognising open access journals as part of the RQF, would lead to submission to such journals. The statement received a mean of 4.12 (n=241) and agreement by 77% (43% strongly and 34% somewhat) of the respondents. This suggested that journal selection is dependent on the ability to be recognised under academic recognition

processes. If articles submitted to open access journals were recognised under the processes for academic recognition, then academics may increase submission.

Open access journals are competing with the quality framework currently in place for commercial journals, that is the process of peer review and the link between publication branding and research recognition. However, the respondents tended to view open access journals as being newer journals and of less quality than commercial publication, even though the open access journals were using traditional journals indicators of quality.

5.5.2.4 ENGAGEMENT WITH UNIVERSITY ELECTRONIC PRESSES

The publishers who attended the focus group viewed university based electronic presses as being in competition with established publishers. The survey explored whether the respondents would support and submit content to university based electronic presses. Support for university based open access electronic presses was provided by 46% (17% strongly and 29% somewhat) of the respondents. Support for subscription based university presses was lower, with only 32% (9% strongly and 23% somewhat) of the respondents agreeing with submission. Approximately a third of the respondents (30% for open access electronic presses and 27% for subscription based) indicated a neutral response, suggesting that they had not considered the impact of university based publication processes on their own publication behaviour. However, what is interesting is that where there was some support for university presses, this tended to be for an open access publication model.

	If my university / institution established an open access e-press, then I would publish through that press	If my university / institution established a subscription access e-press, then I would publish through that press
Agree strongly	17 %	9 %
Agree somewhat	29 %	23 %
Neutral	30 %	37 %
Disagree somewhat	13 %	17 %
Disagree strongly	11 %	14 %
Mean	3.26	2.95

Table 5.13: University e-press engagement – comparison of open and subscription models – Likert (%) and mean

5.5.2.5 PHILOSOPHICAL VIEWS OF OPEN ACCESS

Research recognition (through DEST reporting) was identified by the focus group as a driver for publication behaviours that are linked to journals with established brands and reputations. If

such drivers were removed, would this lead to alternative models for research distribution? Specifically, if publishing focused on dissemination and not on research ranking, would this support open access models for distribution? The Likert statement 'If there was not university / institutional pressure to publish, then I would make more articles available through open access means' interpreted open access broadly, but it explored a link between the pressure to publish and how this may impact on developing alternative open access distribution processes. Removing the pressure that universities place on the importance of publication was supported by 39% (14% strongly and 25% somewhat) as a means to develop open access dissemination. Many of the respondents provided a neutral response to the statement. This uncertainty potentially stems from the 'what if' nature of the statement. As Government policy on academic research recognition is a major driver for the publication behaviour, the respondents may not have considered alternative communication processes.

Alternatively academics will see little value in open access journals and would actively refuse to engage with such dissemination. Only 5% (1% strongly and 4% somewhat) indicated that they would not submit their articles to open access journals. Thus only a minority of the respondents would actively refrain from submission to open access journals. There was a level of neutrality to the statement (28%), however there was generally disagreement to the notion of not submitting to open access journals. As Table 5.14 indicates, 68% disagreed (49% strongly and 19% somewhat) to non-submission.

	If there was not university / institutional pressure to publish, then I would make more articles available through open access means	I would not submit any of my articles to an open access journal
Agree strongly	14 %	1 %
Agree somewhat	25 %	4 %
Neutral	42 %	28 %
Disagree somewhat	11 %	19 %
Disagree strongly	8 %	49 %
Mean	3.25	1.89

Table 5.14: Philosophical views to open access – Likert (%) and mean

A favourable interpretation of this statement would suggest that there is potential for approximately two thirds of the respondents to contribute to open access journals. However, the submission pattern for the respondents' last article questions whether actual submissions to

open access journals could reach the level of two thirds of the respondents. Thus there is a difference between the notion of 'practice' and that of 'promise' of engagement with open access journals.

5.5.3 OPEN ACCESS BUSINESS MODELS

One of the financial models for open access journals is that of payment by the author for the publication of the author's article. This model is generally referred to as an 'author payment' model. Some publishers also refer to this as an 'article processes charge', however this term is used not only for covering the costs of open dissemination, but also to support partial publication costs for subscription based journals. The model shifts the cost of publication away from the reader and moves it to the producer of content (author, author's institution or possibly the author's discipline society). This payment supports the costs associated with publication, for example the open access publisher BioMed Central uses the payment to cover costs of software and electronic tool development; preparation and formatting of the article; and submission to digital archives and indexing services (BioMed Central 2008). While this is a model used by open access publishers, it has also been adopted by some commercial or subscription journal publishes as a means to provide open access to individual articles. This is illustrated by Springer's Open Choice publication model that allows authors to pay a fee so that their particular article is free to readers, regardless of which Springer journal it is published in. Author payment fees vary between publishers.

This model of support for open access journals will only work if academics are prepared to pay for their articles to be published. As indicated in Table 5.15, the majority (77%) of the respondents did not favour this business model. Where there was some level of support for the model, this was only provided for selected articles written by the respondents. This response questions the viability of author fees emerging as a model for meeting the cost of open access journal development within Australia.

The humanities showed the least level of support for author fees as 92% of the humanities discipline indicating that they would not be prepared to pay an author fee. This is compared to 70% for sciences and 75% for business disciplines.

	Frequency	Percentage
I would be prepared to pay an author fee for all of my journal articles	4	1%
I would be prepared to pay an author fee for selected journal articles	43	18%
I have already paid such a fee	9	4%
I would not be prepared to pay an author fee for any of my journal articles	186	77%
Total	242	100%

Table 5.15: Response to author payment model

Where the respondents had made a payment for submission of articles, this payment was predominantly within the $US100-500 range (54% of the respondents who have made a payment n=24). If the respondents had to pay an author fee for submissions of articles then the preferred payment was also within this range (74% of the respondents who indicated a preferred level of payment n=90). This suggests that the respondents would only pay a minimal level payment. This level of payment is below those sought by open access publishers. At the time of conducting the survey, author fees were approximately $US2,500 and as indicated in Table 5.16, there was very little support for this level of payment. Only three respondents would pay this or a higher author fee.

	Reasonable payment		Have paid	
	Frequency	Percentage	Frequency	Percentage
$AU100-500	67	74%	13	54%
$AU600-1000	12	13%	4	17%
$AU1100-1500	4	5%	2	8%
$AU1600-2000	4	5%	2	8%
$AU2100-2500	1	1%	3	13%
$AU2600-3000	2	2%	0	0%
Total	90	100%	24	100%

Table 5.16: What would be a reasonable author payment?

One of the principles of open access dissemination is that publically funded research should be available freely to the reader. The premise of this is that public funds have paid for the development of the research and thus the outcomes of this research should be accessible and not confined by commercial publication processes. The survey participants generally supported this principle as 76% (39% strongly and 37% somewhat, n=238) agreed with the concept. However, funding this principle remains an issue. The respondents did not view the migration of

the costs to authors as a viable model, as 77% of the respondents indicated that they were not prepared to pay an author fee (Table 5.15).

In some instances, comments illustrated the respondents' adamant rejection of author payment fees.

> *I find it outrageous that academics are asked to pay to have work published. I know there are costs and I'm not sure how they should be met. The government does not pay enough for universities to meet their teaching needs much less for research so I'm not sure how the impasse is to be negotiated. (S29: Associate Professor)*

Even where respondents acknowledged the quality of some physics based open access journals and indicated general acceptance of open journals by the discipline, the business model was prohibitive to submission.

> *Open access journals in my area charge large submission fees; I can't afford it (even with discounts available to me a reviewer). (S75: Senior Lecturer)*

And from a physics respondent who had acknowledged the discipline's established engagement with open access journals:

> *Cost is a major factor here: without access to funds for Open Access quality journals (e.g. Optics Express and New Journal of Physics) there is a major disincentive to publishing there.... The one publication I have in an Open Access journal was paid for by overseas collaborators. (S78: Lecturer)*

The cost of publication could be supported through research funding, however such costs did not form part of the funding processes for Australian research at the time of the survey. The survey participants repeatedly indicated that the Australian funding climate generally did not support the payment of author fees for publication.

> *Currently my understanding is that ARC [Australian Research Council] does NOT allow expenditure on "page charges" for publication which might be a problem. (S69: Senior Lecturer)*

> *This is tricky because grant conditions usually refuse to cover publication costs. (S15: Associate Professor)*

While funding bodies, including the ARC, support the open dissemination of research that they help fund, the inability to incorporate publication costs within funding submissions will act as a

deterrent to the Australian academic community supporting open access journals that use an author payment model. If submissions to Australian research funding bodies could include the full publication costs, then the survey responses suggest that this may lead to support for open access submission. The respondents were asked to consider whether their funding bodies or their university should provide the funds that support author fees. There was agreement by 58% (30% strongly and 28% somewhat) of the respondents for funding bodies to pay author fees and 64% agreed (23% strongly and 41% somewhat) to author fees being met by university-based funds.

	Funding body support for author fees		University funding support for author fees	
	Frequency	Percentage	Frequency	Percentage
Disagree strongly	31	13%	18	8%
Disagree somewhat	27	11%	19	8%
Neutral	42	18%	47	20%
Agree somewhat	67	28%	98	41%
Agree strongly	71	30%	55	23%
Total	238	100%	237	100%

Table 5.17: Should Funding bodies and universities support the payment of author fees?

The payment of author fees was a contentious issue for the participants. It is not a fee that would be paid for directly by the participants. In fact, there was resentment to an author fee model because academics see that they are currently providing content to publishers for no financial reward. However, migrating an author fee to funding agencies or to the academic's university had some support from the participants. Funding agencies that aim to support or possibly mandate open access dissemination may need to also allow for funding submission to incorporate payment for this support.

However, the participants qualified support for funding agencies paying submission fees with a number of conditions. The first is the ongoing link between publication and research recognition. Funding support for open access journals was viewed as being conditional on such journals meeting any government policy for research reporting.

> *If Universities were to fund publications and they met RQF criteria then I would publish all articles in open access journals. (S223: Lecturer)*

The second qualification related to the current level of funding and revenue that Australian universities receive. University budgets are seen as being 'stretched' and thus diverting part of this budget to cover publication costs would not be supported.

> *I am against universities funding e-presses/author fees simply because as a Head of Department I know that University funds are already tight and such funding schemes will ultimately mean I have less money to pay staff salaries. (S69: Senior Lecturer)*

The focus group participants had questioned the viability of an author payment model as they indicated that it leads to a fixed revenue base that does not support future development of the journal. Whether the survey participants also acknowledged this sentiment is difficult to determine. Responding to the question as to whether open access journals are financially unviable, the survey participants indicated a strong sense of uncertainty as 41% (n=237) provided a 'neutral' response to the issue. Thirty-eight percent of the respondents disagreed (16% strongly disagreeing and 22% somewhat) with the statement. It is acknowledged that this is seeking opinion about publication business models that the respondents may not have considered in detail. However, the response probably suggests that in regard to general academic view of the ongoing financial viability open access journal models, the 'verdict is still out'.

In practice, the current commercial publication processes met the respondents' needs for the dissemination of their published articles, as acknowledged by 67% of the respondents (21% strongly and 46% somewhat, n=237). This is probably not a surprising response as it maintains the status quo in publication processes. While there is in principle support for making content open, the author fee business model for open access journals and the perception of issues of quality of open access journal act as barriers to adoption of such as an active or preferred model for research dissemination.

Maybe the 'last word' on alternative payment models for journal publications should rest with the following survey participant, who acknowledged the author's role in publication practice.

> *In fact I believe that authors should be paid. (S238: Lecturer)*

5.5.4 The participants' use of open access journals

Academics and researchers are both authors and readers of scholarly content. If open access dissemination is to be accepted by the academic community, then such content needs to become part of the circular nature of the publication process. As outlined in the literature

analysis (Chapter 2), supporters of open access argue that open access journals and repositories lead to increased citation rates for articles. This is presented as a benefit for contributing to open access dissemination models. If the academic community uses open access content, then they may also publish or contribute to open access distribution processes.

The respondents were asked to consider their use of open access journals for research and for teaching. It is acknowledged that the number of open access journal publications do not reflect the 'ideal' of all content being made available freely. However, if academics support a belief that open access journals would make it easier for them to access research, then it is assumed that they would be using some open access journals as a source of content.

Figure 5.3 presents a bar graph comparison of the use of open access journals for research and teaching. Interpreting this usage suggests a contradiction in take-up of open access journals as information sources. While overall 80% of the respondents indicated that they have used open access journals for research and that 73% had used them for their teaching, this use seems to be only occasional use. The respondents primarily indicated 'sometimes used' as their main pattern of access for both research and teaching.
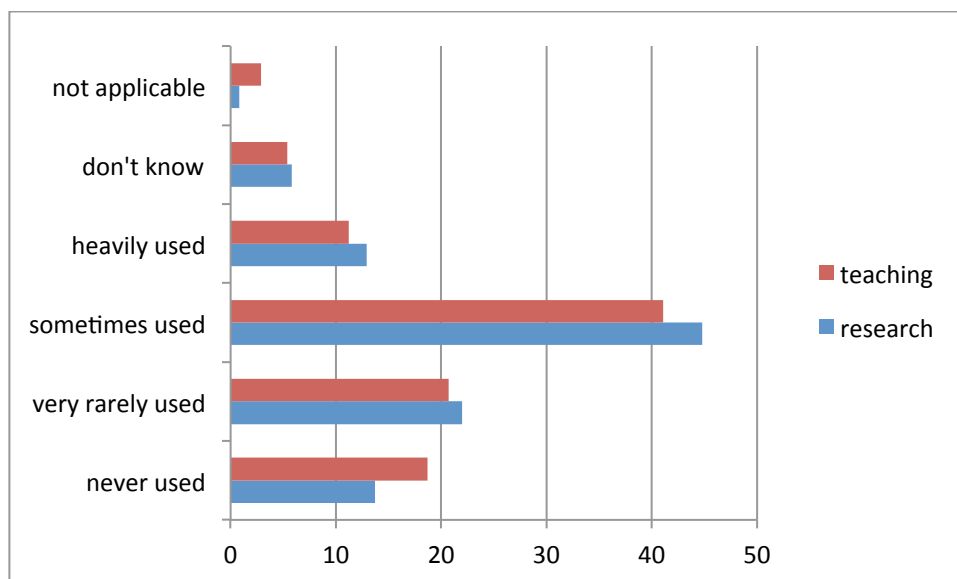
Figure 5.3: Comparison of open access journals for teaching and research (%)

Such a response needs to be placed in the context of general access to information and to the availability of open access journals. Academics tend to have access to a wide range of research provided by their institutions. Thus, even though many of these resources may be subscription based, the cost of the subscriptions is met centrally (usually by the library) and thus there may not be a clear differentiation between content that is subscription based but paid for by the

institution and that content that is fully open access. This may mean that there is not an incentive to specifically seek out open content as a means to avoid a barrier to access caused by subscription restrictions. As illustrated by the following comment, academics may have difficulty in determining a difference between open and closed access journals because of their access to content through library collections.

> *I have only found one such in my field. Our library has hundreds of journal subs and I may have accessed some open access journals without realising it. (S227: Senior Lecturer)*

If libraries are supportive of open access journal models, then they may have a role in identifying journals within their collection that are open access. Just as libraries have the opportunity to personalise the access screen for their subscription based journal collections, so that the user is aware that the library has purchased the collection, then libraries could also tag or identify open access journals so as to increase awareness of such journal collections.

5.6   AWARENESS AND PRACTICE RELATED TO THE USE OF REPOSITORIES

During the period of investigation for this study the Australian Commonwealth Department of Education, Science and Training provided funds for the establishment and investigation of repository infrastructure. Two projects Australian Research Repositories Online to the World (ARROW) www.arrow.edu.au and Australian Partnerships for Sustainable Repositories (APSR) www.apsr.edu.au were established to explore collaborative repository development and to determine suitable technical infrastructure for repository implementation. The survey of academics was conducted after the repository infrastructure of these and other projects had been well established.

This section explores the survey respondents' engagement with repositories.

5.6.1 SUBMISSION TO REPOSITORIES

It has previously been stated that only 13% of the respondents had submitted their last published article to a repository. When considering the respondents' overall publication behaviour, engagement with open access repositories increased to 27% (Table 5.18) having submitted conference papers and/or articles to an open access repository.

	Frequency	Percentage
Submit both journal articles and conference papers	28	12%
Submit either journal article or conference paper	37	15%
Non-submission	174	73%
Total	239	100%

Table 5.18: Comparison of journal and conference paper submission to open access repositories

Table 5.19 indicates whether the repository submission was local to their university or whether the repository was located elsewhere, primarily a discipline specific repository.

	Frequency
Own institution / university	41
Another institution / university	17
Owned by a discipline group	15
Owned by a learned society	14

Table 5.19: Frequency count – locations of repositories to which respondents have submitted

The majority of submissions were made to repositories at the respondents' own university or institution. However, comments received from the respondents suggested that the submissions may not be to a centralised repository, but rather to websites maintained by the individual academic or by the academic's school or department.

> *I have created a web site myself to post my own articles or at least draft versions of papers (that were close to finals). I believed that putting it online for free access was providing a service to the public and myself. (S80: Lecturer)*

> *I submit stuff to repositories all the time. The repository is called the internet …. I certainly do not need any "central" top-down run repository to organise this. (S158: Professor)*

> *Please note that the repository I use is the set of web pages I have set up through my School's web server services. (S166: Lecturer)*

For some academics, a formal or centralised repository infrastructure may be in competition to their own practice of maintaining a personal web presence. While individual and school based use of websites as repositories may mean a reluctance to also submit to centralised service, this

local control of content may be an incentive to support an open access philosophy. The advantage for individual academics is that their own web presence acts as a promotional process for their work. While an institutional repository provides a centralised point of access for search and retrieval (especially as federated or cross repository search ability is developed) consideration needs to be given to establishing easy ways for academics to also link from their own web pages to their specific articles placed within the repositories.

Repositories outside of the respondent's institution included discipline repositories, such as arXiv.org, as well as other institutional repositories including the Australian National Library archive. However, there was a suggestion that such contribution was made at the invitation of others, either the co-authors of the article or by interest groups who wished to republish the article on their own open access website. This suggests that submission was not necessarily self motivated, but rather driven by others requesting access to the articles. For those who have not submitted, the primary reason given was lack of awareness and availability of suitable repositories.

	Frequency
Institution does not have a repository	51
Not aware of a repository relevant to publications	95
It takes too much time and effort to submit article	18
There is no professional / academic advantage in submitting articles	35
No particular reason	31

Table 5.20: Frequency count – reasons for non-submission to repositories
(Population total N=194)

5.6.2 MOTIVATION TO SUBMIT TO OPEN ACCESS REPOSITORIES

As with the exploration of submission to open access journals, the survey respondents were asked to rate statements that may act as incentives for submission to open access repositories (Question C. 13). Three major foci were explored in this part of the survey.

The first focus related to mandating submission to repositories. As with mandates for open access journals, mandating submission to repositories can be initiated by institutional policies,

funding sources or government policy and thus respondents were asked to rate statements relating to the three possible initiators of mandating policy.

The second focus related to the perceived impact that repository submission may have on access to and readership of, the submitted articles.

The third focus related to the perceived need to link processes for research recognition with repository submission.

The means for the Likert statements are presented in Figure 5.4.
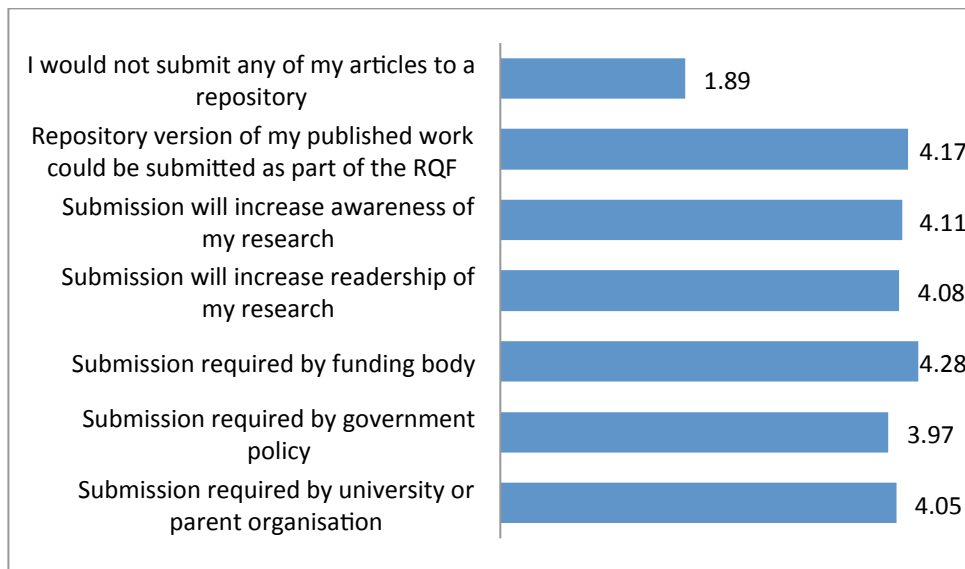
Figure 5.4: Potential motivation for submission to repositories
– Likert scale means (1 – 'Disagree strongly', 5 – 'Agree strongly'

5.6.2.1   MANDATING

The issue of mandating was explored in relation to whether the respondents would submit to an open access repository if their university, their funding body or if government policy required submission. It is acknowledged that there is potential overlap between these groups as, for example, government agencies can also be funding sources.

Commentary from the survey suggested that for some participants, mandating will lead to an inevitability of increased submissions.

> *If it's required it will happen eventually. (S15: Associate Professor)*

> *Repositories combine compulsion with self-interest --- inescapable! (S66: Professor)*

Table 5.21 presents the frequency counts and percentages for the responses to mandates from the three bodies. Eighty-three percent of the respondents agreed (33% strongly and 50% somewhat) that they would support mandating by their university. Mandating by their research funding body was supported by 87% (49% strongly and 38% somewhat) of the respondents while mandating through government policy was supported by 79% (34% strongly agree and 45% agree somewhat) of the respondents. While the respondents agreed to the statements, funding bodies received a greater level of 'agree strongly' than the other bodies and thus would have a potentially stronger influence on participant adherence to the mandate.

The agreement to support a mandate for repository submission should be examined in association with the actual engagement with repositories. Considering that overall only 27% (Table 5.18) have engaged with repositories, an initial interpretation of the data in Table 5.21 would be that mandating could have a considerable influence in improving submission rates. However, one has to question whether the responses represent action that would be followed through or whether the response is simply a potential promise.

	University requirement		Funding body requirement		Government policy requirement	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Disagree strongly	8	3%	6	3%	16	7%
Disagree somewhat	8	3%	8	3%	7	3%
Neutral	26	11%	16	7%	25	11%
Agree somewhat	116	50%	89	38%	106	45%
Agree strongly	78	33%	115	49%	80	34%
Total	236	100%	234	100%	234	100%
Means	4.05		4.28		3.97	

Table 5.21: Mandating submission – comparison: university, funding body and government policy

Trying to determine the degree to which the respondents would follow through with submission if they were required by any of the agencies, would provide a clearer indication of actual impact of mandating policies. While this research was not a longitudinal study, it is proposed that the actual impact of mandating could be explored through an examination of the 'strongly agree' responses from Table 5.21. The aim of this is to gather a stronger sense of the impact of mandating policies. This is still analysing 'promises' and thus action may not follow, but the analysis may act as a guide for further policy development.

A mandate or requirement from a body implies a need for compliance and thus it is assumed that those who 'strongly agree' would tend to meet this compliance. Those who 'agree somewhat' would comply 'sometimes' and would not necessarily automatically submit all material, as would be the intention of a mandate. It is therefore suggested that the 'strongly agree' ranking of the Likert scale indicates a more accurate measure of compliance and reflects the impact that mandating may have on submission. It is acknowledged that the 'somewhat agree' ranking will have a possible impact, but this would not necessarily be a full compliance to a mandate.

Under this assumption, mandates from funding bodies potentially have the strongest impact on compliance. When exploring the number of responses that agree strongly to each of these mandating statements, 49% of the respondents agreed strongly to submission if funding bodies established a requirement to submission. This compares to approximately a third of the respondents (33% for university mandates and 34% for government mandates) who would agree strongly to meet a mandate by university and government bodies.

This suggests a level of support for organisations such as the Wellcome Trust who make dissemination of research results through open access processes a requirement of funding. If the participants' submission practice (where 27% of the respondents had submitted some content to a repository) is compared to the promise of submission, then a mandate from a funding body may only lead to a further 22% of respondents participating. Mandates from university and government policies may only lead to an additional seven to eight percent of the participants contributing to repositories.

This comparison is based on an assumption that the respondents who had contributed to a repository would be ongoing supporters of repositories and would thus abide by a mandating policy. Sixty-five respondents (27% of the survey population) had submitted publications (journal and/or conference papers) to a repository. Of these, twenty-five 'agree strongly' for supporting mandating by the university. In regard to mandating by government policy, twenty-six strongly agree; and for funding bodies, thirty-seven strongly agree. This continues to indicate that funding body mandates may have the strongest influence on submission, over mandates imposed by the university or government policy. However, even where there has been engagement with repository submission, establishing a mandate may not automatically lead to an ongoing compliance to submission by those who have already engaged with repositories. Obviously those respondents who indicated that they have previously engaged with open access repositories may not necessarily be doing this on an ongoing or regular basis. However,

mandating will not necessarily lead to a more regular level of submission. Instead, mandating could potentially lead to a decline in submission by existing contributors while increasing contribution by the respondents who have not previously been contributors. It seems that while some participants (that is those who agree strongly) would comply outright, the reality is that submission, even under a mandate, will predominantly be on a case-by-case basis.

5.6.2.2   AWARENESS AND READERSHIP

Respondents were asked to consider whether they viewed submission to repositories as being a way to increase awareness of their articles and potential readership of the submitted articles. Both of these statements were viewed favourably, with 'awareness of my research' having a mean of 4.11 and 'increasing readership' a mean of 4.08. In regard to response frequencies, 77% respondents agreeing (39% strongly and 38% somewhat) that submission may increase awareness of the research. In regard to readership, 76% (37% strongly and 39% somewhat) agreed to repositories have a favourable influence.

	Submission to repository will increase awareness of my research	Submission to repository will increase readership of my research
Agree strongly	39 %	37 %
Agree somewhat	38 %	39 %
Neutral	19 %	20 %
Disagree somewhat	3 %	3 %
Disagree strongly	1 %	1 %
Mean	4.11	4.08

Table 5.22: Repositories and Issues of awareness and readership
– Likert (%) and mean

5.6.2.3   RESEARCH RECOGNITION

The participants acknowledged that they would consider submission to open access repositories if the submission could be recognised for the purposes of academic recognition. Seventy-nine percent (44% strongly and 35% somewhat) agreed that if the article submitted to the repository could be used as evidence or support for recording their research output, then they would consider submission.

This response highlights that where there is a return or benefit for submission, then there may be an increased level of support. Academics recognised the potential benefit of linking repositories to the processes required for recording research output. Reinforcing the use of repositories as evidence of research output could act as an incentive for increasing submission.

	Submission could be included as part of the RQF		Would not submit to a repository	
Agree strongly	44	%	2	%
Agree somewhat	35	%	5	%
Neutral	17	%	22	%
Disagree somewhat	2	%	21	%
Disagree strongly	2	%	50	%
Mean	4.17		1.89	

Table 5.23: Repositories and RQF / withholding of submission – Likert (%) and mean

As with submission to open access journals, the survey respondents indicated that they would not deliberately withhold their articles from submission to repositories. As presented in Table 5.23 there was only 7% (2% strongly and 5% somewhat) agreement that respondents 'would not submit any of their articles to a repository'. Half of the respondents disagreed strongly with the statement and a further 21% somewhat disagreed. On the surface, this suggests that potentially 71% of the respondents would be willing to contribute some content to a repository. Actual submission by the survey respondents does not reflect this level of submission. Therefore, while academics will not actively prevent submission, other factors must act as barriers to engagement.

5.6.3 USE OF CONTENT FROM OPEN ACCESS REPOSITORIES

The survey respondents only made occasional use of repository content for their research and teaching. Repository content was 'sometimes used' for research (30%) and for teaching (32%). Repositories were not, therefore, a primary source of content for the respondents. If this is the case, then the respondents did not see a benefit in accessing repository content and this may then act as a deterrent to submission of content.

	Research		Teaching	
	Frequency	Percentage	Frequency	Percentage
Never used	65	27%	67	28%
Very rarely used	58	24%	52	22%
Sometimes used	73	30%	77	32%
Heavily used	25	10%	17	7%
Don't know	22	9%	22	9%
Not applicable			6	2%
Total	243	100%	241	100%

Table 5.24: Use of open access repositories for research and teaching

This was illustrated by survey commentary, which linked the repository to a 'bureaucratic' policy process and not to a research need.

> *Open repositories etc. always seem like a bureaucratic thing for librarians and similar and not something that researchers would use. (S70: Senior Lecturer)*

5.6.4 PERCEIVED IMPACT OF REPOSITORIES ON SCHOLARLY PUBLISHING

Discussion from the focus groups, especially the publishers group, suggested that the development of repositories would have a negative impact on scholarly publishing. Publishers argued that the submission of articles to repositories causes difficulty in maintaining research quality, as different versions of an article will be publicly accessible. The growth of repositories may also lead to the cancelation of journals as individual articles become openly accessible.

The survey respondents were asked to comment on the perceived impact of repository development on current publication processes. There was a degree of contradiction in their responses. While respondents supported a belief that repositories complement current scholarly publishing processes (61% agree – 15% strongly and 46% somewhat), they also indicated that repositories may lead to a decline in subscriptions to commercial journals (supported by 71% of the respondents, 25% strongly and 46% somewhat).

Repositories were not viewed as being a means to promote articles that have been commercially published. As previously stated, one of the reasons for lack of submission to formal repositories is that the respondents have hosted their articles on their own websites. One would assume that this is done as a promotional process for their research and published work. If this aim is not transferred to repositories, then academics may not see an incentive in submission to repositories.

The focus groups raised concern that repositories could hinder quality control, as multiple versions of an article would be publically accessibly. As repositories accept various versions of content (for example a pre-print version), then there may be an issue of whether such versions will have the same quality as the final publisher article. Fifty-eight percent of the respondents agreed (16% strongly and 42% somewhat) with this concern.

Chi-Square comparisons were conducted after the Likert scale had been recoded into a three point scale of disagree, neutral and agree. This recoding was necessary so that the Chi-Square results were valid and not hindered by small cell counts. The only indication of dependence

relates to the discipline groups' responses to the library cancelling subscriptions. As presented in the results below, this test has an x^2 (4, N=229) = 11.303, p = .023. The variance comes from the humanities and science disciplines presenting a stronger level of agreement (humanities 72% and sciences 62%) than that of the business disciplines (48%).

For all other statements there was no dependence identified when they were cross-tabulated with academic levels or with broad discipline groups. The Chi-Square results, presented below, suggest that the results of the survey are consistent across the academic community that is represented in the respondent sample.

Academic level	Repositories complement scholarly publishing	x^2 (6, N=225) = 2.066, p = .914
	Repositories promote published articles	x^2 (6, N=223) = 4.391, p = .624
	Lead to a decline in subscriptions	x^2 (6, N=221) = 9.547, p = .145
	Lead to libraries cancelling subscriptions	x^2 (6, N=222) = 5.137, p = .526
	Repositories will hinder quality control	x^2 (6, N=223) = 8.085, p = .232
Discipline groups	Repositories complement scholarly publishing	x^2 (4, N=232) = 4.100, p = .395
	Repositories promote published articles	x^2 (4, N=230) = 1.659, p = .798
	Lead to a decline in subscriptions	x^2 (4, N=228) = 2.964, p = .564
	Lead to libraries cancelling subscriptions	x^2 (4, N=229) = 11.303, p = .023
	Repositories will hinder quality control	x^2 (4, N=230) = 2.060, p = .725

5.6.5 TIME AND WORK PRACTICE

The survey respondents presented the time needed to manage submission to repositories as an issue. The impact of other work pressures meant that there was a lack of engagement with repositories.

> *I have not had time but this is not because it is a lengthy or difficult procedure but because I am a department head buried beneath administration. (S69: senior Lecturer)*

> *The lack of admin support in universities does impact on this as there is little spare time for preparing and submitting to a repository on top of journal submissions. (S228: Associate Professor)*

The submission of articles to a central repository was seen as being another administrative process that would compete with other tasks for time.

5.7 IMPACT OF ACADEMIC RECOGNITION (RQF) ON PUBLICATION PRACTICE

At the time of establishing the framework for the survey, the Australian Commonwealth government implemented the Research Quality Framework (RQF) as a means to improve the research output from Australian higher education and research institutions. Pilot processes had been conducted at some universities to test how their research and publication output would measure up to or meet the perceived requirements of the RQF. Section D of the survey sought responses from the participants regarding how they perceived the RQF would impact on their general publication behaviour and more specifically on their engagement with open access dissemination.

The focus group indicated that one of the reasons for publication was to meet the requirements of the DEST point system that had been used for recording research output. Readership and dissemination were secondary concerns to this requirement for research publication and recognition. If this is the case, then the changes in research recognition policies would, perceivably, alter the publication pattern.

Survey respondents were presented with two series of Likert statements related to the potential impact that the RQF may have on their own publication behaviour and on the broader scholarly publishing processes, including open access dissemination. The statements were primarily developed from the focus group discussion; however, the survey pretesting process also informed their development. The statements were presented as two questions. The first

(Question D1) sought responses relating to the potential impact that the RQF may impact on the respondents' current publication practice. The second (Question D2) asked the respondents to reflect on the potential future impact of the RQF on publication practice and open access engagement. While the responses to these questions are outlined in this section of the chapter, it needs to be noted that Commonwealth Government elections led to a change in political parties and that this, in turn, led to further modification to the policies associated with research recognition. The initial intention of Questions D1 and D2 was to explore the potential impact that the RQF would have on publication patterns. Because of the changes in Commonwealth Government, the RQF was not fully implemented. However, its proposal has had an impact on publication practice as suggested by:

> *Some outcomes may occur because of the way in which unis RESPOND to the RQF rather than because of the RQF itself. Some unis are doing pretty silly things. (S4: Associate Professor)*

Further changes to government policy and the implementation of the ERA framework, means that the relevance of some of the statements from questions D.1 and D.2 has changed. Due to these changes, this section focuses on discussing the statements that are related to broader concerns of academic recognition and publication, than just the RQF. The interviews presented in Chapter 6 complement this discussion as they were conducted after the change in the Commonwealth Government policy and the announcement of the ERA framework.

5.7.1 PERCEIVED IMPACT ON CURRENT PUBLICATION PRACTICE

Table 5.25 presents the responses to two statements that sought opinion on the overall impact of the RQF on scholarly publishing. The first explores whether the respondents would continue with their current pattern of publication, by asking whether the RQF would have 'no impact' on their decisions as to where and when to publish. The second statement seeks a broader level of potential impact by asking the respondents to consider if there was an overall impact on the Australian scholarly publishers.

