Publishing Practice(s) of Academics from Group of Eight Universities in Australia

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Declaration

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program; any editorial work, paid or unpaid, carried out by a third party is acknowledged; and, ethics procedures and guidelines have been followed.

Padma Priya Padmalochanan

05-Mar 2019

Dedicated to

my late Grandfathers

always my inspiration and motivation to strive for the best

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Abstract

Motivated by the ever-increasing pressure on academics in higher education, this study investigates the challenges faced and strategies adopted by academics in attaining and maintaining their research publication goals. The performance-based criteria introduced as part of Western neo-liberalisation policies in academia have strengthened the impact of hierarchical structure on the academic publishing practices within the field of higher education. While there is an extensive body of knowledge in relation to the publishing policies followed by different universities or the higher education sector, most of these studies have not explored, firstly, how the interests of diverse stakeholders in academic publishing are perceived and addressed by the academic community, and secondly, what strategies academics adopt to achieve the publication criteria set by their universities or research bodies.

The present study aims to understand how academics, as members of the higher education community, address the challenges experienced in the competitive publishing environment. The study achieves this objective by exploring and evaluating the hypotheses: (1) researchers adopt strategies to overcome these publishing challenges to ensure a high-volume of publication; (2) publishing habits of researchers are framed only by university or institutional policies; and (3) individual academics' publishing choices are influenced by publishing opportunities provided by publishers only if they help to meet the publishing expectations of their university.

Bourdieu's concepts of *field*, *capital* and *habitus* inform the study. While the concept *field* assists in identifying the field of higher education in relation to publishing, the concept *capital* provides an understanding of the factors that are significant for academics in the field, and the concept *habitus* provides an understanding of academics' publishing practices.

A self-administrated online survey is used as an instrument to collect data from academics working in research-focussed Australian universities (Group of Eight Universities, Go8). The study finds that, although academics use various publishing strategies, only some strategies directly contribute toward enhancing their publication volume. The results also reveal that the relationship between academics and publishers remains opaque. The study leads us to the realisation and understanding of the dynamic relationship between research assessment policies, universities and academics' use of digital media platforms. The nature of the relationship between academics and academic publishers is comparatively less disrupted by digital technology when compared to that in other media industries.

By addressing the real-time issues related to an activity that has multiple stakeholders, this study contributes to different academic disciplines at various levels, whilst being significant for academics, since it is an original empirical study of academic practices. The critical evaluation of academics' publishing goals imparts insights to universities for administering best human resource practices for developing and retaining academic talent. The study also provides an opportunity for academic publishers to understand their customers, their challenges and how to potentially address those challenges, and to customise their services to the Australian region.

This study successfully demonstrates how Bourdieu's concepts of *field*, *capital* and *habitus* can be applied to increase our understanding of other social field theories. By critically examining the practices in a public management environment using Bourdieu's concepts, the study accomplishes the advantage of using social theories in different contexts. Mostly importantly, the study enhances the body of knowledge by explaining Fligstein and McAdams' concept of field relations (2012) using Bourdieu's concepts.

The findings of this research are limited to the Australian Go8 HASS context, and further empirical evidence is suggested to visit these challenges in other developed nations' universities. The study offers researchers and stakeholders

of higher education an opportunity to replicate the study in other contexts, and to benchmark and compare the research results.

Keywords: academics, academic publishing; Bourdieu's theory of practice; Excellence in Research of Australia (ERA); field theory; Go8 universities; publishing challenges; publishing strategies; publishing practice; publishing environment; social and cultural theories; research active academics; scholarly communication

Glossary of Terms used in this Study

Academics

In this study, 'academics' refers to university staff members whose core activities include either teaching or research. This study adopts the criteria of "member of staff" followed by Excellence in Research for Australia (ERA) outlined in *ERA 2015 Submission Guidelines* when referring to the academic community[1]:

- a person employed by a higher education provider or one of its controlled entities on a full-time, fractional full-time or casual basis; or

- an employee of another higher education provider who is working at the higher education provider or one of its controlled entities as either:

  o "visiting" staff

  o "exchange" staff

  o "seconded"; or

- a person who works for the higher education provider or one of its controlled entities on a regular basis but who receives no remuneration (e.g. members of religious denominations, unpaid visiting fellows

In this study, support staff and persons who are involved in non-academic activities such as office administration or any other services that do not include teaching or research are not considered as academics.

Academic publishing or scholarly communication

Academic publishing or scholarly communication is the process through which research findings and other scholarly works are evaluated for quality before disseminating or communicating to the academic community and preserved for future reference (Thorin 2006; Thompson 2013; Association of College and Research Libraries 2015). Academic publishing also supports, encourages and

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[1] http://heimshelp.education.gov.au/sites/heimshelp/resources/glossary/pages/glossaryterm?title=Member of Staff.

promotes scholarship (Association of College and Research Libraries 2015). In this study, the terms academic publishing and scholarly communication are used interchangeably. The phrases 'publishing activity' or 'publishing process' in relation to academics, refer to the activities and practices employed by academics to get their work published and do not include editorial or typesetting processes. For purpose of this study, academic publishing or scholarly communication only refers to reviewed publications, whilst the terms 'publishing' or 'publications' refers to academic publishing (reviewed publications) rather than general or creative publications.

Bibliometrics

Bibliometrics is the statistical analysis of publications Hasselberg (2013) defines the concept of 'bibliometric system' as a technique that includes (i) "publications that are subject to measurement"; (ii) "agencies and organisations that use bibliometric measures for evaluation"; and (iii) "actors who are involved as producers or consumers" (p. 32). In short, the bibliometric system becomes a measuring technique, using bibliographic information. Other significant technical terms, such as 'open access', 'alt-metrics' and 'impact factors', are explained within the context where the terms are introduced.

ERA

Excellence in Research for Australia is a comprehensive assessment on the quality of research conducted in higher educational institutions in Australia by the Australian Research Council. The reports of the study are used to "map progress in meeting the Australian Government's Science and Research Priorities, and corresponding Practical Research Challenges" (ARC 2015a, p. 1).

Go8 universities

Group of Eight (Go8) comprises eight research intensive universities in Australia. They are University of Melbourne, Australian National University, University of Queensland, University of Sydney, Monash University, University of New South Wales, University of Western Australia and University of Adelaide.

These universities are elite and premier institutions and enjoy a global significance. These universities are consistently ranked among top 120 universities in the world. They account for two-thirds of research funding in Australia and according to ERA their research standards are above world standards (*Source*: https://go8.edu.au).

Higher education

The term higher education is generally used to refer to university education, including research. Since academics are also researchers, in this study, the term 'higher education' refers to research rather than the entire higher education process. The term 'the field of higher education' as used in the Bourdieusian sense is explained later in the chapters.

Open access publications or publishers

Open access publications in this study refers to academic publications that are available to the public to read, copy, download and retrieve information for legal purpose without any subscription charges. Open access publishers refer to the genuine academic publishers who process open access publications. The open access in this study does not refer to predatory publishers or publications, the imposters who follow unethical practices and exploit academics.

Peer-review

The term "peer-review" refer to the review process where the unpublished content is reviewed and evaluated by other expertise in the field before disseminating the information in published format. The process of peer-review is explained further in the chapters.

Research and researcher

The term "research" in this study follows the definition provided by the Australian Research Council in the Excellence of Research in Australia (ERA) report:

the creation of new knowledge and/or the use of existing knowledge in a new and creative way to generate new concepts, methodologies, inventions and understandings. This could include synthesis and analysis of previous research to the extent that it is new and creative (ARC 2016).

The "researcher", therefore, is a person who undertakes experimental or theoretical work either to acquire new knowledge or to use existing knowledge gained through research to produce or improve new knowledge or product or devices (Finch 2012b).

In this study, the phrase 'research active academics' refers to academics who are actively involved in research and research publication (with an average of 1.2 publications a year).

Chapter 1.   Introduction

This chapter presents the background of the study, relating to academic publishing in higher education as a research setting and offers an overview of the arguments on academic publishing, the research problem leading to the research questions and research aims, an overview of the methods and proposed structure of the thesis.

1.1. Introduction

Performance-based evaluation of research has created a competitive environment of building a 'publication portfolio' by academics for ensuring their research as well as academic career. In Australia, similar to other developed countries, research becomes the nexus as a fundamental symbolic character of Australian higher education (Coates et al. 2009) with this emphasis on publications. Van Noorden (2013) argues that various publisher related factors emphasised by universities, such as the impact factors, the publisher reputation, force researcher, especially the early career researchers to depend on the reputed/commercial publishers despite their high handedness. Scholars (Whitfield 2012; Larivière et al. 2015) lament that academics' dependence on publications and high handedness of commercial publishers, which have triggered campaigns such as 'The Cost of Knowledge' (by renowned mathematician, Timothy Grower, in 2012). These arguments raise the two important questions: why is it more important for early career researchers than senior researchers to depend on a publisher's reputation and on journal impact factors than the senior researchers; and how do senior researchers overcome the publishing challenges to meet the publishing expectation of their university without yielding to external pressure. An in-depth analysis of the research and academic publishing environment could provide answers to these questions.

Fejes and Nylander (2014) identify that the emphasis on academic publishing is related to political ecosystem that has adopted knowledge-based economy. An emphasis on knowledge-based economies worldwide has resulted in commodification of knowledge (Rowlands 2013; Hicks 2012) and higher education is regarded as a global competitive market (Parker 2013). Sørensen et al. (2016) assert that success and excellence in a knowledge-based economy is embedded into research and researchers which is revealed or communicated through their peer reviewed publications. They also argue that the integration of research and reviewed publications into an economic model has changed the perspective of academic publishing. This integration according to them, has inculcated publications as a global phenomenon of research and includes multiple stakeholders, such as government, funding organisations and universities along with publisher, libraries and readers. Academics, therefore, need to ensure that the dissemination of their research findings adhere to varied and different expectations of these stakeholders of the publishing and academic fields.

Academic publishing establishes the credibility and validity of research through the review process (Jubb 2012). However, as lamented by Hasselberg (2013), academic publishing has become a commodity that is used to measure the productivity of individual academics as well as universities. The easy quantifiable nature of publications, in numbers makes it a convenient metric to measure research status and success. Fejes and Nylander (2014) argue that contrary to encouraging publications for the dissemination of knowledge as an end by itself the emphasis on measurable output has resulted in a culture where academics are encouraged to publish for the economic benefits of universities (such as research funds from funding bodies).

 Peters et al. (2016) laments that it is the potentiality of the publications to generate income for the institutions had resulted in linking important academic goals such as funding, career, tenure and so on to academic publications. While Jubb (2012) emphasises that the basic purpose of academic publishing remains the dissemination of new information, Harley (2013) argues that academics are

motivated to publish for professional gains rather than disseminating information. These different views on academic publications are the result of interpreting publications from the perspective of different stakeholders.

Most studies explore the publishing either from the publisher's perspective (such as Harnad et al. 2004; Thompson 2005; Brown and Boulderstone 2008; Björk 2012; Bohannon 2013; Shen and Björk 2015; Björk and Catani 2016) or in terms of how the publishing metrics are used by universities or funding institutions for commercial purposes to establish their reputation (Nylander et al. 2013; Smeyers et al. 2014; Martin-Sardesai et al. 2016 and others). Studies that explore the present context of academic publishing from the perspectives of academics are limited[2]. In addition, such studies that include academics perspectives are only related to academics perception on the role of publishing metrics in research evaluation (such as Moed 2006; Gable 2013; Henman et al. 2017). Most of the above-mentioned scholars (except Martin-Sardesai et al.) have based their arguments on the academic publishing culture either in North America or Europe. As evident from the above arguments, publishing environment for academics is dependent on the research evaluation framework followed by their respective governments; and Martin-Sardesai et al. explores only the role of research evaluation framework in performance evaluation of academics in Australia. Hence, the present study attempts to provide an understanding of the publishing environment from the academics' perspective, by analysing the academic publishing culture in Australia.

Petit-dit-Dariel et al. (2014) emphasise that practices of individual academics within the higher education field are influenced by the educational structures, i.e., broader factors such as universities and higher education frameworks of the various nations. By extending Petit-dit-Dariel et al.'s argument, I argue that the individual publishing

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[2] As publishing is a profit-oriented industry, business perspectives of publishers have received more attention. Furthermore, in the higher education environment, publishing is considered as a by-product of research. Therefore, the focus in most of the studies has been on work-related issues such as the teaching and working environment.

habits of academics are mainly influenced by their university and research environments. Before discussing or analysing the factors that influence the publishing practices of academics, it is necessary to understand the context of academic governance and publishing environment within Australian academia.

1.2. Academic Governance: Public Management Model in Academia

1.2.1. Overview

Balcerzak and Pietrzak (2016) argue that the countries adopting knowledge-based economic policies have accelerated changes to their institutional systems to enhance the quality of research. Rowlands (2013) argues that the role of intellectual labour has resulted in the amalgamation of business and universities. This amalgamation, therefore, directly leads to the introduction of corporate and governance practices to ensure quality, accountability, and visibility of performance-based outcomes (Rowlands 2013). Pruisken and Jansen (2015) categorise the changes in the relation between the universities and government into two categories: one, the European model (excluding UK) that resulted in universities or research organisations being a state institution and the other, the new public management (NPM)[3] model introduced in the UK, US, Australia, New Zealand and other English speaking countries, which resulted in multi-level governance in research as well as in higher education policies. The framework of NPM introduced includes performance measures and competitive research funding based on performance (Yates et al. 2017a). Yates et al. argue that both the European and NPM models focus on research and have resulted in hierarchical organisational/institutional structure in higher education.

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[3] The public-sector governance model NPM introduced in Australian and New Zealand was later adopted across all Anglophone countries, especially in the higher education sector across all in Anglophone countries (Christensen 2011).

1.2.2. Neo-liberal University Governance in Australia

The introduction of the new governance framework by the government in higher education has created an external as well as an internal pressure for Australian educational institutions to change (Croucher and Woelert 2016). While Croucher and Woelert (2016) explore the globalisation of research and higher education as institutional isomorphism, academic governance and operational efficiency in Australia and other Anglophone countries are explored by scholars such as Yates et al. (2017b, 2017b2017b), Martin-Sardesai et al. (2017b), Rowlands (2013) and Parker (2013). Other studies (such as Martin-Sardesai et al. 2017a; Yates et al. 2017a) explore (and also compare) the role of performance evaluation measures of the UK, Australia, New Zealand and other countries. However, studies related to academic governance or operational efficiency in higher education focus only on how the implementation of different performance measures by Australian universities in relation to governmental policies have impacted the governance and functions of universities and research institutes. There are also studies (such as Parker 2008; Martin-Sardesai et al. 2016) that discuss other issues such as job satisfaction among academics or promotion criteria in different universities (teaching-based and research-based universities). Although research and publications are integral in the discussions of these studies, they do not focus on the impact of publishing-based performance criteria on the publishing practices of academics, in particular in Australia. The present study, therefore, attempts to identify the role of performance measures in academic publishing and the strategies academics adopt to address the challenges, since the study is premised on academics' publication record being key to their professional growth. Before analysing the role of performance indicators or similar impeding factors, it is necessary to have a clear insight into the emergence of academic publishing as integral to the research community and academic careers.

1.3. What is Academic Publishing?

Cope and Phillips (2014), echoing scholars Ziman (1976), Peek (1996) and Jubb (2012), assert that the need and desire of the scientific community for a formal communication process, rather than one-to-one personal meetings or discussions, to communicate and discuss their new ideas led to the establishment of a communication process which in later years developed to be known as academic publishing or scholarly communication; and that was gradually extended to all disciplines, including arts and humanities. Even though Jubb (2013) delineates the purpose of academic publication as an opportunity for researchers to register their original scientific research findings, review information before making it public, disseminate new information and knowledge, and to record knowledge for the future, Fejes and Nylander (2014) argue that the dissemination of research as formal output in the form of publications has become integral and inevitable for academics not because it establishes the credibility and validity of their research but because it is also a requirement for establishing and maintaining an academic career, especially for achieving success in scholarships, grants, promotion and tenure. Butler (2003) observes that the fundamental purpose of academic publishing has shifted with the inclusion of academic credibility and the reputation of universities and funding bodies. This shift, according to Butler, has a direct impact on academic publications – in a proliferation of publications by academics. This shows that academic publishing has become an embodiment of wealth in the form of career as well as social recognition.

During the initial phase of emphasis on scholarly communication by governments, Peek (1996) argues that the scholarly output provided transparency as well as an opportunity for understanding complex research and a quick scrutiny into the research environment of the universities. This transparency, according to Kronman (2013), further enhanced the development of publication parameters that would help in evaluation of knowledge production. In the present context, as emphasised

by Prosser (2013), academic publishing has also become synonymous with the evaluation of research, in addition to analysing, disseminating or validating research findings. It is evident that significance and transparency established by academic publishing has led decision makers to regard publications as a yardstick for research performance of the universities as well as academics. Therefore, over the course of time, publishing became synonymous with performance measurement of research, thereby adding complexity to the communication process and making publishing vulnerable to various influences and stakeholders.

Prosser (2013) claims that the very existence of publishing itself initiated changes to the perception of scholarly practices, because it provided an opportunity for researchers to prove their worth. He argues that, although scientists such as Darwin and Faraday of the Royal Institute were free from the 'publish and perish' dogma, because they did not seek grants (and the grants were also not based on number of publications), publishing helped scientists as well as their institutes in gaining prestige. Kronman (2013) argues that the ability of academic publication to create social recognition and attract investors made governments and universities consider academic publication as a commodity to measure knowledge production. In summary, scholarly output, due to its ability to generate economic and social capital, evolved to be a one-fit that serves multiple purposes, such as attracting investors and generating income as well as reputation.

Academic publishing, as Jubb (2013) aptly describes, serves different purposes for different stakeholders: academics, universities, funding bodies, libraries and publishers. For example, securing funds for future research and improving their career opportunities are key motivating factors for academics to publish, rather than gaining recognition or disseminating information (Harley 2013; Nylander et al. 2013; Rzepa 2013). A brief overview of the perspectives of different stakeholders helps us in identifying the interests of the stakeholders in academic publishing, which are confronting to one another's interests and the challenges of academics in ensuring varied interests.

1.4. Stakeholders of Academic Publishing

1.4.1. Universities and Research Institutions

Universities and research institutions consider academic publishing as an opportunity for maximising their visibility, income and reputation (Cope and Phillips 2014). Funding bodies also consider publications as recorded evidence of the outcomes of their funded projects and as testimonial documents that increase the reputation of the funding bodies, to demonstrate that they have funded projects that are of advantage to the wider community (Kiley and Terry 2006). Hence, universities and funding intuitions consider academic publications as a testimony that helps to increase their economic benefit. Liedman (2013) argues that such testimonial, in a NPM framework, has established a hierarchy where goals are assessed using 'pseudo-quantities' and academics concentrate on achieving the 'pseudo-quantities', i.e. achieving publication metrics to establish their recognition and merits in their professional area. As the goals are defined by the hierarchy -- universities or research institutions -- it becomes necessary for academics to ensure the interests of their institution through their publications. However, to ensure the publication metrics, universities also need to address the issues of access and preservation of research outcomes to the public.

1.4.2. Libraries

Libraries are not only repositories but also facilitators of academic publishing. Their goal is to provide easy and maximal access for academic publishing to enhance the visibility of research outcomes (Brown 2013). The various technological developments of the last two decades are a concern for librarians because they manage the digital repositories. Libraries act as institutional repositories by linking, preserving and providing access to research findings (Jubb 2013). As funding bodies emphasise wider access to research outcomes, libraries are required to handle the

issues of copyright infringements and intellectual property of the publications (Davies 2009).

Libraries play a significant part in the post-publication process of academic publications and also negotiate with publishers on licensing, accessing and management of database and repositories (Bailey 2007). Therefore, academic publication for libraries becomes a property that needs to be preserved as well as digitally available for posterity, despite all the technological updates and changes from publishers. However, the question here is the extent to which the librarians or libraries impact the publishing habits of academics. The answer remains that the challenges or issues faced by librarians do not directly impact the publishing habits of academics, as is evident from the arguments related to open access and the archiving process (Martin and Tian 2010; Lazaroiu 2012). The impact is indirect, because the publications are focussed on disseminating information rather post-publication issues such as preserving them for posterity (Jubb 2012). The post-publication processes are in part related to publishers, and access to information through university libraries also depends on the relation between university (libraries) and the publishers.

1.4.3. Publishers

Publishers act as conduits for all business-related activities in the landscape of academic publishing[4]. They focus on providing services for effective publishing and dissemination of research work, and act as gatekeepers ensuring quality through their editorial and review process (Jubb 2013). Publishers also always look for opportunities to maximise their profits (Greco 2013); which, according to Volkmann et al. (2014), is more prevalent in science disciplines. Evans (2003) argues that publishers also formulate new strategies by leveraging on technology, and explore differing business options as well as improve their processes by adopting new

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[4] Reviewers are unpaid academics who act in a voluntary capacity for such scholarly work. They contribute to the business profits as they handle the duty of gatekeeper.

business models. According to Evans, publishers, by embracing technology to ensure their market, also help to retain publishing as a profitable industry. It is evident that publishers are profit-focussed in addition to playing a significant role as mediators between authors and readers.

Cope et al. (2011) argue that, while academics are the primary source of scholarship, the role of publisher is to design, distribute and market the published works[5]. Academic publishers establish their reputation among academics with their ability to ensure the reach of the published output among other scholars (Campbell 2012). The publishers create a brand value for themselves which they also use to attract authors to publish with them (Hasselberg 2013). Publishers act as link between the authors and the market (readers) and help academics to create an impact for their research among the public (Cope et al. 2011). Nylander et al. (2013) identify publishers as providers of 'capital' for producing and communicating knowledge, and highlight the plight of academics in being dependent on profit-oriented publishing companies, because the capital comes from a stakeholder who, in most instances, is outside the realm of higher education and is focussed on profitability. This leads to the questions, what impact do the publishers have on publishing practices of academics, and does the publishers' role as mediators between authors and readers have a significant impact on publishing practices of academics?

Kronman (2013) opines that, despite the varied interests of the stakeholders in academic publication, the primary goal of publication (for academics) is communication of research findings to others (readers). Hence, readers also play a significant (passive) role in publishing. Shen (2007) argues that, as readers are the main consumers of the published output, the final format of the published output is greatly affected by the behaviour of the readers. Therefore, readers' behaviour is critical from a publisher's perspective, as it influences the production process.

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[5] However, the exact roles handled by publishers in the present situation are being discussed in various studies such as Cope and Phillips (2014).

Bloom et al. (2014) clarify that the behaviour of readers (consumers) and the changes within the landscape of academic publishing, such as electronic versions and online open access business models, directly influence the reach of publications (as the ease in accessing the published outcome is important for the publishing economy). The publishing production processes, such as typesetting or designing, and output format, do not have any direct impact on academics in publishing their works (Thompson 2013). However, the role of publishers in academic publishing as information providers becomes critical as they link the authors and readers, and is on par with that of the academics and the authors, even if the publishers focus on different outcomes from the published output (Cope and Phillips 2014). Even though the publishing process or the format of published output are the publisher's challenges, publication metrics such as the 'impact factor' depend on the reach of the published output to readers (Nylander et al. 2013; Bloom et al. 2014). Hence, it is necessary to explore whether academics adopt strategies to ensure that the challenges faced by publishers due to digital technology do not impact their publication record.

1.4.4. Publishers and Readers in the Digital Age

The major changes to publishing from the perspectives of academia in the last two decades are related to the ways in which academics use and access information, rather than changes to the production process such as review or editorial procedures (Jubb 2013). Bennett (2013) identifies that publishers have changed the way in which they capture and present information. Shen (2007) argues that the rapid growth of the Internet and the availability of technological products, such as laptops, e-readers, and tablets, at cheaper rates has redefined the methods by which information is sought. As identified by Shen (2007) and Bloom et al. (2014), the reader's behaviour and reading habit are crucial for the publishers' business. Hence, the use of the Internet has great impact for publishers, due to changes in reading habits as well as the distribution and marketing of scholarship.

Shen (2007) emphasises that the Internet has significantly changed the information-seeking behaviour of readers and that most information is sought from online databases or virtual libraries (by browsing or accessing). Johnson et al. (2018) observe that access to information is based on 'search', and that search engines such as *Google Scholar* and *Microsoft Academic Search* have widened the possibilities of search results. Bloom et al. (2014) argue that access to publications has become more important than owning or possessing a copy of the published output because academics look for information online. It is essential for academics and researchers to access the work of other researchers in the field with ease (Jubb 2013). Therefore, as Cope and Kalantzis (2011) argue, it is necessary that the output is not only readily available but also could be discovered with ease among the abundant information available online. Phillips (2004) points out that publishers have realigned their businesses to include content discovery as well as flexibility of access as key features of their services to attract academics. Although it is evident that publishers are proactive by leveraging on technological developments and adapting to changing consumer needs to ensure their market (among readers), the question remains, to what extent do these technological factors influence the publishing strategies of academics?

The penetration of digital technology has necessitated that publishing as a medium of communication has had to adopt a different perspective and include strategies to reach out to readers efficiently (Brown and Boulderstone 2008). Martin and Tian (2010) argue that it is the abundance of information available online that has instilled the notion of 'free' in the minds of society; therefore, people are unwilling to pay for online information. Brown and Boulderstone argue that the wealth of information (in general) available online has forced publishers to provide free access for online information despite their reluctance in doing so. This has led to initiatives from government and funding agencies in many developed countries, such as the UK, US and many European countries, to encourage open access (OA) for research output (Brown and Boulderstone 2008) (see Section 1.5). Little (2013) argues that it is the budget constraints of libraries and steady increase in the subscription costs offered by commercial publishers that have led to the OA

movement (explained in detail in Section 1.5). According to him, the OA movement is also the result of scholars' and librarians' efforts to develop a new platform for disseminating research output that is independent of profit-oriented commercial publishers, such as Elsevier, Springer, Taylor and Francis and Wiley. It can be argued that the Internet is also one of the key factors that has influenced scholars in initiating an OA platform for accessing published information without the financial constraints imposed by publishers and providing free access to scientific information. A brief analysis of the OA process is necessary to evaluate its role in the publication process of academics.

1.5. *Open Access in Academic Publishing*

Open access allows the public to read, copy, download and retrieve information for legal purpose without any restrictions. The concept of OA was first adopted during the Budapest Open Access Initiative (BOAI) in December 2001. This initiative was the outcome of a meeting convened by the Open Society Institute[6] in Budapest, which was attended by representatives of research institutions, universities, colleges and associations that are involved in research publication. The goal of the initiative was to enhance the visibility, readership and impact of the research results by providing access to academic publications without any restrictions (BOAI 2001). The guidelines for open access were later modified in the 'Bethesda Statement on Open Access Publishing' in 2003, organised by the Howard Hughes Medical Institute at Chevy Chase, MD, and in the 'Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities' in October 2003 (Bailey 2007). While the Bethesda Statement supported the concept of OA and extended the OA definition for journals, the Berlin Declaration emerged from the international conference on 'Open Access

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[6] The Open Society Institute, presently known as Open Society Foundation, is a non-profit organization that implements initiatives in various fields including education, and that encourages freedom of information.

to Knowledge' held at Berlin (Bailey Jr 2006). These initiatives toward OA are also referred to as the OA movement. According to Suber (2006), OA aims to create scholarly output with minimal restrictions by removing pricing (subscription costs) and permission (including license and copyright restrictions) barriers caused by publishers. Hence, the OA movement could be considered as a mild protest towards the subscription model of publishing practice that has been prevalent in practice since the beginning of academic publishing; and it is necessary to understand to what extent the change in age-old publishing practices affects the publishing process of academics.

Kist (2009) opines that many commercial publishers consider OA[7] as a new strategic business model with an opportunity to improve their profit margins. Mukherjee (2010) points out that the aim of the OA movement was to abolish the subscription-based model of traditional academic publishing. However, as lamented by Solomon and Björk (2012b), the movement has mainly resulted in the replacement of subscription rates by article processing charges (APCs), which is paid by authors. Many traditional commercial publishers (such as Elsevier, Springer, Wiley) adopted a hybrid model, where authors pay APCs to provide for free online access to their articles published in subscription-based journals as well as in book publications (Björk 2012). The hybrid model, where the publishers provide free access to online articles through their journal repositories or websites, is known as the Gold Open Access model. In Green Open Access[8], the authors pay less or little amount to publishers and self-archive their pre-print articles with links to original versions through their personal websites or institutional repositories (Guédon 2004). The opportunities provided by different OA business models have been widely analysed in various studies and encourage academics to use different options. For example, Harnad (2005) opines that the processing of articles through

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[7] It should be noted that OA publications or publishing models should not be confused with predatory publishers or publications. Predatory publications are an off-shoot of OA publishing models; which is discussed in detail in Chapter 2.