A quarter of the respondents agreed (13% somewhat and 12% strongly) that the RQF would have no impact on their current practice and process of publication. For such respondents, the publication behaviours identified earlier in this chapter would continue. However 57% disagreed (37% somewhat and 20% strongly) with the statement. This implies that the respondents forecasted that they will change their publication process and their decision as to where to publish, because of the changes in the research recognition process. This response does not

indicate how they will change their submission processes, but does suggest that as research recognition processes change and develop, this then directly impacts on publication cycles. Chi-square comparison between the three broad discipline groups of humanities/social sciences; sciences, medicine, engineering; and business, law, information systems indicated that there was no significant difference between the groups - X^2 (8, N=232) = 5.651, p = .686.

When asked to consider the impact on the Australian scholarly publishers, there was a degree (36%) of uncertainty as to the potential impact. The question was asking respondents to reflect on the scholarly publishers and thus there is an expectation that academic survey participants may not be able to comment on the actual impact on the publishers. However, 48% (18% strongly and 30% somewhat) agreed that the change in research recognition would have a negative impact on the scholarly publishers. In essence, the changes in research recognition policies would influence the decisions made by the respondents, regarding their publication behaviour and this could then impact on scholarly publishers.

	The RQF will have no impact on my decisions on publishing my scholarly output - where and when to publish		The RQF will have a negative impact on Australian scholarly publishers	
	Frequency	Percentage	Frequency	Percentage
Disagree strongly	48	20%	7	3%
Disagree somewhat	89	37%	31	13%
Neutral	42	18%	87	36%
Agree somewhat	32	13%	72	30%
Agree strongly	28	12%	42	18%
Total	239	100%	239	100%
Mean	2.59		3.46	

Table 5.25: Impact of research recognition on individual publication pattern and on Australian scholarly publishers

The new research policy could lead to changes in publication behaviour that develop a 'dual tiered' level of publication and a focus on journals published outside of Australia. Table 5.26 indicates that 63% agreed (18% strongly and 45% somewhat) to the statement that they would reserve their best articles for top international journals. This may not lead to a decline in the number of articles published, but rather a retargeting of articles to a dual layer of publishing quality. What this could potentially do is increasingly focus publication to journals outside of Australia. This is suggested by the 70% agreement (33% strongly and 37% somewhat) to the

statement that the research policy change will make the respondents seek quality journals by looking to publish outside of Australia. The longer term impact on Australian scholarly publishers and electronic presses needs to be monitored. The respondents acknowledged a tiered approach to their developing publication behaviour and they view the 'better' quality journals as residing outside of the Australian publication environment. The respondents were asked to consider whether they believed that these changes would lead to fewer articles being published in Australian based journals. Fifty-four percent (17% strongly and 37% somewhat) of the respondents indicated that the research policy could lead to decrease in the number of articles published in Australian based journals.

	My 'best/primary' articles will be reserved for the 'top international journals', while other articles will be written for other journals, e-presses and conferences		The RQF would make me look more to journals published outside Australia as a location to publish because of the greater quality and impact of such journals		The RQF will lead to fewer articles and papers being published in Australian journals	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Disagree strongly	12	5%	17	7%	6	2%
Disagree somewhat	25	10%	20	8%	31	13%
Neutral	53	22%	36	15%	74	31%
Agree somewhat	107	45%	90	37%	88	37%
Agree strongly	43	18%	78	33%	40	17%
Total	240	100%	241	100%	239	100%
Mean	3.60		3.80		3.52	

Table 5.26: Impact of research recognition on where scholarly articles are published

The respondents were asked to consider the potential impact of the research recognition policy on the development of open access dissemination. The statement as to whether the RQF would make it unlikely for the respondents to publish in open access journals received even distribution between agreement (total agreement 32%) and disagreement (total disagreement 33%). The response does not point strongly to either viewpoint. Responses to the use of open access publishing and repository submission as a means to increase awareness and potential impact of articles was clustered in the 'neutral' and 'agree somewhat' scales. It is, therefore, difficult to determine whether this would act as a driver for long term support for open access publishing and dissemination.

	Open access publishing will mean more awareness of my scholarship and thus more impact, as required under the RQF		The advent of the RQF makes it unlikely that I will publish in an open access journal		Submitting my publications to an institutional or discipline repository, and recording download statistics from the repository, could assist in determining 'impact' of my scholarship	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Disagree strongly	13	6%	25	11%	21	9%
Disagree somewhat	27	11%	52	22%	16	7%
Neutral	101	42%	84	35%	91	38%
Agree somewhat	80	34%	53	22%	91	38%
Agree strongly	17	7%	25	10%	19	8%
Total	238	100%	239	100%	238	100%
Mean	3.26		3.00		3.30	

Table 5.27: Research recognition and open access dissemination

5.7.2 PERCEIVED IMPACT ON FUTURE PUBLICATION PRACTICE

The final question in the survey asked the respondents to consider the potential longer-term impact of the RQF. However, as the research recognition policy was again later changed to the ERA framework, ongoing exploration of the RQF itself cannot be made. While the RQF was not fully implemented, academic staff were gathering publication data for trials of the RQF and therefore were influenced by the RQF.

Table 5.28 presents responses to three statements regarding the RQF and publication practice. The first statement simply asked whether the respondents believed that the RQF would have little impact on academics' publication practice. Only 17% agreed (3% strongly and 14% somewhat) that there would be little impact. Fifty-five percent of the respondents disagreed (18% strongly and 37% somewhat) with the statement, with the remainder of the respondents presenting a neutral response. This continues to reinforce the expectation that research evaluation exercises would have caused a change in the Australian scholarly publishing environment.

The initial publication behaviour of the respondents indicated a focus on publication in international based journals. In considering the ongoing impact of research recognition policies, the respondents agreed that the policy changes would reinforce the focus on journals published outside of Australia. Sixty-seven percent agreed (17% strongly and 50% somewhat) that the RQF would force Australian academics to focus on international journals. There was also agreement (60% total, with 17% strongly and 43% somewhat) that academic schools would mandate which

journals to target for publication. At the time of conducting the survey, the RQF policy was not proposing the development of a ranked list of journals. Such ranking was developed as part of the later ERA framework. However, academic disciplines, schools and university administrators were considering how 'quality' would be defined under the RQF policy. One impact of this was a reinforcement of journal quality measures such as ISI listings and citation measurements. In predicting the ongoing impact of the RQF, the survey respondents acknowledged that their disciplines and schools would state which journals meet academic 'quality'. Such a response would mean that academics start to target their submission to a narrow list of journals. The issue then becomes, what impact would this have on open access engagement?

	RQF will have very little impact on the current scholarly publishing processes. Australian academics will not change their current publishing practice		The RQF will force Australian academics to focus on international journals		The RQF will lead to academic faculties, departments and schools mandating which journals their staff should target for publication	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Disagree strongly	43	18%	1	0.5%	6	3%
Disagree somewhat	88	37%	15	6.5%	23	10%
Neutral	65	28%	61	26%	64	27%
Agree somewhat	34	14%	118	50%	102	43%
Agree strongly	6	3%	40	17%	41	17%
Total	236	100%	235	100%	236	100%
Mean	2.46		3.77		3.63	

Table 5.28: RQF may influence publication practice

While the survey attempted to gather information about the potential impact of the research policies on open access development, the responses indicated a high degree of 'neutrality'. This indicated that the respondents were reluctant to predict the potential ongoing impact that research recognition may have on the development of open access initiatives. Chapter 6 presents the outcome from interviews conducted with academics. These interviews were conducted after the RQF had been replaced with the ERA framework and the interviewees were able to discuss in further detail the impact that both research frameworks have had on their publication behaviours. This includes discussion on the impact on open access dissemination.

5.8   BUILDING THEORY FROM THE SURVEY RESPONSES

While this chapter is based on data collected through a survey, the aim of the chapter is not to complete detailed statistical comparisons of the results, but rather to identify further trends that can contribute to the grounded theory analysis. In order to incorporate the survey results

into the development of a theoretical framework for the thesis, the trends identified from the respondents' publication patterns and from their responses to the various survey Likert questions were treated as theoretical categories. The comments volunteered by the survey respondents also contributed to the identification of these categories. The categories were added to the NVIVO nodes that had been identified through the analysis of the focus group responses. The survey categories were then grouped into super categories that indicate the main themes that have emerged from the survey analysis.

The survey builds upon the themes identified through the focus group discussion of Chapter 4. The focus group themes include:

- Academic recognition is the main driver for publication practice.
- 'Quality' is seen as a secondary driver. Quality is associated with journal branding and the publication practices associated with peer review and editorial control.
- Copyright acts as a barrier to open access dissemination, as the focus group participants viewed author-publisher agreements as a handing over of rights to the publisher.
- Getting published is the main motivation for publication. Research dissemination is not the primary motivation. This was linked to the need for academics research recognition and for the academic focus group, targeting appropriate journals for branding and prestige held higher importance than fostering wider models for research dissemination.
- Open access engagement was incidental and not part of a targeted strategy for publication or research promotion.

The survey has identified a further twelve themes that either build upon those from the focus groups or are new themes that contribute to the grounded theory analysis. The survey themes are:

- *Publication quality and branding*, influenced journal submission behaviour
- The *impact of Australian research funding on open access journals*, is identified as funding sources negating open access dissemination as support has not been provided for author payment costs
- *The open access promise*, whereby participants' acknowledged support for open access but have not built this into their actual publication behaviour

- *"Getting published' versus "dissemination and readership"*, whereby the need to be published may be in conflict with alternative publication models that may best suite reader access
- *Self-generated archives act as an alternative to open access repositories*
- *Open access content is not a primary source for scholarly information*
- *Repository interfaces need to be designed as a filter to article quality*, so that it is easier to locate peer-reviewed and published articles
- *Institution, discipline or publisher based repositories* are questioned as to which is needed for archiving scholarly content
- *Focus on international journals will impact on Australian based electronic press development*
- *A focus on limited dissemination*, whereby research recognition policies will direct scholarly publishing to a selected and highly targeted publication path
- *Career-minded academics* are identified by the participants, as academics who will adopt a publication behaviour that is primarily focused on their career and promotion prospects. This will be to the detriment to supporting alternative publication models, as it will reinforce a highly targeted publication strategy.
- *A publishing change … that maintains the status quo*. While the publication behaviour is changing it reinforced support for commercial publication processes

The themes from the survey are outlined in each of the next sections. Where appropriate, the discussion is drawn back to the initial themes identified through the focus group analysis.

5.8.1 PUBLICATION QUALITY AND BRANDING

"Quality' was constantly raised by the focus groups, especially by the publishers. The concept of quality was discussed in relation to quality control measures, such as article peer review, but also in relation to the impact that journal branding may have as an indication of the value of the published research. The academic focus group even implied that the main purpose of publication is to have articles accepted in branded journals, regardless of whether these are the best journals for the dissemination of the research content.

Issues of quality were also reinforced through the survey, as respondents identified the importance of peer review of journals (96% agreement) and the value of journal prestige in supporting the respondents' 'academic standing' (75% agreement), when submitting their last article for publication.

Quality, however, was associated with the established commercial publishers. Even where the respondents displayed awareness of open access journals within their discipline area, there was concern that such journals did not have the reputation of the commercial journals. Comments from the participants viewed open access journals as 'not being recognised as peer-reviewed', as 'not to be the most prestigious or influential journals' and that there are 'few reputable open-access journals'. Thus the quality measures that the respondents associated with commercial journals have not been extended to open access journals.

The respondents indicated that they have only used open access journals and repository content on an occasional basis. There was not an active use of open access resources for either teaching or research. As suggested by the focus group, academics may not have access to all published research, yet they have access to a relevant percentage of these resources that support their research. Thus there is less of an incentive to specifically seek out open access content. This low level of use potentially reinforces the view that open access content is not reflective of the 'quality' associated with commercially published content.

This acts, then, as a main deterrent to submission to open access journals and to the adoption of alternative dissemination models.

5.8.2 Impact of Australian research funding on open access journals

The survey explored issues associated with how research funding can potentially impact on the development of open access dissemination. Funding bodies, including the Australian Research Council (ARC), have developed policies that support open access dissemination by stipulating that research outcomes should be openly accessible. The ARC policy is one that only recommends support for open access dissemination. Other funding agencies have established mandating policies that stipulate conditions on the provided grants that the research output needs to be published in open access journals or submitted to open access repositories.

While funding bodies have endorsed open access dissemination and have started to stipulate that research that they fund should be openly accessible, mandating in itself is not a direct incentive for the respondents to submit to open access journals. A comment from one of the respondents indicated that they would support open access journals if the university were to fund the publication costs and if the open access journal met the requirements of government policies for research recognition. This comment reinforces the impact of 'quality', but also raises the issue of meeting the publication costs of open access journals. The respondents were not in favour of academics paying author fees for article submission, as a means to support open

access journals. However, there was agreement that such fees should be paid by funding bodies (58% agreement) or by universities (64% agreement). The respondents indicated that funding for research in particular, and for higher education in general, do not support publication costs of research. The funding models for Australian competitive grants, at the time of the survey, did not allow expenditure of grant money for publication processes. This was identified by a number of respondents. There was, therefore, a tension between funding bodies supporting and even mandating submission to open access dissemination, yet not allowing the provided funds to be used to assist in this support. While critiquing competitive grant schemes is not the focus of this research, the survey responses suggest that if funding schemes wish to support open access journals then there is a need to allow for publication costs to be included within the development of budgets for such funding. This issue has been partly addressed by the more recent funding rules released by the ARC, as these rules provide some financial support to meet publication costs (Australian Research Council 2011d).

The respondents, however, provided 'in principle' support for repository submission if mandates were applied. Where funding bodies mandate submission to repositories, 87% of the respondents agreed (49% strongly and 38% somewhat) to adherence. If universities mandate submission, then 82% (33% strongly and 49% somewhat) agree to submission of articles and if government policy mandates submission, then 79% (34% strongly and 45% somewhat) of the respondents agree to the mandate. Potential adherence to mandates for repository submission is approximately three times higher than that for adherence of mandates to submission to open access journals.

The survey comment – 'repositories combine compulsion with self-interest – inescapable' (s66: Professor) suggests the inevitability of repository submission if there is pressure to submit content. It also links this into 'self-interest' which may suggest the difference in acceptance of mandates between open access journals and repositories. Concern with the perceived quality of open access journals and the reluctance to support (or be funded for) author payments means that there is no incentive to support open access journals. The existing branding and commercial publication models may be viewed as a means to promote research and the 'self-interest' of the academics. Repository submission, however, can provide self promotion through the easier accessibility to submitted content, yet still allow for other quality and publishing interests to be met by commercial publication models.

However, actual submission was made by fewer participants (27%), thereby leading to Theme 3, that open access is a 'promise' that may not necessarily be implemented.

5.8.3 THE OPEN ACCESS PROMISE

Focusing on open access journal engagement, Figure 5.5 compares the respondents' 'promise' of support for open access journals with their actual practice. The promise is identified through surveys questions regarding whether they would consider submission to open access journals. The practice is identified through their overall pattern of journal submission as well as the pattern for the last article published.

While there is potential for approximately two thirds of the respondents to contribute to open access journals, this potential is not evident in actual publication practice of the participants. Where there has been submission, this is not for all articles, but is rather on an article-by-article basis. It reflects a casual engagement with open access journals. Even if Australian academics acknowledge a philosophical agreement that scholarly content should be made freely available, other factors will continue to influence their publication behaviour. Open access journals need to 'fit in' with wider publication patterns, as the business model of open dissemination is, in itself, not a motivation for submission of articles.
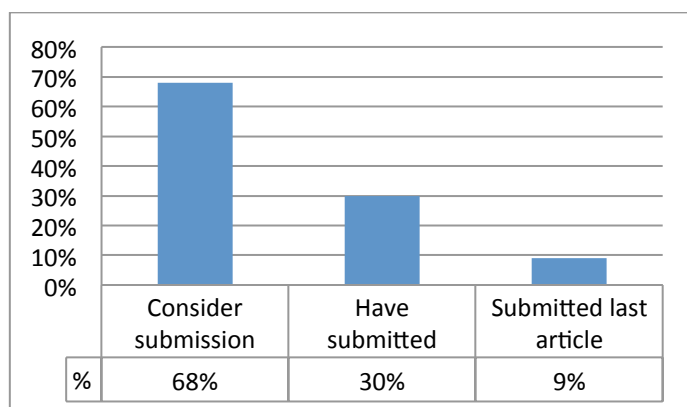
Figure 5.5: Open access journals – comparison of promise of submission with actual submission

The respondents indicated that they would not actively withhold their research and publication from open access journals. In exploring the prospect of delayed open access to journal content, there was favourable support for an embargo period that then allowed open access to the published content.

5.8.4 "GETTING PUBLISHED" VERSUS "DISSEMINATION AND READERSHIP"

The focus group suggested that the main motivation for publication is the action of 'getting published', primarily in journals that have a strong brand. In doing this, the identified readers of the article were seen as being the reviewers of the article, as these were the readers who

needed to be convinced of the article's academic integrity. The focus group did not show a concern for the final readership of the article. This indicates that the philosophical promotion of open access publishing as being a means to increase readership and availability of research was not a major concern of the focus group respondents.

The survey sought to determine if a wider academic sample held the same view of the publication process. Are readers and the potential wider availability of research through open access dissemination, of little concern to academics? If this is the case, then the aim of open access publication models to increase access to research articles would not be an incentive for academics to contribute content.

The survey respondents tended to have greater awareness and interest in readership as 76% of the survey respondents acknowledged that submission to open access journals could increase readership. The potential for open access journals to increase citations was acknowledged by 65% of the respondents. Commentary from the survey indicated the link between research publication and the need to inform a range of readers, including those outside of academia.

> *True scholarly publishing also includes informing the public about the outcome of research (health based anyway). Most of these consumers do not read scholarly publications regardless of their impact factors. (S57: Professor)*

Publishing acts as a dissemination role that aims to inform others of the outcome of research. However, the comment also identifies the dilemma of the role of research needing to inform a practitioner base not being met by the current scholarly publication models. This comment is from the health sciences discipline which acknowledged that 'consumers' of research do not necessarily read the journals to which academics target for publication. While the focus groups for this thesis showed little concern for readers of scholarly publications, the survey respondents indicated that there are multiple reader audiences for research. This starts to suggest a new theme, that of recognising the needs of multiple audiences and the impact that changes in publication models may have on these audiences.

5.8.5 SELF-GENERATED ARCHIVES AS AN ALTERNATIVE TO OPEN ACCESS REPOSITORIES

While the survey focused on open access journals and repositories, commentary from the participants' questioned the need for such formal open access infrastructure.

> *Why do I need open access journals? To make my research publicly available I can just put it up on my institution's website in Working Paper form so it is freely available to*

anyone. The cost is effectively nil. This is standard practice in economics. The paper is then sent to a "normal" journal and hopefully one day gets published! (S158: Professor)

This commentary is referring to a faculty based website and thus self publishing and archiving on such websites potentially negates the need to develop and foster other open access models. The process of loading working papers onto such websites acts as a means to disseminate pre-print papers that develop research ideas and can be formally published later.

This raises an issue of whether self-generated archives may act as competitors to engagement with institutional repositories. If academics believe that they have in place a model for openly distributing their research, then will this negate submission to the formal infrastructure developed by universities and discipline bodies?

5.8.6 OPEN ACCESS IS NOT A PRIMARY SOURCE FOR SCHOLARLY INFORMATION

While the survey respondents have used open access content, this use was not extensive. Respondents used open access content only 'sometimes' or 'vary rarely' for their teaching and research information needs. This reinforces the commentary from the focus group, where academics acknowledged that while their access to research literature is dependent on the subscriptions and resources of the university library, this access provides enough resources to meet their research requirements.

The perception that open access journals do not match the quality of commercial journals also impacts on the use of open access journals.

If they were recognised as "true" published works then greater use could be made of them. (S145: Lecturer)

5.8.7 REPOSITORY INTERFACES NEED TO BE DESIGNED AS A FILTER TO ARTICLE QUALITY

Survey respondents raised the issue of the difficulty in determining the quality of individual articles housed within a fairly unstructured submission environment for repositories. It is difficult to differentiate between post-print versions and pre-prints of papers and between working papers and other non-reviewed content.

This reinforces the issue of 'version control' that was raised by the focus groups. Repositories may hold a 'work in progress' version of a paper, primarily a pre-print version, and there is a concern about the quality of such versions if they do not reflect the peer-review process associated with establishing academic standards. Academics and researchers tend to rely on the

published version as the definitive version of an article. Respondents, therefore, questioned the value of repositories because it may be difficult to determine the status of the paper being accessed through the repository.

> *The disadvantage is they [repositories] are ad-hoc. A journal provides a collection of articles at a particular standard and state of 'finished'. If draft versions start to circulate it may [lead to] confusion. Draft versions would have to be labelled as such. (S80: Academic level not stated)*

The repositories are seen as being a place where 'opinion articles' may be submitted and again this leads to a questioning of the quality of the collection of the work included within the repository.

> *There are serious quality control issues if unrefereed and journalistic pieces are put in repositories though they also provide new work very quickly to the community. (S66: Professor)*

And:

> *Only that any incomplete/draft papers posted may get confused with the final versions. Authors need to be able to call back old versions. (S227: Senior Lecturer)*

> *Only prepublication versions of papers from copyright journals and proceedings are allowed; I see no point as the papers are in the public domain once published. Also I do not want more than one version of my works out in the world! (S58: Associate Professor)*

This respondent had indicated in response to survey questions that they had not submitted articles to open access journals. It is assumed, therefore, that the reference to 'published' is to traditional or commercial publishing processes and not to an open access process as implied by the reference to 'public domain'. Thus the 'one version' is the commercially published article.

Even where there is an established discipline based repository such as arXiv.org, there is acknowledgement that content within the repository is of different value and thus there is a need for the repository content to be filtered.

> *The Los Alamos arXiv has become the standard for dissemination of research within many branches of Physics. One problem is that the reader must do a significant amount of filtering (there is also much that is not worth reading there) but on the whole it works very well. (S78: Lecturer)*

While this comment reinforces the issue of different levels of value in repository content, the repository process itself is not rejected. Instead, repositories need to differentiate the versions of papers that they hold and the search interface needs to provide the ability to filter or limit searches around this versioning. As content is added to the repository it will need to be indexed so that the content can be identified as being a draft or working paper, a draft with peer comments, edited post peer-reviewed paper or final published version of the paper.

This approach to indexing repository content was supported by other comments such as:

> *I wish everything was freely available online - with a classification of refereed versus non-refereed. (S174: Senior Lecturer)*

These comments refer to the need for adequate indexing of the submitted repository content. This in turn highlights the need for the development of repository interfaces that provide the ability to filter content as the repositories are searched.

5.8.8 INSTITUTION, DISCIPLINE OR PUBLISHER BASED REPOSITORIES

In examining submission to and use of repositories, survey commentary questioned the need for both institutional and discipline based repositories. Institutional repositories may provide the opportunity to capture Australian specific research, and also promote the research from individual universities. However, if there are also established discipline based repositories, is there benefit in submitting content to both types of repositories?

> *... arXiv repository is a standard place for preprints within the physics community. I see little benefit in duplicating such a repository as having multiple sites for storage will only dilute the impact of the work. (S78: Lecturer)*

The arXiv.org repository is well established and draws together a single point for specific discipline content. While institutional repositories collect and showcase the research from a single organisation, institutional repositories may not assist in developing easy access to discipline based content. Those who are searching for discipline focused content must know which university repository to focus on or rely on meta search processes through Google Scholar or cross repository search facilities such as those developed by the National Library of Australia.

The main concern raised is whether submission of content to both repository infrastructures will increase access to the content or 'dilute' the value of the content because multiple copies are made available.

An alternative to institutional and discipline based repositories is an open access archive process managed, or contributed to, by commercial publishers. The following statement considers how repositories can operate within an embargo publication model and questions whether institutional repositories will actually be used from outside of the home institution.

> *I suspect open access repositories can work only if the journal publishing business is restructured overall - i.e. commercial journals make their money in the first year, offer a floating current year subscription access and then all publishers and all articles to be submitted to a few key repositories which are internationally available. At the moment I would only consider submitting an out of print book or a pre-published article to the ANU repository. I do not believe the ANU repository has much readership outside ANU and I am uncertain whether that will change if the entire industry is not restructured. But I am taking a wait and see attitude. (S234: Lecturer)*

In some ways the publishing industry is moving in this way as archive copies of journals articles are made available after an established embargo period. The copies are retained on the publisher's infrastructure and are thus accessed through search and indexing processes associated with the electronic journal, publisher's website and possibly aggregated services. The degree to which archive copies are made available as open access varies between publishers and journals, however the comment above predicts the need for all publishers to make archival material available freely after and embargo period. Such archive material may be maintained by the publisher, or as suggested by the S234: Lecturer, used to populate key, presumably discipline based, repositories.

If academics search or browse established journals through the publisher's web presence or through an aggregated database, then this would perceivably be the access point used for archival content. Thus embargoed open access, as developed by many commercial journals, may be the compromised solution for providing access points to content.

5.8.9 Impact on Australian based electronic press development

While Australian academics need to publish within an international academic community, the main concern of the trend to publish in overseas journals is that local journal development,

especially that from university based e-presses, may be hindered. If policies associated with academic recognition reinforce publication patterns based on overseas journals, then this will redirect papers away from local journals. While Australian journals do have an international focus and compete within the global scholarly publishing environment, emerging journals may have another hurdle to overcome if they cannot attract Australian academic contribution due to a push to disseminate such content through overseas publishers.

5.8.10 A FOCUS ON LIMITED DISSEMINATION

One of the perceived outcomes of the changes in research recognition policies is that it will refocus Australian research publication away from 'mass production' of publications, to a more focused number of 'quality' publications. For some respondents, this is viewed favourably.

> *The RQF should be supported as an incentive to increase the quality rather than the quantity of academic publications. (S41: Professor)*

However, others suggest that this process does not recognise alternative means of disseminating research and will impact on the ability for the wider community to access research output. This is an issue for disciplines that have a strong 'practitioner audience' for their research output. For such disciplines the current practice of writing and sharing research with their practitioners will not be recognised by the recognition framework. There is an implied impact that such dissemination processes may decline if they are not recognised.

> *In engineering, I believe that practising engineers are unlikely to see such papers [tiered journal publication] unless they attend conferences or see the content "journalised" in a technical magazine. Often these articles are the same word for word but are much more readable with neat catchy sub-headings inset boxes better graphics etc. Will these be counted under RQF - I doubt it. Yet I know from my royalties from the UK-based author's society that copies are made of my stuff. So if one has been committed to life-long sharing/education/training it would be a pity if RQF gave this no recognition. Not all research/scholarly work will result in measurable commercially valuable output. (S227: Senior Lecturer)*

There is a strong belief within the participants of this research, that changes in research recognition will lead to a focus on selected journals as the main research publication outputs. This will then lead to a 'publications game' as academics develop strategies that target these journals. There is a suggestion that bibliometric data can be manipulated so as to support these

strategies. This game playing will be at the detriment of other avenues of research dissemination.

> *I believe the emphasis the RQF is placing in citation impact factors entirely misses the point of research dissemination. My PhD showed this. The issue with citation impact is that it is EASY to access the data count it and manipulate it but what is this thing called research and how is it disseminated? The RQF if implemented in its current guise will drive researchers to play the citation game and many aspects of research dissemination including conference papers seminars workshops fieldtrips etc will miss out. So will the beneficiaries. (S65: Senior Lecturer)*

And:

> *It is an artificial way of measuring quality. Will further devalue non-peer reviewed publications. Only one way of considering 'impact' and probably an artificial way. Does not indicate the application of the research nor whether the citations are positive or negative. (S57: Professor)*

Citation bibliometrics is not the focus of this thesis, however the commentary of survey participants S65: Senior Lecturer and S57: Professor question whether reinforcing citations as a measurement of quality is the most appropriate way to recognise research output. As implied, citations are a 'counting' process and in itself does not provide an actual evaluation of the content being cited. As S57: Professor suggests, the articles citing a work may in fact be critical of the work. Bibliometrics may need further exploration in other research and literature, however the potential impact of these concerns is that there is a stronger emphasis on a specific publication behaviour.

5.8.11 CAREER-MINDED ACADEMICS

> *I suspect that career-minded academics will take the pragmatic view and just publish in high quality journals (whatever they are?). Personally I am glad to see my name in print and that my ideas are circulating in a range of journal outlets not just high quality ones. (S116: Lecturer)*

The commentary placed aspects of the survey results into a discussion of the impact that the 'career-minded academic' will have on scholarly publishing and the adoption of alternative publication models. There is the suggestion that academics who wish to establish an ongoing career will conform to the rules of the new academic recognition processes. For some of the

participants, this was seen as an impediment to academic freedom. While this may be a personal view of these academics, in relation to this thesis, an acknowledgment that academics focusing on their career development may simply conform to the new rules, means that trying to establish alternative models for scholarly dissemination may be difficult.

This was commented on in light of the RQF, which was seen by some of the survey respondents as representing a way to 'dictate' how scholarship should be disseminated. This would restrict the avenues that are deemed suitable for research recognition and for promotion.

> *RQF will probably lead to a more negative impact on scholarly publishing as yet more political factors will contribute to publishing decisions rather than purely scholarly ones. Scholarly publication should only ever be a voluntary activity and the only expectation of an academic should be that he/she publish quality work rather than what, how much when where and how. (S167: Associate Professor)*

For some disciplines, such a restriction may be a clear disadvantage to how they can disseminate their research and scholarship. Quality may not necessarily be measured by ranking of journals and thus have a detriment to those who require alternative ways to demonstrate their research output.

> *I work in an area that crosses into a number of disciplines and I'm terrified that my work will be devalued because often it's difficult to find a journal whose approach 'matches' mine. If particular journals are given special status then I fear that my work will have few places of 'quality' in which to appear. (S6: Lecturer)*

Changes in research recognition meant that for some academics, there may be a dilemma between meeting the needs of a publication behaviour targeted for the needs of research recognition and meeting the needs of dissemination to wider audiences, especially those associated with practitioners.

5.8.12 A PUBLISHING CHANGE … THAT MAINTAINS THE STATUS QUO

Theme 5.8.10 "focus on limited dissemination" and theme 5.8.11 'career academic' indicate that there is potential for changes to occur in the publication practice by Australian academics. The driver for these changes is the attempt to identify and meet the processes that the RQF was implementing for research recognition. This means that any changes in publication behaviour will focus on meeting this recognition framework. These changes, however, do not tend to support alternative models of scholarly communication. As suggested in this chapter,

engagement with open access dissemination is incidental and respondents were not actively changing their patterns of publication in order to support open access dissemination. Respondents were not aggressive to open access dissemination, but rather only engaged with open access when it met other publishing criteria. This criterion reflects a relatively traditional publication model of focusing on the quality of journal peer review, branding and reputation. The policy changes to research recognition are viewed as reinforcing these measures of journal quality.

Therefore, while there are elements of engagement with open access, the main drivers for publication and journal selection reinforce a current status quo of targeting existing journals and not actively supporting alternative dissemination models. In fact, if there is a change in publication behaviour, it may be to tighten the publication pattern so that it focuses on a smaller number of international commercial journals.

5.9 CONCLUSION

This chapter reports the results of a survey of Australian academics and outlines the decisions made as the participants considered their engagement with scholarly publication and research dissemination. The publication behaviour associated with the respondents' last article primarily supports publication within closed access or commercial journals. This can be viewed as supporting a 'traditional' publication behaviour that is informed by the perceived quality of a journal, the peer review process associated with the journal and the journal branding. The publication behaviour reinforces the issues of quality and journal branding that were raised by the focus group participants and reported in Chapter 4.

The survey participants have engaged with open access dissemination, however this engagement was not an active decision to support alternative models of research dissemination. The participants were not aggressive to open access dissemination and acknowledged the potential benefit that open access models may increase awareness of their publications. However, the need to link publication processes to academic and research recognition remains the main driver for publication. It is suggested that this driver is not viewed as being supportive of alternative models of dissemination.

Australian research funding did not normally include funds for the payment of publication costs and thus the respondents were reluctant to support author payment models for developing or supporting open access journals. The issue of quality also influenced how the respondents viewed open access repositories. The respondents acknowledged that repositories contain

various versions of articles and thus there is a need to filter repository content so that version control can be maintained. Open access repositories and journals were used only on an infrequent basis, and thus the need for access did not dictate a need to submit content.

The survey data and commentary led to the development of twelve themes, some of which build upon those identified through the focus groups. The primary focus of these themes is that the policies associated with academic and research recognition reinforce engagement with 'traditional' publication models. While the respondents may view the policies as influencing their publication behaviour, this influence is towards established journals and not towards alternative models of scholarly communication and research dissemination.

The next chapter continues to build upon the theoretical themes by exploring the responses from interviews conducted with academics and with managers of university based electronic presses. These interviews assist in exploring these themes in further depth.

CHAPTER 6: INTERVIEWS WITH ACADEMICS AND MANAGERS OF ELECTRONIC PRESSES

6.1 INTRODUCTION

This chapter presents analyses of interviews conducted with academic staff from Australian universities and with staff involved within university e-press environments. These interviews identify further themes that build upon those that emerged from the focus groups and survey data. The interviews were conducted across a number of months so that the responses could be continuously analysed, theory developed, and issues fed back into the ongoing interview process.

While the interviews were semi-structured, a common question was asked as a starting question for each interview. This was an open-ended question that allowed the participants to broadly describe their publication practice. The responses to this question act as an initial indicator of the factors that directed the publication behaviour of the interviewees. The chapter then identifies further themes from the interviews with academic participants as well as discussion with editors and electronic press managers. These interviews, along with two vignettes of open access journal editorship, are presented as they reinforce and extend the themes identified from the focus group with publishers. These themes contribute to the development of the theoretical models associated with the publication behaviour of the Australian academic community.

6.2 THE INTERVIEW PROCESS

Twenty-three participants were interviewed and, as indicated in Table 6.1, the participants reflected a range of academic levels of employment and institutions. The interviews were conducted over a period of time and across different levels of academic staff as a means to gather opinion from a range of representatives and as a means to reflect the grounded theory process of 'open sampling'. Strauss and Corbin (2003, p. 206) suggested that 'to ensure openness, it is advantageous not to structure data gathering too tightly in terms of either timing or types of persons or places, even though one might have some theoretical conceptions in mind, because these might mislead the analysis or foreclose on discovery'.

Selection of participants was based on their position (for example as Dean of Research); on the recommendation by other participants; or randomly selected from university staff listings and directories. However, as the themes were identified from analysis of the earlier interviews, the selection of participants focused on senior academic staff, as these participants were able to comment on the impact of identified issues on the wider domain of their school or university. These senior participants included Heads of Schools, Research Directors and Deans of Faculties. They were not only able to comment on their own publication processes, but were also able to reflect on the impact that open access dissemination may have on the wider university environment. In essence, they were invited to participate because of their expertise.