[8] The different OA models, green and gold access, are explained in detail in Chapter 2.

green OA is advantageous to academics in terms of cost, and that archiving could be handled easily through institutional repositories. However, according to Eysenbach (2006), gold OA is a better option because articles processed through gold OA receive better citation. But the difference between the business models are based on the processing charges paid by the author. In brief, publishers provide free access to published information at the expense of authors; and the higher the processing charges, the better the advantages. Hence, free access to published information has only created additional financial stress for authors.

Likewise, Kist, Dimple and Rupak (2013) argue that traditional commercial publishers consider OA to be an opportunity to retain their profit margins, as they charge authors for processing the articles instead of subscription charges, i.e. the author pays instead of the readers or subscribers. Although the OA movement has resulted in a surge in the number of academic journals, academics are faced with challenges such as self-archiving and the management of digital rights in addition to the burden of paying article publishing charges (APC) to the publishers to ensure the impact factors (Guédon 2006)[9]. Even though Kurtz and Brody (2006) argue that OA publishing increases the impact of published articles, scholars such as Harley (2013) point out that academics are bound by the constraints of their universities and their reward systems in exploring OA. These constraints include research output using the traditional approach of journal publications. Albert (2006) argues that academics began to consider open access as a publishing option only after 2005 when funding organisations, such as the UK Research Council and Wellcome Trust in the UK and the US National Institutes of Health in US and similar research councils of the European Union, initiated free online access for papers published out of their research grants. Therefore, it can be argued that academics' publishing choices are based on stipulations of funding or evaluation institutes. Steele (2006)

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[9] The surge in the journals discussed here refers to the increase in number of journal publications by genuine publishers only, and does not consider predatory publishers or journals. The issue of predatory publishers is discussed in Chapter 2, where the impacts of open access publication on academics are discussed.

opines that academics could explore the benefits of OA only if their universities are more open to OA. Harzing and Adler (2016) attribute the reluctance to explore OA to predatory open access journals. As publishing is linked to future funds, not many academics are willing to risk their career prospects by exploring new revenue-generating publishing avenues (Harzing and Adler 2016). Bailey (2007) has emphasised the necessity to provide active encouragement to academics to increase OA publications through appropriate evaluation procedures and policies stipulating academic research. In addition, the allocation of funds for research being linked to the number of high-profiled publications of their research output, rather than to their topic of research or their contribution to scientific knowledge (Hicks 2012, 2013), also contributes to academics' reluctance in using OA. As aptly pointed out by Harzing and Adler (2016), the complexity in exploring OA is multi-fold. They argue that, despite OA being advantageous to academics in some aspects, such as providing wider visibility of published output and reducing time delay in publishing, the business model focussing on revenue generation and assessment systems followed by the research councils has undermined the benefits of free and timely access advocated through the open access initiative. According to Padula et al. (2017), it is the contradictory goals of the two stakeholders (academics and profit-oriented publishers) that limit the use of OA by academia. While academics aim to improve the visibility of their research using OA, publishers aim to achieve profit as well as control from the publications (Padula et al. 2017). As publications are linked to academic careers, it is evident, from arguments of scholars such as Steele, Albert, Harzing, Adler and many others, that academics are not willing to explore any new publishing options unless they are explicitly supported by universities or norms of evaluation with clear guidance. Hence, an understanding of the extent to which OA impacts academics' publishing choices is necessary to analyse and understand the publishing strategies adopted by academics to ensure that they meet the publishing expectations of their universities and funding organisations.

1.6. *Evaluating Research Using Publications*

Academic publishing in recent years has been driven by policies of funding agencies and governments as an increasing number of countries adopt performance-based funding for research (Hicks 2012; 2013). According to Hicks (2013), evaluating the performance of research was a governmental initiative to improve the efficiency and effectiveness of research. She attributes the governmental initiative on enhancing the research environment to the adoption of a knowledge-based economy by these countries. Hence, the funding for the future research projects also began to be based on the performance (and effectiveness) of existing research. Hicks argues that funding for research is provided based on academics' performance in earlier research projects (evaluated using publication metrics) handled by the academics rather than on the merit of the present research proposal. Abramo et al. (2014) assert that the evaluation of research performance is also linked to performance of academics, which in turn measures the excellence of research centres and universities. They cite that the performance of research is evaluated at regular intervals, using productivity indicators[10] that are based on the number of published research outputs. According to Broadbent (2010), the performance-based evaluation system for evaluating research performance was first introduced by the UK's Research Assessment Exercise in 1986 for identifying the areas that were worth focussing on in future. This gradually became the model for research assessments developed in many other countries, such as the US, Netherlands, Spain, Sweden, Finland, Australia, Hong Kong, China, New Zealand, Italy, and South Africa (Geuna and Martin 2003). Nicholls and Cargill (2011) argue that, as more and more countries adopt the assessment methods for evaluating research, developed countries who have adopted an intensive research focus to enhance their national economies are also refining their existing research policies

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[10] According to Naidoo (2004), research is considered as an information industry, hence the industry term productivity is used to refer to the measured output.

and strategies to maximise research impact. Hicks (2012) opines that the evaluation of research using the number of research outcomes only promotes the culture of publishing on a regular basis rather than improving the quality of research publications. Academic publication, therefore, becomes not only an expected and important outcome of the research activity but also a mandatory factor for career growth of academics.

Liefner (2003) points out that the emphasis on published outcomes varies according to the criteria of each evaluation system that is followed in each country: the higher the emphasis on publications, the more the research output. This is evident from the number of published outputs in indexed databases such as Web of Science or Scopus. Auranen and Nieminen (2010) observes that published output from academics in countries such as the UK and Australia, where allocation of research funding is based on the metrics of publication, is higher compared to that from countries such as India or China, where the emphasis on research publications is a recent development. Hence, it could be argued that the allocation of funds based on defined performance criteria directly impacts the publishing activities of academics.

Liefner (2003), controversially (see Chapter 2 for more detail), writes that, due to the allocation of funds based on the performance of previous research projects, academics tend to focus on producing scholarly output that meets the criteria of research evaluation rather than focussing on the quality of research or dissemination of their research findings. Although patents, licenses and start-ups are also outcomes of research, peer-reviewed academic publications are considered to be an important yardstick for the evaluation of research performance (Nelson 2012). Hicks (2013) argues that 'quantity' and 'impact' – both based on publication output – are two important metrics used in most countries for evaluating research. Kronman (2013) also asserts that publishing in high-impact international journals ensures high impact factor for the publications. Fejes and Nylander (2014) explain that the framework of research in most countries also evaluates the quality of research based on the number of high impact publications. For example, the

research framework of countries such as the UK, Australia, New Zealand and 11 European countries has grouped the publication outputs into different categories based on the journal rank and impact factor: the higher the journal rank, the better the credit[11] (Waitere et al. 2011; Abramo et al. 2014; Martin-Sardesai et al. 2016). The published outputs are measured based on indicators such as number of publications and citation metrics, known as bibliometrics (De Bellis 2009)[12]. While the publication metrics and other criteria used for measuring scholarly output are discussed in depth in Chapter 2, a brief overview of significance of bibliometric factors in various domains is presented below.

Kronman (2013), in his analysis on the importance of managing publications, explains the role and significance of bibliometrics. Bibliometric factors are also used by policy makers of higher education and international ranking bodies such as the 'Times Higher Education World University Ranking (THE/WUR)', 'Academic Ranking of World Universities' (ARWU) and 'Quacquarelli Symonds World University Ranking' (QS ranking). He asserts that university rankings play a significant role in marketing the universities to international and industrial collaborators as well as to attract international students. Pickering and Byrne (2014) argue that, as research outcomes are evaluated using bibliometric factors, high-impact research publications become a major criterion for the evaluation of university standards and reputation. In effect, publishing, which is an individual practice of academics, becomes a tool for measuring the performance as well as excellence of their respective universities and research institutions. Ruez (2017) advocates that scholars need to engage critically in evaluating the publication metrics. Despite publication always having been associated to universities and research institutions, the present day publishing practices are characterised by the emphasis on publications and their parameters in the performance-based

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[11] The 'journal ranking' is no longer emphasized by the research framework in Australia. This is discussed further in later chapters.

[12] The term bibliometrics refers to the application of statistical and mathematical analysis of written publications. The term bibliometrics was coined by Alan Pritchard (De Bellis 2009).

evaluation system (Nicholas et al. 2017). Nicholas et al. argue that academics, especially early career researchers, tend to follow the trusted publishing route to establish their career and are reluctant to explore new publishing options. However, their argument is based on the voice of early career researchers from the UK, US, Europe and Asian countries and does not include the voice of academics from Australian universities. They further point out that early career researchers in the UK and US are not critical about the process of measuring their research metrics based on the publication system. This raises the question of whether academics in Australian universities are critical about the publication-based evaluation metrics adopted by the ERA, and if so, what strategies they adopt to address this issue. Before addressing these questions, a brief analysis of the ranking of Australian universities and the role of research publications will be helpful to understand the existing relation between research publications and university ranking.

Williams and Van Dyke (2004, 2007), in their analysis of the world rankings of Australian universities, establish that research focus and research outcomes are given higher weightage during the ranking process. In Australia, the research-intensive universities, the 'Group of Eight' (Go8), are regarded as premier institutes and enjoy higher university ranking due to their intensive research focus. The Chief Executive of the Go8 asserts that the group is "proud to represent Australia's leading research-intense universities"[13] (Vicki Thomson 2016). Lazaroiu (2012) argues that research universities assign high priority to research and prioritise achieving research publications, especially in reputed publications, more than any other goals of academics. Hence, it is evident that Go8 universities become prestigious and reputed places for study as well as for industrial and international collaborations due to their focus on research (Williams and Van Dyke 2004; Lazaroiu 2012). It is also evident that, as publications increase the prestige of universities, this is used by the universities to improve their positions in the competitive market of higher education. Lazaroiu (2012) argues that universities

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[13] From the Go8 Brochure Commitment to Excellence available at the website https://go8.edu.au.

are regarded as powerful only when they are able to produce knowledge in 'legitimated fashion', i.e. with prestigious research outcomes (usually, disseminated through publications). Hence, academic publications are part of the university marketing strategy, and the universities ensure publications through a reward system, i.e. tenure or promotion.

The research strategies of universities, in general, are designed in such a way that they emphasise academic publications by including them as an important criterion while evaluating the performance of academics (Starr-Glass 2015). Browman and Stergiou (2008) emphasise that academics' efforts in imparting knowledge to students have become secondary as research performance is given predominance by universities, when assessing the performance of individual academics. Their argument is echoed in the Lazaroiu (2012) observation that publications are prioritised higher than other goals or teaching-related achievements. Trimble et al. (2010) argue that measuring the value of research based on publication output does not help in increasing universities' contribution to knowledge, as academics tend to focus more on improving their career prospects instead. Fejes and Nylander (2014) lament that, to ensure career prospects, academics are forced to produce more peer-reviewed publications. They also complain that reviewed journal publications must be either the journals indexed in databases such as Web of Science, Thomson Reuters Science Citation Index and Elsevier Scopus or published by publishers such as Elsevier, Springer or Taylor and Francis, who are known for publishing high-impact journals. This increases academics' dependence on reputed publishers for their career prospects. Fischer et al. (2012) also assert that motivation to meet the performance indicators has resulted in the rule 'more is better' (p. 473). These arguments imply that publication as a performance criterion has resulted in motivating academics to publish for career prospects in addition to sharing new knowledge.

The publishing journey of academics itself is as important as the end result, because scholarly output is dependent on various external factors (Cope and Phillips 2014), which is further explained in Chapter 2. According to Harley (2013), despite the

tremendous changes in higher education and the way in which research is conducted, there is hardly any change in how the researchers disseminate their work. This is due to many existing conservative university practices in evaluation of the research output, which include evaluation of research output based on the publisher or journal; emphasis on number of publications; better incentives for publications with high-impact (or other bibliometric factors); ignoring alternate citation impact options such as downloading; and acknowledging only bibliographic services such as Scopus or IS which are controlled by commercial publishers. However, universities are focussed on adapting to technological changes to enhance visibility of research (Greco 2015). Therefore, universities, like publishers, leverage on technology by adopting the concept of virtual libraries and online databases (Tenopir and King 2014). Davies (2009) argues that, despite universities embracing digital opportunities, they do not provide much opportunity for academics to embrace the possibilities of new technologies such as crowd sourcing, due to lack of clarity in university policies. Harley (2013) notes that early career researchers tend to follow the tried and tested traditional methods followed by their seniors to ensure impact factors. His observations are seconded in the observation of Nicholas et al. (2017), when they argue that early career academics, despite their awareness of various publishing opportunities, adopt the same approach as their seniors. Hence, from the academics' perspective, technological development does not seem to play a significant role in the ensuring scholarly output. Even though the role of technology seems to be a lesser concern of academics while ensuring their scholarly output, a further analysis on the role of technology in the publishing strategies of academics, i.e. what is the role of digital technology in the publishing habits of academics, especially in the Australian context, will be helpful in understanding the relation between publishers and the academics.

Greco (2015) argues that, despite the publishers' outcry about the 'serial crisis'[14] in academic publishing, there has been a tremendous growth in scholarly output. Ware and Mabe (2015) also attest that there has been a steady increase in the output of scholarly books and journals, especially in online-only and OA journals. Scholars such as Greco, Ware and Mabe opine that technological changes in the publishing landscape have helped academics to increase their publication output even though publishers are confronted with challenges. However, as highlighted earlier, the question, in what ways do these publisher-related challenges impact the publishing habits or strategies of academics, especially in the light of the present day research environment in higher education as well as the present state-of-the-art in academic publishing, remains to be explored.

1.7. *Current State of Academic Publishing*

Despite the competitive publishing environment and the ever-increasing challenges in the landscape of academic publishing, there are not many studies that explore the challenges faced by academics in publishing their scholarship. Studies exploring the challenges in academic publishing have gained importance only in the past two decades, especially with the advent of digital technology (Murray 2006). Joseph (2015) classifies the existing studies on academic publishing into four major areas: technological growth, profitability and business models; the issues around distribution and marketing; the relationship between the publishers and the universities or libraries; and copyright, archiving and database management issues. Hence, most of the studies in academic publishing analyse the issues in academic publishing only from the publishers' perspectives, especially in the science disciplines and also the complex relationship between the publishers and

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[14] The publishing issues related to drop in subscriptions and decrease in journal publication at the beginning of twenty-first century is termed a 'serial crisis' by Albert (2006). This is further explained in Chapter 2.

university libraries, especially with regard to the management of digital databases, repositories and archiving. Therefore, an understanding of these issues will help us in analysing how the academic publishing industry impacts the publishing practices of academics.