Code	Academic position	University group	Editor
A1	Senior Lecturer	ATN	closed
A2	Professor	ATN	
A3	Senior Lecturer	ATN	closed
A4	Lecturer	ATN	
A5	Professor	ATN	
A6	Associate Professor	ATN	
A7	Professor	ATN	
A8	Professor	Go8	
A9	Professor	Go8	
A10	Associate Professor	Go8	open
A11	Senior Lecturer	Go8	open
A12	Lecturer	Go8	open
A13	Associate Professor	Go8	
A14	Associate Professor	Go8	open
A15	Senior Lecturer	ATN	open
A16	Lecturer	Go8	open
A17	Professor	Go8	
A18	University Press Manager	Commercial Press	
A19	University Open Access Press Manager	Open Press	
A20	University Open Access Repository Manager	Open Press	
A21	University e-press manager	Commercial Press	
A22	University e-press manager	Commercial Press	
A23	University e-press manager	Commercial Press	

Table 6.1: Characteristics of the interview participants

Invitations to participate were sent by email, however all interviews were conducted in person. Participants were drawn from the two university networks Go8 and the ATN. Some of the participants were editors of journals and were included because they could add further reflection based on this role. The editors of open access journals contributed to the vignettes that identified issues that open access journal development must face.

Interviews were also conducted with representatives of university based electronic presses. Participants were identified through personal contacts and 'cold calling' of press managers. The participants represent publishers that are associated with universities, either linked with the university library or operating as independent units. The electronic presses represent a mixture of commercial and open access presses.

The interviews were semi structured, thereby providing the interviewees with the opportunity to raise relevant issues and discussion. However a series of questions had been prepared as a means to start the interview process and to place the research into a context for the interviewees to respond to. Each interview commenced with the following introductory question and, if required, the secondary or clarification questions.

- Please describe or provide detail about the journals to which you submit articles.
    Why have you selected these journals?
    Are these journals published in Australia?

The specific focus of the research, investigating issues of open access publishing and dissemination, was introduced with the following question.

- Do you know if the journal provides open access to its published content?

Unless specifically asked by the interviewees, the term 'open access' was not defined at this point. Instead, the interviewees were encouraged to make their own interpretation of open access, which could include the formal interpretation of open access journals and repositories, but also the more general interpretation of accessible through the open web. However, where required, the interviewees' interpretations of open access were later clarified so that the discussion was placed within the framework of the focus of the research.

A question guide that had been developed from the analysis of the focus group and survey data assisted the interviews. The guide, however, simply acted as a means to support the interviews and not to dictate the discussion. Questions were only used where appropriate in the discussion.

The guide included the following questions.

- Have you published in an open access journal?
- Have you submitted to an open access repository?
- How would you describe your discipline's view of open access publishing?
- When your articles are accepted by a journal, how aware are you of the conditions of the author-publisher agreement?
- Commentators on open access state "it is not if, but when" will open access become a norm. What is your view of such a statement?
- What impact does the current debate on research recognition (RQF and now ERA) have on your processes for publishing your research?

6.3 THE STARTING QUESTION FOR THE INTERVIEWS WITH ACADEMICS

The starting question with the academic representatives asked the interviewees to reflect on their own experience with scholarly publication and describe where they had submitted articles for publication. What emerged from this was an emphasis that the interviewees had changed their publication processes over the previous few years. The driving impact on this was changing government policies on research recognition.

> *Most obvious thing is that with the RQF … everybody went into a panic mode about publications because everyone knew it was going to be about quality and how do you measure quality? And the issue really boiled down to the fact that quality was going to be determined by journals, and journals in a specific ranking, and so everybody started to put their whole focus into publishing in the traditional academic journals. (A2: Professor)*

While the focus group respondents had also indicated a link between publication processes and academic recognition, the interviewees suggested a stronger influence. The interpretation of the new research recognition processes was to focus publications on journals, specifically the journals identified by the new ranking process. Under the previous DEST point system other publications types, such as conferences and book chapters, were recognised as part of the publication data for research funding and recognition. As the research recognition processes changed, the interviewees suggested that they have refocused their publication behaviour, primarily to journals that are listed as part of the government's research quality processes. It should be noted that during the period of this research, the changes to policies for research recognition were still being trialed and implemented. This means that the data collected is

based on how academics were predicting the impact of these changes and reporting on the ways that academics were adjusting their publication patterns based on these predictions and perceptions of impact by the new policies. As the policies are actually implemented and established, academics will again change their publication behaviour to meet the finalised needs of the policies.

Targeting ranked journals was a common statement used to describe the interviewees' publication behaviour. The targeted journals tended to be those managed by the larger international publishers or discipline societies.

> *In the finance and econometric space the top rank journals on all the metrics tend to be the ones published by Elsevier, Blackwell, and Taylor and Francis, so they're not open access but because they're available electronically and they have electronic indexing the readership on them is very good. In terms of the more open access type stuff, some of those Springer journals you can opt in to the open access type thing. I had a couple of papers in those sorts of journals. (A9: Professor)*

While the interviews led to discussion of open access, interviewee A9: Professor was the only interviewee who started the discussion with an indication of some level of engagement with open access publishing. However this was with journals that allowed individual articles to be open, not necessarily the whole journal. The journal being targeted was primarily a closed access journal managed by a publisher who allowed individual articles to be openly accessible.

While conferences were recognised as an avenue for presenting research, the driver or main focus presented by the interviewees was the need to publish within the ranked journals.

> *If it's been presented as a conference paper and somebody who is the editor of a journal or associated with a journal comes along and says can we have it, then I'm sometimes influenced by that. But otherwise I would be looking at the hierarchy of journals and trying to make sure it gets into a place that I think would be good. (A8: Professor)*

And:

> *I try to publish in the top journals, as high as possible for the field. (A6: Associate Professor)*

The policy changes relating to research recognition were presented as the main reason for the focus on journal rankings for publication. These were not only presented by established academics but were also acknowledged by new academics who were interviewed for this

research. As illustrated by interviewee A4: Lecturer who had recently been appointed to an academic role, the consideration for where she would like to publish was based on helping her career.

> *I would like to publish somewhere that's reasonably prestigious. I guess somewhere that's going to help me in terms of my career and in terms of good readership and appropriate readership, and whether that's open access or not is probably less important to me than prestige and the appropriate readership. (A4: Lecturer)*

This comment acknowledged the need for readership of published research, yet the identification of 'prestige' overrides decisions of open dissemination. Other interviewees associated quality and prestige with the new ranking of journals. If new academics wish to focus on publication behaviours that support their careers, then it is assumed that this pattern will be based around the ranked journals. The issue then becomes whether open access journals form part of this ranking or whether the merit of opening the process of dissemination can lead to submission to open access journals, even if they are not part of the ranking.

One of the interviewees had been appointed after working in a UK university. The UK research environment had implemented the Research Assessment Exercise (RAE) as a means to measure research quality. This framework had changed the interviewee's publication pattern from a decision to select journals based on reaching a relevant audience to a focus on submission to a select number of journals that had been identified through the RAE framework.

> *Before [my] PhD I just wrote papers and then send them to whatever I think it is appropriate for the public and I was not aware of the ranking of the journals and the reputation that comes with journal publication. ... But after I wanted to make sure that I'm published in what is considered the top 10 journals in the field because of that RAE drive so my first few publications went into those journals, definitely. (A1: Senior Lecturer)*

The RAE framework, in identifying research quality, narrowed the publication focus to ranked journals. The interviewees view the changes in the Australian research recognition processes in a similar fashion and have reviewed the publication strategies that they employed.

This section outlines broad issues that emerged from the start of each interview. As the interview discussion developed, further issues were presented. These issues are presented as additional themes and are grouped and discussed around the three broad areas of:

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- Changing motivation for publication

- Impact on open access engagement

- Intermediary assistance with author and publication rights.

6.4 CHANGING MOTIVATION FOR PUBLICATION

The interviews suggested that there has been a change in publication behaviour due to new research recognition policies and this potentially narrows the focus of where the interviewees had submitted articles for publication. These changes are identified through four themes

- *Mantra of Tier A** - a focus on tiered journals because of the policies of the first iteration of the ERA framework

- *A conflict between this focus on tiered journals and support for open access dissemination*

- *A conflict of readership* and audience, especially for discipline areas that have a strong practitioner focus

- Recognition that these changes may mean that a *'career-minded' academic* will not engage with open access dissemination

6.4.1 MANTRA OF TIER A*

The responses to the starting questions suggested a major shift in attitude towards the way that academic research should be published. The interview with a Senior Lecturer from the medical sciences illustrates this. When reflecting on her publishing practice just after completing her PhD, she suggested that the journal selection was based on selecting journals that were read by her intended audience.

> *When I first started writing papers and publishing the selection of my journal was based on where can I get the best audience, who am I targeting. So part of it was I was trying to increase my profile, the profile in my discipline. So therefore when I choose which journals to publish it was if I wanted to reach an Australian profession, then this is the journal I choose. If I want to reach a wider audience, then this is the journal I choose. (A3: Senior Lecturer)*

As the interview progressed, the interviewee noted a change in the pattern to the journals which she had submitted her more recent articles.

Now I'm looking at journals that have got high impact factor. (A3: Senior Lecturer)

This change in publication behaviour is attributed to the changes in research recognition being posed by the Australian Commonwealth government.

[The RQF] caused me to sit there and look at, reflect on, what was my [publication] strategy and I didn't realise at that time that I had a strategy. When I first started I was thinking okay I want to get my name up there. Which journals do our professionals generally read, so I do that. … but with the RQF exercise I became very acutely aware and I stopped. How did it impact. … I will not bother to publish in referee conference paper … the RQF exercise taught us that that is not worthwhile exercise because that is not ranked highly according to that peer review process, it is not ranked highly. Now I understand that ERA the current draft of framework is possibly quite close, quite similar. (A3: Senior Lecturer)

Thus, even for this academic who was aware of different audiences for their research publication, especially that of the practitioner, there was a change in her publication behaviour. This change is a narrowing of the distribution focus of her research. It even led her to question the impact that such a change may have on access and readership of scholarly research.

But I think for most academics the reality is you publish. It's a case of publish, POP, publish or perish. So I think the case of publishing is a very, very real reality. As to how many people read them, that I'm sure is a secondary consideration. How many people read Nature and Science? How many people want to publish in Nature and Science? I think that answers that question to that quotation. (A3: Senior lecturer)

The narrative from this interviewee reinforces the concerns raised by the focus group that academics write to get published not to target specific readers. While the notion of 'publish or perish' remains a focus for academics' publication behaviour; the interviews suggested a more focused mantra of "tier A or die". The development of the research performance measures meant that there was an increasing push to publish only in 'top level journals'. The research recognition processes (The RQF and ERA) were developing new rules for research recognition and the Australian academic community needed to develop strategies that would meet the requirements of these new rules. The community saw the rules as being based on 'quality' and 'impact', but then needed to interpret how these requirements could be measured.

This is a consistent response presented by the interviewees:

> *My publication patterns particularly in recent years have been to make sure that I'm only publishing in A or what's now called A Star journals … so I don't publish below that. (A14: Associate Professor)*

And:

> *I wanted to make sure that I'm published in what is considered the top 10 journals in the field. (A1: Senior Lecturer)*

For some academics and their disciplines, this is not necessarily a new process. Targeting top tier journals had been the main focus for their publication behaviour for some time, for example the physics discipline who indicate that the RQF and ERA:

> *Hasn't changed the way I publish but it's just reinforced my view that that's the type of journal that I want to publish in [Tier A]. If anything it may stop me from publishing in other journals. (A6: Associate Professor)*

For this interviewee, there was still the suggestion that the changes in research recognition may lead them to narrow their publication strategy so that they no longer target journals that are outside of the Tier A ranking. While not all academics may adopt a strategy to publish in Tier A or A* journals, the interviews indicated that the message to target such journals is being acknowledged by academics.

> *I have thought about getting more strategic and picking off the top journals and working my way down a list and trying to work out what the top journals are in the field that I'd like to publish in but I don't know that I've really done a lot about it. There's been a sense of resistance to the whole thing. For me too, like oh I'm not going to be forced into this regime, thank you very much. (A12: Lecturer)*

This targeting of Tier A level journals was seen as being part of the process of establishing or reinforcing an academic career. The following commentary suggests that this can be in conflict with the broader roles of academia of creating new ideas.

> *Yeah, that's a careerist attitude and those of us who are absolutely not careerist wouldn't entertain the notion unless the boss said you know you're not publishing in the top journals, so then you have to distort your passage in the world of ideas and publish something that is nice, safe, scholarly and probably useless to get into one of these journals that's theory driven. (A10: Associate Professor)*

These last two statements are from academics who are editors of open access journals. It is interesting that while these interviewees acknowledged potential change in publication patterns because of RQF/ERA, they seem to reflect a sense of 'rebellion' against such changes. Whether this is a characteristic of all those supporting open access journals is difficult to determine, it does seem that at least these open access editors were reflecting on the impact that targeting only top tier journals may have on information dissemination.

Interviewees who focused specifically on localised Australian based research, raised concern that the ERA framework will redirect and potentially narrow the publication behaviour of Australian academics. This will make it harder for localised research to be directed to the Australian reader. Commentary from representatives of the humanities/history research areas, suggested that:

> *For people who write like me, who work a lot, who write primarily on Australian subjects, there's a bit of a dilemma because often journals which are well ranked internationally and known internationally don't necessarily reach people who from my point of view are the target audience. … Is that their choices about where to publish will be governed partly by the standing of the journal and if they're interested in promotion they're often guided by that. (A8: Professor)*

The movement away from non-journal publication (conferences and working papers) may impact on how widely scholarship will be assessable. The impact on the development of open access journals must also be monitored in response to the tier ranking of journals.

6.4.2 CONFLICT BETWEEN THE PUSH FOR TIERED JOURNALS AND OPEN ACCESS

It is proposed that this focus on Tier A* and A journals has a major impact on whether academics will engage with open access journals. The interviewees tended to view open access journals as being of a lesser value or quality than the established commercial journals. If this is the case, then it is perceived that open access journals will not be greatly represented within the A* and A tiers. In essence, there is conflict between the push to publish in tiered A* and A journals and the development of open access journal publication.

This conflict is also reinforced by policies that mandate submission of research content to open access journals. This is raised specifically in relation to funding bodies' mandates.

> *I absolutely agree that if a funding body funds the research, it should be published in the open access journal because that's paid money, assuming they're working with tax payers money. Absolutely agree. However if they were to specify you publish in an open access journal but on the other hand if institution criteria for research performance is that you publish in high impact journal, whatever you qualify the high impact journal is, we are on two separate trains here. (A3: Senior Lecturer)*

Thus while there is some acknowledgement that publicly funded research should be made available through open access models, being mandated to do so was seen as being in conflict with other issues that influence where academics publish. If academics see a conflict between mandating open access journal submission and the adhering to the rules of research recognition, then the rules of recognition will take precedence. If research funding becomes dependent on a publication process that is seen as being in conflict with research recognition policies, then it is suggested that academics will seek alternative funding processes instead of compromising policies associated with research recognition.

> *If you mandate people, if they get funding, an ARC Grant, and you have to put it up into open access, people stop applying until the other rules have changed. ... Wouldn't it be better to choose a topic where I don't have to have funding to do the research? (A2: Professor)*

Other respondents considered circumventing such conflicts so as to get the 'two separate trains' working in unison. The priority is still to target top tiered journals, but to also find ways to meet the requirement of a mandate.

> *With certain charge you can make a particular article open access, that's a possibility. Another possibility is to publish it in two different forms I guess. Publish it open access and in the traditional journals. (A6: Associate Professor)*

Some of the commercial publishers are providing the opportunity for article-by-article open access publishing. In this instance, the academic can still target their preferred journal, but also meet the requirements of open content by paying an author fee for the particular article. However, the survey participants indicated a reluctance to pay such fees, thereby suggesting that few participants would make individual articles open access. Submission to open access repositories can also overcome this conflict as it acts as a form of dual publishing.

The academics who participated in this research tended to see open access journals as being 'secondary' to commercial journals. Some academics equated open access journals as simply

being part of the open web and thus not utilising publishing quality control processes such as peer-review.

If open access is as rigorous in its review process, yes. But if open access is anybody can put up anything, then it's no better than a Wiki, or Wikipedia. (A 14: Associate Professor)

The contention that will be raised in Chapter 7 is that these views of open access journals as being different to commercial publications has now become formalised through the ranking of journals that was originally established for the ERA framework.

However, ongoing promotion and development of open access journals, along with further research into engagement with open access journals, will indicate whether this changes over time.

Probably there will come a time where some of this open access journals become premier journals and then you don't have any problem. (A1: Senior Lecturer)

6.4.3 Readership – tension between the academy and the practitioner

The interviewees acknowledged the importance of the reader of the published research. However the readership was segmented into different audiences, with the suggestion that current publication practice might not support all of these audiences.

We tried to target the reader, especially practitioner readers, by publishing in working papers and we try to target academics by publishing in high ranking journals. (A1: Senior Lecturer)

The interviewee then continued with:

I follow actively those tier one journals because that is the cream of the research that is being done in that field and you get insights and you get ideas, you get knowledge from reading those journals because those journals are targeted for academics and their practitioners, they're not targeted for practitioners. Probably practitioners won't be interested in top tier journals because of the rigor in inquiry and the rigor in methodology. (A1: Senior Lecturer)

The first segmentation of the readers was between the academy and the practitioner. The academy directs publication towards quality journals identified through their rankings. Yet the interviews suggested that practitioners are not the readers of such journals.

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Interviewees from disciplines that are strongly linked to practitioners, such as health services, recognised that research should be written and disseminated in a way that can support the needs of the practitioner. Open access journals aim to make research more readily available by removing the commercial barrier that limits accessibility. Thus, open access journals may assist in meeting the two audiences of the academy and the practitioner.

However, even those engaged in open access publication raised concern of the accessibility of current academic writing practice.

> We've heard comments from practitioners to say that they think a lot of academic writing is totally out of touch. (A11: Senior Lecturer – OA journal editor)

If open access journals are to continue to establish a scholastic reputation, then they will need to meet the concerns of 'quality' and 'academic rigor'. Doing so, may then mean that research, though openly accessible, may not be written in a style suitable for a practitioner audience.

The two audiences of the academy and the practitioner may be associated with specific disciplines and research areas. The responses quoted above are from the business and medical radiography disciplines. These may tend to have a more applied research focus and therefore a need to consider disseminating content to their practitioner base. Other disciplines may not have such a concern with readers outside of the academy.

However, other interviewees identified further segments within the reader base. Those from the physics discipline suggested an audience based clearly within the academic community, yet divided this audience based on use of the research.

> [Articles would] be read by a much wider audience than the ones who are actually citing them but the people who are citing them are really the ones that count. If they've cited it there's a reasonable chance that they've actually understood the paper. Whereas a lot more people would be reading it and getting just a general view of what you're doing but not really getting to grips with the detail. (A6: Associate Professor)

In this instance academics were clearly seen as being the readers of the research but a difference was identified based around how the research will be used. Citation was seen as being an indication of understanding and use of the research articles, but it is acknowledged that there may be 'casual' readership from other academics. When asked if there was a wider audience than academic researchers, the interviewee stated:

> *Not really, no. No it would be pretty specialised, technical audience. (A6: Associate Professor)*

Because of the specialised nature of the research being reported, the respondent did not acknowledge 'practitioners' or readers outside of academia as being a major audience. Other discipline areas identified an additional reader audience that 'sits' between the academic community and the practitioner. For disciplines such as the humanities and studies of history, research is conducted to inform policy makers.

> *But I do publish quite a lot of other stuff … that's directed much more into a wider domain. So some of that finds its way into edited collections or into books that are directed to specialised audiences of a policy kind. (A8: Professor)*

The academic still published within top level journals, but also acknowledged the need to publish in avenues that are targeted to policy and decision makers within the community and government.

The interview comments recognised that the outcome of research should not only be reported to other researchers, but also to the members of their discipline area, especially those who worked as practitioners. In some disciplines, this is an imperative to the publication process, as recognising the link between academic and practitioner readers allows for the research results to be placed into practice and to inform policy. This is important for disciplines (such as nursing) that have adopted evidence-based practices as their service delivery framework.

Working papers have been used as a means to disseminate to other audiences. However, the interviews suggested that publishing working papers is in decline as academics focus predominantly on journal publication. If this is the case, then can open access journals provide a new avenue for practitioners to access research articles and research reporting? Open access journals obviously are accessible to practitioners and thus provide an avenue for access to published research. Some of the interviewees suggested that open access journals may assist in educating practitioners to engage with the more formal academic writing style associated with research dissemination.

> *I think open access will also help the practitioners to assist them in their information literacy skills … if you're in smaller practices it's highly unlikely your workplace will buy [journal] databases. (A3: Senior Lecturer)*

This interviewee suggested that skills associated with information retrieval and evaluation (tasks that form part of information literacy competencies) may have been restricted because of the difficulty of practitioners accessing scholarly journals. By developing further open access content that is accessible to the practitioner communities, their information literacy skills may change and thus they may engage more easily with the formal scholarly writing styles associated with research publications. Open access working papers could then be replaced by more scholarly rigorous open access journals.

The notion of using open access journals as a means to bridge research with practice is evident in the development of the open access social sciences journal edited by the interviewee A12: Lecturer. This journal encourages practitioner involvement within the editorial board and peer review processes.

> *Yeah, we have tried to spread the practitioner usage or get practitioners involved. We have an advisory committee made up of people from local organisations to public community services and … various other human services organisations and we did initially have 2 people from that group on the editorial board …. So we've tried to involve people who would be practitioners only, not consider themselves academics, to that degree as best we can. (A12: Lecturer – OA journal editor)*

The journal maintains quality through peer-review, but also deliberately targets the practitioner not only as a reader but also as part of the editorial work of the journal. Developments, such as this, need to be monitored to see if open access journals can foster or reinforce the link between practice and research.

6.4.4 Career-minded academics

The interviewees continued to discuss publication issues within the framework of the career-minded academic. This builds upon issues identified through the survey discussion, that see the 'career' academic as an outcome of a broader 'corporatisation' of the higher education environment. Those viewing the higher education environment within the framework of 'corporatisation' see this as being detrimental to new models of scholarly dissemination.

> *If you want promotion you have to be a careerist and to my mind that's a distortion. The definition of a careerist is someone who won't do anything, not anything, that will stand in the way of career progress. … and if the game is publish in the top journals, you just distort everything so you publish in the top journals. (A10: Associate Professor)*

The 'career-minded academic' will make publishing decisions based on the rules of promotion. The need to 'play' this publishing game is seen as a distortion of academic scholarly dissemination and if the publication pattern only targets specific journals, then it may lead to the decline of open access publishing.

> *In a way the open access movement is probably been killed. Whether it's deliberate or not deliberate I can't work out but it's being killed by the fact that the controls are in place and the only way that you can perform is to perform according to the rules, not perform according to the content. (A2: Professor)*

Research recognition policies, therefore, impact on the individual's publication behaviour as they strive to publish in a manner that supports their career prospects. This in turn has the potential to hinder the development of other patterns of dissemination. The impact can also be extended to academic departments as their review and performance becomes based on the publication pattern, which needs to reflect the 'rules' of the research recognition process.

> *I was involved in a review between departments and we had the envious job of sort of evaluating these different programs. One had a program where a large proportion of its work was based in Australia, on Australian subject matter. Its pattern of publishing was largely in Australia and it was having discernible influence upon policy debates in the area. And there was another department, about the same size, where its focus was entirely upon publishing in international journals … prestigious journals but with relatively small readerships and as far as I could see it was having no discernible impact. Its activity was having no discernible impact within Australia. I was very much more sympathetic to the first than I was to the second because it seemed to me that all of … the ethos of that place was entirely preoccupied with measuring prestige and brownie points and not with what I thought should be the impact, which was something much more…probably much more qualitative really. (A8: Professor)*

A main issue being raised in this chapter is that change in research recognition is going to dictate more strongly the pattern of publication that can be used as evidence for research quality. At the time of the data collection for this thesis, the respondents demonstrated a strong perception that the new research policies will utilise bibliometrics based on tier ranked journals and citation counts. While this is not necessarily a new measurement process, the perception demonstrated by the respondents was that other scholarly communications processes that had

previously been recognised, for example conference papers, would no longer 'count' as part of academic recognition.

Regardless of how Australian research recognition policies are finalised, the interviewees suggested that the 'rules of the game' must be followed and that academics will change their publication strategies to meet the new strategies. This has been identified as a highly targeted publishing strategy that may limit engagement with open access dissemination.

> *I mean the community pays for this and we're giving it back to the community and that's a totally different attitude to the careerist thing which is give each other high doctorates by publishing in obscure journals that nobody every reads. (A10: Associate Professor)*

6.5   IMPACT ON OPEN ACCESS ENGAGEMENT

Discussion of open access dissemination tended to focus on issues associated with open access repositories. The interviewees showed more awareness of repositories than the survey respondents. However, engagement with repositories was still not extensive and a number of barriers to submission were identified that contribute to the following four themes.

- *Awareness of a 'value' for repositories* - which indicates that the interviewees are aware of the repository infrastructure and philosophically supportive of open access to their content
- *The need to identify an academic advantage for repository submission* – as such an advantage, especially a link to research reporting and recognition, may turn the philosophical support into actual submission
- *Institutional or discipline based repositories* – were debated by the interviewees to determine which repository they may support
- *Version control and the need for content filtering* – is required for repositories, so that content that has been peer reviewed can be easily identified

6.5.1   AWARENESS OF A 'VALUE' FOR REPOSITORIES

The interviewees were not necessarily unaware about the repository at their institution but rather indicated that they had not considered how the repository could assist in the dissemination of their own research. This issue emerged from a number of the interviewees, including those who have been involved in establishing open access journals that were hosted through their university repository infrastructure. The academics involved in these journals were supportive of open access publication processes and were aware of the repository

infrastructures at their universities. However, when asked whether they have submitted their own papers to the repository, they indicated that they had not done so. This is not because of antagonism against submission, but simply a lack of awareness of the wider use and benefit of the repository as a means to distribute published content.

> *I'm aware of it because of dealings with them [institutional repository] but other than that I'm not sure that I'd have had a very high consciousness of [the repository]. (A11: Senior Lecturer)*

These comments highlight the need to raise awareness of the direct role or benefit that submission to repositories may have for academics. Knowing that a repository is available, as these academics did, does not place it into a context of benefit to the academic. In the examples of the open access journal editors, while they were using the repository to support their journals, they did not use the repository to disseminate their own content. Their dissemination model remained fairly 'traditional' in that they were considering the journal as the dissemination mechanism, not the repository as an additional means to develop open access content.

6.5.2 THE NEED TO IDENTIFY AN ACADEMIC ADVANTAGE FOR REPOSITORY SUBMISSION

An underlying theme from each of the data sources for this research is the identification of the 'academic advantage' that publication processes provide. The 'academic advantage' is the link between publication and recognition of research. The interviews indicated that a philosophical view that research should be completed and disseminated for the 'common good' may be in conflict with the need to meet requirements for academic and research recognition processes. Research recognition frameworks are seen as potentially narrowing the publication behaviour as academics strive for Tier A* and A journals. How, therefore, do repositories 'fit' into a publication framework that is so dependent on the rules of research recognition?

The following commentary illustrates the train of thought associated with placing repository submission into a context an academic benefit.

> *There would be stuff which I've generated in the form of conference papers which so far haven't been published and I might consider posting those on [the repository]. You're asking me though about journal articles. Am I allowed to do that if? … And my instinct is to say, that if it's going to involve me in a lot of work and finding out, then I'm probably not going to worry. Probably not going to do it. … And I suppose the other*

question is, what's achieved by doing it. I suppose what's achieved is that it can be
access by people who at the moment can't get into those journals. (A8: Professor)

This academic (A8: Professor), because of membership to committees associated with the university's scholarly communication policies, was aware of the infrastructure that had been developed for the university's repository. Yet, during the interview he needed to place this infrastructure into the context of his work processes, his own publication patterns and benefit to his own academic career. This ultimately led to the question of 'what's achieved by doing it'? Fortunately this interviewee provided an answer to this question and acknowledged the benefit that repositories can open content beyond those who currently have access. However what is interesting is that there was a need to move through a process of thinking that was associated with questioning copyright, consideration of impact on current publication and then a consideration of issues of increasing access.

Using the institutional repository as a way to record research output provided a purpose for the repository beyond that of just widening the possibility of dissemination. Interviewees from the Group of Eight (Go8) universities indicated that they had submitted articles to their institutional repository because it was part of the research output collection processes developed in preparation for the then Research Quality Framework (RQF).

I think we had to. I think we had to through the RQF process .… all our publications, all
our top publications had to go into [the repository]. (A14: Associate Professor)

And:

Well I think a number of my papers went into the Repository as part of the mock RQF …
So the department's working papers are available. I don't go and look at them but I
think co-authors have submitted them into that so there are some. (A17: Professor)

The comments were still presented with an element of uncertainty – 'I think we had to' – and thus submission was not presented as a primary action of dissemination. There was an implication that submission was mandated as part of the data collection process, yet the uncertainty of what papers were collected suggests that this mandate was not a major driver for submission. The repository was, however, linked to the research quality assessment process and it is this data collection process that was seen as being a reason for submission to the repository.

Compliance with a process that is seen as supporting the research recognition of the academic may be an incentive for submission of articles to an institutional repository. Linking institutional repositories to the collection of publication evidence for the new research recognition frameworks can act as a motivation for submission. Interviewee A14: Associate Professor outlined the process for the collecting of evidence use as part of the research recognition process of the university.

> *All our documents…because for the audit they're managed centrally and we simply send the documentation through. They either came back to us and asked for a soft copy or they were able to access a soft copy some other way. (A14: Associate Professor)*

The repository was being used to collect copies of articles as part of the government policies on research quality reporting. In this instance, the collection was managed through the interviewee's faculty, however centralising this process through the university library would provide the link between evidence collection for the research assessment and the need to populate the institutional repository.

This link will support repository development if researchers and academics view the research recognition processes favourably. If such policies are not agreed to by academics, then submission to the repository may be also viewed negatively. This is illustrated by the comment:

> *Oh for me, I dare say for my colleagues the repository thing is totally new and in fact if I had to pass an exam on what is a repository and why we do it, the only answer I'd give was universities trying to bring government policy to practice. (A10: Associate Professor)*

Where such an attitude may change is if someone, other than the academic, manages this compliance. This chapter has already outlined issues relating to the management of copyright and author-publisher agreements. Academics were generally unaware of the terms and conditions of these agreements and were reluctant to determine whether the agreements provided the opportunity for submission to repositories. There was support for a submission model that provides for agreements to be checked or monitored on behalf of the academic and, where possible, papers then submitted to the repository on behalf of the academic.

While mandates have been used as a means to populate repositories, an alternative model is to directly link the process to the recording of research recognition and to have this coordinated and managed on behalf of the academics or researchers. If managed centrally, with the academic providing permission for the library to collect the information, review author-

publisher agreements and manage submission, then the content of the repository may grow. Those articles that can be made open could form part of the open access repository, while other articles may have restricted access placed on them. This alleviates the need for academics to track rights use, and provides the administrative support that may address the concern and submission barrier associated with 'lack of time and lack of administrative support'.

6.5.3 INSTITUTIONAL OR DISCIPLINE BASED REPOSITORIES

Interviewees, notably from the physics and economics disciplines, discussed the use of discipline specific repositories as a means to disseminate aspects of their research. For interviewees from economic departments, the focus was on the benefit of the Social Science Research Network (SSRN) (www.ssrn.com) as a discipline based repository.

> *I mean the other dimension of it with the finance, economics and econometrics that's interesting is prior to acceptance a lot of the early working paper drafts of papers are in an open access space because the bulk of them are on SSRN. So given that the top end journals in finance are probably from initial submission through to acceptance are probably taking multiple rounds of review and between one or two years, but the early drafts of the papers actually do end up in an open access space through SSRN and so you can see what people are doing. And of course the final polished versions are then ending up in the commercial publishing end. So as a discipline it's sort of got that interesting mix. So finance and economics, and econometrics are a strange thing. If you want to track where research is going in the front end of it, most is on the SSRN and then of course when people sign the copyright agreements with the journals they…they're not allowed to have their final version of the paper on SSRN. (A9: Professor)*

SSRN provides the opportunity for the dissemination of working papers or early versions of potential papers. It was suggested by interviewee A9: Professor that economic academics may contribute to SSRN because the time delay in publication in commercial journals means that such academics need a distribution space in which they can disseminate their initial research and 'stake their ground' in relation to specific research areas. The final papers are then published in commercial journals that, according to this interviewee, are not accessible through SSRN.

This interviewee indicated that they have content available on SSRN as well as on their university's repository. However this content is primarily working papers and not direct versions (either pre or post print) of published articles.

> *Because of the length of time for review. Because of the high rejection rates of journals and because of the gap, I would have a mix of stuff on SSRN and on [institutional repository]. The department used to have a working paper series, it's now got subsumed into that project so I would have a mix of stuff there. (A9: Professor)*

The advantage of SSRN is that it allows for academics within specific disciplines to disseminate their content and to present their initial ideas and draft papers. The time delay in formal publishing, acknowledged by the interviewee, has led to an alternative means to get ideas and debate into the discipline's community.

However, while this interviewee sees SSRN as being an open access repository, exploration of the service suggests that there is a mixture of open and closed content available on the site. Some content requires a payment for access. This was identified by interviewee A5: Professor who questioned the usefulness of SSRN.

> *SSRN, I've put some papers up on that. I found it very, very useful to start with because there were no charges involved but now a lot of the working papers series that are up on the SSRN actually involve charges and it's just a nuisance. I just don't use it anymore. To download a copy of the paper it cost money. So you can read the abstract but you can't get the paper without paying for it. It's a trivial amount but it takes time. It's becoming commercialised. It's not completely commercialised but ... a larger group of papers fall into that category. (A5: Professor)*

SSRN, while providing an infrastructure for scholarly dissemination and communication, seems to be a mixture of open and closed content. Interviewee A5: Professor implied that access to some content is through a 'pay per view' business model, however informal discussions with a data sets manager at a Melbourne university indicated that access is possible through a subscription/membership model. Thus SSRN provides the function of a discipline based repository, however not all of this functionality and content is open to a wider audience. The need to pay for access to some content may discourage academics from using and submitting to the SSRN.

Where there is engagement, this contribution seems to be made because of perceived inadequacies within the traditional publishing processes and not necessarily because of a fundamental support for open access models of scholarly dissemination. As interviewee A9: Professor suggested, his submission to SSRN was in response to delay within the 'time to print' of commercial publishing processes and the need to make content available so that academics

can either protect their research focus or enter into early discussions about initial research ideas.

6.5.4 VERSION CONTROL AND THE NEED FOR REPOSITORY FILTERING

The issue of version control of repository content was raised by this study's participants in relation to different versions of articles (pre and post print) being available as well as the need to filter peer-reviewed content from other material, such as working papers. The interviews also identified the need to filter content based on whether the article has actually been accepted for publication. This was illustrated by discussion of the physics repository arXiv.org, which is generally presented as an exemplar of a discipline repository, yet was questioned in relation to the quality of some content that has been submitted.

> *I've got a little bit of a dim view of the stuff that's located there, but my feeling is that amongst the papers to say that awaiting peer review there's got to be a certain proportion of papers that have been peer reviewed and rejected for whatever reason and it's impossible for you to distinguish between them so I prefer to only look at papers that have actually been through the peer review process and survived. (A6: Associate Professor)*

There is a need to differentiate draft papers from published papers, and thus there is an important role in indexing repository content and developing search interfaces that can assist in this filtering process.