1.7.1. Digital Technology in Academic Publishing

Initial Phase of Digital Technology (1990s)

Since the 1990s to early 2000s, the most common area of research in publishing studies has centred around 'the death of the book' or 'death of the print' (Feather 2006). Gomez (2008) argues that those people who speculated the end of the book were enthusiastic supporters of digital technology and were misguided by the technological developments. The profound impact of digital technology in the publishing industry, especially during the initial phase, according to Rush (1996), resulted in studies focussing on the changes and the impending transformation of the publishing industry. Although the transformation was a gradual process, the industry was concerned not only with speculation on the future of publishing but also how the changes would affect the business of publishing (Peek 1996). Brienza (2012) emphasises that the growth of the Internet and its technological feasibility had encouraged institutions and libraries across the world to explore online channels and initiate alternate methods to access publications. It should be noted that speculation on the publishing industry in the digital age has been the focus of research in most of the studies on publishing since the 1990s.

Digital Technology in Early 2000s

While the disruptions caused by technology have been analysed by scholars such as Overdorf and Barragree (2001) and Picard (2003), an in-depth analysis of the impact of digital technology in the field of academic publishing in regard to socio-cultural changes can be noted in the work of Thompson (2005). His study is different from those of most of the other scholars because he approaches publishing from a sociological perspective. He is successful in providing a grounded view of the

interplay of economics, technology and culture. His study analyses, from the perspective of social practices, how digital technology has transformed academic publishing and what the opportunities and constraints were within the academic publishing industry at the dawn of new millennium. He foresaw the vexed issues that would engulf the publishers when they addressed these social, economic and technological changes. However, Thompson does not critically analyse the publishing field from the academics' perspective, because his study focussed only on the challenges of academic publishers. The question, whether the vexed issues that engulf publishers also engulf the academic community when they ensure their scholarly output, remains to be explored. However, the later stages of technological impact in academic publishing are synonymous with the business strategies and developments in business models.

1.7.2. Business Strategies in Academic Publishing

Evans (2003) argues that academic publishers have had to be adaptive and innovative in their approaches and strategies to keep up with the rapid changes in the industry. He attributes the emergence of the OA business model to one such strategic approach[15]. The different OA options such as green access and gold access as well as the challenges faced in OA models have been analysed by various scholars (such as Jacobs 2006; Sale 2006; Björk et al. 2009; Bloom et al. 2014, Laakso and Björk 2012, and others). The challenges faced by institutions and libraries with regard to managing the databases and institutional repositories and archiving the online versions of articles have also been addressed in various studies on librarianship (such as Swan 2006; Brown et al. 2007; Bloom et al. 2014). There are various studies on OA due to the challenges and opportunities it creates for academics. While the issues related to OA are analysed further in Chapter 2, it must be noted that most of the studies in OA explore either issues pertaining to

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[15] Even though publishers have adopted many business strategies in academic publishing, only the OA business model is discussed here due to its significance to academia. Other business strategies have been discussed in many industry-focussed studies by various scholars such as Martin and Tian (2010), Stinson (2013) and Greco (2015).

publishers adopting alternate business models, economic constraints on academics, or the pros and cons of OA options. To understand the role of OA in ensuring academics' publication records, especially in disciplines related to humanities, further in-depth analysis in relation to the publishing policy of the research framework of present academia is needed.

The transparency offered by publishers in OA models, as well as the availability of published outcomes of research at minimal cost to the readers, are the key factors that makes OA journals favourable publishing options from the perspective of funding institutions (Bloom et al. 2014). Kiley and Terry (2006), while evaluating the OA context from the perspective of funders, concludes that OA is the best alternative for traditional publishing. Although there are numerous studies about OA journals, confusion exists on various aspects of OA. This is because free-access to academic publications is not encouraged by commercial publishers, and the policies that govern academic publications are not clear about publishing in OA model journals (Gould 2009). However, the role of OA in academics' publishing practices and how they perceive OA are not major topics of discussion in most studies related to OA. While there are studies that highlight how OA helps in improving the citation impact factor, whether OA plays a significant role in academics' publishing strategies remains unexplored, because most studies in academic publishing focus on publishers' perspective rather than academics' perspective, even though the peer review process followed in OA journals is also a major topic for discussion.

1.7.3. Peer Review Process

The review process followed by publishers has been under critical scrutiny with the steep rise in the number of journals published, especially by many small, obscure publishers. Bohannon (2013) argue that most publishers, including Elsevier, Wolters Kluwer and Sage, take advantage of the flexibility of charging the authors and do not follow rigorous review processes. This raises the question of the publisher's role in ensuring the quality of published content. The significance of the review process in ensuring quality is analysed in depth in Chapter 2.

The quality of published content and the publishers' role in ensuring quality are other issues that have been analysed in many studies by scholars such as Benos et al. (2007), Gould (2009), Bohannon (2013) and Lowe (2014). The growth of OA business models in journals has opened much discussion about the quality of content that is published in scholarly journals, especially in OA journals. According to Bohannon (2013), the profitability of the publishers, especially with the increasing production costs, has become a decisive factor in accepting articles for OA publications. In traditional, subscription-based journals, publishers are concerned with the quality of content, as it is important for them to retain their market (among the readers and authors). Harnad (2009) argues that, with the altered pricing structure where the production cost is covered through article processing charges paid by the authors, the stringent process of peer-review has been diluted in journals with low impact factors. Hence, the role of publishers as gatekeepers and their role in ensuring credibility, especially in OA business models, are under scrutiny in many studies.

Bohannon (2013) highlighted the inappropriateness of peer review by submitting a spoof paper, which was accepted by many journals either with minimal changes or without changes. Lowe (2014) argues that the process of peer review cannot be blamed, as the issue pointed out by Bohannon is the result of a flaw in the application of the 'peer review' process by the publishers of both the Open Access journals and traditional journals. The process of reviewing submitted articles by other experts in the field before being accepted for publication is one of the most important criteria in academic publishing, as only peer-reviewed works are considered as valid academic publications. Although scholars such as Bohannon criticise publishers for lapses in the review process, they also acknowledge the challenges of the review process, an important one being availability of reviewers. Scholars (such as Harnard, Ware and Mabe) also identify time constraint as another major issue in the peer-review process. Many scholars (such as Harnard, Bohannon, and Lowe), therefore, opine that the process of review needs to be improved but quality should not be sacrificed to avoid time delay. According to Swan (2006), the

'open review' process, where review of the content is performed on a published first online (draft) version or pre-prints, is better than closed and anonymous peer review, as there is transparency in the latter process. Bohannon (2013) also supports Swan's view, as he argues that conventional practices such as peer review, although important, need to be more transparent and efficient by adapting to technological developments. Al-Maadeed and Weerakkody (2016) also supports this view by stating that the post-publication peer review process provides an opportunity for readers to share their comments, which would not only open up new venues in academic publishing but also help in addressing the some of the issues such as lack of transparency pertaining to the existing review process. These arguments establish the fact that the existing review process is shrouded in confusion. However, as evident from the aims and purpose of scholarly publications, the peer-review process is crucial for academics not only in establishing their research credibility but also for their career and tenure, as only reviewed publications with credibility contribute as published output towards the research evaluation process. Therefore, the suggestions for an alternate peer review process also depend on the evaluation criteria of the research framework.

1.7.4. Research Metrics: An Overview

As discussed in Section 1.6, the criteria for assessing the value of academic publications has raised significant criticism. Different assessment and evaluation metrics that are globally used for evaluation are explained in detail in Chapter 2. Harley (2013) argues that the opportunities available in the digital era are often ignored, and that this forces academics to adhere to traditional ways followed in the pre-digital era (i.e., to follow the same methods followed in print-based publications). This, according to Harley, restricts academics from taking advantage of innovations and technological advances, such as sharing or accessing information. The inappropriateness and disparity of using bibliometrics, which is based on conventional publishing methods such as citation factors or journal impact factors only, are also discussed by many scholars (such as Benos et al. 2007; Browman and Stergiou 2008). Many scholars (such as Deer 2003, Hall 2011, Woodside 2009)

emphasise the need for a re-evaluation of the evaluation factors and metrics, because online factors, such as the number of downloads or Google ranking, are not considered in bibliometrics. These scholars initiate the need for alternate methods such as alt-metrics[16], which also consider the various online factors including the number of downloads, page views and Google ranking. It is evident, also echoed in the study of Nicholas et al. (2017), that scholars do not oppose or argue against the use of scholarly output as a measure for evaluation of research, but only emphasise the need for revising the publishing factors used for evaluating research. Does this mean that academics agree to evaluation of research using publication metrics? To answer this question, it is necessary to analyse the academics' perspectives on publication policies of the research framework in their respective disciplines and countries.

Publishers attract academics to publish with them by using impact factors. As Hasselberg (2013) states that, in reality, these factors itself are the manipulations of the publishers. Even though the flaws in evaluation criteria have been addressed in many studies, the question arises, what as to the strategies do academics adopt to ensure their publications when impact factors are considered as yardstick to evaluate the quality of their research. As explained in Section 1.5, academics are heavily dependent on commercial academic publishers for establishing the credibility of their new knowledge. However, what cost they have to pay to communicate their new knowledge has been a significant issue since Tim Grover's blog, discussed next.

1.7.5. What is the 'Cost of Knowledge'?

Several publisher-related issues (most of them discussed above from the perspectives of different stakeholders) formed the crux of the blog, 'Cost of Knowledge' (Grover 2012). Most of the issues raised by Grover focus on publishers'

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[16] The term alt-metrics is used to refer to non-traditional metrics that are based on online information which includes downloaded text and page views. It denotes alternative metrics.

practices, such as high subscription charges for journals, libraries being forced to choose bundled subscriptions, and unwillingness to provide free access (or better accessibility). Whitfield (2012) opines that, unlike his predecessors, Grover's thoughts, such as how to "replicate or replace" the role of journal publishers, were more radical in nature and gained wide attention of the academic community due to impending changes in the industry, especially in relation to publishers' stand on providing unrestricted access to published output. According to Epstein (2012), the resulting protest is considered as an "academic spring" of scholarly publishing, because Grover's protest against Elsevier is an example of an outburst arising from the frustrations experienced by academics in the publishing environment. Although Elsevier was the immediate target in Grover's blog, the key issues levelled against the Elsevier also hold good for other commercial (traditional) academic publishers. Scholars such as McGuigan and Russel (2008) and Van Noorden (2013) argue that, despite the validity of Grover's charges against the commercial publisher and researchers expressing their support for Grover, academics face practical difficulties in abstaining from a reputed publisher such as Elsevier[17] because of the impact factors and publisher reputation that are being emphasised by universities. Grover's blog, therefore, brings to light the plight of researchers who are dependent on the commercial publishers due to the publishers' ability to provide a platform to meet the evaluation criteria for research assessments. The growing hostility towards academic publishers echoed in Grower's blog, and the stress as well as the dogma of a publish or perish situation, have been discussed by scholars such as Auranen and Nieminen (2010), Browning et al. (2017) and many others. However, the question remains, whether academics' publishing choices are constrained or limited by big commercial publishers or the publishing practices of academics dominated by the publishers. In other words, this question could be reframed, as whether the academic publishing industry dominates the research communication process of academics. A multi-dimensional approach, that is, an analysis of the issues and challenges faced by academics in publishing their research, is required to find

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[17] In addition, many smaller publishers in different fields have been merged within Elsevier.

answers to this question. Therefore, the aim of the present research is to understand the publishing experience of academics by describing the extent and nature of the *challenges* faced by them in publishing their research. The overview of the publishing industry presented above serves as a foundation for exploring power relations between academics and publishers in the contemporary era of neo-liberal governance, prevalent in academia, which is examined in this study. The study further examines what *adaptive mechanisms* are used by academics to *overcome* these challenges to ensure that publications meet the research assessment criteria followed by the universities and research framework of their nation.

1.8. Outline and Scope of this Study

1.8.1. Research Problem

The challenges or issues faced by academics in publishing their research are not restricted to a specific geographic location but also depend on the economic and political environments of their respective countries. According to Harnad (2009), as explained earlier, the key factors that motivate academics to publish, which are their personal aspirations such as tenure, promotion and career prospects, and also to gain recognition among their peers, are common to academics across the globe. Bohannon (2013) seconds Harnad's view by emphasising that the number of international publications and citations received by individual researchers are regarded as the most important measures for ensuring their career growth[18]; which is also dependent on the higher education policies followed in different countries. Scholars (such as Harman 2002; Hasselberg 2013; Hall 2011; Green and Cookson 2012; Schuetze et al. 2012) have explored the publishing policies of universities and funding institutions and the role of published outputs in evaluation of research outcomes of different countries. There are also studies (discussed in detail in

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[18] Career growth also includes future funding grants, because receiving funding grants strengthens academics careers.

Chapter 2) that evaluate the pros and cons of using various impact factors based on publications (such as Harman 2002; Hasselberg 2013; Hall 2011; Green and Cookson 2012). While there are many studies in relation to the publishing policies followed by the higher education sector in different universities, most of these studies do not explore how the interests of diverse stakeholders in academic publishing are perceived and addressed by the academic community, and what strategies academics adopt to achieve the publication criteria set by their universities or research bodies. An analysis of the literature on academic publishing and the popularity of Grover's blog (an opinion piece rather than academic study) also show that, despite the awareness of issues and challenges faced by academics, there is a lack of rigorous academic study on the publishing challenges of academics within the higher education environment. It is also evident from the discussions in multiple studies (such as Parker 2013; Cope and Kalantzis 2014; Martin-Sardesai et al. 2016; Yates et al. 2017b) that publishing of scholarly work is perceived as different from capital (cultural, social political and economic capital) by the stakeholders under different environments. However, academics are the creators and communicators of knowledge (Cope and Phillips 2014). Hence, it is necessary to understand how academics, as members of the higher education community, perceive the challenges of all the stakeholders in academic publishing. The present study, therefore, aims to understand how academics, as members of the higher education community, address the thriving publishing competition and achieve their capital. The study also aims to analyse the nature of the strategies adopted by academics to ensure that they achieve the publication expectations of their universities.

1.8.2. Aim and Objectives

The overall aim of the study is to find out the extent to which the challenges related to stakeholders impact the publishing practices and choices of academics; and what adaptive mechanisms academics follow to overcome these challenges to ensure their publication numbers for their scholarly works. By explaining academic publishing from the perspective of academics (working in research-focussed

universities of Australia), this study will also help in understanding and describing the extent of academics' publishing challenges in relation to their research environment and the nature of the mechanisms they adopt to overcome those challenges. To understand academics' publishing habits, it is necessary to identify the significant factors that impact their publication output.

1.8.3. Purpose

The main purpose of this study, as explained earlier, is to identify the extent and nature of issues experienced by academics in publishing and to provide an overall understanding of the relationship among the various factors (such as institutional factors, research policies, individual habits, publishers) that influence publications. As evident from the literature reviewed, even though there are many studies addressing challenges in the publishing environment, there is a clear gap in understanding which of these issues and why these issues are perceived as a challenge by academics when publishing their scholarly work. It is also evident from various studies (cited earlier) that the publication of scholarship by academics is governed by the research frameworks adopted by their respective universities as well as countries.[19] Though there are studies exploring the relationship between research frameworks and publications (such as Hall 2011; Green and Cookson 2012), the following issues remain to be addressed: the extent to which the research framework and publication policy support or limit the publication practices of academics; and the strategies adopted by academics in overcoming these limitations in relation to different challenging issues existing in the publishing field. The present study, therefore, aims to identify the factors that are perceived as challenges by academics and how they try to overcome these challenges to ensure their publishing targets.

To understand the publishing challenges of academics, it is also necessary to analyse the publishing environment from the perspective of academics. This study is guided

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[19] A detailed analysis of the research framework of different countries is provided in Chapter 2.

by the underlying belief that, even though academic publishing is a process adopted by academics to communicate their knowledge, the publishing practices are influenced as well as governed by the organisational and social structures[20], because academics have to ensure their individuality and identity in their research field by adhering to the norms of their associated institution and research environment. In other words, do the higher educational institutions or research environment define the (publishing) behaviour (Beckert 1999) of academics? The answer to this question is interlaced with the understanding of publishing 'activities and preferences' (Bourdieu 1984) in relation to the social spaces, positions and time (Bourdieu 1984, as cited by Grenfell and James 2004). Publishing activity, although a communication process, due to its significance and contribution at multiple levels (as discussed earlier), cannot be explored in isolation. Although the publishing activity is an individual communication activity of academics, as evident from discussions in the earlier sections, the publishing activity itself involves different processes and is dependent on different kinds of capital (financial, human and technical resources).

According to Bourdieu, academics occupy a "dominated position with the dominated class" and therefore will be dependent on the funding organisations (*capital*) to support their activities (Bourdieu 1984, p. 43); while their relation to these social structures is defined using *habitus,* i.e. "a system of dispositions to a certain practice" (Bourdieu 1990a, p. 77). Therefore, to understand what and how the various factors impede the publishing habits of academics, it is necessary to analyse and explore the publishing practices using Bourdieu's analytical concepts – *field*, *capital* and *habitus.* These Bourdieusian concepts, as argued by Grenfell and James (2014a), form a social praxis of research epistemology in the educational field. Adopting Bourdieu's heuristic concepts of field, capital and habitus helps in understanding how process, institutions and practices (Albright et al. 2017) are constituted and 'how they interact and operate' (Webb 2017, p. 55). The

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[20] The term social structures is used in this study in the way explained by Bourdieu in his theory of practice. Bourdieu's theory and its relevance for this study are explained in Chapter 2.

operationalisation of Bourdieu's concepts of field, capital and habitus is explained in depth in Chapter 3; while an outline of the theoretical framework is presented in the following section.

Theoretical Framework of the Study

Publishing, a key activity of academics, is associated with higher education. Bourdieu, in his study, 'Outline of Practice' (1977), portrays education as a *field*, where primary, secondary and higher education are regarded as subfields[21]. The field of higher education is connected to other fields outside education such as government and industry; these connections form the structural relationship that contributes towards the uniqueness of the field (Grenfell and James 1998). According to Bourdieu, field is a "configuration of relations between positions objectively defined, in their existence and in determinism they impose upon the occupants, agents or institutions" (Bourdieu 1996, p. 72-73). As the present study focuses on unpacking the challenges faced and strategies academics use to ensure research publication, as an expectation imposed upon the occupants (i.e. academics) in relation to the internal and external factors, it is logical to consider higher education as a field with social, economical and cultural capitals being the media that shape or define the practice or habits (Grenfell and James 2004). The structural relations, i.e. the relations among various factors within and outside the field, are also the macro-, meso- and micro-level factors that shape the habits and practices of actors within the field (Vaughan 2008) as well as their relation to the capital at stake (Widin 2017). Hence, these Bourdieusian concepts (as emphasised by scholars such as Vaughan 2008), which are helpful in identifying the connection between structural relations, are used to identify factors that influence and determine the behavioural choices of academics in publishing.

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[21] For purpose of this study, the subfield higher education is referred to as a field throughout this thesis.

Maton (2005) explains that, according to Bourdieu, higher education is a field as universities are autonomous and heterogeneous bodies (explained in detail in Chapter 3). Bourdieu provides an understanding of the relationship between universities and societies (Naidoo 2004), and his theory has been very influential and useful for empirical studies in educational environments (Sullivan 2002; Albright et al. 2017). Even though Bourdieu's concepts have been used to explore various aspects of education, especially higher education, including the teaching practices and adoption of technology in teaching and learning (Naidoo 2004; Albright et al. 2017 and others), when it comes to publishing practices, only Thompson (2013) has adopted Bourdieu's concept of field to explain the challenges faced by academic publishers. The present study, unlike Thompson's, adopts all three concepts, field, capital and habitus, from Bourdieu to explain the challenges for academics in publishing their research output in the higher education environment and their relationship with the academic publishing field. As emphasised by Naidoo (2004) and echoed in studies by Albright et al. (2017), although Bourdieu's theory was formulated during a period when higher education was autonomous and his argument in theory does not include the role of universities in a knowledge-based economy, his theory is appropriate and fitting to explain different challenges in higher education, including challenges of the academics (actors) in the field (explained in detail in Chapter 3) in the present context. While the concept of field also helps in identifying the delimitations of the research study, i.e. the relations among the stakeholders, the concepts of capital and habitus provide an understanding of relations between the members of the field and how relationships with the stakeholders are established and maintained without losing the individual identities. Therefore, Bourdieu's concepts are helpful in providing the analytical framework for this study. The interpretation of publishing practices using Bourdieu's concepts results in the following research hypotheses.

1.8.4. Hypotheses

> **H1**: Researchers adopt strategies to overcome these challenges to ensure high-volume publications

The underlying presumption of this hypothesis is that academics adopt or develop a publishing strategy so that they achieve publication volume as expected by their university. In other words, a university expects their academic members to contribute towards acquiring capital by ensuring academic publications; and to overcome the challenges in achieving their goals set by the university, academics devise a strategy.

According to Bourdieu, a field exhibits both 'autonomy' and 'heteronomy' (1997); that is, being independent with one's own norms as well as bounded by the existing social hierarchical structure of economic or political interferences. The influence of heteronomy on the higher education field is evident in the institutional members, universities, adopting performance-based evaluation or evidence-based research evaluation due to political (government) or economic (funding institutions) factors; which, according to Bourdieu, is the representation of mutual interdependency of social constraints and individual agency or individuals (Grenfell and James 2004). Furthermore, Grenfell and James argue that the practices, or in other words, strategies, are to be objectively understood as 'a set of practices' in relation to the institutional context and their social position. This leads to the following hypothesis:

> **H2**: Publishing habits of researchers are framed only by universities or institutional policies

The 'set practices', that is systematic habits, according Bourdieu, are 'subjective dispositions' (1977, p. 3); that is, practices are individual habits that occur as 'ideological production' in relation to unconscious effort of individuals to establish their individual identity within the social structures (i.e. fields). This analytical

concept of Bourdieu which mediates the relation between the internal and external higher education field leads to the following hypothesis:

H3: Individual publishing choices are influenced by publishing opportunities provided by publishers only if they help to meet the publishing expectations of their university

To understand the publishing strategies of academics, it necessary to explore and understand the publishing environment in contextual position and time. Rather than exploring the issues based on a theory (Bourdieu's theory), in this study, theory is used as a method; that is, Bourdieu's concepts of field, capital and habitus (as adapted by scholars, Naidoo 2004; Petit-dit-Dariel et al. 2014) become an analytical tool to address the issues. While the epistemology of this research, that is, mapping of the concepts, field, capital and habitus, is analysed in depth in Chapter 3, the methodology adopted for this study is briefly discussed in the following section.

1.9. Research Methodology

An empirical study of academic publishing from the perspective of academics requires an objective analysis of the existing reality (ontology) to understand how things are (epistemology) and what are the issues (Guba and Lincoln 1994). The ontological position of objective reality and epistemological assumptions on what is the reality leads to the methodology (Guba and Lincoln 1994). These are the tools, techniques and procedures that are used to conduct the scientific inquiry; and choice of methods are determined by the philosophical position of the inquiry and the appropriateness of the tools that would help in conducting the study (Slevitch 2011). As the present study focusses on understanding what is the reality, a positivist epistemology is followed in this study.

The ontological position of positivism of this study leads to a quantitative approach, because the study postulates the academics' perspective on publishing in the higher education field (Creswell 2013). While the background and context of the research are discussed in this chapter, Bourdieu's concepts of field, capital and habitus are also the analytical tools used to understand the context of this study. His conceptual tools, along sociological theories related to institutional, organisational and field studies, also aid in providing the theoretical and philosophical assumptions which, according to Yin (1989), shape the direction of the research. These assumptions have helped in formulating the research hypotheses (explained in Section 1.8.4) that are examined in the study.

The next stage of the research is to identify the appropriate procedure and tools to understand the issues and investigate the appropriateness of the hypotheses. As the quantitative positivist approach of the study requires methods grounded in statistical analysis, which include statistical inferences and mathematical analysis, an online survey is used an instrument for collecting the information (Neuman and Kreuger 2006). The research paradigm and the methodology of this study is based on Neuman and Kreuger's (2006) definition of research attributes, as are explained in detail in Chapter 4.

As the study is undertaken in Australia, the information is gathered from academics within Australia. As evident from the discussions in earlier sections, since academic publishing is contextual, that is, bounded by social (higher education field) and political (research policies of the government) factors, the study has been restricted to academics in Australia. The procedures followed in identifying the participants and methods used to collect the required information to answer the research questions are explained in the following section.

1.9.1. Data Collection

Data for this study were collected through a self-administered online survey. As explained earlier, the research is focussed on the realities experienced by academics

in the higher education field of Australia. Therefore, the information required for the study needed to be gathered from academics who are actively engaged in publishing their scholarship. To avoid variation in sample population, the participants of the survey were identified using a stratified (non-probability) sampling method (Fowler 2009). The sampling process and the details of how and why only some academics were considered as eligible to participate in the survey are discussed in detail in Chapter 4.

Of the 40 public universities in Australia, the survey was administered only to academics with a doctorate degree from Schools of Architecture and Design, Education, Media and Communication, Social Science, History, and Economics and Business, from the eight universities that are classified as Group of Eight (Go8) universities. The study is restricted to the disciplines classified under humanities, arts and social sciences by Australian Research Council and to Group of Eight universities to avoid variation in the information collected, because in a study that uses a quantitative approach, it is necessary that participants must share a similar background to ensure appropriate statistical analysis (Neuman and Kreuger 2006). Hence, the participants of this study are restricted to schools in faculties of business, arts, humanities or social sciences (henceforth referred to as HASS)[22], which are classified by the ERA under FOR codes 12 to 22 (ARC 2015a, also listed in Table C1. In Appendix C).

The participants (within the schools of HASS) were identified using their publishing profiles listed on the respective university website. Email addresses of the academics who had listed 4 reviewed publications between the years 2013 and 2016 in their publishing were collected, as they were regarded as being eligible for participating in this study. To ensure that the participants met the required criteria, only academics whose profiles are listed as 'eligible for research supervision' by

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[22] Furthermore, most of the earlier studies analysing issues in publishing have either been generic or STEM focused. Even publishers emulate the publishing process of STEM in HASS. Hence, the present study is focused only on HASS to be more precise.

their universities were considered. While doing so, it is also possible that academics without online profiles, incomplete profile or whose profile had not been updated were not included in this study. An online questionnaire, using Qualtrics software, was administered to the participants through email. The overall sampling frame of this study is around 1300 (based on the number of email addresses collected). A total of 165 responses were received.

The online survey questions were mostly in the form of closed-ended questions with some open-ended questions providing an opportunity for the participants to express their views. According to Balvanes and Caputi (2001), the questionnaire should reflect the variables that need to be measured not only to address the research hypothesis but also for statistical analysis. The variables in this study are measured using a Likert scale and ordinal scale. The procedures adopted in developing the survey and its design, including the operational constructs, along with the data collection process, are explained in detail in Chapter 4.

A 5-point Likert scale model, according to Daymon and Holloway (2010), is helpful in categorising the variables. The categorised variables are used to identify the logical and causal relationship among different variables, which are used to deduce the realities in academic publishing in the higher education field. Analysis of the data collected from the questionnaire was performed using SPSS software.

The analysed data also established the reliability and validity, critical factors for research (Babbie 2014), of the measurement. According to Neuman and Kreuger (2006), the consistency of values obtained from the measuring process is known is reliability, while the meshing the conceptual constructs with the operational constructs ensure the validity of the research. In the present study, while construct reliability and internal reliability were ensured using consistency of the measured values as well as statistical results, the construct validity, i.e. multiple questions used for the same or similar constructs, was ensured using statistical analysis and inferences. The procedures adopted in establishing the validity and reliability of the

research are also explained in detail in Chapters 4 and 5, where the data analysis process and results of the study are discussed in detail.

1.10. Contributions of the Study

This research highlights the practical difficulties experienced by academics in getting their work published as well as the strategies adopted by them to ensure their publication record. By describing and providing an understanding of the real-world experience of academics in their contextual publishing experience, this study will help early career researchers to plan a systematic approach to build their publishing profile. As Bourdieu's concepts are used as a tool in exploring the academic publishing environment in relation to the higher education field, this study provides insights on how internal and external factors, including political, economic and social constructs, play a significant role in individual and collective practices of the field. This study thereby extends the application of Bourdieu's concepts as a tool of research method by exploring the within-field practices in relation to related fields. These conceptual tools not only help in mapping the field of higher education and its relation to the publishing industry, but provide insights for publishers into the academics' perspective on publishing, thereby providing an opportunity to enhance their customer service by marketing their services and capabilities to appropriate members of the hierarchical levels in the field. This study also serves as a guide for universities and policy makers to formulate programs (or procedures) to address the publishing challenges of academics and thereby enhance the publishing record of academics.

1.11. Limitations of the Study

Although the use of Bourdieu's concept of field helps to define the boundary of the field, it also delimits the scope for considering the influence of indirect factors

outside the field environment: the impacts of external factors that affect the fields related to publishing are not discussed in this study. Only factors that have direct impact on academics' publishing practices are discussed and addressed in the study. Therefore, changes or challenges in the publishing industry such as the time crunch experienced by publishers, digital repositories, subscription-based access to publications, distribution and marketing of published content, or market competiveness, are outside the purview of this study. In addition, although Bourdieu's concepts form a basis for the study, this study does not focus on addressing the merits and demerits of Bourdieu's concepts.