6.6 PUBLICATION RIGHTS AND INTERMEDIARY SUPPORT

In considering engagement with open access dissemination, especially through institutional repositories, further themes were identified that question the impact that author payment models and author-publisher agreements may have on open access submission. The interviewees questioned the use of author payment models for open access journals as they associated author payments with 'vanity' or self-publishing. Copyright and author licencing were presented as barriers to repository submission. However, the discussion posed a model whereby intermediaries may act as a means to support repository submission.

This section presents the following four themes:

- Exploration of author payments
- Copyright as a barrier to repository submission
- Issues of managing author-publisher agreements
- Intermediaries as a means to facilitate repository growth

6.6.1 FURTHER EXPLORATION OF AUTHOR PAYMENTS

As previously discussed, the survey data indicated that there was limited support for the open access models that are based on the payment of an author fee. Specifically, an author payment model is hindered because Australian research grants do not generally support the costs associated with publication.

The interviewees extended this discussion of author payment models, by placing their concerns within the debate of 'research quality'. Author payment models were seen as equating to 'vanity' publishing and therefore were detrimental to the notion of research quality. There was even a cynicism associated with author payments.

> *They'll publish anything if you pay them and of course that's just the flip side of the coin, where they won't publish unless you pay because it costs a lot of money to publish … Vanity Press. (A10: Associate Professor)*

Generally, the interviewees suggested that research should stand on its own merit and that if it has a high degree of quality, then the opportunity to have it published should be independent of any author fee. This is not only raised in addressing open access models, but also in relation to commercial journals that seek a submission fee for articles.

> *You have to pay a fee before they will even look at your article and I was appalled because I think a good quality article is not based on whether you pay a fee, it's based on how rigorous your peer review process is. (A3: Senior Lecturer)*

The interviewees questioned the quality of journals that had to seek such author or submission fees. The underlying assumption was that the best journals cover their costs through subscriptions and if a journal is of high quality, then institutions or individuals will subscribe to the journal and therefore the journal should be able to maintain sustainability because of its reputation and subscription take-up.

I still think it comes back to as an author you have a choice. You can pay to publish here or you can not pay and publish over here. If your work is good enough, you shouldn't need to have to pay. That's why I suspect that the top journals will remain subscription based and while they continue to be subscription based, people are not going to pay to get their work published, I don't think. (A14: Associate Professor)

If an established and well-recognised journal uses an author payment model, then the criticism of vanity publishing was removed. For example, interviewees from the sciences recognised the established quality of open access journals such as *New Journal of Physics*. The major issue was not the quality of the journal but rather that author fees would limit submissions to those who can actually afford to pay.

The overriding response from the interviews was a reluctance to engage with author payment models for publication. As the interviewees' current experience with author fees was with commercial journals seeking payment, they viewed such publication models as being another way for commercial journals to 'make money'. There was an element of cynicism is some comments, as they viewed author payments as a means to justify priority publishing for some content, or as a means to cover production costs that the interviewee believed should be part of the publisher's role.

6.6.2 COPYRIGHT AS A BARRIER TO REPOSITORY SUBMISSION

The interviewees made repeated reference to copyright as a major barrier to submission of content to repositories.

The problem they're having is the copyright issue which is not a university problem, it's the problem with the publishers, not giving access to various things. (A2: Professor)

And:

So aside from being accepted by the journal for publication, it is also at the same time being put into a repository? ... Would the journal allow that? (A3: Senior Lecturer)

The statements imply a belief that the respondents did not retain a right to reuse the content within a repository. Interviewees stated that they were 'not sure that I am allowed', when asked if they submit copies of their publications to a repository. There was, therefore, uncertainty around the ownership of the article and how copyright protects this ownership. The belief was that the copyright was passed to the publisher, and thus the author could not submit to a

repository. This belief was even presented by interviewees who are actively involved in open access journal development.

Uncertainty about how copyright is applied to published articles meant that the interviewees were reluctant to engage with repository submission. Discussion about copyright and open access repositories suggested that commercial journal publishing offers greater intellectual property protection of the copyright within an article than can be provided through open access repositories.

> *I'm all for openness and transparency and access ... dedicated to learning and openness and so on. But one day… I'll go somewhere and someone [will have] published an article that I wrote …under their name. With open access and freedom it's all very fine but one day I reckon it might come and bite me. (A13: Associate Professor)*

The concern for copyright protection and management was also presented in relation to institutional mandates for repository submission. The concern was that having content openly accessible, in a digital format, could lead to an easier means to breach copyright within the work. This fear overrode the mandate for submission that the university was placing on the interviewee.

> *My concerns on this whole issue were first raised when I was made to place my PhD on open access in the ADT [Australasian Digital Thesis] project otherwise "I would not graduate" - good grief! What sort of a choice is that? Well I managed a 12-month embargo and sought read only access for perpetuity but was told this was "not possible". (A3: Senior Lecturer)*

6.6.3 MANAGEMENT OF AUTHOR-PUBLISHER AGREEMENTS

Even though copyright is identified as a barrier to repository submission, the interviewees showed little interest or awareness of the rights being assigned through their author-publisher agreements. The interviewees stated that they just signed such agreements, with little negotiation of the agreement or consideration of the content of the document. The assumption was that the publisher dictates the terms and the interviewees had not considered whether the agreements actually provide the ability to reuse the content or to submit to repositories.

> *I just signed an agreement. To be honest I've never read it in detail. … so I'm not giving a lot of attention to that to be honest. (A1: Senior Lecturer)*

Even where the agreements were read, this seems to be only at a general or superficial level. The decision was to have work published and there seems to be an acceptance that this means agreeing to whatever the publisher's terms were:

> *My philosophy is if you have decided to publish in this journal article you really haven't got a choice, do you. (A3: Senior Lecturer)*

The way that the interviewees were interpreting author-publisher agreements may not reflect the actual rights provided by the agreements that they have signed. For example, an Associate Professor from the physics discipline (interviewee A6) indicated that these agreements simply assigned all rights to the publisher. This discipline has access to the arXiv.org repository infrastructure and the journals to which this interviewee submitted articles might have author-publisher agreements that were supportive of the repository. However, the interviewee's interpretation of the agreements would prevent this respondent from contributing to arXiv.org.

A similar story comes from the humanities, where interviewee A8: Professor was supportive of open access principles and had access to a major institutional repository, yet still saw formal publication as taking precedence over re-use and submission rights.

> *Let's suppose I'm offered an opportunity to publish my piece in 'Past and Present' which is possibly the most prestigious history journal in the world, but they say to me, you have an absolutely exclusive agreement with us, and we have the first right to republish, and you can't put it in any other place, or I can publish it in a lower ranked journal, and I can also have the right if I wanted to use it elsewhere or publish it on [Institutional Repository] or what have you. Then I probably at this stage I would go still with 'Past and Present'. (A8: Professor)*

This comment reinforces the conflict between wishing to make content widely accessible and the need to target specific journals and publication processes so as to meet quality recognition criteria.

This is an issue that was repeatedly presented by different interviewees:

> *You know the reality of publishing in those top ranked journals … means that earlier version then cannot be as freely available, then that…I think that's one of the things you just accept. (A9: Professor)*

And:

> *If I've got to sign, I've got to sign it. I want the publication. I want the CV or the promotion. (A13: Associate Professor)*

Associate Professor (Interviewee A10) is an editor of an open access journal that uses a Creative Commons author-publisher agreement for submitted articles. However, there was clearly frustration when this academic attempted to publish in other journals, as he did not have an ability to negotiate a creative commons type licence with commercial publishers. There was a suggestion that authors are 'at the whim of publishers', even for academics that have an established research and publication record.

> *No because I'm vulnerable too. I don't have complete freedom about the way I publish. (A6: Associate Professor)*

As well as more recently employed academics, who are just establishing their research record:

> *To be honest with you as a new author because I guess the power dynamic is you know stacked against you, so probably [hand over rights]. (A4: Lecturer)*

These agreements were seen as being set by the publisher and there was little opportunity provided for academics to negotiate different terms of the agreement. This meant that there was little active engagement with open access repositories because the interviewees believed that the author-publisher agreements did not provide the right to re-use their published content.

6.6.4 INTERMEDIARIES AS A MEANS TO FACILITATE REPOSITORY GROWTH

A subtheme that developed from the discussion of copyright was whether academics and researchers should be in the role of managing copyright, author-publisher agreements and alternative distribution models for their research. Conducting research, creating new content and authorship of articles based on this research were seen as being part of the academic dissemination of knowledge. However, the management of copyright and the negotiation of new business and intellectual property models for publishing were not necessarily viewed as being a focus for academics.

Issues of copyright were seen by some of the interviewees as clearly being the role of the publisher. So too is the development of the business models for publication.

I would get the publisher to have all this sorted out. … [the] reality is you have so many things on your plate, you set out to do what you want to do, and what you need to do, and once it's done, you achieve it, it's done. (A3: Senior Lecturer)

Author-publisher agreements were seen as being legal documents and if individual academics are to try and negotiate intellectual property rights, then further advice was needed. It may be easier to accept standard agreements than to try and negotiate rights for submission to repository or other dissemination processes.

Because I don't have a full knowledge of…you know this legal documents, need to have someone who really understands the implications of the rights and applications and what you can and can't do, so I've never thought about negotiation the copyright arguments. (A1: Senior Lecturer)

While academics are the signatories on these agreements, they tend to treat the agreements as a standard type of contract where they generally assume that the publisher has rights to publish and possibly re-use the submitted content. However, if the negotiation was completed on their behalf, or if others completed the follow-up to repository submission in the university, then academics may be supportive of this process. Throughout this study there was not an indication that academics would actively prevent their articles being submitted to a repository. Instead, some of the interviewees supported a process where the university library, or other central agency of the university, would manage submission to institutional repositories on their behalf. Under such a process author-publisher agreements would be monitored and, where possible under agreements, papers then submitted to the repository.

Once they've finished one project and they've got it published they move onto the next project and they'll rely on some other body to make it open access. They're not going to do it themselves. … I mean have a university library take on more than a role of just a repository of everything sort of around that students can use. Why don't they take a proactive role and be the place where that happens? (A2: Professor)

And:

That's the university's problem. I figure if they are worried about copyright, they'll manage that. They have all the bibliographic details of all my publications. They can make the decision about what they do with them [articles]. I wouldn't worry in the least [if the library then placed copies in the repository]. Cause in the end isn't it the point

that we want our work…as wider exposure to our work as possible. (A14: Associate Professor)

6.7 THE RESPONSE FROM OPEN ACCESS JOURNAL EDITORS

The themes identified thus far, focus on issues associated with the way academics' engage with publication processes as researchers and authors of content. Interviews were also conducted with academics that are editors of open access journals and with staff involved in university based electronic presses. The aim of these interviews was to determine how the identified themes have impacted on the development of open access journals and electronic presses within the Australian academic environment.

The themes from the interviews illustrate the conflict between support for open dissemination of research and the policies that dictate the development of an academic's publication practice. This conflict is identified by an Associate Professor (Interviewee A14) who indicated that they would not publish in the open access journal that they edit.

I'm also a co-editor of another journal which is open access … I'm unlikely to publish in…. [rank] C. (A 14: Associate Professor)

The journal suffered from being a lower ranked journal and thus the interviewee viewed the journal as being suitable only for PhD students and new academics. The following vignettes emerged from interviews with editors of two open access journals. They outline issues associated with the establishment of new open access journals.

6.7.1 SOCIAL SCIENCES

The editor (A11: Senior Lecturer) of this social science journal was from a Go8 university. The initial impetus for the development of the journal was interest from the discipline's professional society for the development of an Australian scholarly journal.

When first being considered, the journal was to be a subscription based print (hardcopy) journal. This publication model was to assist in meeting the journal's development costs and to support the discipline society. However, the production costs associated with a hardcopy journal led the editorial team to consider producing the journal as an electronic only publication. This, in turn, then raised the issue of managing a subscription and invoicing process and therefore the decision was made to make the journal open access.

Initially we were assuming there would be a subscription fee. .... But the further issue was the need to develop a database, to keep it up to date. To invoice people. The whole infrastructure that was required, we knew was going to be beyond our administrative needs. ... So we moved to a position so we can have open access. (A11: Senior Lecturer)

Trying to maintain a subscriptions system, including the associated accounts and financial management, was a deterrent to the initial set up of a subscription based journal. The development of the journal as open access allowed for the removal of some of this process and this seems to be the 'tipping point' in deciding to establish the journal under an open access model.

A commercial publisher could have managed the subscriptions and marketing, thus allowing the academics to focus on the primary role of editorship. They had access to a university managed, commercial electronic publisher that could have taken on the establishment and running of the electronic journal. However, being a new journal, the publisher did not want to take on the full financial risk of establishing the journal and thus sought an initial up-front fee to support some of the development costs.

They wanted some up-front funding, that we didn't have and couldn't think that we would...even if we were to be charging a fee, and it would have required us to charge a fee. (A11: Senior Lecturer)

While the actual amount of the publisher's fee was not disclosed during the interview, the formal request recognised that there are costs associated with journal development. The electronic publisher involved was offering a publishing service that included the hosting of the journal; imbedding reference links throughout the journal; marketing and promotion (including partnerships with other distribution agencies) and the management of the subscription processes. In one sense, having these services managed by the publisher would have potentially alleviated the initial concern of the academic editors that their time would have been spent on subscription processes instead of acquiring new articles for the journal. However, an open access model was adopted primarily because of the inability to meet an upfront payment and the academics' philosophical belief in the sharing of research and knowledge.

We were morally philosophically supportive in the idea that whatever the knowledge was being produced in a journal should be free and available to anybody. (A11: Senior Lecturer)

The academic's department provided support to the journal as there was a perceived benefit of promoting the school and the general research of the department. The editors had indicated that their initial aims for the journal had been to provide an avenue for the department to publish its research and to build stronger ties with the practitioners of the discipline area. To meet these aims, content had been sourced from the professional conference held prior to the first issue. The editorial board included a mixture of academics and practitioners, so that the needs of both audiences could be addressed.

The infrastructure costs for hosting the journal were met by the university and the professional association. The journal articles were housed on the university's repository infrastructure. The journal's homepage resides on the professional association's website and links to the articles within the repository. Thus the costs associated with hardware establishment and technical maintenance for the journal's electronic presence, are 'hidden' within the broader infrastructure costs of the university and within the web development costs of the association. This meant that the editors had a perception that there are minimal hard costs involved with the journal development and thus had not considered alternative models for generating a revenue base for the journal. That is, they had not considered author fees as a model for generating revenue to support ongoing development of the journal.

If the journal is to remain viable then all costs will need to be absorbed by the university. Obviously subscription based journals also rely on the cost of the editorial work completed by academics being absorbed by the university. However, can or will universities be prepared to meet other costs associated with promotion and marketing of journals, which are usually a cost met by publishers? This seems to be the assumption with the development of this and other university based open access journals.

The editors raised concern about ongoing contribution to the journal and recognised the impact that current publication practice will have on their journal development. They have been able to attract articles from established researchers, but indicated that this may not be the case for ongoing issues as academic recognition processes continue to change.

> *The first lead article in the first issue was by a well known author … his concern particularly was really only that it [the journal] was going to have an ISSN number that it was refereed. He didn't express any other concerns initially even though it was at that stage entirely unknown journal … he didn't have a reputation to build. (A11: Senior Lecturer)*

This statement hints at the notion that open access journals may be able to attract submissions from academics and authors who already have an established career. An ideal environment would be if those who already have established their research profession could submit to emerging open access journals as a way to establish the 'prestige' or 'quality' of the new journal. However, the editors acknowledged that current publication pressures will prevent the ideal from developing.

> *More people are trying to build a reputation rather than people with a reputation. Some people will push to publish as high up the tree in status terms as they can. (A11: Senior Lecturer)*

This journal and its editors have a strong awareness of the practitioner as being an audience for the research. The editorial board includes representation from practitioners. The second editor for the journal identified the conflict between research recognition and the services that the journal could provide to the practitioner community. Even though their journal attempts to bridge the academic – practitioner conflict by being peer-reviewed, the editors saw their colleagues as primarily targeting journals that already have an established 'status'. Thus they viewed this as a potential difficulty in attracting contribution to the journal.

> *I support very strongly the idea that we should be publishing in non refereed journals and publications that go out to the practice sector and are read by practitioners and read more often than academic refereed journals are in reality because that's where we have more of an effect, in the real world. So I'm disappointed that even when a refereed journal is offered that some people have wanted to still go for status. (A12: Lecturer)*

However the adoption of an open access model, while based on a strong philosophical support for disseminating scholarship to a practitioner community, was primarily implemented as a means to overcome initial labour costs. By not monitoring subscription processes, the editors believed that implementation costs could be kept to a minimum.

6.7.2 GEO-SCIENCES

The editors (A10: Associate Professor and A13: Associate Professor) were from two Go8 universities managing a Geo-sciences journal that focused on analysis of mapping data. This journal was established for a number of reasons including frustration with current publication processes and the need for an improved way to present the data and findings of the research articles being published. The frustration with commercial models of publication related to issues

of the time taken to publish articles, but also the philosophical concern that research was being commercialised.

> *The university pays people like me to do research, get it in condition so it would pass review and then give it away to commercial. (A10: Associate Professor)*

The data being presented by researchers within the Geo-sciences discipline focuses heavily on mapping and visual information. There was a need to highlight information within this data through either colourised representation or, if in an electronic form, the ability to zoom into specific elements of the data. There was frustration with subscription-based journals because of the need to pay upfront fees for the development of a journal that included elements of this functionality.

> *The commercial publisher will say, you want more coloured maps, you just pay for them and we'll publish them. (A10: Associate Professor)*

The editors decided to publish the journal electronically as this provided the opportunity to display research results in more detail than what can be done with a print based format. They realised that multiple layers of data could be provided within an electronic environment that will allow results to be overlaid on additional data and for the reader to zoom into the required level of detail needed for appropriate analysis. The journal was initially developed as part of the university press under a subscription for access model. However the editors realised that as a new journal and a journal experimenting with new presentation of published data that it was not going to be financially self-sustaining under a commercial model.

> *[We] told [the university] Press this is not going to make money for at least 5 years but it's a wonderful opportunity to meet the market because no other journal is allowing research results that are not worth publishing unless you can show the maps. Show the models. Some of them dynamic. (A10: Associate Professor)*

The benefit of working with the e-press was that the publishing software allowed for the required manipulation of data and the linking between articles and data sources. However, the editors were forced to make a number of compromises in order to build the journal. They initially wished to make the journal open access because of a belief that research should be easily accessible, but also because they realised that as a new and relatively experimental journal, that it would not initially make money under a subscription based model. In order to develop the potential for manipulating image data, they accepted the need to publish with the commercial e-press as it provided established publishing software.

However, the journal was not financially sustainable under a subscription-based model and it was therefore moved to an open source option for publication. This meant that the initial software functionality required for the data manipulation could not be implemented. Thus there was a compromise between maintaining the journal as an open access publication and removing the core functionality that the editors were trying to implement. The content and research being published seemed to have value as opening access to the content led to increase downloading of the articles that were being published.

> *You know they've lost the count now but you know some of the papers were getting a thousand hits every 6 months or something. But you know a huge number of hits, because they're getting it for free. (A10: Associate Professor)*

However these articles had to be published as PDF files that meant the ability to zoom into mapping data was no longer possible. Images and maps were still imbedded within the PDF, but the interaction with such data was now limited.

In order to generate revenue so as to build the functionality of interacting with mapping data, the journal could have been established as an author payment model of open access, however the editors frowned upon this.

> *No, I wouldn't do that, I think that's terrible. That's poor people trying to make their way. You shouldn't have to make them pay. It's bad enough we make them pay to go to the conference let alone page fees and things. Really ideologically opposed. (A13: Associate Professor)*

An author fee is not viewed as an option for revenue generation, even if it meant that such fees could support the ongoing development of the open access journal.

Even though the editors of the journal support open access journal development and favour the removal of restrictions for submission and access, one wonders whether a 'tipping point' for the journal actually relates to the infrastructure requirements of the data management. That is, if a publisher, whether open or subscription based, had been prepared to support the infrastructure for managing the mapping data, would the editors migrate to this publisher? The preference for open access to the content could be secondary to the ability to present the mapping information in an infrastructure that allows reader manipulation of the data.

6.7.3 ISSUES AND THEMES FROM THE VIGNETTES

The vignettes contribute to the grounded theory development by reinforcing some of the earlier themes and identified new themes that inform the theory. The themes are:

- While the philosophy of open access dissemination is supported by the editors, the adoption of open access business models was influenced by economic drivers – the inability for the editors to manage a subscription process and the realisation that the journals would not make a commercial or financial return

- The actual financial costs are hidden, as the editors' academic schools or departments provided 'in kind' support for the development of the journal

- Conflict of audience identified as the journals attempt to meet academic and practitioner information needs

- Academic recognition policies can impact on contribution to the journal as the journal is seen as lower quality

- Author payment models are not viewed as viable models for maintaining the sustainability of the open access journals

6.8 THE RESPONSE FROM COMMERCIAL UNIVERSITY E-PUBLISHERS

Interviews were conducted with managers and publishers from commercial electronic presses that have been established within Australian universities. Interviewee A23: E-press Manager represented a newly established university e-press. This press started publishing just prior to the commencement of this study. Interviewees A21: E-press Manager and A22: E-press Publisher represented a university based electronic publishing unit that has over a twenty-year history. The e-presses employ a subscription business model for the journals and other titles that they publish. The new press was established with the financial support of its parent university. This support assisted the press to develop its publication list, however the press aimed to be a fully cost-recovery publishing unit. The established press, while associated with a university, operated as a non-profit commercial publisher.

This study incorporated issues from the publishing community at the start of the data collection, through the focus group with publishers. The interviews with the electronic publishers provided the opportunity for publishers to again comment on the issues and themes identified through the study. The broad issues from these interviews are presented in the following discussion.

6.8.1 DEFINING THE ROLE OF THE E-PRESS

The electronic press managers acknowledged the need for their journals to provide a financial return for the investment that they were making in publishing the journal. If a journal proposal was deemed not to have a potential subscription base that could generate this financial return, then the journal proposal was rejected. However, interviewee A23: E-press Manager indicated that in some instances advice was provided to the journal proposal for the editors to seek an open access model for their journal.

> *It made sense for them [journal editors] to end up publishing through open access because, although the journal has been going for a long time as a respected journal, their subscription numbers were low so I don't think they would have been able to afford to publish with the e-press. (A23: E-press Manager)*

This advice recognised the journal's scholastic value, even though the e-press predicted that this would not lead to an ongoing financial return. The advice, however, leads to a question of the role or services that a publisher provides. If the E-press Manager could recommend an open source publishing infrastructure for a 'respected journal', then what value was the press providing to the journals on its publication list? Should other editors use open source infrastructure instead of approaching the electronic press for publication support?

Even though the publishers use a subscription model for access to their journals, they suggested that revenue was not necessarily the main motivation for journal editors to work with commercial journals.

> *Revenue is rarely the main interest. Revenue is the benefit. The real question is always how do I get my journal noticed? How do I increase my citations? Can I finally obtain a realistic impact factor? Who's reading my journal? How am I going to get more readers for it? They're capable of producing the journal but they fall short almost at every turn in trying to actually market the journal. You know the notion of discoverability, meta data, all of those tools to actually help locate and discover that journal are often not in place or it's a bit piece meal. (A22: E-press Manager)*

Promotion, marketing and integration with web search engines were seen as being a way that the e-press can improve the quality of the journal and assist the reader in locating its content because of indexing and metadata provided by the publisher. The press, therefore, promoted and marketed the journal and developed strategies to support the ongoing quality of the journal.

We take a lot of the workload off them [editors] and that's in terms of typesetting, designing, actually putting the stuff up and customer service, sales, marketing. (A23: E-press Manager)

The e-press managers indicated that an editor's primary role is in managing the content of a journal, including article contribution and reviewing. While editors have the option to then use open source software to manage the actual publication and access to the journal, this is not their primary skill. Instead, electronic publishers provide this skill and the technical infrastructure that allows for linking between citations, development of metadata for search engine indexing, and fostering cross-location of content through links based on digital object identification. The e-press managers viewed their role as providing an expertise that can further develop the quality and academic standing of the journals being published.

Each of the press managers acknowledged the value of the editors with whom they worked. The editorial role is seen as essential in managing article contribution, assuring quality through peer review and acting as the scholastic experts in understanding the research focus of the articles and overall journal. However, the actual publishing process was viewed as a separate role to that of editorial control. Where academics and editors attempt to manage both roles, the e-press interviewees believed that this then leads to 'burn-out' of the editor and an inability to sustain the ongoing publication process.

…I think it's much harder for them [editors] because they have all those added things they have to do on top of compiling the content so yeah typesetting it, publishing it, marketing it, selling it, and unfortunately when an editor is really good and I think tries to do that independently, they often burn out, because they think oh all I have to do is produce the content and there's all these other things that they think are incidental but in fact they're key so they sort of pile up and then they'll burn out. (A23: E-press Manager)

The publishers viewed their role as adding quality and branding processes that can support the sustainability of the journal. The publisher can invest in infrastructure development as the cost of this is supported by the financial return of all of the journals on the publisher's list. This infrastructure is developed to support integration with library systems, and cross database searching so that the journal is 'findable' by readers. The publisher also builds a business model for the ongoing marketing of the journal, and without this planning the concern is that journals will survive for only a short period of time.

The e-press managers questioned whether journals that do not have publisher support are in a position to attract quality contribution by researchers. Open access journals, that are developed and published by their editors, were not viewed as providing a guarantee of ongoing viability.

> *Let's start a journal. We'll simply get a URL, we'll get hold of an open journal system, and you know it'll be out there. There doesn't ever appear to be an underpinning business model. What will happen year one, year 3, year 5, beyond? I'm not sure who they think that they're actually helping ultimately. It's no good getting published in a journal that may or may not get noticed and then they disappear after a couple of years. (A22: E-Press Publisher)*

The assumption made by this interviewee was that journals that are self-managed by their editors risk their ongoing sustainability. Changes in editors or pressure on editors' of other work commitments may lead to the journal 'disappearing'. The interviewee had monitored the development of a number of self-published open access journals and stated that many had ceased publication after a two or three year period.

6.8.2 IMPACT OF RESEARCH RECOGNITION ON THE E-PRESSES

One of the major themes from the academic interviews is the impact of changing research recognition policies on the publication patterns of the interviewees. The publishers suggested that these changes made it difficult for the press to commission new journals as academics focused their publication practice towards established journals.

> *I think there were a lot of mixed messages flying around about what academics' priority should be in terms of where they should publish. We saw academics responding to our approaches to start up a new journal with the response, no, our faculties advised us that we need to publish in the high ranking ISI journals. (A23: E-press Manager)*

While such a response may not be unexpected, the e-press experienced this response from a range of academics including Early Career Researchers (ECR), who would benefit from submission to journals targeted towards emerging research.

> *That response happened even with proposals or new journals and new edited collections that were really about early career research which I found hard to understand because the likelihood of an early career researcher or early career researcher in general regularly being published in highly ranked in ISI journals would seem to me to be fairly low. (A23: E-press Manager)*

Regardless of their level of research expertise, academics that were approached by the e-press presented a consistent interpretation of the new research recognition policy as having a focus on journals that had already been established and identified by the journal list. The impact for the new electronic press was a difficulty in the commissioning and starting new journals. The older press, however, had been successful in developing its publication list by producing the electronic versions of established print journals. The press was not commissioning new journals, but rather digitising established journals, and thus did not experience the impact of the research recognition in the manner that the new press had.

> *The problem is that we don't actually have any editorial impact on those journals. What we're doing is offering a secondary distribution channel so it's not really our place to [commission contribution]. (A22: E-press Publisher)*

The publisher indicated that they had 'lost' some journals to other publishers. These journals had not 'gone open access' but rather had migrated to other larger commercial publishers. The reason for the loss of the journals was that the journal editors wanted to further develop their publication standing by moving to a larger, usually international, publisher.

> *Over the last couple of years we've lost [a few journals] What's happened to those journals? Have they gone open access, no. Where have they gone? They've gone to the next level. Their desire is to move up in the world, not to actually give it away. In each of those cases these are journals that have decided to go with a mainstream publisher. (A22: E-press Publisher)*

The need for the editors to increase the ranking of their journal is an indication of an indirect impact of the research recognition policies on Australian electronic presses. Associations and editors may focus on partnerships with larger publishers as a means to increase awareness, use and ranking of their journals.

While the research recognition policies focused on defining and improving research 'quality', there had been little consideration of the impact that this may have on the electronic presses that had been established within university sector.

> *The impact on Australian scholarly, independent scholarly publishing or university driven scholarly publishing was not considered … just wasn't in the radar. (A23: E-press Manager)*

As the research framework leads to a publication behaviour that is focused on selected, generally international, journals then this impacted on the ability for the smaller electronic presses to establish new content. As the e-press managers reflected on the impact that the research quality policies may have on their role, they also considered whether there was a need for new journals and for new publishers. They suggested that there were too many Australian publishers and university presses competing for the same content to publish.

> *My view is there's just simply too many publishers…and Australia get[s] a lot of research [published] outside of the country … [Australian publishers] are competing against each other in a very small market to try and just scrape up the scraps here and [therefore] there are really no serious scholarly publishers left in Australia. (A21: E-press Manager)*

This view was qualified by a reflection on the ongoing development of the larger international publishers and how these larger publishers were viewed as dominating the market place and pricing access to published research beyond the budgets of some organisations. A backlash to these larger publishers may, in the end, benefit smaller publishers. This may not be a wider adoption of open access journals and publication models, but rather a focus on specialised areas of content development and support for smaller publishers.

> *The Elsevier's that put out obscene profits every year and have got the market stitched up and are so big and monolithic, and everybody knows them as the evil empire. It's just coloured and tainted every other publisher. But it's getting harder to compete against the bigger ones. And it might come full circle .… be a back lash against the big deal. It might open up more opportunities for smaller players or niche players, or specialised players. (A21: E-press Manager)*

This backlash may not be from academics, but from university libraries as they evaluate their subscriptions to the journals of the larger publishers. Ultimately, the interviews acknowledged the tension, placed on researchers, between fostering process for open accessibility to research and the need to meet the research ranking processes of government policies on academic and research recognition.

> *There's still a big pressure for people to have access to the research data but there still seems to be a lot of pressure for people to publish in some reputable high-ranking journal. (A21: E-press Manager)*

6.8.3 OPEN ACCESS REPOSITORIES

The e-press interviewees did not see repositories as a major threat to their publication list, as they believed that academics had not engaged or submitted enough content to repositories to justify subscription cancellation. This study supports this belief, as its academic participants have made only occasional use of repository content and have only submitted some of their published works to repositories. The e-press publishers viewed repository development in a similar fashion to the development of electronic journals. There is a cost to the development of the infrastructure and there is a need to manage and promote the infrastructure so that submissions can be received.

> *There's a lot of them [repositories] in the world but there's not much in them. People are finding that they're an overhead and there's a cost. It needs people and it needs constant marketing. (A21: E-Press Manager)*

A major model for populating repositories has been through the use of mandates, but the interviewees have observed a degree of 'hostility' by academics who have been mandated by their university to submit to institutional repositories.

> *I run into a lot of people as I go to universities and there is in some cases quite an open hostility towards repositories. How dare the university insist that I do X with my paper. (A22: E-press Publisher)*

The publishers also questioned whether institutional repositories assist in the location of content authored by specific researchers. One aim of institutional repositories is the capturing and archiving of articles that have been written by the researchers of the institution. The interviewee suggested that repositories can support the promotion of the institution's research output but does not act as an archived collection focused around individual academics. The interviewee suggested that as academics move between universities, there is the potential for their archived articles to be dispersed across a number of repositories. Obviously the formal publication process means that academics will publish across a range of journals, and thus their articles are dispersed through different publishers and journals. However, when seeking an incentive for also submitting content to an institutional repository, the notion of a single archive to promote an academic's research may not be achievable. Interviewee A22: E-press Publisher questions whether this leads to confusion on the role of the institutional repository.

Institutional repositories are about capturing an academics output in a given time. The problem is that everyone is so mobile these days. What actually happens to the paper after the person moves to another university? What was previously one university's research paper is now another's, or is it, I don't know. (A22: E-press Publisher)

One of the themes from the interviews conducted with academics was whether discipline based repositories should be developed in preference to institutional repositories. Discipline based repositories may act as a single location for the archive of a researcher's articles and thus overcome the concern raised by interviewee A22: E-press Publisher.

6.8.4 A SHARED ELECTRONIC PRESS ENVIRONMENT

The e-press managers acknowledged that the publishing industry is responding to the influence of open access research dissemination. This response was not necessarily the adoption of open access models by the established commercial publishers, but rather the further enhancement of their publication infrastructure so that additional value or service is provided to authors and academics. These services provide incentives for academics and authors to continue to publish with commercial journals and publishers. The example provided by interviewee A22: E-press Publisher was the use of web 2.0 communication tools to build academic communities of practice.

All of the top tier journals, I think, are going to be responding to open access, but not [through] open access [models] as such. It's going to be more about the web 2.0 model. They've created side portals so you're in the academic community in Boston, and you want to know what's going on in research in Boston, where the jobs are, and it's all there in a portal built around the coordination of a journal. So it's actually a kind of quasi marketing, [a] helpful useful tool that pins you to a publisher. (A22: E-press Publisher)

Publishers are using Web 2.0 collaborative tools that provide electronic means for managing article submission and review of articles, as well as the opportunity for collaborative writing, academic networking and possibly collaborative research. The development of these services is partly a competitive response to open access initiatives.

The Australian university based electronic presses have developed publication infrastructure that supports electronic submission and peer review processes. However the individual presses do not necessarily have the resources or infrastructure to develop the Web 2.0 approaches to

fostering academic communities of practice. Interviewee A23: E-press Manager questioned whether the Australian university and research environment should compete in the development of the publishing infrastructures. Instead, this interviewee sees an opportunity for collaboration between the electronic presses that have been established within Australian universities.

> *Looking at it from on high doesn't it make sense to coordinate those efforts on a university wide spectrum so that universities aren't reinventing the wheel every time they set up a press? There are lots of things about electronic publishing that lend themselves to shared resources and shared service provision especially in the area of software. Hosting platforms and customer management systems, subscriptions systems, submission and refereeing, online systems, but also perhaps shared staff and shared marketing. There'd need to be an understanding that each university has a vested interest in maintaining their brand but I think that can be done. I mean the publishing sector already had a model for that in terms of imprints. (A23: E-press Manager)*

The electronic press has established some cooperative publishing processes. The press has partnered with another university so as to share Print on Demand (POD) services for the production of hardcopy editions of some of the press's titles. Extending this approach to production and publication was seen as a means to share resources. Many of the new university based electronic presses rely on a small number of staff and therefore may not have the ability to provide the range of services that larger publishers can. If the infrastructure is shared and distributed publication models developed between universities, then further functionality can be developed. In fact, such cooperation and sharing of resources may assist in fostering a collaborative open access publishing infrastructure.