Similarly, even though this study discusses performance indicators, the ERA and research assessment criteria, issues related to human resources such as staff satisfaction levels, attrition rates, corporatisation and management of universities, and increasing emphasis on industry-applied research, are not discussed or addressed in this study.

As the study focusses on identifying and addressing the challenges and strategies adopted by academics in HASS, the context analysed and discussed might be different for academics in STEM disciplines. Furthermore, as the participants of the study were restricted to research-focussed universities in Australia, the context might only be similar and not the same for academics in the universities with a different focus within Australia, and thereby might yield different outcomes; that is, different sets of challenges, strategies and publishing practices when analysed using similar method. As Australian higher education is defined as the field in this study, the results of the study, i.e. the challenges or strategies adopted – the publishing practices – might also be different for other countries.

1.12. Structure of the Thesis

The outline structure of this thesis is as follows.

Chapter 1 introduces the research and provides an overview of the research process followed for the study. In this chapter, the background and context of the study, the current state of academic publications, factors that motivate academics in publishing, and how the research questions were formulated, are explained. The scope and structure of the study are also discussed.

An in-depth analysis of the literature and context of study in relation to the theoretical philosophy is discussed in Chapter 2. This chapter also provides an overview of current academia in and the research framework of Australia. The relationships among various factors (institutional publishing policies, indicators of research evaluation framework, publishing industry) that impede the publishing practices of academics are also discussed in Chapter 2.

Further to the analysis of Australian academia, Chapter 3 provides an empirical analysis of the context of academic publishing using Bourdieu's concepts of field, capital and habitus, providing the underpinning theory for this study. The chapter also delineates how Bourdieu's concepts shape understanding of the field of higher education and academics' publishing practices.

Chapter 4 provides an in-depth discussion of the methodology used in this study. The research strategy used to approach the research hypotheses and the techniques adopted for collecting data are explained. The conceptual framework, formulated from the literature review discussed in Chapter 2, and the theoretical framework of this study contrived from Chapter 3, are also discussed. This chapter also includes an in-depth analysis of the process of collecting and analysing the data. The procedures adopted to analyse data, the relation between the variables and the

constructs, and the procedures followed to ensure the reliability and validity of the information, are also provided in this chapter.

The statistical information derived from the online survey is presented and discussed in detail in Chapter 5. Using the statistical information, the appropriateness of the hypotheses of the study is also evaluated. The appropriateness of the conceptual and theoretical framework adopted in this study is also validated using structural equation modelling methods through SPSS and AMoS statistical packages. The statistical correlations among different variables are also discussed. The hypotheses are modified or accepted based on the statistical inferences. The appropriateness of the theoretical and conceptual assumptions is discussed and modified based on the inferences of the study.

In Chapter 6, the theoretical perspectives explained in Chapter 3 is are used for critically evaluating the statistical inferences of the study discussed in Chapter 5. The chapter analyses academics' perspectives on challenges in publishing and the strategies they adopt to ensure publication. While the academic publishing environment is analysed using Bourdieu's concepts, the inferences from the collected data are used to support or refute the assumptions and arguments populated from the hypotheses. The relationships among the macro-, meso- and micro-level publishing activities are also discussed and explored. The analysis of the results also provides an understanding on how the practices of academics, working in same field, differ with their positions, goals and aims.

The final chapter, Chapter 7, includes further discussions and conclusions based on the collected information. The significance as well as the contribution of this study are also discussed. The chapter also identifies the issues that require further analysis which are included as recommendations for future research.

1.13. Conclusion

This chapter presented the background of the study relating to academic publishing in higher education as a research setting, and offered an overview of the arguments on academic publishing and the research problem informing the research questions and research aims, an overview of the methods, and proposed structure of the thesis.

This study intends to address publishing issues from the perspective of academics. This study will assist publishing houses to identify the appropriate groups to which to market their services. By extending Bourdieu's theory to explain the publishing environment from the perspective of academics, this study also contributes to extending and understanding the relations among different field theories.

The next chapter analyses the existing literature in the field of academic publishing. Since the study focuses on describing the challenges of academics in publishing in the Australian context, a general overview of the research environment in Australia is provided. The role of different stakeholders and the hierarchical structure of Australian academia are also delineated. The chapter also provides an understanding of the role of publishers in academics' scholarly communication. The chapter provides a detailed analysis of the contemporary issues, which formulates the research hypothesis of the study.

Chapter 2.   The Academic Publishing Environment in the Twenty-first Century: An Australian Perspective

2.1. Introduction

This chapter provides an overview of the academic publishing environment in Australia over the last two decades. Having provided the background and significance of academic publishing in Chapter 1, this chapter analyses the factors that impact the dissemination of research, and how these factors impact the scholarly output of academics working in the HASS disciplines. Academics need to strike a balance between their individual interests in disseminating information on the one hand, and the goals of different stakeholders with diverse and often divergent interests on the other. Therefore, academics regularly engage in calculated practices to ensure that they meet stakeholders' interests. This chapter consequently seeks to explore the impact of Australian universities and the broader research environment on Australian academics and their publishing outputs. It also examines the role of academic publishing within the field of higher education, the dynamics of the relationship, and inter-dependency between academics and the field of academic publishing. In the process, this chapter offers a foundation for establishing the relevance of adopting Bourdieu's concepts for exploring the publishing practices of academics.

2.2. *Academic Publishing Environment: An Overview*

Bögenhold et al. (2016) argue that, even though publishing is an individual communication process, it cannot be understood in isolation, because process or habits are situated within the institutional and social contexts. Weik (2010) emphasises that individual preferences and habits are influenced by conventions, institutions and other practices. Such claims are based on Bourdieu's arguments that practices can "only be accounted for by relating the social conditions" which lead to them, and also by relating practice to the "social conditions in which it is implemented" (1990, p. 56). Bourdieu also contends that publishing is influenced by external factors. Therefore, to understand the publishing habits and practices of academics in Australia, it is necessary to understand the research and university contexts within which the academics operate.

2.2.1. *Institutional Influence in Academic Publishing*

Historically, research was published and promoted by learned societies, which enjoyed the patronage of monarchies and their respective governments (Munigal 2017). Hames (2012) argues that the contemporary institutional emphasis on academic publishing output dates to the 1990s. It was at this time, Lock (1991) claims, that the primary role of communicating research was 'hijacked' by a new focus on academic activity which positioned academic publications as a mandatory outcome of research. Such outputs could then be used as performance indicators. However, some scholars do not consider this to be a major shift. Jubb (2012), for example, suggests that technical, social or political advances have done little to change the fundamental purpose of academic publications. For others, it is the emphasis on outputs that really matters. Hicks (2013) thus points out that, in the post-globalised era, research is in fact a commodity, as it is ultimately evaluated using performance metrics. Taken together, Jubb's and Hicks' claims suggest that change is restricted to the way that research publications are consumed, as

credibility and effectiveness are established using various publication metrics. Jubb (2012) argues that the consumption of academic publications depends on how the different stakeholders interpret research, and that research communication acts as a link between the actual research and expectations of stakeholders. These arguments relating to the purpose and focus of publishing are significant. While the form of patronage may have changed, scholarly communities and their patrons nevertheless continue to influence academic publication practices and norms. The influence of scholarly communities and patrons also emphasises Bourdieu's (1977) argument that 'social conditions' and 'positions' influence the practices and norms of the agents within the group.

Ware and Mabe (2015) contend that, despite the multiple opportunities for researchers to communicate and disseminate their research findings, academic publications have maintained their status as the most credible outlet for researchers. They argue that it is academic publishing's capacity to maintain credibility that has created the most significant impression on external stakeholders. Ware and Mabe (who are associated with International Association of Scientific, Technical and Medical Publishers, a trade association of academic publishers) indirectly imply that academic publishers (both commercial and non-commercial) have played a key role in perpetuating the credibility of academic publishing among decision makers in government or academia. The 1996 OECD report of *Science, Technology, and Industry Outlook*, for example, identifies governmental interest in research in the post-globalisation era. The report uses academic publication outputs as a tool for measuring knowledge. More recently, the OECD Report of 2014 continues to use research outputs as an indicator of research productivity. Academic publication has therefore moved beyond being a mere dissemination of research findings, evolving into an important process that has direct links to the social and economic growth of nations. To this end, publishing is directly linked to economic and social capital. This further establishes that the individual habit of academics' publishing their research work at the micro-level is thus guided by socio-economic norms operating at the macro-level.

2.2.2. Publishing Practices and Social Structures

According to Sewell Jr (1992), people's practices are shaped by social structures. Structures, he contends, are principles that guide practices or social actions, and "societies are based on practices" (p. 16) that are derived from "many distinct structures" that vary significantly between different institutional spheres" (p. 16). Giddens (2013) similarly notes that 'structures' are encompassed of 'rules' and 'resources' and bounded by social practices linking persons across space and time, which include smaller units, existing at various levels and layers of depth. Rule, according to Bourdieu (1977), is a "social norm" or "predetermined set of discourses and actions" (p. 2) adapted consciously or unconsciously by individuals in relation to their spatial positions in the social structure. He emphasises that individual actions account for practices that are related by "objective structure defined by social conditions" (p. 78). According to Bourdieu (1985), 'social world' is represented as a 'space' and agents or groups are "defined by their relative positions within that space" (p. 196). Social spaces are constructed on "objective power relations" (p. 196), known as fields, and possess different kinds of "power or capital" (p. 197). The practices of individuals or the collective group within the organisational or social structure could be further understood using Bourdieu's theory of practice and its three concepts: field, habitus and capital (Vaughan 2008). 'Practice', according to Bourdieu (1990b), is an 'interrelationship' based on 'habitus', their everyday habits, and 'field' (p. 56). Sewell Jr (1992) argues that Bourdieu's 'theory of practice' is better equipped for addressing rules and resources of structure. Power (1999) further explains that Bourdieu's concepts establish a three-step analytical approach which leads to an analysis of:

> (i) the particular field in relation to broader field of power; (b) the structure of objective relations between the different positions within the field and (c) habitus (notably the class habitus) agents bring to their positions in the field and the social trajectory of these positions (p. 51).

These arguments lead to the conclusion that the publishing habits of academics are related to different economic, social and governmental factors that influence the

field of higher education and research as well as the institutional or organisational structures (i.e. their respective universities).

Webb (2017) asserts that Bourdieu's concept of field is only a tool of 'investigation' that helps us to analyse the area explored, by identifying the positions within the area and how the institutions or agents in the area achieve their position, by understanding the "relational, processual, institutional, and individual practices and processes involved" (p. 55). According to Bourdieu, this understanding provides "heuristic efficacy" (1983, p. 311), i.e., an understanding of how practices are shaped, interact and operate within the domain. Extending this argument by Bourdieu, the present study analyses the role of academics as members/actors of a collective group in higher educational institutions, which in turn is embodied by the research framework structure followed by the nation-state (1986). Educational institutions are also symbolic in nature. Bourdieu refers to symbolic social structures as fields.[23] Bourdieu and Wacquant (1992) also emphasise that it is necessary to construct and identify the principles and social dimensions related to field with objectivity. Therefore, for the present study it is necessary understand the principles and social dimensions of universities as well as the research framework environment.

Universities, according to Bourdieu, are institutional organisations in the field of higher education and are bounded or governed by social structures such as government and society. While the institutions compete within the field to grab more economic benefits from government, the individual members become instruments of the institution in achieving their (economic) goals (Robbins 1993). Hence, academics are individual members who, due to the hierarchical nature of the structure, also become the instrument of their universities or institutions for achieving the latter's goals.

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[23] In this thesis, the term 'field' is used in the Bourdieusian sense rather than referring to 'discipline'.

Grenfell and James (2014a) argue that it is necessary to understand the dependence and interdependence of field within, and other fields along with "the specific manifestations of its logic and practice in terms of actual materials, physical and ideological events" (p. 56). According to Fligstein and McAdam (2012), a field can be hierarchically dependent or interdependent (i.e., mutually beneficial) on other fields. Hence, the field of higher education can be said to be hierarchically dependent on their respective governments (certainly in the Australian context, where most of the universities are government funded) and interdependent with the field of academic publishing. The field of academic publishing provides academics with the infrastructure needed for communicating their research findings (Campbell 2012). As the fields of higher education and academic publishing share their resources, they are mutually interdependent fields. It is evident from studies that publishing practices of academics do not exist in isolation but are influenced by various factors including the government or institutional policies within the field of higher education. This emphasises Bourdieu's arguments on the relation between individual practices and the structure. Since publishers, as discussed in this section, are also significant members with interdependence, it is necessary to explore the influence of social hierarchy in publishing.

2.2.3. Publishing and Social Hierarchy

Bourdieu (1996) contends that the social hierarchy and relationship among the fields are determined by the economic power relationship. Robbins (1993) therefore argues that institutional policies are designed to align with the governmental policies, and that the practices of individual members of the field are channelled in such a way as to ensure financial gains for the institutions. Grenfell and James (2014a) emphasise that practices within a field are 'partly internalised' by the members or individuals of the field, whose thoughts and actions are shaped by the field to profit from it. Harley (2013) notes that, when governments commercialise research, universities (institutional members) also try to maximise their financial gains from research. Harley's observation emphasises the positional power relation, explained by Bourdieu in *The Social Space and the Genesis of Groups*,

because universities that focus on research are in a better position to negotiate financial terms (such more funds) since they have an advantage of enhancing government's commerce with the research. Furthermore, academic publishing policies closely aligning to the policies of the research evaluation policies of the government establish the positional power relation. Due to the financial potentiality, academic publications that are closely aligned to the publishing policies have become a key performance criterion for academics. However, according to Bourdieu, practices can be "collectively orchestrated" (1990, p. 53). Hence, academic publishing is no longer an individual communication practice that ensures credibility of research but a communication process that is consciously or unconsciously guided and influenced by social structures; and it is focussed on addressing the goals of universities, funding bodies as well as the government.