> *If one of the key arguments for open access is, it's tax payer money, that's funding the research, why are we handing it back to private interests. Why isn't the public getting the benefit of that money. Then that is a university wide argument. That's across the whole sector. And so why can't we cooperate on open access publishing to a larger extent than we have been doing. (A23: E-press Manager)*

6.8.5 ISSUES AND THEMES FROM THE E-PRESS MANAGERS

The themes identified through the interviewees with the e-press managers can be summarised as follows:

- Publishers provide a service of commissioning, production and marketing that cannot be provided by individual academics or schools that are attempting to establish open access journals

- Publishers manage the process of developing journal brand, by providing a discovery and marketing process for the journal, so as to assist in increasing readership and citation counts

- Research recognition policies impact on the ability for the smaller university based e-presses to attract content and to develop new journals, especially journals with an Australian focus

- Publishers have experienced the impact of research recognition policies on their current authors which has led authors, across all academic levels, to refocus their publication strategies to a smaller number of targeted journal titles

- The sustainability of open access journals is questioned, especially those open access journal that are established as single titles without publisher support for promotion and brand development

- Established journals have continued to address their need for branding by partnering with larger commercial publishers and not by adopting open dissemination models

- Open access repositories have not been supported by the academics that the e-press managers have encountered

- Open access repositories are not viewed as being a suitable collection of an academic's research output, as the output can be potentially dispersed across a number of repositories

- The Australian university e-press infrastructure can benefit from collaborative publishing initiatives

6.9 CONCLUSION

The interviews with academics have identified twelve themes that contribute to the ongoing exploration of publication process and open access engagement. These themes reinforce the impact that research recognition policies are having on publication behaviour. Most interviewees were refocusing their publication process to a few select journals as represented in the first theme of a 'mantra' for targeting Tier A* and A journals as defined by the original ERA list of ranked journals. Academics are attempting to follow conflicting 'research rules' in regard to publishing their research. This is illustrated by the requirement to confirm to a journal ranking process which would over-ride mandates for submission to open access journals and dissemination. This is further extended to the reinforcement of the notion that targeting specific journals may be in conflict with the needs of readers and the audience for which the research has been prepared, especially in relation to practitioner-based disciplines.

Issues of research and publication quality were again raised throughout the interviews. However, 'quality' was not presented as an individual theme, but rather discussed in relation to other factors impacting on publication processes. Interviewees questioned the quality of articles that are published under an author payment process as they suggest that articles that are of quality should be accepted for publication without the author needing to make an author payment. The discussion of the use of repositories indicated the need to filter the available content as a means to identify repository material that represents research quality. Quality was measured as having met peer-review and thus, the interviewees sought to filter content so that final published versions of articles could be located.

In considering the development of repositories, the interviewees needed to reflect on what advantage would be gained by submitting their work. The discussion indicated that in order to support submission, promotion of an academic benefit (especially if linked to the research recognition processes) would be a better strategy than mandates. Submission to repositories is hindered by a limited interpretation of copyright and author-publisher agreements. Interviewees simply signed their agreements so that they could have their research published. There was little understanding as to whether the agreement provided for submission to repositories and if it does, whether a pre or post print version of the article could be submitted. There was, however, support for copyright issues and submission to repositories to be managed on behalf of the interviewees. This suggests that if universities and university libraries wish to populate their institutional repositories, then managing this process on behalf of academics is a strategy that may be generally supported.

The interviews with open access journal editors and with university based electronic publishers highlight the difficulty of establishing new scholarly journals. The publishers identified the research recognition frameworks, and its emphasis on tiered journals, as a difficulty in commissioning new journals. The open access editors suggested that they had adopted an open access model partly because they could not meet the financial arrangements required by commercial publishers. The publishers reinforced their role as adding quality control to a publication process and to take on the role of promoting and marketing of published content. They were questioning the ongoing viability of an open access journal model.

The interviewees indicated that the ERA framework was refocusing their publication behaviour so that emphasis is placed on submission to Tier A* and A journals. The initial ERA framework was based on the development of a ranked list of journals that aimed to be a major indicator of research quality. This study outlines the impact that such a framework has on publication behaviour. The next chapter examines the impact of the framework on engagement with open access journals by comparing the ERA journals with the DOAJ and determining how open access journals were recognised under the framework.

CHAPTER 7: COMPARISON OF ERA TIERED JOURNALS AND DIRECTORY OF OPEN ACCESS JOURNALS

7.1 INTRODUCTION

One of the themes that emerged from the previous chapters is the impact that changes in government policies relating to evaluating Australian research quality, has had on publication behaviour. This is primarily demonstrated through the introduction of the ERA framework in 2008 (Carr 2008, Feb. 26). The ERA framework originally linked research quality to a ranked list of journals. The draft list was proposed in 2008 and a final list released in 2010. In 2011 further changes were made to the ERA policy and the use of the tiered list of journals was abandoned (Australian Research Council 2011a). However, while new measures of research quality are being developed by ERA, the themes from this study highlight the impact that the journal ranking has had on publication behaviour. It may be assumed that until the new measures are developed, the journal ranking will still act as a guide to article submission.

This chapter compares the Directory of Open Access Journals (DOAJ) with the ERA journals ranking lists to determine the extent to which open access journals are recognised by the framework. One of the themes of this study is the impact that ERA (and the RQF) has had on publication patterns and, more specifically, on engagement with open access dissemination. The ERA journal list has directed the study's participants to focus their publication strategies on targeting the journals that have received the highest ranking within the framework. If open access journals are to be adopted by academics and researchers within Australia, then they need to be recognised by research quality policies as a valid output for research dissemination. The comparison of the DOAJ with the ERA list acts as an indicator of the degree to which open access journals have been recognised by the framework.

The method for the analysis and comparison of the journal lists is outlined in the next section of this chapter. The results of the analysis are presented around two main comparisons. The first determines the makeup of open access journals across each of the ERA tiers. This indicates the percentage of ERA journals that are open access and the level of ranking that the open access journals have received. The second comparison explores whether disciplines vary in the ranking of open access journals. This comparison is based on exploring open access journals across the various Fields of Research (FoR) codes that are used to determine discipline groupings within

the ERA ranked list. The chapter then outlines broad themes that can be drawn from this analysis. These themes contribute to the ongoing theoretical modelling for this study.

7.2   DATA SOURCES AND ANALYSIS METHOD

In June 2008, the ARC released a draft list of journals to be used as the basis for ranking journal and article submissions under the ERA initiative. The Australian academic community reviewed the list until a final version was released in March 2010.

> *19,500 unique peer reviewed journals have been identified to form a draft list of ranked journals. Each journal has a single quality rating and is assigned to one or more disciplines defined by Field of Research (FoR) code(s) (four-digit). ... A journal's quality rating represents the overall quality of the journal. This is defined in terms of how it compares with other journals and should not be confused with its relevance or importance to a particular discipline. There are four tiers of quality rating. (Australian Research Council 2008a)*

The draft list was developed in late 2007 by 'the four Learned Academies and a number of peak bodies, [who] undertook the initial journal ranking exercise to develop this draft for their relevant disciplines' (Australian Research Council 2008b). 'The Learned Academies and other discipline peak bodies were asked to rank only those journals that are core to each discipline (e.g. psychologists were asked not to rank journals in which they might publish from time to time but could not be fairly considered as core journals to the psychology discipline)' (Australian Research Council 2008c, p. 11).

The list determined journal rankings that reinforced the perceived prestige of the journals. The rankings included four tiers A*, A, B and C. An aim of the journal ranking was to identify approximately five percent of these journals as being in the top tier - Tier A*. 'The distribution of the tiers is expected to vary slightly across disciplines, however, it will approximate: Tier A* (top 5%); Tier A (next 15%); Tier B (next 30%); and Tier C (bottom 50%)' (Australian Research Council 2008c, p. 11). This ranking of journals extends the initial work completed for the RQF evaluation.

If the publication strategies of the Australian academic community were to be based on targeting Tier A* and A journals, then open access journals needed to be represented within such tier ranking if they were to be a focus for submission. Other ranking lists, for example the data from Thomson Reuters (formerly ISI) Web of Knowledge and SciVerse Scopus, act to determine journal prestige and thus assist in informing the publication strategy of academics.

These lists were used by some disciplines, such as information systems, as means to identify quality journal and to inform the development of the RQF and ERA frameworks. As suggested later in this chapter, the 2011 changes to ERA continue to recognise journal quality, but this is no longer identified through a ranked list of journals. However, the participants of this research were influenced by the journal ranking process and it is surmised that their publication behaviour, at least in the short term, will continue to be guided by this original ranking process.

To ascertain how open access journals are ranked, a comparison was made between the ERA list of ranked journals and the DOAJ. As is the case for all directories, the content changes as new titles are added. The comparison of the makeup of open access journals across each of the ERA tiers was made twice to determine if there was a change in the number of included open access journals between the development of the initial ERA list in July 2008 and the final list released in September 2010.

While the draft ERA list included a total of 21,459 titles entries, 1,926 titles were duplicated throughout the list. The list based the journal ranking around discipline areas that were identified through the use of Field of Research (FoR) codes developed as part of the Australian and New Zealand Standard Research Classification (ANZSRC 2008) documentation. The ANZSRC consists of 22 two-digit divisions (i.e. 08 = Information and Computing Sciences); 157 groups (i.e. 0807 = Library and Information Studies); and 1,238 fields (i.e. 080706 = Librarianship). For this exercise, 155 Field of Research codes were applied to the journal list including two-digit divisions and four-digit groups. The 1,926 titles were duplicated as they had been assigned a ranking for more than one code. Of the journals that were duplicated, forty-two journals were given a different ranking for each of the Field of Research codes assigned to the journal. This means that the draft ERA list consisted of 19,533 individual titles. Where a journal title was duplicated in the ERA list, but ranked at different tiers by different Field of Research codes, the journal title was included twice in the comparison with the open access journal list. This means that the draft ERA list used for this comparison included 19,575 journal listings, of which forty-two are duplicate listings.

The final ERA list, released in 2010, had a total of 20,712 titles. As this was a final version of the list, issues of title duplication had been addressed. The list contained three titles that were duplicate journal names, however an examination of the journals' International Standard Serial Numbers (ISSN) through Ulrichs Web (www.ulrichsweb.com) indicated different ISSNs for each journal. It was assumed that the journals were different and thus the total list was used for the comparison with the 2010 DOAJ list.

The DOAJ was used to identify open access journals. The aim of the DOAJ is 'to increase the visibility and ease of use of open access scientific and scholarly journals thereby promoting their increased usage and impact' (DOAJ 2008). The directory represents journals from all discipline areas, so long as they are made freely available and demonstrate quality control through peer-review processes. The DOAJ list, as extracted on the 10th July 2008, contained 3,487 journal titles. This was used as a comparison with the draft ERA list of journals. The number of open access journals listed in the directly had risen to 5,431 titles when the list was extracted in September 2010. This second extracted list was used for comparison with the final ERA list of journals.

7.3   OPEN ACCESS JOURNAL MAKE-UP OF EACH ERA TIER

The ERA rankings aimed to differentiate the journals, so that for each Field of Research code, there are journals identified in Tiers A* and A as the 'top' rated journals. These are the journals that the study's participants indicated would be targeted as a means to support their academic careers and promotion processes. It may be surmised, therefore, that for open access journals to survive, they need to be represented within these top tier journal rankings.

In comparing the DOAJ with the draft list of ERA journals only 588 titles of the potential 3,487 open access journals (17%), were represented in the draft ERA list of journals. Although there was an obvious difference in the size of the two journal lists, the ability to target open access journals is weakened by the limited percentage of open access journals that had actually been included on the draft ERA list of journals. The 588 open access journals included within the draft ERA list constituted only 3% of the ERA listed journals. It is acknowledged that one of the main reasons for the difference in the number of titles in the draft ERA and DOAJ lists is the relative infancy of open access journals when the ERA list was drafted.

By 2010, the DOAJ listed 5,431 titles. Of these, 1030 (18%) titles were included within the final ERA journal list. These 1030 titles make up 5% of the number of journals on the final ERA list. Therefore, while the numbers of open access journal titles had increased in the period between the release of the draft and final ERA lists, the overall potential impact on the ERA list had only increased by 2%. With such a low level of representation of open access journals in the ERA list, the likelihood that Australian academics will target open access journals for publication diminishes.

Table 7.1 indicates that only ten open access journals were listed within the top tier rating (A*) for both ERA lists. For Tier A* ranking, open access journals represent approximately only one in

one-hundred journals listed within that ranking. The number of open access journals within the A ranking had increased from 31 titles in 2008 to 59 titles in 2010. However these titles make up only a small percentage of the total titles within the A ranking. Open access journals formed 1.13% of the 2,729 titles ranked A in 2008 and this increased slightly to 1.97% of the 3,054 titles that were ranked A in the final ERA list. As academics target tiers A* and A, there was only a small likelihood that they would publish within an open access journal. This is obviously influenced by the smaller number of open access journals that were available and that had been included within the ERA ranking list.

	Rankings	A*	A	B	C	Not rated	Total
2008	ERA Journal titles (Draft list)	1,070	2,729	5,072	10,704		19,575
	Open Access Journal titles	10	31	120	427		588
	OA as % of ERA Journals	0.93	1.13	2.36	3.98		3.00
2010	ERA Journal titles (Final list)	1,030	3,054	5,667	10,682	279	20,712
	Open Access Journal titles	10	59	210	723	28	1,030
	OA as % of ERA Journals	0.97	1.97	3.70	6.76	10	4.97

Table 7.1: Ranking of journals (Total ERA journals and open access journals)

However, the perceived level of quality of the journals also influences the potential engagement with open access journals. The ERA ranking set prescribed number of journals (based on percentages) for each tier of the ranking scale. The percentages attempted to maintain a smaller number of journals (5% for Tier A*) as the top tier journals in each Field of Research. Table 7.2 indicates how the ERA listed journals have been divided across the rankings. The final ERA ranking preserved 5% of the journals as Tier A*, 15% as A, 27% as B and 52% as C. One percent of the journals on this final list were not rated. When examining the pattern for the division of open access journals across the ranking, open access journals had a greater representation in the lower rankings. Seventy percent of the open access journals were rated as C, within the final ERA ranking. Only 1% of the open access journals had received an A* ranking and 6% a ranking as A.

		A*	A	B	C	Not rated	Total %
2008	ERA Journal titles (Draft list)	5.5	14	26	54.5		100
	Open Access Journal titles	2	5	20	72		100
2010	ERA Journal titles (Final list)	5	15	27	52	1	100
	Open Access Journal titles	1	6	20	70	3	100

Table 7.2: Percentage of journals in each Tier ranking

Although open access journals were included within the ERA list of journals, their division across the rankings did not match the percentage breakdown developed for the total ERA list. This implies that only a limited number of open access journals were identified as being of 'high quality'. Open access journals were grouped among lower ranked journals, which reinforced the concerns presented elsewhere in this study that academics tend to view open access journals as representing these 'lower levels of quality'.

7.4 OPEN ACCESS JOURNAL RANKINGS WITHIN FIELDS OF RESEARCH

The ERA list assigned journal titles to Field of Research (FoR) codes that identified research areas. The final ERA list incorporated 170 different FoR codes. Open access journals, identified through the September 2010 DOAJ, are listed in 142 codes. Therefore 83.5% of the research areas included some element of open access journals. While it is promising that open access journals are represented across the FoR codes, there was still the need to determine how these were treated in the ranking and especially in the Tier A* and A ranks.

Table 7.3 lists the research fields that had open access journals listed in Tier A* and/or A. Eight fields of research incorporated open access journals within their Tier A* ranking. Forty-five fields incorporated open access journals within their Tier A ranking. Some fields, such as 11 Medical and Health Sciences, include open access journals within both their A* and A ranking. This means that there are 47 separate fields of research that included open access journals within their A* or A ranking. As stated, there are 142 fields that included open access journals, thus the 47 fields that have open access journals ranked as A* or A make up only a third of all research fields that incorporate open access journals and 27% of the total number of ERA listed research fields.

Tier A* Open access journals	
11	Medical and Health Sciences
1117	Public Health and Health Services
1801	Law
2203	Philosophy
0205	Optical Physics
06	Biological Sciences
0605	Microbiology
0801	Artificial Intelligence and Image Processing

Tier A Open access journals			
11	Medical and Health Sciences	2203	Philosophy
18	Law and Legal Studies	2204	Religion and Religious Studies
20	Language, Communication and Culture	0101	Pure Mathematics
1005	Communications Technologies	0104	Statistics
1103	Clinical Sciences	02	Physical Sciences
1109	Neurosciences	03	Chemical Sciences
1113	Ophthalmology and Optometry	0401	Atmospheric Sciences
1117	Public Health and Health Services	0403	Geology
1199	Other Medical and Health Sciences	0406	Physical Geography and Environmental Geoscience
1205	Urban and Regional Planning	06	Biological Sciences
1302	Curriculum and Pedagogy	0601	Biochemistry and Cell Biology
1303	Specialist Studies In Education	0603	Evolutionary Biology
1401	Economic Theory	0604	Genetics
1603	Demography	0605	Microbiology
1699	Other Studies In Human Society	0607	Plant Biology
1701	Psychology	0699	Other Biological Sciences
1901	Art Theory and Criticism	0801	Artificial Intelligence and Image Processing
1902	Film, Television and Digital Media	0802	Computation Theory and Mathematics
1904	Performing Arts and Creative Writing	0806	Information Systems
2004	Linguistics	0807	Library and Information Studies
2005	Literary Studies	0899	Other Information and Computing Sciences
2103	Historical Studies	0903	Biomedical Engineering
		MD	Multidisciplinary

Table 7.3: Open access journals listed as A* or A in the 2010 ERA list of journals

One of the intentions of comparing ERA and open access journals across the FoR codes was to explore whether engagement with open access journals varied between different research fields. An assumption was that some fields may have a higher percentage of open access journals represented within their ERA listed journals and that therefore, such fields would have a greater likelihood of submission to open access journals. The ANZSRC Field of Research (FoR) codes consists of three hierarchal levels – the two-digit 'divisions', four-digit 'groups' and the six digit 'fields' (ANZSRC 2008, p. 5). The two-digit divisions are the broadest level of classification. There are 22 divisions, 157 groups and 1238 fields. The ERA list used 170 codes, which were a mixture of two-digit division and four-digit groups. Comparison was made between the ERA and

DOAJ lists for the 22 two-digit divisions. This comparison also included the additional division of MD, Multidiscipline, that the ERA list had also used. The total number of journals presented under each two-digit division was calculated by aggregating the number of journals for each of the sub-groups that sit under the division.

Tables 7.4, 7.5 and 7.6 present the comparison between the ERA journal list (2010) and the DOAJ for each of the two-digit divisions. The table indicates the number of journals listed in the ERA ranked tiers for each of the divisions. The number of open access journals for each tier is also presented. Two percentage calculations are also provided. The 'OA spread – tiers' row provides, as a percentage, the spread of OA journals across the ranked tiers, so as to indicate whether the OA spread matches the overall ERA aim of maintaining 5% of journals in Tier A* and 52% of journals in Tier C. The row 'OA % of ERA' indicates what percentage of the ERA journals in each tier, are open access.

All of the divisions included open access journals. While this illustrates the breadth of discipline coverage of open access journals, the relatively small numbers of open access journals within the ERA list are, therefore, spread thinly across the 23 divisions. The percentage of the total number of journals for each division that are open access journals ranged from 0.88% for History and Archaeology (FoR 21) to 11.51% for Earth Sciences (FoR 04). The science divisions tended to have the highest percentage of open access journals.

The table also indicates the spread of open access journal across the tiers used for ranking the journals. The participants in this study viewed open access journals as reflecting a lower quality to commercial journal. This is reflected across the disciplines, as each division tended to have open access journals clustered as Tier C. The 2010 ERA ranking aimed to have 52% of the journals listed within Tier C, however for most of the divisions, Tier C had a higher proportion of the open access journals listed. Only four of the divisions had open access journals within the 50-59% range, as would be expected if mimicking the tiered spread of the ERA listing. Instead, open access journals formed 61% to 85% of the journals within Tier C of many of the divisions. Environmental Sciences (Division 05) had only 5.95% of its journals open access and all of these have been ranked as Tier C. The lower ranking of open access journals may be partly due to open access journals being viewed as new journals that had not established their branding. However, policies that rely on ranking of journals as a measure of quality will be at the detriment to open access journals engagement.

FoR – two-digit code and name	Journal list	A*	A	B	C	Not rated	Total
01 Mathematical Sciences	ERA	70	173	275	453	17	988
	OA	0	2	23	46	4	75
	OA spread - tiers	0%	2.67%	30.67%	61.33%	5.33%	100%
	OA % of ERA	0%	1.16%	8.36%	10.15%	23.53%	7.59%
02 Physical Sciences	ERA	24	62	86	143	4	319
	OA	1	2	2	14	3	22
	OA spread - tiers	4.55%	9.09%	9.09%	63.64%	13.64%	100%
	OA % of ERA	4.17%	3.23%	2.33%	9.79%	75.00%	6.90%
03 Chemical Sciences	ERA	27	60	88	185	4	364
	OA	0	1	2	13	1	17
	OA spread - tiers	0%	5.88%	11.76%	76.47%	5.88%	100%
	OA % of ERA	0%	1.67%	2.27%	7.03%	25.00%	4.67%
04 Earth Sciences	ERA	19	67	96	207	2	391
	OA	0	5	5	35	0	45
	OA spread - tiers	0%	11.11%	11.11%	77.78%	0%	100%
	OA % of ERA	0%	7.46%	5.21%	16.91%	0%	11.51%
05 Environmental Sciences	ERA	4	23	46	91	4	168
	OA	0	0	0	10	0	10
	OA spread - tiers	0%	0%	0%	100.00%	0%	100%
	OA % of ERA	0%	0%	0%	10.99%	0%	5.95%
06 Biological Sciences	ERA	71	146	292	730	11	1250
	OA	3	10	19	64	1	97
	OA spread - tiers	3.09%	10.31%	19.59%	65.98%	1.03%	100%
	OA % of ERA	4.23%	6.85%	6.51%	8.77%	9.09%	7.76%
07 Agricultural and Veterinary Sciences	ERA	8	60	129	379	5	581
	OA	0	0	12	34	1	47
	OA spread - tiers	0%	0%	25.53%	72.34%	2.13%	100%
	OA % of ERA	0%	0%	9.30%	8.97%	20.00%	8.09%
08 Information and Computing Sciences	ERA	54	118	204	346	22	744
	OA	1	8	17	41	3	70
	OA spread - tiers	1.43%	11.43%	24.29%	58.57%	4.29%	100%
	OA % of ERA	1.85%	6.78%	8.33%	11.85%	13.64%	9.41%
09 Engineering	ERA	95	245	426	673	23	1462
	OA	0	1	3	36	2	42
	OA spread - tiers	0%	2.38%	7.14%	85.71%	4.76%	100%
	OA % of ERA	0%	0.41%	0.70%	5.35%	8.70%	2.87%
10 Technology	ERA	4	30	48	106	5	193
	OA	0	1	3	10	0	14
	OA spread - tiers	0%	7.14%	21.43%	71.43%	0%	100%
	OA % of ERA	0%	3.33%	6.25%	9.43%	0%	7.25%

Table 7.4: Comparison of ERA and OA journals at two-digit FoR codes, for divisions 01-10

FoR – two-digit code and name		Journal list	A*	A	B	C	Not rated	Total
11	Medical and Health Sciences	ERA	153	401	805	2110	36	3505
		OA	2	6	51	219	7	285
		OA spread - tiers	0.70%	2.11%	17.89%	76.84%	2.46%	100%
		OA % of ERA	1.31%	1.50%	6.34%	10.38%	19.44%	8.13%
12	Build Environment and Design	ERA	31	52	45	84	7	219
		OA	0	1	1	5	0	7
		OA spread - tiers	0%	14.29%	14.29%	71.43%	0%	100%
		OA % of ERA	0%	1.92%	2.22%	5.95%	0%	3.20%
13	Education	ERA	28	116	298	474	11	927
		OA	0	2	20	33	1	56
		OA spread - tiers	0%	3.57%	35.71%	58.93%	1.79%	100%
		OA % of ERA	0%	1.72%	6.71%	6.96%	9.09%	6.04%
14	Economics	ERA	37	97	156	275	7	572
		OA	0	1	1	12	1	15
		OA spread - tiers	0%	6.67%	6.67%	80.00%	6.67%	100%
		OA % of ERA	0%	1.03%	0.64%	4.36%	14.29%	2.62%
15	Commerce, management, tourism and services	ERA	47	108	264	497	35	951
		OA	0	0	2	16	1	19
		OA spread - tiers	0%	0%	10.53%	84.21%	5.26%	100%
		OA % of ERA	0%	0%	0.76%	3.22%	2.86%	2.00%
16	Studies In Human Society	ERA	51	214	364	611	18	1258
		OA	0	2	12	28	0	42
		OA spread - tiers	0%	4.76%	28.57%	66.67%	0%	100%
		OA % of ERA	0%	0.93%	3.30%	4.58%	0%	3.34%
17	Psychology and Cognitive Sciences	ERA	27	96	186	303	12	624
		OA	0	1	5	14	0	20
		OA spread - tiers	0%	5.00%	25.00%	70.00%	0%	100%
		OA % of ERA	0%	1.04%	2.69%	4.62%	0%	3.21%
18	Law and Legal Studies	ERA	51	153	322	640	7	1173
		OA	2	1	4	14	1	22
		OA spread - tiers	9.09%	4.55%	18.18%	63.64%	4.55%	100%
		OA % of ERA	3.92%	0.65%	1.24%	2.19%	14.29%	1.88%
19	Studies In Creative Arts and Writing	ERA	38	115	190	329	18	690
		OA	0	4	3	8	0	15
		OA spread - tiers	0%	26.67%	20.00%	53.33%	0%	100%
		OA % of ERA	0%	3.48%	1.58%	2.43%	0%	2.17%
20	Language, Communication and Culture	ERA	76	231	452	753	18	1530
		OA	0	3	11	25	2	41
		OA spread - tiers	0%	7.32%	26.83%	60.98%	4.88%	100%
		OA % of ERA	0.00%	1.30%	2.43%	3.32%	11.11%	2.68%

Table 7.5: Comparison of ERA and OA journals at two-digit FoR codes, for divisions 11-20

FoR – two-digit code and name	Journal list	A*	A	B	C	Not rated	Total
21 History and Archaeology	ERA	39	220	406	460	5	1130
	OA	0	2	2	6	0	10
	OA spread - tiers	0%	20.00%	20.00%	60.00%	0%	100%
	OA % of ERA	0%	0.91%	0.49%	1.30%	0%	0.88%
22 Philosophy and Religious Studies	ERA	45	194	337	488	5	1069
	OA	1	3	7	15	0	26
	OA spread - tiers	3.85%	11.54%	26.92%	57.69%	0%	100%
	OA % of ERA	2.22%	1.55%	2.08%	3.07%	0%	2.43%
MD Multidisciplinary	ERA	31	73	152	345	3	604
	OA	0	3	5	25	0	33
	OA spread - tiers	0%	9.09%	15.15%	75.76%	0%	100%
	OA % of ERA	0%	4.11%	3.29%	7.25%	0%	5.46%

Table 7.6: Comparison of ERA and OA journals at two-digit FoR codes, for divisions 21-22 and MD

The spread of open access across the ranked tiers indicated that one could not assume that divisions that had a larger number of open access journals listed recognise these journals as their top ranked titles. For example, 5.95% of Division 05 Environmental Sciences' journals were open access journal. However, all of the open access journals in this division were ranked within Tier C. Division 02 Physical Sciences had 6.9% of its journals as open access and Division 13 Education had 6.04%. While these two divisions had the majority of open access titles within Tier C, they also included some open access journals within the higher tiers. This meant that academics in these divisions could submit to open access journals that had been recognised as representing the higher quality titles.

The ERA list used the four-digit groups to identify more specific subdivisions to discipline areas. In examining the ERA list at the four-digit group level, it was difficult to determine consistent patterns that could indicate whether some groups supported greater engagement with open access journals. The differences in the number of journals within each of these groups made it difficult to predict the likelihood of open access engagement. For example, 0406 Physical Geography and Environmental Geoscience only had 69 titles listed by the ERA framework. Of these titles, 12 (17.39%) were open access. Tier A, for this group, had 8 titles listed, of which 2 (25%) were open access. Thus for this group, the small number of total journals, along with the spread of open access titles across the ranking meant that there is a one in four chance that an academic targeting a Tier A journal, would submit to an open access journal. Comparing this to a division that had a larger number of titles listed does not necessarily mean that there is a consistent possibility for submission to open access dissemination. The group 1103 Clinical

Sciences had 1218 journals listed for ERA, of which 75 (6.16%) are open access. However, of the 137 Tier A journals, only one was open access. This meant that academics targeting Tier A journals in this discipline code had only a 0.73% likelihood of targeting the single open access journal.

It is suggested that the overall number of open access journals recommended within a Field of Research area and the degree to which these journals are represented in the top tiers are the two main factors that can increase the likelihood of submission to open access journals. However, the overall small number of open access journals within the ERA list, the broad spread across each of the divisions, and the low numbers represented within the top tiers, suggests that open access submission would be ad hoc for most disciplines.

7.5   EMERGING ISSUES AND THEMES

This analysis contributes to the identification of further themes and to the development of the theoretical models for the study. The ERA list of journals influenced the publication behaviour of this study's participants as they used this list as a basis for targeting article submission. While it is difficult to predict the impact of this list for all academic disciplines or fields of research, the list was generally not supportive of a migration to an open access publication pattern. The overall limited number of open access journals on the ERA list restricted take up of open access journals. As academics strived to publish in Tier A* and Tier A journals, then for most fields of research this meant that open access journals would not form a main part of this publishing strategy.

Open access journals were predominantly ranked within the lower tiers of the scale. Of the 4,084 journals listed as A* or A, only 69 (1.68%) of these were open access. This confirms the issue identified by participants in this research, that open access journals are seen as not representing the highest research quality.

Not all academics have the opportunity to publish their articles in top ranked journals. While the ERA list assigns 52% of the total ranked journals to Tier C, 70% of the open access journals are classified in this tier. This directs the majority of open access to Tier C, however these journals still only make up 6.76% of the total number of journals within Tier C. Therefore, submitting more articles to lower ranking journals may not necessarily mean submission to open access journals.

Journal ranking is obviously not a new way to determine where to publish. However the participants in this study identified an ongoing pressure to publish in top tiered or prescribed

publications. This pressure was potentially at the detriment of other publication and dissemination options, such as conferences or emerging or new journals, including new open access journals.

> *I've already spoken to people in fields not far from mine who were being counselled very vigorously by their mentors in the faculties [and] that had an effect upon the decision to whether you published in journals or books. So people were being told we only want our articles in top tier journals. We don't care about books or monographs. (A8: Professor)*

In drawing this discussion into themes for this research, three broad themes emerge.

- The ERA list reinforces the perception that OA journals represent 'lower quality'
- The ERA list supports submission to established commercial journals
- ERA potentially narrows the publication behaviour to the journals within top tiers. This reinforces the established journals and negates engagement with open access journals.

7.6 INTERPRETING THIS COMPARISON UNDER THE ERA CHANGES IN QUALITY IDENTIFICATION

During 2011 the ERA framework was modified so that there is no longer a reliance on a ranked list of journals for identifying research quality. As suggested by the ARC media release, journals will not be allocated a prescribed ranking. However, journal quality will continue to be used as an indicator of research quality and journal lists will be maintained to support this measurement.

> *"It is clear from the ERA 2010 evaluation and subsequent feedback that journal quality is an important indicator of research quality," Professor Sheil said. "This change enables journal quality to remain an indicator for ERA 2012, while ensuring that assessments of journal quality do not assume an importance beyond their role as an ERA indicator."*

> *As a consequence of this change, journals will no longer be assigned a prescriptive rank. However, the ARC will continue to maintain a list of eligible journals and their relevant classification codes to support benchmark metrics. (Australian Research Council 2011a)*

The media release hints at the issues identified within this study, that the emphasis on a ranked journal list has had a greater impact on defining the publication behaviour of academics than was originally intended by the ERA framework. While the journals will no longer be ranked, the ARC will continue to use journals and the associated classification codes as a measure of quality.

Participants in this study suggested that the practicality of managing review processes means that assessors continue to rely on traditional measures of quality. Thus, journal branding, reputation and ranking can still influence research reviews, even if the criteria is extended beyond a pre-determined journal-ranking list.

> *Panels are supposed to assess them [researchers]. They nonetheless rely to a significant extent still on proxies of some kind and another. So they look at the ranking of the journal, they look at reviews, they look at other things, they don't actually make an individual assessment of each piece of work. (A8: Professor)*

At the time of this study, the new measurements of quality were still to be determined for ERA. However, journal quality and branding will continue to influence the assessment measures. The ongoing impact that this has on engagement with open access journals will need to be monitored as part of future research.

7.7 CONCLUSION

By comparing the DOAJ with the ERA list of tiered journals, this chapter outlines the degree to which open access journals are included within the ERA framework. This comparison reinforced the perception that open access journals are generally viewed as being of a lower quality and this is reflected in the large percentage that were ranked within Tier C. This study indicates that academics interpreted the ERA framework as being a focus on the top tiered journals and thus the participants developed a publication strategy around targeting Tier A* and A journals. While open access journals are included within these tiers, their limited number meant that such a highly targeted publication behaviour would have an increasingly less likelihood of engagement with open access journal submission.

The 2011 announcement by the ARC to no longer prescribe ranking to journals may lead to other measures that can identify research quality. Open access journals will need to compete within this process and thus the conflict between the desire to increase accessibility of research content and the need to comply with prescribed measures of research quality, will remain.

Chapters 4 to 7 have discussed the outcomes from the various methods used for data collection and have identified themes from each of these methods. The next chapter draws these themes into theoretical models by identifying the core categories from the themes and identifying the interrelationship between these categories. These relationships are presented as theory associated with academic publishing behaviour.

CHAPTER 8: THEORY OF ACADEMIC PUBLISHING BEHAVIOUR

8.1 INTRODUCTION

The previous four chapters have identified themes drawn from the data of each of the methods used for the study. These themes have emerged from focus groups with academic and publishing staff (Chapter 4), survey responses from a sample of the Australian academic community (Chapter 5), interviews with academics, open access editors and managers of commercial university electronic presses (Chapter 6) and finally a comparison of journal lists used to determine the influence of the ERA recognition framework on the ranking of open access journals (Chapter 7). This chapter draws these themes and data analysis into theoretical models that describe the publication behaviour of the Australian academic community and indicates how open access dissemination has been viewed within this environment.

The chapter compares the themes from each of the research methods and reclassifies them, so as to identify the central and sub categories that contribute to the research theory. The interrelationship between themes is identified and presented as theoretical diagrams that are then analysed through the adoption of Strauss and Corbin's (1998) conditional/consequential matrix. Applying the matrix outlines the impact that research recognition has on publication behaviour and in turn on use and engagement with open access dissemination.

The chapter is structured around four analytical processes that include: the comparison of the themes that have emerged from the various data methods so that core themes can be identified, the drawing these themes together so that a discussion is presented that outlines the interrelation between the themes, a refocusing of the themes through the use of the conditional/consequential matrix so that a process of publication behaviour is identified, and the presentation of four theories that have emerged from the analysis. The theoretical models identify the publication behaviour within the Australian academic community, engagement with open access journals, engagement with open access repositories and broad impact on development of Australian university based e-presses.