Harley (2013) argues that the undue emphasis on academic publications by the governing bodies has led to a situation whereby individual imperatives, such as career advancement, recognition and rewards, become the motivating factors for academics to publish. This process, he contends, means that many academics have been reluctant or unwilling to explore the broader publishing opportunities created by technological developments. These publishing opportunities are provided to academics by publishers. The role of academics in academic publishing is to create and, indeed, to evaluate, the content as peer reviewers (Cope and Phillips 2014). It is evident from Harley's argument that academics' choices of publication type and publishers are guided by the hierarchical structure of the field, created by the institutional and governmental organisations. Ruez (2017) argues that the hierarchy in the publication process, i.e., the influence of metrics, also limits academics' contribution to specific publication types and outlets such as 'for profit' commercial publishers (p. 2). In addition, Grenfell's delineation on field establishes that the opportunities provided by the publishers to meet organisational goals also determine the publication choices of academics for communicating their research. Thompson (2005) states that academics seek the services of publishers for typesetting, designing, marketing and distributing the content to the public, by ensuring the credibility of the content.

Cope and Phillips (2014) note that universities continue to prioritise the traditional structured communication method with its norms of evaluation, scrutiny and approval of the research papers by the subject experts of the field. While publishers contribute to this process by functioning as gatekeepers of quality, they also view academic publishing as a profit-oriented business aimed at a niche market (Peek 1996). The presence of multiple stakeholders (see Section 2.3.7) with varied and contrasting perspectives means that the academic publishing process is multilayered (Jubb 2012). Hence, in addition to the respective universities' organisational goals, academics must contend with their publisher's business perspectives such as absence of print version, reluctance to publish specialised or niche topics due to limited market and revenue, especially in book publications, sharing marketing activities, copyright conditions, delayed publication, and other similar issues (Warlick and Vaughan 2007). Negotiating these competing interests has resulted in a paradoxical love-hate relationship between academics and publishers, whereby neither group can afford to ignore the other.

In his study, *Homo Academicus* (1988), Bourdieu identifies publishing as an activity of practice adopted to gain recognition within field. Therefore, as Cope and Kalantzis (2014) note, the relationship between academics and publishers is also an important factor in understanding the challenges of academics when publishing. As publishers are responsible for converting the draft into the final product, they possess significant positional power. However, most of the studies in publishing ignore this issue and have tended to focus on the publisher's perspective of the publishing process (for e.g., Latzer 2009; Jubb and Shorley 2013; Cope and Phillips 2014; Larivière et al. 2015). Similarly, discussions of the issues faced by academics in higher education tend to focus on the university as place of education (Naidoo and Jamieson 2002; David 2015; Nisar 2015), the challenges of working as educators (DiClemente et al. 2009; Das and Chattopadhyay 2014), and universities' evaluation processes of academic performance (such as Harman 2002; Hasselberg 2013; Hall 2011; Green and Cookson 2012). Studies of publishers and academics have therefore paid little attention to the interplay between these two actors in

achieving positional power in the field. The following section, therefore, expands on the relationships of academics with other stakeholders both within and outside the field of higher education, by surveying the inter-dependent factors in the field of academic publishing.

2.3. Field of Academic Publishing

2.3.1. Academic Publishing Industry as a Field

Even though academics initiate the publishing process, the academic publishing industry in itself is a field (Thompson 2013) with its own structure and norms. Thompson argues that the publishing cycle and the publishing chain provide social structure, position and space, which are inherent qualities of a field as described by Bourdieu in *The Field of Cultural Production* (1983). From this perspective, the resources of the publishing firms comprise four types of capital: economic, cultural, symbolic or intellectual, and human. The skills and acts of individuals to build their career in the publishing industry can similarly be understood via Bourdieu's concept of 'habitus'. However, Thompson's study speaks of the publishing field only from the perspective of publishers. Therefore, Thompsons's definition of academic publishing as field is limited to business activities, which neglects an important workforce related to academic publishing industry – the academics who are responsible for producing this research. By viewing higher education as a field (as explained in Chapter 1 and further elaborated in Section 3.3.2), the present study utilises Thompson's concept of publishing industry as 'field' (discussed in detail in later paragraphs of this section) and extends it in order to gain a more nuanced understanding of the relationship between academics' publishing practices and publishers.[24] To fully comprehend the publishing practices of academics, it is important to understand the industry perspective on publishing.

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[24] The term 'field' is used to refer to the publishing industry and used interchangeably with (publishing) 'industry'.

According to Kovač (2008), publishing is a complex communication circuit that meshes business and economics, culture, society, politics and technology. However, studies have generally focused on how each of these factors shapes the publishing industry (Coser et al. 1982; Cope and Kalantzis 2014; David 2015). In the field of publishing, publishers perform a significant role both in supply and value chains. In most fields, the position of the members is not fixed and can be altered by various factors (Thompson 2005). Grenfell and James (2014a) argue that the power positions are also integral to 'institutional structures' within the field. According to Fligstein and McAdam (2012), the changes within one field would also affect the inter-dependent fields. Therefore, publishers that respond to various challenges (by adapting themselves to economical or technological developments to retain their edge in the society) would have a potential impact on academics. Equally, the nature of the changes (such as changes to internal workflow process or business models and so on) in the publishing field can have repercussions for academics. As the focus of the present study only covers the relationship between academics and publishers, the organisational structures or hierarchy within the publishing industry are not analysed or explored in the study.

Thompson (2005) establishes that academic publishers are financial investors that also possess symbolic and intellectual capital in the publishing field. He further notes that, while authors create content, publishers invest in publishing by providing financial capital to possess intellectual rights (copyright of the published content). Moreover, publishers offer the prestige and reputation of their publishing house (symbolic capital). Although Thompson's study provides an important insight into the field of publishing, it does not examine the relationship between the fields of publishing and higher education; in other words, the relationships between academics, their publishing practices and publishers has altogether gone unnoticed. To comprehend the publishing challenges faced by academics, it is necessary to understand the relation between the publishing practices and publishers along with the challenges that exist within the academic publishing industry.

2.3.2. Changes and Challenges in the Field of Academic Publishing

Technological changes have forced the print-based industry to undergo a paradigm shift as information providers (Turner 2014).This has changed business models, as well as the concept of product or service, and copyrights (Brown and Boulderstone 2008). The growth of communication technologies has redefined the space and time of communication and has also offered new ways of integrating content, sharing knowledge and disseminating information (Mrva-Montoya 2015). The 'time delay', between submitting scholarly work (especially journal articles) and publishing it, is one of the major concerns of academics, along with the challenge of transforming their research into 'research output' (Ductor 2015). Bourdieu also acknowledges that 'time' factor as a challenge in the academic field (1988). This is an important issue for academics juggling multiple activities (not only within the field) in different external fields.

Björk (2017) opines that the impact of digital technology or the Internet on academics in publishing their scholarly works has been minimal when compared to other communication areas, because academic publishers are expected to follow all the processes of print publication. Fligstein and McAdam (2012) argue that, even though members of inter-related fields have an understanding of the changes and challenges that happen within the dependent field, they are not concerned with the changes or challenges. Therefore, the impact, or challenge, caused by the impending technological changes within the industry appears to be of less concern to academics. Furthermore, as Cope and Kalantzis (2014) argue, little has changed when it comes to expectation of the publisher's role as gatekeeper in ensuring quality. The arguments surrounding the quality (Bohannon 2013; Björk and Catani 2016) of published outputs establish that, while academics expect publishers to ensure quality of publications through the peer review process, following a rigorous peer review process becomes a challenge to academic publishers from their business perspective.

Green and Cookson (2012) claim that the production-based publishing industry has been changed to a technology-based industry. The focus of publishers, they argue, is no longer restricted to sales and marketing of content produced. They have increasingly branched out into offering technology-based solutions for sharing and communicating knowledge. As Internet and Web 2.0 technologies have changed the ways in which researchers share information, academics expect publishers' services to adhere to this new method such as integration of content as well as device-based applications (Clarke 2012). The economics of publishing is challenged due the change in academics' expectations (Haynes 2012), such as timeliness, and any-time online access to published articles, chapters or books from publishers (Sonnenfeld and Taylor 2017). These challenges caused by customer expectations have resulted not only in them providing additional services but also adopting alternative business models, which in turn cause new concerns for academics such as archiving of the published works and database management of published output. Although the field of higher education is not completely dependent on the field of academic publishing, the economic challenges within the publishing industry have affected the ease of access of information. While the publishers respond to challenges of their field by strategically adapting to the situation and positioning themselves in advantageous situations (Fligstein 2001), such responses to change create challenges for members of the higher education field, because easy access to information which members of higher education have been used to is being challenged by new practices introduced by publishers to ensure the publishing economics.

2.3.3. The Economics of Publishing and Ease of Information

Economic factors have accelerated acquisitions and mergers in the academic publishing industry, which has resulted in consolidation of the publishing industry, with a few major academic publishers (Springer Nature, Elsevier, Wiley-Blackwell, Taylor & Francis, and Sage). Brown et al. (2007) argue that, as more than 65-70% of

academic work is published by five major publishers, this effectively creates a monopoly on pricing structure. The monopoly of pricing structure has coincided with the budget constraints of university libraries, resulting in the 'serial crisis' in academic publishing. According to Albert (2006), the increase of subscription cost of journals and serials has resulted in universities' and libraries' cancellation of many journal and serial subscriptions. This, he claims, eventually has led to the so-called 'serial crisis' because there was a decrease in number of academic publications available for scholars through their libraries. However, by contrast, Greco (2015) asserts that there has been no decrease in academic publication in real terms, as the number of published articles and books has in fact been increasing over the years. The tussle between the universities and publishers over subscription rates, and cancellation of subscriptions, are the result of business solutions in response to the economic issues of the respective organisations. Field theorists (such as Bourdieu, Fligstein and McAdams) argue that the business solutions adopted by publishers or the universities are structural transformations within the field. However, these transformations have led to a situation where content created by the academics cannot be easily accessed by other members of the group. This has created a dissonance between the publishers and academics (reflecting the sentiments of their hierarchical head), as academics have felt that publishers are unreasonably increasing subscription rates. The dissonance is also the result of academics' ideal of fostering research discussion and debate.

Publishers, according to Darnton (2007), are only one of the member-groups in the larger communication network. Academics are another significant member-group of the communication network. Therefore, it can be argued that Thompson's analysis of academic publishing is only partial, because the relation between academics and publishers is not considered even though academics are mainly associated to a different field. Jubb (2012) claims that, in contrast to publishers, the interests of academics in publishing are not profit-oriented. To this end, the two key actors in this field operate with different or, indeed, conflicting aims or goals. Kueffer et al. (2007) supports Jubb's argument by highlighting that academics hardly receive any direct monetary benefits for their contributions, either as authors or as subject

experts who review the manuscripts on behalf of publishers. Therefore, academics paying charges to access their own content, despite the abundant information freely available online, has become problematic (Shen 2007; Magee 2011) and resulted in the initiative of the OA movement (explained in Chapter 1) (McCabe et al. 2013). This initiative has created a new challenge for the publishing industry, especially in STEM subjects.[25] It has resulted in causing further changes in the publishing industry as the publishers introduced new business models, where authors were levied for processing their articles. This increased the discontent between both fields.

While many commercial publishers, initially, were unwilling to consider OA due to the economic viability (Albert 2006), the OA initiative, according to Haynes (2012), has resulted in an alternate business model where the production cost is covered by authors in the form of an article processing fee (APC) and readers have free access to content (Laakso et al. 2011). While this alternate business model has created new opportunities for academic publishing, it has also created a convenient opportunity for opportunistic publishers with deceptive practices (Berger and Cirasella 2015). Such practices have also cast doubt over publishers' role in ensuring quality (Bohannon 2012). Shen and Björk (2015) argue that, even though universities and funding bodies encourage OA of information, there are many grey areas in the university publishing policies (see Section 2.4) due to academic publishers' lack of transparency on publishing of practices. Hence, the OA initiative did not resolve the concerns of academics and ultimately made the academic community more vulnerable to profit-oriented publishers (Shen and Björk 2015). In other words, although the OA initiative is a typical example of a crisis or unsettled condition within the field caused by discontent members – the 'challengers' of the field (Fligstein and McAdam 2012) – the members are not sufficiently powerful to

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[25] Even though the OA business model is predominantly followed in STEM disciplines, any practice in STEM subjects over the course of time have been implemented in HASS disciplines. Therefore, the issues of OA and publishing challenges are discussed to provide a better understanding of the publishing field and publisher practices.

redefine the norms, rules or goals of the market players of publishing fields. The crisis only resulted in opening new avenues and business strategies for publishers (Kist 2009). The changes in business models have opened many discussions on the credibility of journals and their publishers (for example, Triggle and Triggle 2007; Wager 2012; Tenopir et al. 2016) and also on topics related to processing charges (Van Noorden 2013; Solomon and Björk 2012a), unscrupulous publishing practices (e.g., Xia 2015; Ward 2016), or the exploitation of vulnerable academics (e.g., Xia et al. 2015; Beall 2016). However, the extent to which OA business models and the alternate publishing processes have impacted individual academic publishing practices remains inadequately examined.

2.3.4. Open Access as a Business Model

The OA business model, as discussed in Section 1.5, Chapter 1, addresses the key issue of restricted access (Björk et al. 2010) through green access (where authors self-archive the submitted manuscript through their respective institutions) and gold access (where authors pay processing charges to the publishers to enable free access for their articles) (Harnad 2005). Guédon (2004) notes green and gold access as parallel approaches in open access: 'green access' referring to publishers, and 'gold access' to journals. Although pricing structure is one of the main concerns for academics in publishing in OA journals, the concerns are not entirely related to article process charges. Copyright, peer review process and impact factors are also significant issues in OA business models (Harnad et al. 2004). Swan (2006) argues that, as publishing of scholarly work is inevitable for the career growth of academics, the OA business model, where authors pay for getting their work published, provides an opportunity for the entry of new publishers with unethical practises to exploit academics' vulnerability in getting their work published. Therefore, reputation and transparency in practices become important factors for publishers to be considered by academics for their publications. Hence, debates around OA have become critical in defining the relation between publishers and academics in the current publishing environment.

Mukherjee (2010) argues that, despite the negative criticisms of OA journals, academics cannot ignore the fact that articles in an OA journal tend to receive better citation numbers than traditional, subscription-based journals. He attributes the increase in impact factor to the unrestricted readership enjoyed by the articles published in these journals. Bohannon (2013) observes that the major criticism against the journals in the OA business model is the lack of emphasis on peer review process. As publishers play a significant role in ensuring the quality of published outcomes through their review process, the OA business models are being attacked for their inadequacy in ensuring quality (Björk et al. 2010), as their revenue is dependent on the number of articles published rather than the number of subscribers. Albert (2006) attributes the quality issue of the content published in OA journals to subscription-based journals. He argues that reduction in journal subscription by the libraries and restricted access provided by subscription-type journals have resulted in a situation where researchers are unable to access appropriate information in a timely manner. Xia (2015) attributes the main reasons for the growth of OA publication to inadequate funding for research resources, and economic and sociocultural factors, as well as the increasing pressure from the universities and peer group to ensure academic publication. Therefore, the issues pertaining to OA business models, as discussed earlier, are the result of the business opportunity created by the publishers (members of the publishing field) and could be considered as adjustments made to address the changes and challenges within the higher education field without affecting their profitability.