8.2 COMPARING THE EMERGING THEMES

The themes that have been identified through the previous chapters are summarised in Table 8.1. Where appropriate, the themes have been reworded to allow for broad grouping and comparisons to be made. Themes that are identified by a number of methods are those that act as key drivers for determining the publication behaviour and engagement with open access dissemination. The primary influence on publication behaviour is that of 'research recognition'. This issue is identified across all the data collection methods. However, the various methods identified slightly different foci in how research recognition impacts on publication behaviour.

	Theme	Focus Groups	Survey	Interviews	ERA / DOAJ
1	Research recognition – motivator to publish	X	X	X	
2	Research recognition – does not support open access	X		X	
3	Research recognition – does not support e-press development	X			
4	Research recognition – pushes for ranked journal submission (Mantra of Tier A*)			X	X
5	Research recognition – ranked journals impact on e-press development			X	
6	Research recognition – establishes a publication behaviour associated with the notion of a 'career academic'. This pattern reinforces commercial / tiered publication focus		X		
7	Author payment models not supported		X	X	
8	Mandates for OA submission – not supported			X	
9	Australian research funding negates open access (funding is not provided for publication processes)		X		
10	Publishing is a production process (readership is not a focus for decisions of publication)	X			
11	Publishing has dual audiences – academy / practitioner		X	X	
12	Publisher and publication are a 'quality filter'	X	X		
13	Open access journals viewed as not representing 'quality'	X			X
14	Commercial publishers establish a 'journal brand'	X	X		
15	Conflict between OA and push for tiered journals			X	
16	Metrics for measuring quality are linked to 'top journals'			X	
17	'Top journals' are viewed as representing established, commercial journals			X	X
18	A publication change that maintains the status quo		X		
19	Academics have access to content and thus do not require an open access framework	X			
20	Copyright seen as barrier to open access engagement	X		X	
21	Author-publisher agreements seen as barriers to open access engagement	X		X	
22	Intermediaries as a facilitator to open access (management of author-publisher agreement rights)			X	
23	Open access journals have an issue of sustainability	X		X	

#	Theme				
24	Open access engagement is incidental (other issues drive publication)	X			
25	Open access engagement is promised but not implemented		X		
26	Open access is not a primary source of content for Australian academics		X		
27	Self generated archives negate institutional repositories		X		
28	Management of repositories – institutions or disciplines		X	X	
29	Repository interface requires filter for content and quality		X	X	
30	An academic advantage is needed for OA (benefit of repositories questioned)			X	
31	Publication behaviour is changing – but reinforces traditional models (status quo)		X	X	X
32	Focus on international publication – journals from outside of Australia		X	X	
33	Open access can support new journal development (view of OA editors)			X	
34	Editors cannot complete the total publication cycle (E-press infrastructure / management supports journal sustainability)			X	
35	Need for a shared Australian e-press development			X	

Table 8.1: Comparison of the broad themes across data collection methods

The themes listed in Table 8.1 have been grouped and classified in Table 8.2, so that central categories can be identified. Strauss and Corbin (1998, p. 146) indicated that part of the process of developing theory is to identify 'the central category (sometimes called the core category) [which] represents the main theme of the research'. Other themes may be identified that act as sub-themes or sub-categories that then influence the central category. The interrelationship between the central category and other sub-themes can then be developed into theory. Strauss and Corbin's (1998) conditional/consequential matrix can be used to identify the interrelationships and determine what influence each sub-theme may have on the central category or central theme of the research.

The classification presented in Table 8.2 identifies core/central categories (C) as well as sub-themes (ST) that are associated with each of the core categories. This comparison presents eleven themes, of which 'research recognition' (C1) is identified as the core category for this study. While this study focuses on engagement with open access publishing, such dissemination needs to meet the requirements of research policies and research recognition.

	Core category		Sub-themes
C1	Research recognition	ST1	Motivator to publish
		ST2	ERA - support for ranked journal submission
		ST3	While ranked journal lists include open access title, they tend to be rated lower. Thus the ranking process may not support engagement with open access journals
		ST4	ERA impacts on university based e-press development, as new journals need to compete with the ranking process
		ST5	Establishes a publication pattern associated with the notion of a 'career academic'. This pattern reinforces commercial / tiered publication focus
		ST6	Publication behaviour is changing – but reinforces traditional models (status quo)
	Other central categories		
C2	Metrics for measuring quality are linked to 'top journals'	ST7	Top journals are viewed as representing established, commercial journals
		ST8	Conflict between OA and push for tiered journals
C3	Publisher and publication are a 'quality filter'	ST9	Commercial publishers establish a 'journal brand'
		ST10	Open access journals viewed as not representing 'quality'
		ST11	Open access journals have an issue of sustainability
C4	Intermediaries (libraries) act as a 'quality filter' for repository content	ST12	Repository interface requires filter for content and quality
		ST13	Intermediaries act as a facilitator to open access through the management of author-publisher agreement rights
C5	Barriers / hurdles to OA (repositories)	ST14	Lack of awareness of reuse rights acts as barriers to open access
		ST15	Copyright seen as barrier to open access engagement
		ST16	Author-publisher agreements seen as barriers to open access engagement
C6	Australian research funding negates open access (funding is not provided for publication processes)	ST17	Author payment models not supported
		ST18	Mandates for OA submission – not supported
C7	Tension of audience	ST19	Publishing has dual audiences – academy / practitioner
		ST20	Publishing is a production process (readership is not a focus for decisions of publication)
C8	Academics have access to required content	ST21	Open access is not a primary source of content for Australian academics and thus they do not require an open access framework
C9	Open access engagement	ST22	Open access engagement is incidental (other issues drive publication)
		ST23	Open access engagement is promised but not implemented
		ST24	An academic advantage is needed for support of OA repositories
C10	Competition to institutional / discipline repositories	ST25	Management of repositories – institutions or disciplines
		ST26	Self generated archives negate institutional repositories
C11	Impact on Australian electronic press and scholarly publishing development	ST27	Open access journals have an issue of sustainability
		ST28	Focus on international publication – journals from outside of Australia
		ST29	Open access can support new journal development (view of OA editors)
		ST30	Editors cannot complete the total publication cycle (E-press infrastructure / management supports journal sustainability)
		ST31	Need for a shared Australian e-press development

Table 8.2: Identification of research central categories and sub themes

These policies of research recognition are emphasised by each of the data methods and thus are presented as the core category for this study. The impact of this core category is identified in the sub-themes (ST1-ST6) that indicate research recognition (C1) drives the need to publish (ST1) and develops a publication behaviour based on established and branded journals. Under the ERA framework, this behaviour has been directed towards a specific list of journals (ST2). Academics, who are trying to focus on developing their career, will model this focus and target their research submission to a selected number of journals (ST5). Under the research recognition policies, open access journals have been viewed as being of a lower quality journals (ST3) and therefore the publication behaviour that is developed and enforced by the policies may not support open access dissemination or the ability for university based electronic presses to commission content (ST4). Ultimately, the changing research policies impacts on publication behaviour by reinforcing a focus on commercially published and established journals (ST6).

8.3 IDENTIFYING THE INTER-RELATIONSHIPS BETWEEN THE THEMES

While Tables 8.1 and 8.2 outline the themes that have emerged from the data analysis, there is a need to identify the interrelationship between these themes so as to assist in determining ways that they impact on publication behaviour. The interrelationship can be between a central category and its subthemes, but relationships can also be between central categories.

The first process in identifying these interactions is presented as a narrative description that starts to outline ways that different categories and subthemes impact on each other. This narrative commences with an outline of the impact that the core category, C1 Research recognition, may have on publication behaviour. This draws into discussion the relationship with the associated subthemes ST1-ST6. However, this discussion also starts to determine how other central categories may impact on this description of publication behaviour. This process assists in developing a degree of ordering of importance of the central categories and their associated subthemes. This ordering and identification of interrelations is presented around four discussions:

- The impact of research recognition on publication behaviour
- The impact that this then has on defining the audience for the published research and the tension between writing for a practitioner audience and writing for academia
- Identifying barriers to open access repository submission
- Determining ways to overcome these barriers through facilitated submission assisted by support of intermediaries

The discussion is supported by diagrams that illustrate the impact that the themes have on each other and starts to identify the theory that has emerged from the study.

The second process in identifying interrelationships is the application of Strauss and Corbin's (1998) conditional / consequential matrix to the analysis of the core and subcategories. The matrix is used to draw the themes into a model of publication behaviour and discusses how individual, community and national environments impact on this behaviour. Section 8.4 of this chapter presents the conditional / consequential matrix as a means to refocus the discussion of the themes and then build the theoretical models.

8.3.1 IMPACT OF RESEARCH RECOGNITION ON PUBLICATION BEHAVIOUR

Research recognition (C1) is identified by each of the data sources for this study, as a primary driver that influences publication behaviour. The changes in government policy associated with research output and recognition means that the publication patterns and behaviour of the Australian academic and research community will change as it focuses on a more targeted avenue of publication. This will act as a narrowing of publication behaviour that has the potential to detrimentally impact on support for emerging journals and for alternative distribution and publication processes, such as open access journals. It is a movement away from recognising a range of publication outlets, including conference papers and book chapters to a focus primarily on ranked journals (ST2).

Aligned with the research recognition is how 'quality' of research is recognised through the publication process and the way that this acts as a 'driver' for decisions about where to publish (C2). Journal quality is associated with issues such as peer review, editorial quality and journal prestige and therefore these processes provided by publishers act as an indication to the quality of the published research (C2).

The comparison of open access journals with the ranked ERA journal list indicates that while open access journals are included within the ERA list, the open access journals tend to be clustered within the lower ranked Tier C (ST3). While the debate about whether such ranking are a suitable measurement of quality for all disciplines and research areas is beyond the scope of this study, there was an emphasis from the data that being successful in research recognition was increasingly becoming dependent on publication in the highest tiered journals.

The interview data identified the 'career-minded academic' as representing academics who have a primary focus on building their academic career, as against fulfilling some of the broader

philosophical outcomes of academia. The 'philosophical' academic roles were identified by the study's participants as including issues associated with the 'dissemination of information' and 'contribution back to the community'. In some ways, these philosophical foci reflects the aims of open access publishing in the sense that open access dissemination aims to broaden access to scholarship and research, so that publicly funded research becomes increasingly accessible to the general populace (Pappalardo 2008, p. 2). All academics need to establish and maintain their career, and publishing research articles in journals that are professionally recognised is one part of building an academic's reputation. The interviewees', however, recognised that an academic role includes other foci: giving back to the community, their broader professions and policy makers. The participants of this study identified the 'career-minded academic' as academics who make their career a focus over these other academic endeavours. The interviewees suggested that such academics would focus on establishing a publication behaviour that reflects the specific requirements of the ERA framework. This, in turn, reinforces submission to primarily commercial journals (ST5) and thus limits engagement with other dissemination models.
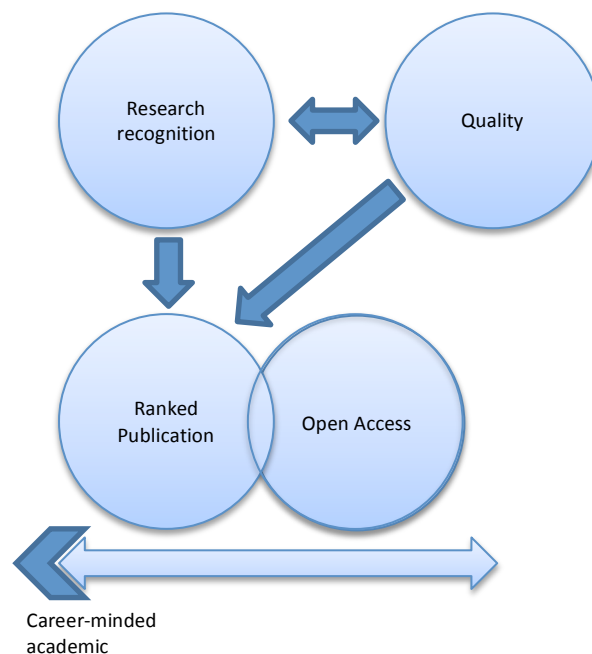
Figure 8.1: Impact of research recognition on publication behaviour

Figure 8.1 draws these issues together by indicating the impact that research quality and research recognition has on publication behaviour. Under the ERA framework, the notions of research quality and research recognition are aligned with the quality of the journal in which the research is published. For the participants of this study, quality journals were identified

through the list of ranked journals that formed the basis for the initial iteration of the ERA framework. While the ERA framework is considering to no longer formally rank journals, a preferred list of journals is still being maintained as an indication of the journal quality of specific titles. Therefore, the research recognition process and the need to identify quality research, means that the study's participants had submitted their research articles to the journals identified through ERA. This was to the neglect of other publication avenues such as book chapters and conferences that had been recognised by the previous research recognition process.

Within Figure 8.1, the 'ranked publication' and 'open access' journals represent the comparison and the overlap between the ERA journal list and the Directory of Open Access Journals, as compared in Chapter 7. Open access journals have been criticised by the research respondents as representing 'lesser quality'. Thus, while the 'ranked publication' and 'open access' journals may represent the journal publication options available to Australian academics, the diagrammatic representation aims to illustrate that there is a perceived issue of quality as one moved from 'open access' to 'ranked journals'. The journals that represent the titles that should be targeted for publication would be in the 'left' of the 'ranked publication' circle. Australian academics can certainly choose where to publish (as represented by the double arrow line), however those academics who have a strong focus on developing their career, will tend to focus on the top tiered journals.

Academics who may be least likely to actively seek open access journals for publication, are those who recognise changes in academic research recognition processes; who are actively developing their academic career; and are 'playing the publications game' so as to support their career. These academics would tend to actively meet the requirements of ERA as the basis for their publication strategy. This supports Sutton's view of scholarly communication that:

> *At its core the scholarly economy is a reputation economy in which prestige ranks before all else. Even those scholars who proclaim to despise impact factors and the like are subjected to a system of tenure and rewards that is built upon prestige as measured using such bibliometric devices. (Sutton 2011, p. 644)*

Academics striving to focus on career (or as Sutton, 2011 suggests, reputation), may at times publish in open access journals, but this would be because such journals meet the ERA framework for quality, not because they have a specific model of open dissemination. This is a slightly different result to Park and Qin (2007) who, when examining submissions to open access

journals, also identified the importance of the need for open access journals to be reputable and supportive of an academics career development. However they made a distinction between tenured and non-tenured academics and suggested that tenured academics were more favourable of open access journals. The Australian academic career focus is not between tenure and non-tenure but rather about the ability to move along the various levels of academic employment. Thus where Park and Qin (2007 p. 70) noted that tenured staff were more prepared to submit to open access journals, this study suggests that each academic level interprets the changes in the Australian research recognition framework as being a focus on generally commercially published journals. This will mean a focus away from open access journals as such journals were listed in ERA within the lower ranking.

8.3.2 Tension of the publication's audience

The focus on top tiered journals can lead to a publication tension associated with writing for two primary audiences, that of the academic community and that of the practitioner. The focus group viewed publishing as a production process (ST20), where the primary aim of authorship is to target journals that represent the best quality (C3) and are the journals with an established brand (ST9). The tension of audience (C7) was identified through the interviews, which acknowledged the need to target quality and branded journals, but sometimes questioned whether this would then lead to the research being accessed and read by practitioners, policy makers and others outside of academia. In essence, dual audiences (ST19) were identified for published research; the first being other researchers and members of the academy and the second being practitioners and policy makers who can act on the research outcomes.

Interviewees who were from disciplines that have a strong practitioner base, such as nursing and history, acknowledged that formal scholarly communication processes might not be the most appropriate way to provide access to research output to the actual practitioner base. The research conducted within these discipline areas will have a more pronounced impact if presented in papers written to policy developers, practitioners, government agencies or business representatives. For these audiences, working papers, collected papers, conference papers and policy documents may be the best ways to disseminate this research. Open access dissemination may also be an avenue for disseminating to these audiences as the subscription barrier is removed. However, the interviewees also acknowledged the need to refocus their publication strategies to reflect the requirements of the ERA framework (C1) and meeting these requirements is interpreted as meaning a highly targeted publication strategy that focuses on the ERA tiered journals (ST2). This publication strategy will then be at the detriment of

alternative avenues for dissemination of research output. What is highlighted is the tension between the different audiences who can benefit from the outcomes of research. While this tension may not be new, the issue emerging from this study is that the tension is now reinforced by the new policies of academic recognition.
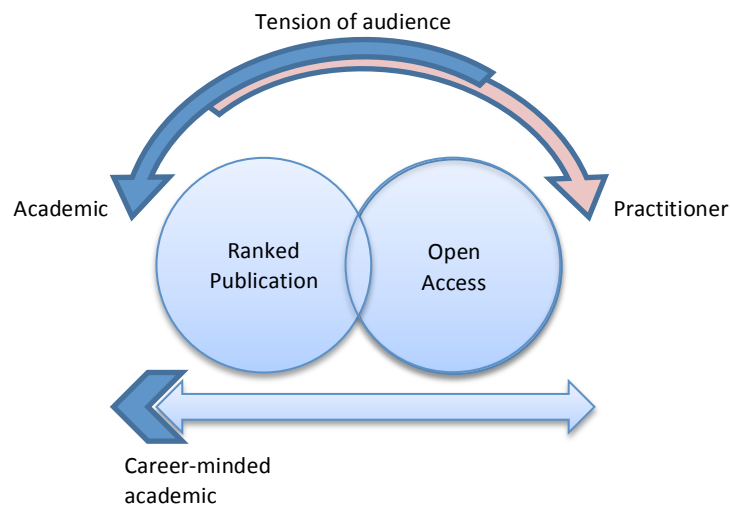
Figure 8.2: Tension of audience

Figure 8.2 illustrates this tension and presents it as movement across a decision making arc for academics and researchers who identify the need to disseminate to multiple audiences. Such academics may use multiple avenues to disseminate their research and thus for each written document will need to determine whether they target the requirements of ERA or actively seek a dissemination method more appropriate to their practitioner or other audiences. It is acknowledged that some research is conducted and written specifically for engaging an academic audience. However, the participants in this study view academia and research as being a process that should link to the needs of the community. Specifically, for some discipline areas there is a direct need to engage with practitioners, policy makers and other audiences. Researchers, in such disciplines, can develop a publishing strategy that swings between the need to meet academic recognition but also can include additional publication process aimed to meet practitioner access to research. However, it is suggested that the ERA framework and the emerging pressure from universities to meet the requirements of the framework, will in fact skew the publication strategy towards a prominent publication process within specifically selected journals. This will focus their publication behaviour towards top tiered journals, which primarily focus on an academic audience.

Interviewees who were editors of open access journals especially acknowledged this tension. Even though they viewed such journals as being a way to disseminate content outside of the academic community, these editors indicated that they needed to rethink their publication strategies and make a stronger focus on the ranked ERA journals. One such interviewee acknowledged that they would not submit to the open access journals that they edited, as they were not ranked highly enough. Simply following the ERA framework, therefore, has the potential to decrease the likelihood of targeting publication processes that are more appropriate for non-academic audiences. Open access journals have the potential to be the bridge between audiences as they provide the academic practice of peer review, yet are freely available to all potential readers. However, open access journals are viewed, by the respondents to this research, as being of lesser quality (ST10) and are only marginally represented in the top ranked ERA journals (ST7 and ST8). And this then reinforces the tension of writing for multiple audiences.

8.3.3 FACILITATING ENGAGEMENT WITH OPEN ACCESS REPOSITORIES

Open access repositories provide the option for academics to develop a publication strategy that meets the need of ERA, yet also provides open access to the published paper or a version of the paper. While participants of this study have submitted content to repositories, submission was not a consistent or ongoing process and in fact the submission practice of the participants was negligible. This section draws together issues associated with engagement with repositories and in doing so, reinforces the need for academic libraries or other intermediaries to manage content submission on behalf of the academic and research community. The use of intermediates to manage copyright, author-publisher agreements and article submission may be a means to facilitate open access repository submission.

8.3.3.1 COMPETITION TO INSTITUTIONAL REPOSITORIES

The participants questioned the need to support open access institutional repositories, as they believed that they had other avenues for openly disseminating their articles. Thus competition to institutional repositories (C10) is presented as a reason for limited engagement. Two primary competitors to institutional repositories were identified: competition from established discipline based repositories (ST25) and competition from self generated archives (ST26). These alternatives can be extended to include delayed open access, whereby a publisher places an open access embargo period on their commercially published content. Under this model, the articles are initially published as a subscription, but become openly accessible after a set period of time. This study's survey participants showed support for such a publication model. The

interviewees also indicated that they were prepared to send author copy PDF files to other academics that had requested a copy of their article. The ability to send such files is usually dictated by the author-publisher agreement. However, this study indicates that the respondents had little awareness of the detail of these signed agreements and believed that they were assigning copyright to the publisher. However, as they were sharing their article with individuals and not placing the author copy PDF on the open web, they did not view such sharing between academics as a major breach of copyright or their licence agreement. Delayed open access and the personal sharing of articles negate the need for an institutional repository.

Figures 8.3, 8.4 and 8.5 build a diagrammatic representation of engagement with repositories. Each figure builds upon the previous one so that engagement with repositories can be presented. Figure 8.3 illustrates the reliance on maintaining a publication strategy that reflects the policies of research recognition. For the participants of this research, the policies identify research quality through the ranked publications originally identified by the ERA framework. While institutional repositories are available to the Australian academic community, submission to repositories is not generally part of the publication behaviour. This is partly due to other avenues being available if the academic wishes to promote or disseminate their published article directly to selected readers.
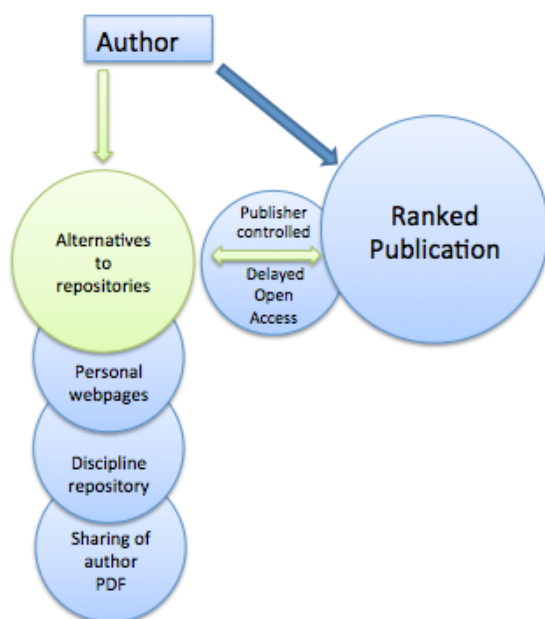

Figure 8.3: Alternatives to institutional repositories

These other alternatives include the academic's personal webpages, discipline repositories and distribution of their author copies of articles. This raises the question of whether the authors have the right to post articles in this manner. However personal webpages were seen as negating the need for a central university established repository.

If the respondents were to support repository or archival infrastructure, there was a preference for this to be managed by professional associations or by the publishers themselves. Institutional based repositories were seen as being a dispersed model, which will lead to an academic's work being spread across a variety of repositories as the authors moved between institutions. Discipline based repositories were seen as having the advantage that an academic's work would be within a single repository infrastructure. The participants would not prevent a publisher from making their articles openly accessible after an initial embargo period. If publishers support open access after an embargo period has expired then version control of the article is maintained, as only the published version is accessible. The article is still linked to the journal in which it was originally published and the actual process of making the article open access does not require action from the authors.

The use of personal websites to promote articles, sharing articles through personal contact and academic networks and management of open access by either disciplines or publishers, means that the participants see little initial need for an institutional repository infrastructure.

8.3.3.2 BARRIERS TO INSTITUTIONAL REPOSITORIES

The participants did not see the benefit in supporting institutional repositories, as they believed that they had alternative ways to openly share their articles. These alternative ways seems to represent a more personal sharing and self-promotion as it was completed through their own personal webpages and networks. However, when alternative dissemination was discussed within the framework of a formal institutional repository, a number of barriers to submission (C2) were identified.

The main barrier is the perception that the publication process equates to a handing over of rights in an article to the publisher and thus the author cannot then engage with other distribution processes for that article. Respondents specifically raised copyright (ST15) as a reason for not supporting repositories as they indicated that the article's copyright resides with the publisher and therefore they did not have the right to reuse the article (ST14) for purposes such as repository submission. This emerged from how the respondents interact with author-

publisher agreements (ST16), as the perceived need to 'get published' meant that respondents simply signed these agreements with the belief that all rights were then assigned to the publisher. When questioned about whether their agreements provided the opportunity to submit articles to repositories, the survey respondents displayed a high degree of 'neutrality' or uncertainty to their responses. The interviewees also acknowledged that their need to publish meant that they generally agreed to the terms proposed by the publisher. However, only one interviewee acknowledged that author-publisher agreements have changed so that they incorporate provision for supporting institutional repository submission. This interviewee made this comment in relation to an article published in a US journal, where the agreement acknowledged open access support for research published through research trusts or grants. Thus, while publishers are offering varying degrees of support for repository submission, there remained for the participants an ongoing perception that authors are handing over all rights to the publisher. This lack of awareness of changes in agreements acts as a barrier to support for repository submission.

The survey respondents made only occasional use of repository content and questioned the quality of content that had been included within repositories. The respondents saw the need for repositories to be filtered (ST12) so that it was clear as to what content was peer reviewed and published and what was pre-press or working paper content. Without such filtering, the respondents did not tend to see repositories as a major information resource and thus were also reluctant to engage with the repositories.

The initial description of the publication process, as presented by the focus group, is that publication is a production process. The interview participants acknowledged the needs of the reader and thus extended the discussion of publication to include issues of access and audience. However, while this means an awareness of the reader, it is still considered within the notion of publishing to meet the requirements of research recognition frameworks. In considering this in relation to institutional barriers, the work practice for publication is one where academics and authors focus on the need to maintain an ongoing cycle of publication. This means moving from one article to the next and thus does not include additional tasks that may be needed for submission to repositories. In essence, the respondents indicated that they simply did not have time to contribute to institutional repositories. Thus work practice and availability of time can be further barriers to submission. This response from the participants is similar to that identified by Bell and Sarr (2010) who states that:

Faculty members put their energy into completing and publishing new work. Once a work is published, they turn to the next project; they have little interest in returning to completed, published work and submitting it to a repository. (Bell & Sarr 2010, p. 80)

While Figure 8.3 indicates the alternative ways that participants in this research have shared access to their articles, Figure 8.4 incorporates issues of copyright, author-publisher agreements and work practice that hinder regular submission to repositories. While there are academics who have addressed these issues and actively support submission to repositories, many of the respondents to this research did not view repository submission as being a benefit and thus the barriers restrict their submission.
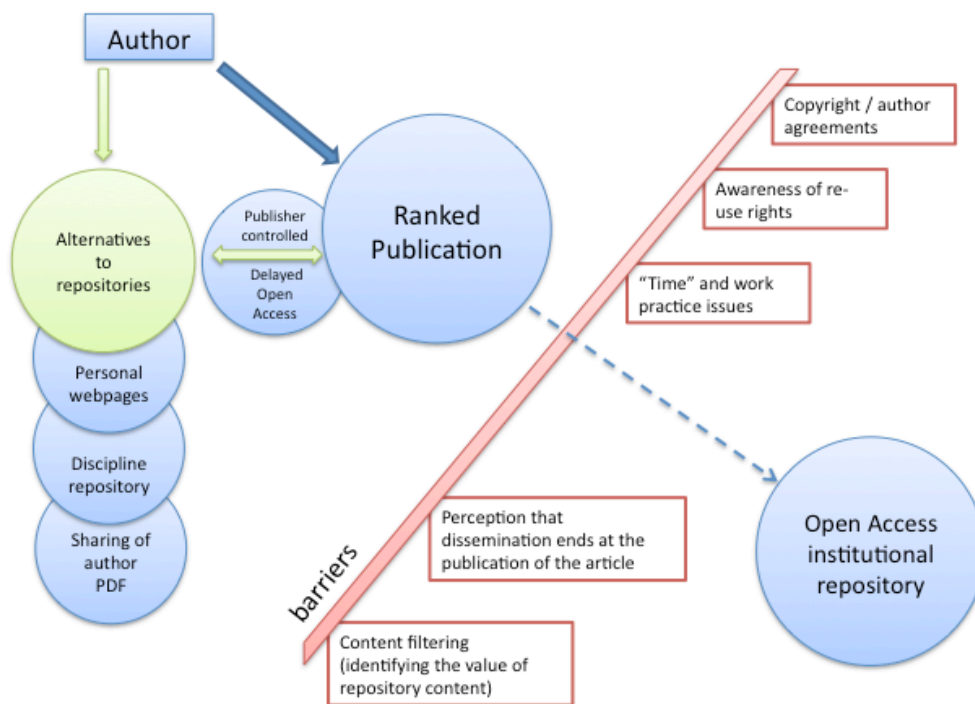
Figure 8.4: Barriers to open access institutional repository submission

8.3.3.3 INTERMEDIARIES ASSIST IN OVERCOMING IDENTIFIED BARRIERS TO REPOSITORY SUBMISSION

While the research participants acknowledged these barriers, they were not necessarily antagonistic to open access dissemination. The barriers are more associated with the perception of rights and with workflow, as against actively trying to prevent content being made openly accessible. These barriers may, therefore, be overcome if intermediaries manage submission on behalf of the academic. Such intermediaries can streamline submission and manage many of the concerns raised by the research participants. In essence intermediaries

may be able to change these identified barriers from being an obstacle that prevents submission to more of a hurdle that can be overcome through additional administrative support. The respondents saw benefit in others managing aspects of article submission (ST 13).

As an illustration, the respondents raised the issue of copyright as being a major barrier for submission to institutional repositories. Added to this is the lack of awareness of the author rights associated with author-publisher agreements. Intermediaries, who have a clear understanding of copyright and article licence rights, can manage article submission on behalf of the academic or researcher. As suggested by Figure 8.5, such an approach to managing submission can turn the identified barriers that prevent submission, into hurdles that can be overcome if managed by intermediaries who provide administrative support for submission of articles.
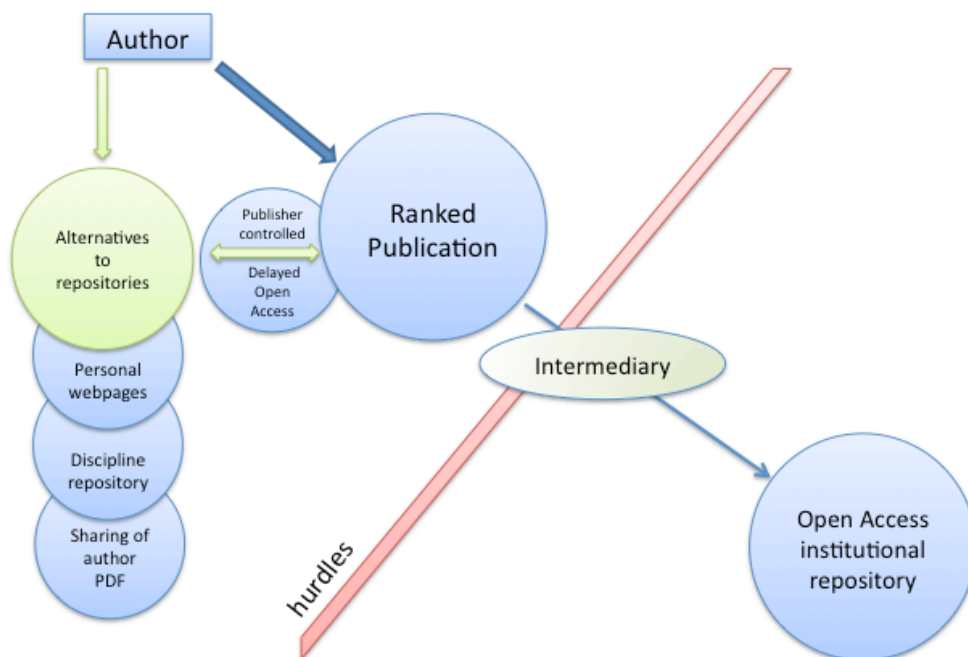
Figure 8.5: Intermediaries facilitate submission to institutional repositories

If intermediaries managed data collection for repositories, then confirming whether author-publisher agreements allowed articles to be placed within repositories, could form part of this centralised role. This response from the study's participants supports the work that the OAK Law project (www.oaklaw.qut.edu.au) has been completing. OAK Law has reviewed the terms of author-publisher agreements, so as to identify which publishers allow submission to repositories and the conditions under which the submission can be made. Having access to this information means that intermediaries can easily determine which articles from their academic

and research staff can be submitted to the institutional repository. Respondents of this research support a process of submissions being managed by intermediaries as this is as a way of addressing their concerns of lacking expertise in copyright interpretation and lack of time to manage distribution tasks beyond the actual process of publication. Kingsley (2010) argued that Australian repository development might benefit from advocates who can promote open access dissemination. The use of intermediaries extends the role of advocacy to a role that directly supports and assists in the management of submission to the repository. Cryer and Collins (2011) indicated that librarians in US health sciences libraries are providing advice on how academics can meet the mandating requirements of the US National Institutes of Health (NIH). Extending this process of advice to assistance with submission of article to repositories will start to develop the notion of intermediary support identified through this thesis.

Harvard University's Faculty of Arts and Sciences announced in 2008 (Schwartz 2008; Guterman 2008; Harnad 2008a) a policy whereby academic staff assign to the university a non-exclusive copyright for articles that they have published. This policy allows the university to manage submission to their institutional repository as the academic assigns rights in the article to the university. The non-exclusive nature of the agreement means that the author also retains rights in the article that can then be reassigned to publishers or other distribution processes.

Commentators on open access business models indicate that this is a 'permissions' mandate, where Harvard academics are providing the university with the right to submit their articles to the institution repository (Suber 2008). Other mandates tend to be based on 'forcing' the individual academic to follow through with the process of submission of their articles to the repositories, by linking submission requirements to the original funding source. Such mandates are not supported by the participants in this research (ST18), as there was not a perceived benefit identified if complied to. This study's participants viewed such mandates negatively as they saw them as being another layer of administrative procedure that the university or funding body was asking of them. However, if others manage submission, then the study's participants indicated that they would not actively prevent or restrict their articles being placed within an institutional repository. They acknowledged the involvement of intermediaries as being a means to manage submission process (ST13). The Australian academic community may, therefore, support a permissions-based mandate based on the Harvard mandate model. An advantage of this approach to repository management is that it can overcome the uncertainty that academics displayed in relation to the rights assigned through an author-publisher agreement. If a university manages academic copyright then the university would be confirming that published

articles or pre-prints could be submitted to the institutional repository. Emmett et al (2011), however, indicated that even with a permissions-based process of managing copyright, academics might still be hesitant because of the concern that they lose rights in their work. Emmett et al (2011) suggested that academics were not clear in their understanding that the Harvard model was a non-exclusive licensing to the university and not an exclusive exchange of copyright.

This, however, still needs to be placed within the framework of the need to be published. Individual academics will still need to sign publication agreements and, one can assume, that if a publisher wished exclusive right to the article, then academics would still assign the rights to the publisher as they have the need for the article to be published in the journal being targeted.

8.3.4 INTERMEDIARIES, PUBLISHERS AND REPOSITORY INTERFACES ACT AS FILTERS TO RESEARCH QUALITY

The focus on ERA ranked journals (ST2) and the identification of the 'top' journals as being primarily those published by commercial publishers (ST7) indicates that the publication process and the established publishers can act as a 'filter' that identified research quality (C3). The commercial publishers viewed their role as establishing a journal's branding (ST9) so that it is then recognised as being a highly regarded title. Even without formal journal ranking lists, this branding process acts as a perceived guide to quality and thus assists in filtering research outputs. This filtering assists the reader in determining which articles may represent the best research. Open access journals are not seen as having such an established brand and thus viewed as being of less quality (ST10) and even questioned for their ability to remain sustainable (ST11). These views of the publication process reinforce the need to maintain publication behaviour focused on targeting selected journals.

The discussion presented in section 8.3.3 indicated that intermediaries may assist in facilitating submission to open access repositories (ST13) by managing author-publisher agreements and copyright on behalf of the author. The respondents also suggested the need for intermediaries to act as filters to repository content (C4) by indexing and identifying the different types of content that has been submitted to the repository. A reason presented for not making heavy use of repository content is the difficulty to determine whether submitted content has been published. Repositories can contain working papers, original author versions of papers, pre-print papers as well as copies of the final published paper. Respondents indicated that it is difficult to determine the quality of this content if it is not clear as to what versions of the paper had been

submitted to the repository. Indexing can assist in identifying the version of the content that has been submitted.

If intermediaries manage submission and take on this role of indexing, then the interfaces developed for repository access need to be able to filter content based on this indexing (ST12). Institutional repositories have been used to manage the data recording for research evidence and recognition. This links repository submission to the incentive of recording research output for funding and promotion. The interfaces developed for repositories need to allow for the filtering of content so as to determine whether the full text of the article is available and if so, whether it is the final published version. This process of indexing and filtering of repository content may assist is increasing usage of submitted content.

8.4   REFOCUSING THE RESEARCH THEMES

The previous sections of this chapter have classified the themes from this study and have outlined aspects of the relationship of these themes. This section draws the discussion into a theoretical framework that can describe factors that influence the Australian academic community's publication behaviour and engagement with open access dissemination. Strauss and Corbin (1998) suggested that a phenomenon or action could be examined under a conditional matrix, which explores the interaction or inter-relationship of the phenomenon across different conditional levels. Strauss and Corbin suggested that

> *To trace a conditional path, the researcher begins with an event or incident that leads to a happening (some form of action / interaction) and then attempts to discern the chain of related events, that is, what the conditions were at the time, what sequence of action / interaction followed, what consequences resulted, and what else happened down the line. (1998, p 195)*

The conditional matrix, as outlined in the second edition text (Strauss & Corbin 1998, p 184), is represented in Figure 8.6.
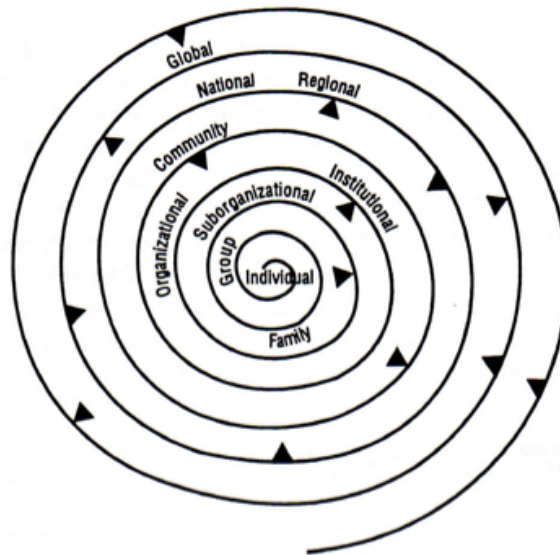
Figure 8.6: The Conditional / Consequential matrix (Strauss & Corbin 1998, p 184)

The matrix focuses on an individual, or in its original depiction (Strauss & Corbin 1990, p 163) on an action that pertains to the phenomenon being investigated. This focus is then explored through the interactions or conditions that may impact or influence it. These conditions radiate outwards through an exploration of the impact of groups, institutions, the community, the nation and global environments may have on the focus or action that is being explored. The matrix assists in building grounded theory as it can be used to identify the interrelationships between identified themes. Scott (2004) equated grounded theory analysis to the process of investigative reporting, as the researcher needs to 'question' the data so that concepts and categories are sorted and patterns identified between the categories. The conditional matrix assists in this process of identifying patterns in the data. The matrix is used to further identify the relationships between the research themes, so as to draw together an underlying theory for the study.

Figure 8.7 represents the conditional matrix as applied to the action of publishing a scholarly article. It illustrates the interrelationship between the issues, themes and publication decisions that have been identified through this study. While presented as a flow chart, Figure 8.7 incorporates the 'levels' associated with the conditional / consequential matrix so that action and influence is identified in association with the individual, organisational and other levels of consequence as suggested by Strauss and Corbin. The aim of presenting the matrix here is to draw the previous discussion of the themes into a framework that can then be used to finalise theory.
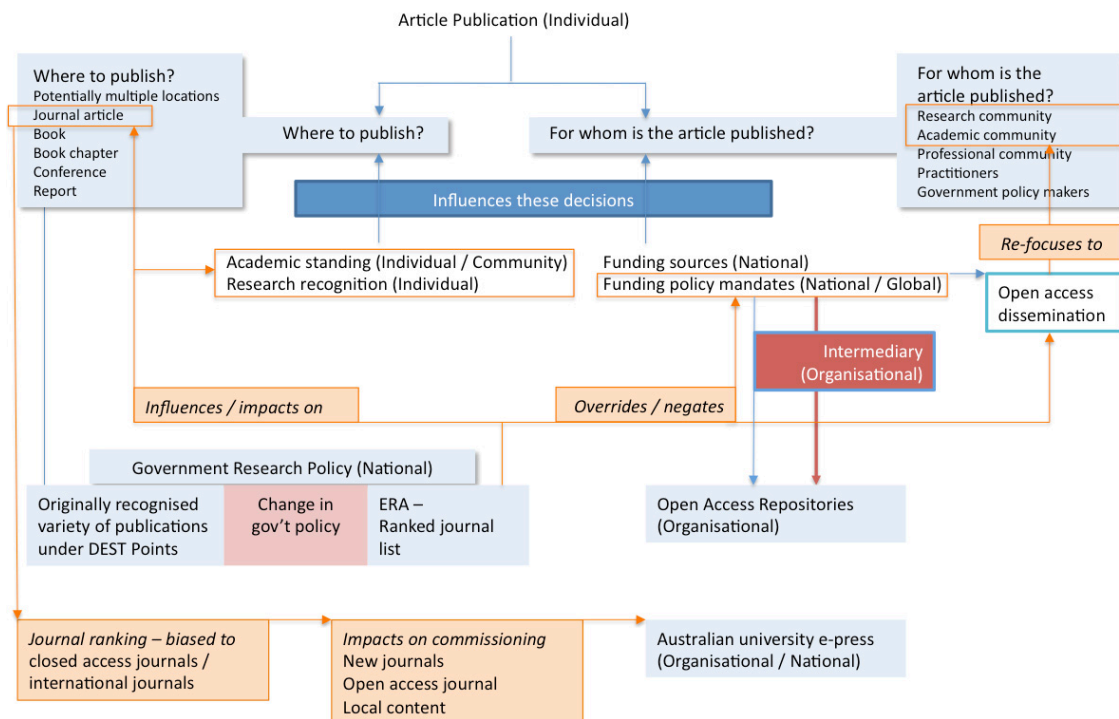
238

Figure 8.7: A model of publication behaviour

The matrix is based around the 'action to publish' and starts with the 'individual' and the wish to publish an article or paper. This action draws on two initial decisions, 'where to publish' and 'for whom to publish'. The link between these two decisions is reflected in participants' musing that when publishing their research, they select the best publication for an intended audience. The publication may be a scholarly or professional journal article, a book or a conference paper and this selection can be based on whether the audience is the research and academic community, professionals or policy makers. The focus group participants indicated that each of these publication types had been recognised under the 'government research policy' (national impact) originally managed as DEST points.

Two key drivers influence the decisions associated with the questions of where to publish and for whom. The first is the ability to maintain or improve the academic and research standing of the author. The academic standing represents both the 'individual' and 'community' impact associated with the conditional matrix analysis. While research recognition is associated with the 'individual' academic, it is driven by the guidelines associated with 'government research policies' (national impact). Research recognition and the driver of government research policies

represent the core category associated with the development of grounded theory for this study. This category influences the decision as to 'where to publish'.

The second influence identified by this study, is the impact that funding sources, especially mandates associated with supporting open access dissemination, may have on directing the publication behaviour to a specific audience. Funding body mandates, either from Australian funding agencies ('national' impact) or from international sources ('global' impact) attempt to influence dissemination through open access models, especially through open access repositories. The focus group participants, as an initial data source for this study, indicated that while acknowledging the importance of research recognition and funding sources on their publication behaviour, suggested that they still could focus on a variety of publication outlets as these were recognised as providing research points under the DEST system.

New policies regarding research quality and recognition have changed this publication behaviour. The new ERA framework influenced the research recognition process and this in turn impacts on the decisions associated with 'where to publish'. While previous Australian government policies on research recognition accepted a variety of publication types including conference papers and book chapters, ERA has been seen as having a more limited focus. The ERA framework originally presented the Australian academic community with a defined ranked journal list. While the use of a ranked journal list was reviewed during 2011, preparation for the 2012 implementation of the framework still focuses on journals as a primary indication of research output. This means that ERA, as implemented during the period of this study, has focused the publication behaviour of the Australian academic community to an emphasis on journal articles as the primary means for research dissemination. The publication patterns from this study suggest that the journals that are targeted for submission are primarily commercial (closed access) journals and journals published outside of Australia.

It is suggested that this refocusing of the publication behaviour takes precedence over attempts to make research more openly accessible. ERA has negated the influence of policies from funding bodies that seek to support open dissemination. Open access journals are not heavily represented in the ERA framework and thus would not be specifically targeted as part of publication behaviour. The influence of mandating policies that are designed to support open access repositories is also decreased as academics focus on meeting the needs of the research recognition framework and have less time for other distribution options. A secondary impact of this is the potential refocusing of the audience for publication. A focus on top journals means a movement away from publication practices that are designed for dissemination to the

professions, practitioners and policy makers. Instead, journal publications tend to be focused on the academy and the research community. This means that the dialogue and communication associated with research outcome is maintained with the research community at the possible detriment of the wider communities of the discipline professionals. Open access journals are not specifically targeted as a means to widen access to the research output.

The focus on a targeted journal list also impacts on the commissioning processes of new journals, especially new open access journals. The e-press managers interviewed for this study outlined the difficulty in commissioning new journal titles in an environment of journal ranking. While this needs further exploration, ERA can potentially impact on the ongoing development of university based electronic presses.

Figure 8.7 can be used to extrapolate the core issues that form the theory associated with this study. In relation to **publication behaviour** three core issues can be identified.

- The first relates to the *legitimacy of the publication outlet* and is associated with the process of selecting where to publish. The legitimacy of the publication is influenced by the quality and branding of the journal and the ranking or listing of journals as part of research recognition policies.

- The Government research policies, the ERA framework and the need for individual academic and research recognition contribute to the second core issue, that associated with the *career goal seeking* processes of establishing an academic and research career.

- The *audience* acts as the third issue that influence publication behaviour. The audience relates to the tensions associated with whether the article is written for the academy, practitioners, policy makers or other readers.

These core issues are associated with the publication process and also impact on the development of theory associated with **open access publication behaviour**.

This study has also explored **open access repository engagement** and suggests that two actions can support such engagement.

- To facilitate submission to repositories, additional support is required in the management of copyright, author-publisher agreements and the actual administrative processes of repository submissions. This support is identified as

being the need for an *intermediary* to manage submission on behalf of the institution's academics.

- Engagement with repositories continues to raise the issue of quality and this is presented as an issue of a *filter to content quality*.

A further focus of the study is the exploration of the impact that this publication behaviour has on **engagement with university based electronic presses**. Government research policies influence journal submission and this in turn *impacts on commissioning* of content for university-based presses.

Section 8.5 builds these issues into a formal theory associated with publication patterns, processes and behaviour.

8.5 EMERGING THEORIES OF ACADEMIC PUBLICATION BEHAVIOUR

The research questions for this study focus on exploring the publication behaviour of academics from the Australian higher education community. Specifically, the study focuses on the questions of:

Q1. What are the current publication patterns for Australian academics?

Q2. To what degree do open access models form part of these publication patterns?

Q3. Is there a difference in engagement between open access journals and open access repositories?

Q4. Will policy established by funding bodies, government or institutions assist in increasing engagement with open access initiatives by Australian academics?

Q5. What impact may the research recognition policies have on the publication patterns and engagement with open access initiatives?

Q6. How do these publication patterns and engagement with open access initiatives impact on establishment of university-based electronic presses and repositories?

Grounded theory has been used to explore these questions and issues and draws these issues into four theories associated with publication and research dissemination. As with all theory, the models that are presented provide a possible explanation for the ways that the Australian academic community publishes and disseminates research. The theoretic models need to be further tested through additional research, however they provide a guide to the issues that impact on the original research questions.

The research questions and the developed theory are associated as follows.

Theory	Research questions
A theory of academic publishing behaviour	1, 2, 5
A theory of open access publishing behaviour	3, 4, 5
A theory of open access repository engagement	3, 4, 5, 6
A theory of e-press engagement	6

8.5.1 A THEORY OF ACADEMIC PUBLISHING BEHAVIOUR

The primary theoretical statement is associated with a theory of academic publication behaviour. This theory can be stated as:

An academic's intention to publish is influenced by the *legitimacy of the outlet quality*, their *academic career goal seeking* and the *audience*.

The business and access models associated with distribution are not key factors in influencing this behaviour and therefore the decision to publish is not guided by the specific debate associated with 'opening access' to the publications and research. Instead, the legitimacy of the outlet quality is influenced by journal branding and journal ranking and has been formalised within the policy framework of ERA. ERA, as a government policy has redirected the publishing behaviour to a specifically focused and identified series of outlets. For this study, these outlets are the journals identified within the ERA journal lists. While the list has changed, the process of approved journals may have a similar impact on directing the publication behaviour.

In considering how research policy 'should' be interpreted, the ERA framework aims to:

Assess research quality within Australia's higher education institutions and will give government, industry, business and the wider community assurance of the excellence of research conducted. It will also provide a national stocktake, by research discipline areas, of research strength against international benchmarks. (Australian Research Council 2011c)

This policy aims to 'improve' research quality by benchmarking research output. This study, however, suggests that the actual impact of ERA, has been to narrow the publication behaviour of academics. Whilst it may be argued that fewer articles of a high quality can be a sound

outcome of policies such as ERA, the actual impact has been to reinforce a publication focus that ignores alternative dissemination options.

ERA has defined the *legitimacy of the publication outlet* as primarily being an identified list of journals. This list does incorporate open access journals, but such journals tend to be viewed as being lower ranked titles. The discourse associated with *academic career goal seeking* would suggest that academics that are focusing on promotion or on developing their research standing will target the journals that are listed in the higher ERA rankings. This then decreases the potential submission to open access journals.

The impact of *academic career goal seeking* partly reconnects this study's theory of publication behaviour back to the issue, originally raised in the focus group responses, that publication is a *production process* and not necessarily a *dissemination* process. The focus group suggested that developing or maintaining their academic standing is a primary driver for academics to publish. Journals are, therefore, targeted for their quality and impact on career standing, not whether they may be the best dissemination avenues for the research outcomes.

The interview and survey responses placed more importance on the reader or *audience* of the research, as being a factor in deciding where to publish. However it is suggested that while the *audience* influences the academic publishing behaviour, there is now tension between the *academy* being the audience and the *professions* being the audience. The ERA framework directs research dissemination towards a primarily closed access dissemination model and reinforces a publication behaviour that has traditionally focused on dissemination between members of the academy. Academics do need to disseminate their research to other members of the academy as this confirms the research and contributes to academic debate. However, for some discipline areas, there is a need to hold discourse with the practitioners or the profession itself. Professional conferences, trade book publications, business and professional reports and popular media have been ways that this discourse has been conducted with practitioners. Such dissemination processes do not have the 'quality' weighting that ERA developed during the time of this study and therefore academics from practitioner-based disciplines, are now reconsidering the value of their effort that has previously been placed on disseminating the research findings through channels that are not recognised by ERA.

In directing this theoretical statement back to the study's research questions, the publication pattern (Question 1) of the participants in this study is a focus on tiered journals and the development of publication strategies that are guided by government policies on research

recognition (Question 5). The targeted journals are primarily international journals and thus there is a tendency for Australian based research to be published outside of the Australian publishing infrastructure. This impacts on the ongoing ability for Australian university e-presses to commission new journal content (Question 6). While open access journals form part of this publication pattern (Question 2), this is only incidental. While there is generally not antagonism against open access dissemination, there is not a strong decisive engagement with open access journals.

8.5.2 A THEORY OF OPEN ACCESS PUBLISHING BEHAVIOUR

Open access publishing fits into the broader pattern of publication behaviour and is therefore influenced in a similar way to that outlined in the theory of academic publishing behaviour. Open access journals need to compete with other journals for article submission. This competition is based on the perceived quality of the journal. Even though the research participants acknowledged that open access journals might increase readership and use of their articles, the distribution model of open access was not a primary driver for article submission. The research participants did not actively seek open access journals as a distribution method. Open access engagement occurred simply if the preferred journal, targeted for other reasons, used an open access distribution model.

The consequence of the ERA framework is that it can be argued that open access journal submission is more dependent on 'publisher' and 'policy' decisions, than specific 'author' decisions. Journals that meet the ERA framework are supported for submission, regardless of whether they are open or closed access journals. Therefore, being acknowledged by the policy frameworks becomes an important process in maintaining submission to journals and thus support for open access journals may be dependent on how they are recognised by current and emerging frameworks on research recognition. This means that, like all journals, open access journals are influenced by the concern for *legitimacy of outlet* as identified by the journal's brand or reputation. However, open access journals have been hindered by the journal ranking process as initially defined by ERA, as open access journals were primarily listed within the lower ranking. If ERA's new process of journal recognition incorporates further open access journals, especially in the preferred list of journals maintained by ERA, then open access submissions would conceivably increase.

The *audience* is a key focus for open access dissemination as the philosophical view of open access dissemination is to broaden the readership and to attract audiences from outside of the

research and academic environments. However, a focus on a career goal seeking behaviour and on the focused publications of top tiered journals means that the academy becomes the primary audience. This means that even if open access journals may assist in dissemination to a variety of audiences, the influence of developing publication strategies to support career development means that the audience may not be the primary motivation in selecting publication submission.

Drawing these issues into a theoretical model means that:

> Engagement with open access journals is influenced by the broader *Academic publishing behaviour*, which has directed submission to established and recognised journals. Open access journals are not specifically targeted for submission. Instead, submission is based on the journal reputation and open access publishers need to maintain strategies for developing journal recognition under the ERA and research recognition frameworks.

The current interpretation of ERA may negate the advantages that open access dissemination can provide. Open access dissemination has the potential to broaden the reader base of research articles and, especially for disciplines such as nursing and education, provide the content that is necessary to support evidence based practice. Unless the open access channels are seen as representing the same influencing factors of quality and supporting career goal seeking behaviours, they will not be actively selected as a distribution process.

8.5 3 A THEORY OF OPEN ACCESS REPOSITORY ENGAGEMENT

Uncertainty in what rights academics retain when managing copyright and negotiating author-publisher agreements can act as a hurdle, which limits the submission to repositories. The use of an intermediary to manage copyright, agreements and content submission can assist in removing this uncertainty. The extent to which such an intermediary is made available would then impact on the ability to build the submission to the repository.

A theoretical model to support repository engagement can be presented as:

> The population of content within an institutional repository is influenced by the level of support that the institution provides in the form of an *intermediary managing submission* on behalf of an academic; and by the degree to which submission is linked into the institution's process for *recording research output* for academic recognition. The use of repository content is based on the ability to apply *filters of quality* to the content that is made available through the repository.

In some ways this reflects a permissions-based mandate, as proposed by Harvard University (Guterman 2008), where academics provide the university with a non-exclusive agreement to re-use their authored research. Mandates have generally aimed to enforce a policy that directs academics to submit content to the institutional repository. The results from this study argue that while academics may promise to support such mandates, compliance is not consistent. Mandating will not lead academics to incorporate an institutional repository submission practice into their publication behaviour. Assigning the submission to others, however, means that the copyright and licencing confirmation for submission is removed from the academics' publication processes. The study's participants were not antagonistic to the development of repositories, and thus having submission managed by intermediaries may be a necessary process in building content.

To further assist the growth of submission, there also needs to be an identified benefit for academics if they are to support the development of repository content. Libraries and advocates of institutional repositories have presented this benefit as being the ability to increase access to, and use of, the articles which can then lead to an increase in citation of the articles. The respondents' use of repository content, however, is limited. This 'quality' of repository content was questioned because the respondents viewed repositories as containing a mixture of working papers and pre-print publications, which were not viewed as having the quality associated with the final published article. The respondents made only occasional use of repository content and did not link such content with citation improvement, as they would not cite the version of papers that were housed within a repository, unless it was a final published version. However, a perceived benefit of repository submission was associated with the internal processes of managing and collecting publication data or recording research output as part of the institution's response to government policy on research quality. For many of the interviewees, the repository was synonymous with this process of data collection for the ERA framework. Again, this data capturing process was managed by an intermediary, however the

association of the process with ERA recognition tended to represent the benefit that is needed for engagement with content submission.

This chapter has already highlighted the impact that government policies on research quality and academic recognition (Question 5) has on open access engagement. The effect is to narrow the publication behaviour and thus there is not an active or ongoing participation in repository engagement. The study's participants indicate that they may support funding and government policies (Question 4) that mandate repository submission, however, the respondents' actual submission practice is negligible. As suggested, policies aimed to support open access dissemination need to be linked to research performance and recognition, as this is a stronger driver than mandates. The permission-based mandate, whereby an intermediary manages submission has stronger support by this study's participants.

This study suggests that there was only minimal overall engagement with open access dissemination, and this is consistent with both open access journals and open access repositories (Question 3). Open access journals would be supported if they form part of the established publication behaviour of the individual academic. There is generally not a practical support for submission to open access journals simply because of their business models. In fact there is antagonism against open access journals if they use business models that require an author payment process, as such costs were not funded through the research competitive grants available to the study's participants. While the respondents have engaged with open access repositories, this, like open access journal submission, is only on occasional basis. Open access repositories were not heavily used as a source of material for teaching and or research and thus there is not the practical need to support engage with such infrastructure.

8.5.4 A THEORY OF E-PRESS ENGAGEMENT

The publication behaviour identified in this study focuses on submission to established journals and this impacts on the commissioning of new content for university-based electronic presses. This study's participants viewed such presses as possibly reflecting a form of 'vanity' publishing. While an aim of the press may be to promote research of the host institution, these presses need to maintain assurance of publication quality and branding.

Placing the e-press commentary into the theoretical models of this study, can be stated as:

> Engagement with university based electronic presses is *influenced by government research recognition policies* especially in relation to the *commissioning of new journal titles* that need to compete with the preferred journals identified through the research policies.

The impact of this is that while universities have established publishing infrastructure to support the scholarly and research communication of their academic staff, engagement with such infrastructure will primarily occur if it can support recognition policies. During the period of this study, one of the e-presses that contributed to the interview data decided to no longer commission journal based content and rather focus on monographs. This decision is partly due to how their academic staff were refocusing their publication strategies so that they focused on targeting journals with an established brand and reputation. The press found it difficult to develop a journal based title list. Participants from electronic presses that had been established for a longer period of time have maintained their engagement with electronic journal publishing. However, their commissioning strategy is to gain the electronic rights to well established print based journals. Thus the journals bring with them a publication reputation, some of which are recognised by the research recognition frameworks. Even with this strategy, the e-press saw some of its titles migrate to international publishers as the journal editors attempted to improve their reputation and ranking within the research frameworks. Thus, as the framework narrows the publication behaviour of the Australian academic community, this then impacts on the ability for small Australian based e-presses to manage their journal lists.

8.6 CONCLUSION

This chapter has drawn the data analysis into theoretical models associated with publication behaviour, open access journal engagement, open access repository engagement and support for university based e-press submission. Applying Strauss and Corbin's (1998) Conditional / Consequential matrix to this analysis identified the interrelation between the themes that have emerged through this study. While this study has a focus on engagement with open access dissemination, the core category that has been presented through the analysis is the impact that changes in government policy on research recognition have on the publication behaviour of the Australian academic community. These changes have been identified as potentially narrowing the publication behaviour of the community to a focus on publishing primarily to journals that are targeted for the academy. This has a negative impact on preferences to publish to practitioners and to explore alternative publication and dissemination processes.

The participants of this study did not actively support open access engagement, however this does not necessarily mean that they are unwilling to support such distribution channels. Open access distribution simply needs to form part of their current publication behaviour. This means that open access journals have the challenge of increasing their recognition within the current and emerging policies on research recognition. Universities that adopt permissions-based mandates and establish intermediaries and support infrastructure to manage repository submission on behalf of their academics may have an advantage in building repository content. This approach means that academics do not need to change their publication behaviour in order to manage repository submission.

The next chapter draws this study to a conclusion by outlining the impact of the study's findings and discussing possible future directions for further research.

CHAPTER 9: CONCLUSION AND FURTHER RESEARCH

9.1 INTRODUCTION

This chapter draws the study to its conclusion by revisiting the aims of the investigation and outlining how these aims have been addressed through the research. Based on these outcomes, broad recommendations are provided regarding future developments of research policies and how open access engagement may be supported. As stated throughout this study, this environment was experiencing a period of substantial policy change relating to research recognition. These changes impacted on the publication behaviour of the study's participants. This impact will extend beyond the time period investigated by this study and, therefore, this chapter identifies further areas of research that can build on those presented in this thesis.

9.2 REVISITING THE RESEARCH QUESTION AND RESEARCH AIMS

The aim of this study was to explore the publication behaviour of the Australian academic community, and to determine the extent to which this behaviour included engagement with open access dissemination processes. The research question sought to determine 'what influences the publication behaviour of the Australian academic community?'

This question was explored in relation to alternative models of scholarly communication, especially that of engagement with open access publishing and dissemination. One reason for the study's aim and research focus was interest in determining if the academic community was making use of the scholarly communication infrastructures, including open access repositories and university based e-presses, which were established prior to this study. Governments and universities had invested in these infrastructures, but there was little understanding as to whether they would form an integral part of the publication behaviour of the academic community.

The research did not aim to test pre-conceived patterns of behaviour, but rather sought to identify actual publication practice. For this reason, grounded theory was used as the framework for conducting this research. This framework allowed the actual publication behaviour of the participants to be identified. The use of focus groups, a survey and interviews as the data collection methods allowed issues to emerge from the data so that possible reasons for this publication behaviour could be identified. This analysis identified a number of themes

that contributed to the development of theoretical models associated with this publication behaviour.

9.3 RESEARCH FINDINGS AND OUTCOMES

The outcome of this study was the development of theoretical statements and models that identify a pattern of publication behaviour that has been influenced by ongoing changes in government policy associated with research recognition. The primary theoretical statement developed from the data draws together three main influences on publication behaviour. The theory is presented as:

> An academic's intention to publish is influenced by the *legitimacy of the outlet quality*, their *academic career goal seeking* and the *audience*.

In one sense, identifying publication quality, career needs and the readership or audience of publications as drivers for academics and scholarly communication may seem obvious. However, identifying and connecting these drivers within the theoretical framework, starts to highlight a conflict between the need to publish in order to support research recognition frameworks and the increasingly available channels for dissemination to different audiences. Participants in this study, especially those from social science, business, medical science and humanities identified this conflict. They view the RQF and ERA frameworks, as originally developed, as directing their publication behaviour to focus on a selected list of journals. Thus, ranked journals were targeted for article submission, instead of other publications such as conferences, book chapters and business reports. For some of the study's participants the push towards a single focused publication pattern meant that they were publishing in journals designed for the academy and were not using publication and dissemination methods more suitable for access by their practitioner base. Ongoing development of research policies need to acknowledge that research should not just be published for the academy. Other publication methods that can disseminate findings to relevant practitioner groups should also be recognised for their potential impact on disciplines. Academics, like all professionals, need to establish and then maintain their career and thus individual academics need to consider their own strategies for career advancement. Individual academics can still choose to publish in a variety of outlets. However, the themes raised through this study's data analysis suggests that while academics have previously been rewarded for a range of publication types, the interpretation of the new research policies means that research dissemination is focusing on journal publication as a primary output for research. The first iteration of the ERA framework focused this further to a

selected list of journals. This list, and especially the higher tiered journals, became the principal focus for research dissemination.

The impact of this is that the research framework reinforced the notion that measures of research quality are linked to the branding of the publication outlet and because of this, commercial journals continue to be the major target for article submission. The publication behaviour, especially by established researchers, tends to focus on international journals that are published in the US or Europe. The ability for academic ideas to be recognised internationally is desirable, however, for some disciplines an international journal may not be the most suitable dissemination method for their research. Disciplines that focus on localised research, for example those related to local policy development, may need to target Australian based journals or publications. An impact of the initial draft of the ERA framework, identified by participants from these disciplines, was a shift away from Australian published journals because the international journals had a higher ranking. While the intended audience for the research may have benefited from the research being published locally, the research recognition process and the need for career development, overrode this.

The business model associated with the distribution policy of a journal was not an influence on whether the study's participants would submit to that journal. The participants were not making submission judgements based on whether a journal was open access and therefore free to their identified audience or to a broader readership. Therefore, the theory identified for engagement with open access journals is simply that such journals are influenced by the same issues as other journals, that is the ability to be recognised as a quality output. As open access journals continue to establish their reputation and branding or as some commercial journals adopt an open access publication model, then open access publications will be recognised as a 'quality outlet'. Biomed Central (www.biomedcentral.com) is an exemplar of an open access publisher who has a strong brand that represents a quality outlet for research publication. The original ERA list of tiered journals did include some open access titles within the top tiers. However, these titles were few and the majority of open access titles were listed within the lowest ranking. This reinforced a general view that open access journals did not equate to being a 'quality outlet'. One of the challenges for the ongoing changes to the ERA framework will be whether models can be developed that support open access journal submission. There has been an attempt to define and recognise the notion of impact within the new research frameworks, however the interpretation has tended to revert to journal quality impact as an easy measurement. Citation databases, such as SciVerse Scopus (www.scopus.com), are now

incorporating open access journals and open access repositories within their indexes (Miguel, Chinchilla-Rodriguez & de Moya-Anegón 2011). The availability of bibliometric information for open access content may assist in increased promotion and use of open access journals, which may then improve the reputation of quality for open access journals. Bjork, et al (2010), in exploring the open availability of a random set of articles, indicated that:

> *The proportion of gold OA is clearly lower in the ISI subset. This could be explained by the fact that it has been more difficult for relatively new journals (which is the case for most journals born OA) to get accepted into ISI, than into Scopus. On the other hand, the proportion of green copies is much higher in the ISI subset. A plausible explanation could be that authors are more likely to put copies of their higher quality articles in repositories. (Bjork, et al 2010)*

Open access journals (gold OA) may, therefore, benefit from the indexing and citation information provided by Scopus. Scopus is being used to support the 2012 round of the ERA evaluation and if its citation data can be used to highlight research quality, then this may assist open access journals. However, as Bjork (2010) suggests, the repository information (green OA) is higher in the ISI indexes as authors are promoting only their best articles and these are not those from open access journals.

In examining academic engagement with open access repositories, this study links the potential growth of repository content to the role of intermediaries who can manage issues of copyright and article submission on behalf of the academic community. The study's respondents, while supportive of the principles of open access, did not engage heavily with open access dissemination. Their focus was on the need to get their articles accepted by quality journals, and there was not an incentive to then complete additional tasks associated with the process of submitting the article to a repository.

The theoretical statement identified for the support of open access repository engagement was stated as:

> The population of content within an institutional repository is influenced by the level of support that the institution provides in the form of an *intermediary managing submission* on behalf of an academic; and by the degree to which submission is linked into the institution's process for *recording research output* for academic recognition. The use of repository content is based on the ability to apply *filters of quality* to the content that is made available through the repository.

The statement acknowledges that academics and researchers can be both contributors to, and users of, repository content. The participants in this study, however, did not make heavy use of repositories nor did they contribute their publications. A barrier to the use of repositories was the inability to filter content so as to determine whether the articles being accessed had been peer-reviewed and published. The quality of repository content was linked to the journal in which it had been published. Pre-print versions of published articles were not viewed as having attained the quality associated with article peer-review and editing. Therefore, the respondents suggested the need to filter repository content so that it is easy to identify whether content being retrieved is the version as finally published. The ability to do this is dependent on the indexing of the content and on whether the repository interface is designed with options to filter this index so as to identify peer-reviewed, non peer-reviewed, working papers, pre-prints and so on. The interfaces for repositories vary, as they are often developed independently of an underlying open access database structure. This means that while the same database software may be used in different universities, each university can develop their own search interface that interrogates the database software. This study suggests that in order to maintain the perception that repositories provide access to quality research, then the interface should filter content and push the articles that have been peer reviewed towards the top of the results list. The searcher can then have the option to broaden the search to include non-peer reviewed content if required.

The barriers to submission of content to repositories were associated with concerns of copyright, confusion over assigned rights of the author-publisher agreements and concern over time taken to manage submission. For the participants of this study, repository submission was simply not part of their publication behaviour. The participants, however, did not tend to object to submission being managed by others. Therefore, the study suggests that institutions that centrally manage submission of articles may have an advantage in increasing repository content.

During the period of this study, Australian university libraries were repositioning themselves so that they were viewed as an active part of the scholarly communication process and not just the custodians of collections. Libraries have established institutional repositories as one part of this repositioning as it allows the academic library to act as a dissemination channel for research being conducted at an institution. Another approach instigated by some university libraries was the development of university-based electronic presses. These new presses have established various business models, including open and commercial access. This study broadly explored the

impact that the publication behaviour of the Australian academic community may have on the development of these e-presses. The emerging policy frameworks for research recognition act as a primary driver for the publication behaviour of the community and this then has impact on the development of the university e-presses. An impact of the new frameworks for research recognition is a focus on established journals and on journals that have international reputation. This then impacts on the ability of the e-presses to commission new journals and to attract contributions to newly established journals. The initial ERA framework provided a predefined journal list that identified quality journals. The e-press managers who participated in this study raised concern that this approach to defining research quality meant that new journals were difficult to commission and establish.

The new e-presses tended to identify their primary aim as being a means to promote and facilitate the dissemination of research from the institution's academic community. For some of the presses, university funds had been provided to support this aim, with the longer-term intention that the press would become self funded through subscriptions to the journals that were published. To generate revenue through subscriptions means that the press needs to establish a commercially viable journal list and employ staff and infrastructure to manage the subscription processes, including providing customer access to the content for which they had paid. The vignettes of the development of open access journals presented in Chapter 6, illustrated the difficulty of editors of smaller journals managing subscription processes. The interviews with e-press managers also identified the difficulty for smaller presses of maintaining subscription management as well as commissioning and marketing of the publication list. The themes and issues identified by this study have contributed to a review of the business model of one of the university e-presses. The result of the review led to aspects of the publication list for the press becoming open access. This allowed the e-press staff to focus on commissioning and marketing of their list, instead of trying to manage a subscription system that, in essence, was competing with the larger commercial publishers. This study suggests that the business model associated with distribution is not of high importance to academics. Instead, issues of quality control and journal branding are viewed as important, as this acts as a way to support their research recognition. The issues identified through this study contributed to the press's decisions to refocus on marketing the brand of the press by incorporating open access dissemination into the publication process.

9.4 Research contribution and recommendations

This study is one of a few (Kennan 2008; Kingsley 2008b) that have explored open access engagement within the Australian university environment. In many ways this study complements this earlier work, however its contribution to the research area is that it identified the impact that changing research recognition frameworks have on directing publication behaviour. Research recognition frameworks, especially the journal rankings of the first iteration of ERA, have refocused publication behaviour towards journals as being the primary publication output. Based on the study participants' interpretation of the frameworks, they continued to narrow their publication patterns to a focus on top-tiered journals, which tend to be closed access and internationally focused titles. While this may be seen as reinforcing a focus on quality publications, it means that other dissemination options, such as conferences, policy reports and books, were being questioned. Even if the participants were supportive of a range of publication outlets, they indicated that their university or academic environment was providing a clear message to focus on the tiered journals. This study has, therefore, mapped the impact that a new recognition framework can have in changing publication patterns.

This study has an underlying focus on open access dissemination and identifies the conflict between support for open access and the implementation of the research framework. At the same time as the development of the research framework, research-funding bodies were attempting to broaden access to research, primarily by stipulating that articles based on research that they had funded, should be available through open access dissemination. Thus, the possible unintended outcome of ERA's focus on research quality was a conflict with funding bodies that were attempting to provide wider access to research, especially to readers outside of the academy. This study suggests that an academic's need to meet the requirements of the original ERA framework for research recognition would override mandating policies from their university or funding body, that aimed to support open access journal submission.

An alternative model to open access journals is submission of published articles to open access repositories. The literature, especially the work of Harnad (2005b), supports the use of mandates as a means to increase such submission. This study, however, identified the gap between action and promise, in that participants indicated that they would adhere to a mandate, but at the same time had identified a number of barriers that would prevent them from doing so. The participants were not intentionally antagonistic to open access repositories, but rather barriers such as lack of time and fears of copyright, led to inaction. These barriers may be overcome if the university or institution provides support for intermediaries to submit

on behalf of the academic. This 'permissions-based' mandate may be the option for increasing the submission of Australian content to repositories.

Use of repository content by the study's participants was infrequent. This is partly due to the academics having direct access to the published versions of articles through their library's collections. However there was also the concern that repositories contain content that represents different stages of the publication process, and therefore it was difficult to determine if the article being accessed had been peer-reviewed. The study suggests the need for interfaces of repositories to provide the ability for filtering content so that peer-reviewed articles can be easily identified.

This study, therefore:

- Reinforces the policy decision made in 2011, to discontinue the use of tiered journal rankings as the main measure of research quality. The study supports measurement frameworks that encourage wider publication options for research, including recognising open access dissemination as a legitimate publication option. Incorporating bibliometric information that includes information on open access journal citations and repository use may be a means to link open access dissemination to the quality framework.

- Supports repository policies that seek non-exclusive copyright permission from academics so that intermediaries can manage submission of articles to the institutional repository.

- Encourages the role that academic libraries are taking in advocating open access content, but recommends that advice on, or management of, author-publisher agreements should be part of this role. This will allow intermediaries to determine whether published versions of articles can be submitted to repositories.

- Recommends that as academic libraries develop discovery layers for their content, these interfaces, and those for their institutional repositories, assist academics and researchers to identify or filter whether the content is a pre-print version or the version as published. Where possible, a link to the version made available by the publisher should be provided through the repository, so as to assist in citing the published version of the article.

9.5 FUTURE RESEARCH

Through the use of grounded theory as a research framework, this study has developed theoretical statements that can form the basis for further research. The statements outline a theoretical position that should be further tested to determine if the issues and implications that have been identified continue to inform the publication behaviour of the Australian academic community into the future. The broad recommendations and support statements outlined above, can also inform further research to determine if the recommendations made can support open dissemination.

While it has been formally stated that the ERA framework will no longer rely on ranked journals (Australian Research Council 2011a), informal discussions with current academic staff suggests that the ranked list of journals devised for the first iteration of ERA, continue to inform publication decisions. Academics comment that they have had a paper published in a previously ranked A (or A* etc.) journal, thus the ranking remains as a measurement of quality. These comments are just anecdotal statements, but they suggest that as the Australian academic community enters the next round of research evaluation – ERA 2012 – the issues identified in this study will continue to inform how the community presents and justifies its publication processes. Therefore, further research that monitors the implementation of future research evaluation rounds, will determine the ongoing impact that ERA has on publication behaviour. Specifically, further research could explore the impact that removing the ranked journal list from the framework will have on future publication behaviour, including open access options. As other measures of quality and impact are defined under the ERA framework, will this again change the pattern associated with where the Australian academic community submits articles for publication? This study suggests that the way that universities and academics have interpreted the RQF and ERA frameworks has reinforced a mindset that sees the established branding of commercial journals as representative of research quality. What new mindsets might emerge if rankings are no longer used as the measure of quality?

This study suggests that the dissemination model of a journal, whether it is open access or subscription (closed) access, is not a primary influence on the decision to submit research articles. Instead, open access journals simply fall into the broader publication behaviour identified through this study. Submission to open access journals is influenced by the journal quality. Further research can determine whether open access journals can compete within this environment by monitoring the ways that open access journals can continue to develop branding. As stated above, this study influenced the business model of one of the Australian

university e-presses, which now has adopted open access to digital content and using this as a means to promote hard copy publications. The adoption of SciVerse Scopus as the citation database for ERA could lead to further research that monitors the degree to which open access content is indexed in the citation database and to what extent such content is used as evidence for research recognition.

Further research is required to determine if permissions-based mandates will support the development of repository submissions and content. These mandates still seek to establish policies at universities that require research articles to be submitted to the institution's repository. However, they act more as a permission from the academic for the university to manage submission on their behalf. This study indicates that its participants were not antagonistic to repository submission, but rather that it did not form part of their publication practice. Further research is needed to determine whether universities that employ a permissions-based mandate can increase the growth of article and content submission.

The primary theoretical statement of this study identifies the potential conflict between meeting research recognition policies that dictate a publication behaviour targeted towards the academy and meeting the needs of audiences who do not have access these publications. This conflict was highlighted by participants from the nursing field who acknowledged that they had changed their publication behaviour to meet the new research policies and that this had led to less content being published in outlets targeted towards their practitioners. Other academic participants of this study have also identified this conflict of audience. The study has not sought opinion from practitioner groups and thus further research could be conducted to determine to what extent the practitioner audiences wish to have access to scholarly publications.

Finally, further research can be conducted into the retrieval and use of content made available through open access repositories. The academic participants questioned the value of repositories because of the mixed content that was available. This study suggests the need for indexing and filtering of content so that it is easy to differentiate between peer-reviewed and non-reviewed content. Libraries are now introducing discovery layers that provide a single search interface for a variety of content formats and sources. The implementation of such search interfaces is not the focus of this study, however, as academic libraries implement these interfaces, there may be the need to consider how academics will be able to differentiate the perceived quality of the results. This will be needed if the discovery layer draws in content from the institutional repository that includes working papers and pre-print as well as final published

versions. Thus further research could be conducted into the impact that discovery layers have on access to and use of open access content made available through repositories.

9.6 Concluding remarks

This study initially sought to examine engagement with open access publication processes by the Australian academic community. The narrative that emerged from the data refocused this to an analysis of the impact of academic and research recognition processes on publication processes and on open access engagement. The study has been conducted in a changing environment and these changes are not just in government research recognition policies, but also change in the number of open access journal titles available and in the ongoing development of repository infrastructure. The DOAJ lists 7,479 open access journals (as at January, 2012), which is an increase from 3,487 titles when this study first viewed the directory in 2008. Advocacy of open access by libraries continues and increasingly raw scientific data is being held in repositories as a means to develop an e-science infrastructure (Zhang 2012), which allows for collaborative scientific research through access to shared data held in the repository. This changing environment could suggest that the results of this study no longer have influence, however, as this study was drawing to a close, *the Chronicle of Higher Education* discussed a boycott of Elsevier being called for by US academics and scientists (Fischman 2012). The boycott was being called because of the subscription costs being charged by Elsevier but also because Elsevier was supporting a proposed US federal legislation (Research Works Act) that would prevent funding agencies from mandating open access to research articles written from research that they fund (Fischman 2012). Therefore, while issues of publication practice and open access dissemination have been debated for a number of years, they have not necessarily been resolved. Debates associated with scholarly communication and publication models will continue and it is hoped that this study has added some valuable contribution to the discussion.

Appendices

Appendix 1: Bibliography

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(The survey was accessed through an RMIT web server and thus the final formatting and presentation was completed online)

Academic and research staff publishing patterns - questionnaire

This research project aims to gather an extensive snapshot of how Australian academics and researchers currently publish their research and scholarship. It aims to determine how open access processes as well as the Research Quality Framework may impact on current practice.

This study is seeking responses from a sample that represents all discipline areas and academic levels throughout Australian universities. You have been randomly selected to participate. Your response will ensure that the resulting data will be representative of the current Australian academic community.

I realise the importance of your time, especially in this part of the academic year, however your support for this research will be most welcomed. It is anticipated that your response will take between 15-25 minutes to complete.

Your response will form part of the aggregated data and will therefore remain anonymous. Responses will be reported as part of a PhD investigation and associated academic publications. This research has received ethical approval from RMIT and further information is available in the plain language statement.

If you have any questions about the project, please contact Paul Mercieca on (03) 9925-5825 (paul.mercieca@rmit.edu.au).

Instructions:

1. Please read the plain language statement carefully and be confident that you understand its contents before deciding whether to participate.
2. Read the consent form below and, if you agree to participate, click on the check box to acknowledge your willingness to participate.
3. Definitions of some of the terms used in this questionnaire are available from the 'definitions navigation tab' at the top of this page
4. The questionnaire is divided into four parts. Part A seeks general background information; Part B seeks publishing pattern information about your last refereed journal article; Part C seeks your opinion about open access publishing and Part D seeks your opinion about the impact of the RQF on publishing patterns. As you complete each part, a link at the end of the page will take you to the next part of the questionnaire. The navigation tabs at the top of the page allow you to move back to any part of the questionnaire.
5. Once you have completed the survey, click on the submit button at the end of Part D

Consent to participate

1. I have received a plain language statement explaining the questionnaire involved in this project.
2. I consent to participate in the project, the particulars of which - including details of the questionnaire - have been explained to me.
3. I authorise the investigator or his or her assistant to administer a questionnaire.
4. I acknowledge that:

   a. Having read the Project Information Statement, I agree to the general purpose, methods and demands of the study.
   b. I have been informed that I am free to withdraw from the project at any time and to withdraw any unprocessed data previously supplied.
   c. The project is for the purpose of research and/or teaching. It may not be of direct benefit to me.
   d. The privacy of the information I provide will be safeguarded. However should information of a private nature need to be disclosed for moral, clinical or legal reasons, I will be given an opportunity to negotiate the terms of this disclosure.
   e. The security of the research data is assured during and after completion of the study. The data collected during the study may be published, and a report of the project outcomes will be provided to the School of Business I.T.

I acknowledge the above statements and consent to participate in this research.

Any complaints about your participation in this project may be directed to the Chair, Portfolio Human Research Ethics Sub-Committee, Business Portfolio, GPO Box 2476V, Melbourne, 3001. The telephone number is (03) 9925 5594 or email address rdu@rmit.edu.au. Details of the complaints procedure are available from: www.rmit.edu.au/council/hrec

Definitions:

Open Access Journal.
A journal (usually available through the web) that does not seek payment from the reader for access to the published content

Open access archive or repository.
An open access archive or repository is usually established at an institution / university or through a discipline area or professional association. Those established at an institution (Institutional Repository) attempt to capture the academic output of that institution. This can include academic papers, research reports and other scholarly content. Those established through a professional association tend to capture research and academic publications relating to the association's discipline focus. Submission to the repository is usually made by the author of the submitted work. The submitted work may be a pre-publication version of an article (pre-print) or a digital copy of the final published article. The final published article can usually be submitted as part of the author agreement with commercial publishers; however the licensed re-use of the final published article will vary between publishers. The content of the repositories is available for free access through the web.

Subscription access.
Journals published by commercial publishers, societies or professional associations, usually require a payment for access to the content. This may be an annual subscription for the full journal or a single payment for each article that is downloaded from the publisher. In this questionnaire, the term 'subscription' refers to journal or article content that requires some form of payment for access. This payment may be by the individual reader, through a membership payment (to a society/professional association) or by the reader's institution.

E-press
The term E-press (or electronic press) is used in this questionnaire to refer to university based publishers that publish and disseminate scholarly content through digital processes – primarily internet based journals or electronic books.

RQF
The Research Quality Framework (RQF) is an Australian Commonwealth Government initiative that is developing new models for the assessment of Australian research. The evaluation framework is currently being developed, but aims to assess the quality and impact of publicly funded research.

Part A: Background information

A.1   Which of the following best describes your place of work?
- 1   An Australian University
- 2   An Australian independent research centre
- 3   Other

A.2   What academic level are you employed at?
- 1   Academic A (Tutor)
- 2   Academic B (Lecturer)
- 3   Academic C (Senior lecturer)
- 4   Academic D (Associate Professor)
- 5   Academic E (Professor)
- 6   Casual/sessional academic
- 7   Other (specify)

A.3   Is your role
- 1   Primarily teaching
- 2   Primarily research
- 3   Both teaching and research

A.4   Is your position an honorary or adjunct position?
- 1   Yes
- 2   No

A.5   Are you
- 1   Female
- 2   Male

A.6   Do you hold a PhD qualification?
- 1   Yes
- 2   No
- 3   Currently completing a doctorate

A.7   What is the total length of time that you have worked in academia and/or research?

- 1   Less than 3 years
- 2   3 – 6 years
- 3   7 – 10 years
- 4   Longer than 10 years

A.8 Of the following broad level "Research fields, Courses and Disciplines Classification (RFCD)" codes, which one are you primarily associated with? (Further information on the codes is available at http://www.arc.gov.au/htm/RFCD_codes.htm)

1 Agricultural, veterinary and environmental sciences (30000)
2 Architecture, urban environment and building (310000)
3 Behavioural and cognitive sciences (380000)
4 Biological sciences (270000)
5 Chemical sciences (250000)
6 Commerce, management, tourism and services (350000)
7 Earth sciences (250000)
8 Economics (340000)
9 Education (330000)
10 Engineering and technology (290000)
11 History and archaeology (430000)
12 Information, computing and communication sciences (280000)
13 Journalism, librarianship and curatorial studies (400000)
14 Language and culture (420000)
15 Law, justice and law enforcement (390000)
16 Mathematical sciences (230000)
17 Medical and health sciences (320000)
18 Philosophy and religion (440000)
19 Physical sciences (240000)
20 Policy and political science (360000)
21 Science – General (210000)
22 Social sciences, humanities and arts (220000)
23 Studies in human society (370000)
24 The arts (410000)

A.9 Is your university a member of any of the following associations?
1 Go8 - Group of 8
2 ATN – Australian Technology Network
3 IRUA – Innovative Research Universities Australia
4 Other ---------
5 Don't know
6 No

A.10 How many peer-reviewed papers have you had published over the following periods?

Journal articles in last 12 months:
0   1   2   3   4   5   >5
Journal articles in last 5 years
0   1   2   3   4   5   >5
Conference papers in the last 12 months
0   1   2   3   4   5   >5
Conference papers in the last 5 years
0   1   2   3   4   5   >5

A.11.a Are you currently involved as an editor or member of an editorial board for a scholarly journal?
1 Yes
2 No

A.11.b If Yes, does the journal:
1 Require payment for access (subscription access)
2 Provide free access of all content to readers (open access)
3 Provide partial open access (open access to older or archived content)

Part B: Last journal article publication

Consider the <u>last</u> article that you had published in a refereed journal and then answer the following questions.

If you have not published a refereed article in a journal, then please go to **Part C**

B.1　　This article was published in a journal that is published in:

　　　　1　　　Australia
　　　　2　　　Europe
　　　　3　　　North America
　　　　4　　　Asia
　　　　5　　　Uncertain

B.2　　This article was published in
　　　　1　　　2006
　　　　2　　　2005
　　　　3　　　2004
　　　　4　　　2003 or earlier

B.3　　In selecting the journal in which to publish this article, how important was each of the following potential reasons for selecting the journal?

1 very important
2 quite important
3 not a factor
4 not very important
5 not at all important

　　　　1　　　It is the **leading journal** in the discipline area
　　　　2　　　I believe that this journal had a **large distribution and readership**
　　　　3　　　This journal has an author licence that allows me to **re-use the article** for other purposes
　　　　4　　　The journal provides **free reader access** to my article
　　　　5　　　The **publication frequency** of the journal is important
　　　　6　　　I believe that this journal has a **strong impact factor**
　　　　7　　　This **journal's prestige or branding** will assist in establishing/maintaining my academic standing
　　　　8　　　This journal is published by a **society or professional association** that has relevant links to my discipline area
　　　　9　　　**Peer review** is part of this journal's publication process
　　　　10　　　This journal was an **easy journal** to be published in
　　　　11　　　Are there other reasons that influence the journal that you selected?

B.4　　This article was published in (tick as many as relevant):

　　　　1　　　Print only
　　　　2　　　Online only
　　　　3　　　Print and online
　　　　4　　　OnDisc (CD-ROM)
　　　　5　　　Uncertain of format

B.5　　This article was published in a journal which:

　　　　1　　　Requires payment for access (subscription access)
　　　　2　　　Provides free access to readers (open access)
　　　　3　　　Uncertain

B.6   If you have submitted the article to a subscription based journal, do you know whether your article will be made freely available after a set period of time or an embargo period?

1   It will remain subscription based
2   Open access will be provided after 6 months embargo
3   Open access will be provided after 12 months embargo
4   Open access will be provided after 24 months embargo
5   Uncertain

B.7   Do you want this article to be made freely available after an embargo period?

1   No
2   Yes, after 6 months
3   Yes, after 12 months
4   Yes, after 24 months
5   No opinion

B.8   If you have submitted the article to a subscription based journal, do you know whether your publishing agreement allows you to submit a copy of the article to an open access repository: (tick as many as relevant)

1   The article cannot be submitted to an open access repository
2   A pre-print version – the original version submitted for publication, before editorial changes by the publisher – can be submitted
3   An edited pre-print version – the original version of the article, with annotations of the suggested editorial changes – can be submitted
4   A post-print version – a copy of the article that is identical to that which will be published – can be submitted
5   Uncertain

B.9.a   Have you submitted a copy of this article to an open access repository or archive that can be searched and accessed by other researchers?

1   Yes
2   No

B.9.b   If you have, was this repository or archive:

1   Located in your own institution
2   Located in another institution
3   Located in a facility owned by a discipline group
4   Located in a facility owned by a learned society
5   Other (please specify)

Part C: Open Access Publishing

The following questions are based on your whole publication history and seek your views on publication options that would make your content available freely to other researchers and readers. Questions C.1 – C.7 focus on <u>open access journals</u>, while questions C.8 – C.17 focus on <u>open access repositories</u>.

Open Access Journals

C.1   Have you submitted articles to Open Access journals?

1   Yes – Open Access Journals are my preferred option for publication
2   Yes – I have published in Open Access journals, but it is not my preferred option
3   No
4   Don't know
5   Please indicate why you have / have not made the article available in this manner.

C.2   The following statements aim to identify reasons that may motivate you to submit to open access publications. Please rate each statement.

1 disagree strongly
2 disagree somewhat
3 neutral
4 agree somewhat
5 agree strongly

1   I would submit my articles to an open access journal only if my research funding body or source requires it
2   I would submit my articles to an open access journal as it will increase readership of my research
3   I would submit my articles to an open access journal as it will increase citation rates of my research
4   I would submit my articles to an open access journal if that published work could be submitted as part of the RQF
5   I would submit my articles to an open access journal if that journal provided scholarly authority of peer-review and editorial control
6   I would submit my articles to an open access journal if I was certain that doing so would not detrimentally impact on my publication prospects in commercial / society or subscription based journals
7   I would submit my articles to an open access journal because if all academics and researchers did this, it will make it easier to obtain articles that I need for my research and/or teaching
8   If my university / institution established an open access e-press, then I would publish through that press
9   If my university / institution established a subscription access e-press, then I would publish through that press
10   If there was not university / institutional pressure to publish, then I would make more articles available through open access means.
11   I would not submit any of my articles to an open access journal

C.3.a One model for meeting the publication costs associated with open access journal publishing is for the author to contribute to the cost of publication. An indicative fee is for authors to pay $US2,000-3,000 to cover the costs associated with peer review, editorial work and digitisation and web hosting. The resulting article is then made available at no cost to the reader.

Would you be prepared to pay this cost of publication?

1 I would be prepared to pay an author fee for all of my journal articles
2 I would be prepared to pay an author fee for selected journal articles
3 I have already paid such a fee
4 I would not be prepared to pay an author fee for any of my articles

C.3.b If you would consider paying an author fee for publication, what do you consider is a reasonable payment (Select one option from the 'reasonable' column)
OR If you have already paid an author fee for an article, indicate the highest fee that you have paid in the 'paid' column and indicate what you consider to be a reasonable payment in the 'reasonable' column?

1 $AU100-500
2 $AU600-1000
3 $AU1100 – 1500
4 $AU1600-2000
5 $AU2100-2500
6 $AU2600-3000
7 Other ………..

C.4 In considering the process of meeting the costs associated with publication of scholarship, rate your response to each of the following statements:

1 disagree strongly
2 disagree somewhat
3 neutral
4 agree somewhat
5 agree strongly

1 When applying for grant money, I would include a cost component to cover author fees for publication
2 Any publications resulting from research that is publicly funded through grant money, should be made freely available to readers
3 I don't believe that author fees is a valid way to cover or meet publication costs
4 Current commercial publication processes meet my needs for the dissemination of my research and scholarship
5 Universities should centrally fund their own e-presses for the electronic dissemination of the university's journal publications
6 Open access is not financially viable and the reader should pay for access to content
7 Universities should include in their budgets funds that academics and researchers can draw on to cover author fees associated with publishing in open access journals

C. 5 Consider the scholarly publications that you read and use as part of your research. How much use do you make of scholarship published in open access journals (select one of the following statements)

1 never used
2 very rarely used
3 sometimes used
4 heavily used
5 don't know
6 Not applicable, as I don't conduct research

C. 6   Consider the scholarly publications that you read and use as part of your <u>teaching</u>. How much use
        do you make of scholarship published in open access journals (select one of the following
        statements)

        1   never used
        2   very rarely used
        3   sometimes used
        4   heavily used
        5   don't know
        6   Not applicable, as I don't teach

C.7   Do you wish to make any general comments about publishing in open access journals?

Open Access Repositories

C.8   Does your university / institution have a digital repository or archive where you can load your
        publications / articles for free distribution over the web?

        1   Yes – the university has its own institutional repository
        2   No – the university does not have its own repository
        3   Don't know

C.9   Do you submit copies of journal articles to an open access repository?

        1   Yes
        2   No

C.10   Do you submit copies of conference papers to an open access repository?

        1   Yes
        2   No

C.11   If you have submitted your publications to a repository, was this repository or archive: (select as
        many as applicable):

        1   Located in your own institution
        2   Located in another institution
        3   Located in a facility owned by a discipline group
        4   Located in a facility owned by a learned society
        5   Other (please specify)

C.12   If you have not submitted your publications to a repository, indicate which of the following
        statements represent your reasons for not doing so. (select as many as applicable)

        1   My institution does not have a repository
        2   I am not aware of a repository that is relevant to my publications
        3   It takes too much time and effort to submit articles to repositories
        4   I see no professional/academic advantage in submitting articles to a repository
        5   No particular reason
        6   Other (please specify)

C.13.   The following statements represent possible motivating factors for submitting publications to open access repositories. If you have submitted your publication to a repository, indicate your level of agreement to each statement. If you have not submitted, indicate your agreement as to whether each statement would motivate you to submit.

1 disagree strongly
2 disagree somewhat
3 neutral
4 agree somewhat
5 agree strongly

1   I would submit my articles to a repository if I was required to do so by my university or parent organisation
2   I would submit my articles to a repository if I was required to do so by government policy
3   I would submit my articles to a repository if my research funding body or source required it
4   I would submit my articles to a repository because it will increase readership of my research
5   I would submit my articles to a repository because it will increase awareness of my research
6   I would submit my articles to a repository if that version of my published work could be submitted as part of the RQF
7   I would not submit any of my articles to a repository
8   Other (please specify)

C.14   Considering that repositories aim to provide an alternative way to access scholarship, how do you see repositories engaging with current scholarly publishing processes? Rate each of the following statements.

1 disagree strongly
2 disagree somewhat
3 neutral
4 agree somewhat
5 agree strongly

1   Repositories complement current scholarly publishing processes
2   All publishers should allow their authors to submit the final peer reviewed article to a repository
3   It is appropriate that an embargo period be applied before final peer reviewed articles can be submitted to a repository
4   My institution's library may cancel subscriptions to commercial journals if the journal articles are available in repositories
5   Access to the free repository versions of articles will lead to a decline in subscriptions to the journal where the article has been commercially published
6   Access to repository versions of articles will hinder quality control associated with scholarly publishing, as readers will have access to different versions of the article – the 'official publication' and 'pre-publication version'
7   Institutional repositories act as a means to promote the commercially published versions of research

C. 15   Consider the scholarly articles that you read and use as part of your <u>research</u>. How much use do you make of scholarship accessed from an open access repository (select one of the following statements)

1 never used
2 very rarely used
3 sometimes used
4 heavily used
5 don't know
6 Not applicable, as I don't conduct research

C. 16   Consider the scholarly articles that you read and use as part of your <u>teaching</u>. How much use do you make of scholarship accessed from an open access repository (select one of the following statements)

1   never used
2   very rarely used
3   sometimes used
4   heavily used
5   don't know
6   Not applicable, as I don't teach

C.17   Do you wish to make any general comments about open access repositories?

Part D. Considering the Research Quality Framework (RQF)

The processes of academic and research recognition are undergoing changes as the Research Quality Framework (RQF) is implemented throughout Australian universities. This sequence of questions aims to determine your perception of the impact that the RQF may have on your publication pattern.

D1   Rate each of the following statements
      1 disagree strongly
      2 disagree somewhat
      3 neutral
      4 agree somewhat
      5 agree strongly

1   The RQF would make me look more to journals published outside Australia as a location to publish because of the greater quality and impact of such journals

2   The RQF will lead me to publish fewer articles, but in a more targeted manner

3   The RQF will make me consider my publications in two 'tiers'. My 'best/primary' articles will be reserved for the 'top international journals', while other articles will be written for other journals, e-presses and conferences.

4   The RQF will have no impact on my decisions on publishing my scholarly output – eg where and when to publish

5   Open access publishing will mean more awareness of my scholarship and thus more impact, as required under the RQF

6   The RQF will have a negative impact on Australian scholarly publishers

7   The advent of the RQF makes it unlikely that I will publish in an open access journal

8   Submitting my publications to an institutional or discipline repository, and recording download statistics from the repository, could assist in determining 'impact' of my scholarship.

9   The RQF will lead to fewer articles and papers being published in Australian journals

10   The RQF will force me to publish in journals that have a quick publishing turn around time

11   I am uncertain what impact the RQF will have on my publishing patterns

12   I am uncertain what impact the RQF will have on scholarly publishing in general

D.2　The following statements outline a number of potential developments or impacts that the RQF and Open Access publications may have on the publishing processes for scholarship and research. **Thinking ahead five years**, how likely do you think each of these statements will prove to be accurate?

Rate each of the following statements
1 highly unlikely to occur
2 unlikely to occur
3 uncertain
4 likely to occur
5 highly likely to occur

1　RQF will have very little impact on the current scholarly publishing processes. Australian academics will not change their current publishing practice.

2　Open Access publishing initiatives will lead to very little change to the current scholarly publishing processes. Australian academics will not change their current publishing practice.

3　The RQF will force Australian academics to focus on international journals as ways to disseminate their content. This will mean that more local research will be published in journals originating in the UK or US and thus will lead to a decline in the number of local based journal titles.

4　The RQF will lead to academic faculties, departments and schools mandating which journals their staff should target for publication and dissemination of their research and scholarship

5　Australian academics will have increased the number of article submissions to institutional and discipline specific repositories. Such repositories will become a key access point for Australian scholarship and will also be a main indicator of 'impact' in relation to academic recognition.

6　Australian academics will increasingly use internet-based communication and publishing applications to disseminate their scholarship in ways that bypass commercial/traditional publishing processes

7　Australian universities will provide internal e-press environments, so that academics can disseminate their scholarship through institution-based publishing.

8　Australian academic publications will have decreased in quality because they will primarily be online articles only

9　Staff who enter academia over the next five years will have a greater acceptance of digital content and thus will be more accepting of content published in digital sources.

10　The RQF's focus on research impact will lead to reduced research funding for some academic departments and thus threaten their viability.

D.3　Do you wish to make any general comments about the potential impact of the RQF on scholarly publishing?

General Comments - do you have any further comments that you would like to make about scholarly publishing, the RQF or issues raised in this questionnaire?

Thank you for participating in this questionnaire and research project.

APPENDIX 3: PARTICIPANT INVITATION AND PLAIN LANGUAGE STATEMENT

INVITATION TO PARTICIPATE IN A RESEARCH PROJECT

PROJECT INFORMATION STATEMENT

You are invited to participate in a Research Project that is exploring the publication patterns of Australian scholarship and research. This project is being completed as part of a doctoral investigation. This information sheet outlines the intention of the research and the requirements of your involvement. Please read this sheet carefully and be confident that you understand its contents before deciding whether to participate. If you have any questions about the project, please contact Paul Mercieca on (03) 9925-5825 (paul.mercieca@rmit.edu.au).

Primary project title:

- Beyond Open Access

Investigators:

Mr Paul Mercieca - Lecturer School of Business Information Technology and PhD student.
paul.mercieca@rmit.edu.au 03-9925-5825

Academic supervisor:
Associate Professor Hepu Deng, School of Business Information Technology.
hepu.deng@rmit.edu.au, 03-9925-5823

Project background and focus:

This project is mapping the impact of open-access publishing frameworks and initiatives on the creation and access to Australian scholarly content. Globally there are trends towards the notion that publicly funded research should be made available through publishing processes that provide free access to the reader. Recent research, primarily from the UK, has sought to determine the current publication and dissemination patterns of various academic communities. There has not been a major investigation that has focused primarily on the patterns and viewpoints of Australian academics and researchers. At the end of 2006 Australian academics responded to a questionnaire regarding their publication patterns and engagement with open access content. A number of academics are now being interviewed as a follow on to this initial questionnaire.

Who is involved in this research project? Why is it being conducted?

The primary investigator is:
- Paul Mercieca, Lecturer - School of Business Information Technology and PhD student.

The research process is being supervised by Associate Professor Hepu Deng, School of Business Information Technology and Dr Peter Macauley, School of Business Information Technology.

The RMIT Human Research Ethics Committee has approved this research project. The results of this research will be presented in a PhD thesis and associated scholarly publications.

Why have you been approached?

As a member of the Australian academic and research community your current publication pattern and your opinions related to the ways scholarship and research should be disseminated, are seen as being relevant to this research investigation.

What does your participation involve?

Permission is being sought to interview you at a mutually agreed time, It is anticipated that the interview will take one hour. The interview will be semi-structured and seeks your comments in response to the findings of an initial survey of Australian academics' publication patterns. The interview also seeks your views on scholarly publication processes and the concept of open access to scholarly publications. The interview will be audio recorded and from this a transcript created for analysis.

What are the disadvantages and advantages associated with participation?

Some formal research processes may include potential risks to the participants. However participation in this investigation has no perceivable risks or disadvantages as we seek only your expert opinion in relation to your understanding and use of digital scholarly content.

What will happen to the information provided?

Information and data collected by this interview will form part of the aggregated data. Individual persons will not be identified by this data analysis, unless prior written consent is provided. However, there remains a slight risk that a person with knowledge of your role within the university may be able to guess, infer or deduce your identity. All effort will be made to minimise such risk. It is requested that the interview be audio recorded, so as to assist in accuracy of the data collection process. Your formal consent to participate will be sought at the commencement of the interview by requesting your signature to the attached participation consent form.

Any information that you provide can be disclosed only if (1) it is to protect you or others from harm, (2) a court order is produced, or (3) you provide the researchers with written permission. The research data will be kept securely at RMIT for a period of 7 years before being destroyed.

What are your rights as a participant?

You should note that you can:
Withdraw participation at any time, without prejudice.
Have any unprocessed data withdrawn and destroyed, provided it can be reliably identified.
Have any questions answered at any time.

Further contact information:

If you require further information about the project please contact Paul Mercieca via the contact details below.

Paul Mercieca
Lecturer – Information Management and Digital Publishing.
Bachelor of Arts (Monash);
Graduate Diploma in Librarianship (MCAE);
Master of Business (Information Technology) (RMIT)

School of Business Information Technology
RMIT Business
(03) 9925-5825
paul.mercieca@rmit.edu.au

Prescribed Consent Form for Persons Participating In Research Projects Involving Interviews, Questionnaires, Focus Groups or Disclosure of Personal Information

RMIT Portfolio   Business

School of   Business Information Technology

Project Title: "Beyond Open Access"

Name(s) of Investigators: Paul Mercieca   Phone: 9925-5825

1.   I have received a statement explaining the interview involved in this project.
2.   I consent to participate in the above project, the particulars of which - including details of the interviews - have been explained to me.
3.   I authorise the investigator or his or her assistant to interview me.
4.   I give my permission to be audio taped: ☐ Yes   ☐ No
5.   I give my permission for my name or identity to be used: ☐ Yes   ☐ No
6.   I acknowledge that:

    (a)   Having read the Plain Language Statement, I agree to the general purpose, methods and demands of the study.
    (b)   I have been informed that I am free to withdraw from the project at any time and to withdraw any unprocessed data previously supplied.
    (c)   The project is for the purpose of research and/or teaching. It may not be of direct benefit to me.
    (d)   The privacy of the information I provide will be safeguarded. However should information of a private nature need to be disclosed for moral, clinical or legal reasons, I will be given an opportunity to negotiate the terms of this disclosure.
    (e)   The security of the research data is assured during and after completion of the study. The data collected during the study will be used as part of a PhD thesis and may be published in professional journals. Any information which may be used to identify me will not be used unless I have given my permission (see point 5).

Participant's Consent

Name: _____
                    (Please print name)

Signature: _____   Date: _____
                    (signature)

Any complaints about your participation in this project may be directed to the Chair, Portfolio Human Research Ethics Sub-Committee, Business Portfolio, GPO Box 2476V, Melbourne, 3001. The telephone number is (03) 9925 5594 or email address rdu@rmit.edu.au. Details of the complaints procedure are available from: www.rmit.edu.au/council/hrec