Open Access: An Opportunity for Predatory Publishers

The profitability factor in the OA business model also provides an opportunity for the entry of predatory publishers, who not only threaten the entire field of publishing but are a cause of major concern for academics as well as the publishers. Adopting the Fligstein and McAdam (2012) argument of competitiveness within the field, predatory publishers are opportunists who not only enter the field to compete

for economic capital but threaten the very existence of the academic publishing field as the credibility of the field is threatened. According to Björk (2017), one of the underlying reasons for academics not exploring OA to the fullest extent is 'predatory publishers', i.e. publishers with unethical practices. According to Harvey and Weinstein (2017), it is the loose review process adopted by such competitive publishers that threatens the integrity not only of the publishing field but also of academics. Jimenez and Garza (2017) argue that it is the integrity of academia that is stake with the entry of predatory publishers, as they promote works that are insubstantial. Therefore, OA with article processing charges and new publishers with unethical practices remain challenges for the academic community.

Bohannon (2013) argues that the quality issue in OA journals lies not with the business model but with the publishers themselves. According to Lowe (2014), the issue remains with the publishers who conveniently skip or do not follow the expected review process. Citing Bohannon's article, Lowe argues that it is difficult to isolate OA publishers in this respect, since 'reputed' publishers too have accepted bogus articles. Various studies (Phillips 2004; Raghavan et al. 2014; Morrison et al. 2015, Björk 2012, Björk and Solomon 2012, Bohannon 2013, Lowe 2014) both supporting and opposing OA journals only confirm the complexity caused by the OA business model and its impact on the credibility of publishers. Although there are various information sources (e.g., Beal list 2012, DOAJ) that help academics in identifying the credibility of journals, the lack of clarity around the OA process remains a major challenge (Berger and Cirasella 2015). Berger and Cirasella (2015) also add that it often becomes the responsibility of librarians to enlighten academics about 'predatory journals' and their pitfalls. Protecting the interests of academics thus becomes a shared responsibility of the institutional bodies or universities and librarians. This shared responsibility also legitimises the credibility and transparency of the peer review process, and ensures that they remain the responsibility of publishers.

2.3.5. Process of Peer Review in Academic Publishing

The process of peer review is one of the major topics of discussion in academic publishing. According to Hames (2012), the review process in academic publishing has to be an independent process and should not be influenced by business models. However, peer review is a subjective process, and the norms of review are up to the discretion of publishers (Hames 2012). Hames argues that, it is the focus of the respective journals that ultimately establish the guidelines for peer review. Hence, the influence of publishers in the peer review process cannot be ignored. According to Al-Khatib and da Silva (2017), there exists an inherent conflict of interest in the peer review process of OA journals, as the journal might accept many submitted articles to maximise their profitability. In addition, the increase in number of manuscripts received for publication increases the pressure on the publishers, as they either adhere to a rigid, time-consuming peer review process or be flexible in accommodating more articles by increasing their volumes or issues (Al-Khatib and da Silva 2017). Therefore, open access and peer review become two important challenges for academics.

Constraints in Peer Review Process

According to Jones (2007), peer review is a cumbersome and time-consuming process, as the reviewers have to scrutinize and evaluate the novelty, originality and validity of results. The emphasis on publication has resulted in an exponential growth in academic publications, resulting in a resource crunch of subject expertise for reviewing the unpublished manuscripts (Mabe 2003). According to Jones, the resource crunch in the time-consuming process along with the increase in number of manuscript submissions, both serving to delay article publication. Harvey and Weinstein (2017) argue that predatory publishers exploit the time crunch of the normal publication process. The delay in the fast-paced communication environment raises questions about the efficiency of the peer review process in the

changing landscape of academic publishing (Bohannon 2013). Scholars (such as Wager and Jefferson 2001; Smith 2010) argue that, despite the technological advances in publishing, the peer review process remains conservative, biased, time consuming and expensive. They lament that the review process has not changed or evolved with the changing times. This implies that, despite the expectations, the rules or norms within the field have not been changed or updated in accord with the changes outside the field. It also implies that publishers have responded more rapidly to the challenges and threats that impact their profitability or existence in the field than to the challenges that impede academics. Therefore, publishers' delay in adopting changes to the factors that impact the academic community has become a challenge to academics in various ways.

Swan (2006a) opines that publishers should improvise the review process with their innovativeness and devise new ways to address issues in the peer review process. Any challenge or issue in the review process will directly have an impact on the field of higher education, as the merit of academic publication depends on the established process (Cope and Phillips 2006). Therefore, the willingness of members in the field of higher education to adopt innovative suggestions or changes also depends on the publishing guidelines adopted by the institutional bodies. The multiple discussions about the quality of content and the peer review process attest that academics are sceptical about the present peer review process carried out by publishers due to the changes in publishing environment such as surge in journal publications, article processing charges, and OA business models. The underlying reasons for this scepticism might be the fact that publishers have adapted to changes (e.g. to their business model) to ensure their 'capital' (profitability) while the issues or challenges faced by the members of the inter-dependent field are not adequately addressed; and this has opened many avenues of challenge.

Bohannon (2013) also attributes current issues in the peer review process followed in journals to the changes in revenue generation method adopted by publishers.[26] According to him, even the reputed publishers do not engage in rigorous review processes and are more willing to accept articles for publishing, as they focus more on their revenue. Eriksson and Helgesson (2017) assert that the 'profit-driven' approach adopted in OA business models also establishes publishers' focus on revenue. Lowe (2014) opines that peer review only becomes ineffective if the reviewers or publishers do sloppy work and that it is inappropriate to blame business models for the tardiness of the publishers' approach. She argues that publishers need to be innovative in improving the efficiency of peer-review rather than focussing on changing the review process. The issue for the academic community in the journal peer review process is therefore not only with the process or business model, but rather in the lack of transparency followed by publishers in following the process. In other words, publishers are being lenient in following the established norms of the publishing field; which, in turn, can create problems for members of the inter-dependent field, the field of higher education.

Alternative Process of Review

As peer review is also about the evaluation of rigorous scientific research processes performed, some OA publishers, such as PLoS (Public Library of Science, focussing mainly on STEM subjects), evaluate unpublished manuscripts only for the scientific process followed while undertaking the results. The question of validity and the merits of the research findings are only undertaken as a post-publication process (Hames 2012). This process of post-publication review is encouraged in the humanities by scholars such as Eve (2014). Ross-Hellauer (2017) notes that, although there are many discussions on an open peer review process, the term

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[26] It should be noted that most of the discussions around the quality of content and the peer review process are based on journal publications. The review for books, in most instances, happens during the book proposal phase.

remains ambiguous, as there are varied interpretations and explanations of what is considered as open review. Scholars (such as Ford 2013; Ross-Hellauer 2017) identify core traits as characteristics for an 'open review process' which include, revealing identities of both authors and reviewers during the process, publishing review reports and open interaction and participation, thereby ensuring transparency of the process. However, none of the open review processes addresses all the criticisms levied against the existing process (Ross-Hellauer 2017). According to Ross-Hellauer, the open review traits explained by scholars are only individual traits, and no single trait addresses all issues of the existing process. Therefore, the question of appropriate alternate review processes remains ambiguous and without a definitive solution.

Despite the efforts of OA publishers to address the resource crunch for reviewing and to avoid time delay in publishing submitted manuscripts, the willingness to adapt to new peer review processes is not evident, as this change is still in its early stages, and many journals still follow the closed peer review method (Nicholson and Alperin 2016). As this process is not followed by most publishers, it is difficult to gauge academics' willingness in adopting new processes such as 'open review' as encouraged by some scholars. In addition, there is no clear evidence that this open review process will benefit the academic community to improve the impact factors of their publications. The emphasis on peer review as one of the criteria in research assessment makes it necessary for academics to ensure that their publications are reviewed in an appropriate manner (Butler 2010). Thus, any changes initiated by publishers in the peer review process without appropriate guidelines in the research publishing policies adopted by the institutions could result in creating additional stress for the academics.

2.3.6. Impact Factors of Publications

Fuchs (2014b) argues that, as academic publications establish the credibility of research, it has become a common practice to assess significance of research using

publication metrics. Although there are many ways of assessing research and research communication, gauging the effectiveness by counting citations is the most common method (Garfield 2006). Finch (2012a) argues that difficulties associated with accessing patent information or quantifying social impact by measuring the effectiveness of the research outcomes has ultimately underpinned the common practice of using citation metrics (or bibliometrics[27]) for gauging the effectiveness of research, especially in STEM subjects. According to Mirowskwi (2011), publishers also use bibliometric results as a marketing strategy to promote themselves as a 'processor of information' rather being mere typesetters. The introduction of performance metrics for research activities by universities also instilled the scientific notion that research has to be measured objectively and quantitatively. Beginning in the science disciplines, this convention has been adopted by the humanities and social sciences (Fuchs 2014a). Although bibliometric factors are based on the metrics related to individual publications, these factors are mostly used by the members who enjoy higher hierarchical position in the field of higher education (such as institutional bodies or government) (Hyland (2016). Hyland argues that bibliometric factors (quantitative numbers) are used by various institutional or government research committee members, especially executive members and administrators with little or no research experience, to gauge and evaluate research. Academics, therefore, are focussed on improving the citation index of their published work to meet the institutional goals.

Fuchs (2014b) argues that the practice of using publication metrics has changed the publishing culture among academics by encouraging some to devise strategies to

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[27] An arithmetic calculation of mean value of citation count measured as central tendency (Van Raan 2005; Kostoff 2002) is used for the bibliometric analysis. Bibliometric analysis also includes other citation factors such journal impact factor, where the quality of the journal is measured by calculating the frequency with which the article of a journal is cited in others' work (Garfield 2006a). Bornmann et al. (2008) argue that, as there are various factors that influence bibliometric factors, various statistical tools such as Box plots or Lorenz curves should be used to calculate bibliometrics.

improve their numbers, at the expense of quality. Hyland (2016) argues that measuring research using bibliometric factors leads academics to focus on where they publish rather than what they publish. Todd and Ladle (2008) further claim that publication metrics are a quantitative measure that act as supplementary data which then establishes the qualitative comments of the peer review process. To this end, the peer review process confirms the credibility of the manuscript, while the citation impact factors ascertain the validity of research post-publication. However, Tsikliras (2008) argues that the process of calculating bibliometric factors is inefficient due to the disparity of factors used for calculation. Mirowski (2011) echoes Tsikliras' views when he observes that databases such as Google Scholar and options such as downloads or online sharing are also ignored. Such metrics are skewed and only help the publishers in marketing their brand rather than providing an accurate insight into the impact of research. De Bellis (2009) thus contends that universities should revise factors that are used for calculating publication factors. However, he also concedes that the existing process is helpful for evaluating the institutional bodies or stakeholder groups within the field of higher education. As academics have become instruments for achieving the goals of higher hierarchical members (Naidoo 2004), publication metrics have also become an important performance criteria for academics irrespective of their disciplines or areas of research focus. Viewed in Bourdieusian terms, this opportunity provided by an inter-related or dependent field becomes advantageous to actors within the field of higher education by improving their position in the field and providing them with a competitive edge. Thus, despite issues and shortcomings that complicate any accurate calculation of the impact factors, they nevertheless continue to be emphasised by the institutional members who have a vested interest in them.

Although the field of academic publishing has changed rapidly over the last decade, not all changes have had a direct impact on academics in publishing their scholarly work. Only those factors that directly affect their interest or position in the field pose a challenge for academics. Thus, beyond the identification of appropriate journals, the major challenges faced by academics in publishing (due to the technological, economic and social changes of the academic publishing fields)could

be classified as: (a) OA business models, where authors are charged for processing of articles; (b) peer review process; and (c) the publishing impact factors (Joseph 2015). Although there are various studies that explain these processes (listed above) from different perspectives (e.g., Bohannon 2013; Björk 2017; Bonnell 2016; Boughton et al. 2018; Engwall et al. 2014; Harnad 2005; Harnad et al. 2008), there are few studies that discuss academics' perspectives on these challenges. Fewer still have considered the degree to which these are considered as a challenge by academics in HASS disciplines. The socioeconomic-political approach adopted by Thompson (2005; 2013) also ignores these issues. Similarly, the relations of other important members of the field have not been addressed. Therefore, a socioeconomic-political approach to the publishing field including the relation of various significant members of the field is necessary to understand the present-day publishing reality. It is therefore necessary to redefine the field of academic publishing by understanding the role of different stakeholders of academic publishing.

2.3.7. Role of Stakeholders in Academic Publishing

Research communication is a different process from research. Stakeholders are therefore not exclusively limited to members of the field of higher education. This field also includes external members, such as publishers. The stakeholders involved in research communication include authors, publishers, readers, universities, funding bodies or agencies, and libraries. Each of these stakeholders responds to a range of technological, political, social or economic changes, which, in turn, will affect the publishing practices adopted by academics (Jubb 2013). Adopting Fligstein and McAdam's (2012) logic of sub-field, it might also be argued that the field of academic publishing includes various sub-fields whereby each stakeholder is a sub-field. However, the sub-fields that form part of academic publishing are in themselves individual fields. Therefore, using Bourdieu's concept of field, academic publishing is considered as an important activity performed by members of the field of higher education, and is inter-related to various other fields. To understand the

role of other fields, i.e., their stakeholders, it is necessary to understand how different stakeholders perceive and contribute towards academic publishing.

Figure 2.1 illustrates how different stakeholders operating within the higher education field perceive academic publications. Within this framework, we can see that academics are not only producers of scholarly output but also its largest and most important consumer, as the creation of knowledge is built on existing knowledge (Jubb 2012). As the creators of publishing content, academics / researchers occupy the central position in Figure 2.1. The stakeholders who influence publishing are placed above the academics. Universities and funding bodies, therefore, operate as financial bodies, with each possessing economic capital. They are dominant members, as they are capable of exerting power within the structural relationship that can directly influence the individual practices of academics. Figure 2.1 positions stakeholders who are consumers of published outputs as placed below academics. Here, libraries and readers are positioned as consumers or targeted audiences for scholarly output. As they possess less economic capital, they are not viewed as dominant members. However, they do play vital roles in ensuring the accessibility as well as acceptance of research output (Jubb and Shorley 2013). Jubb and Shorley argue that, even though academics play multiple roles (as authors and as readers), libraries become mediators in this relationship, enabling access to the published content.
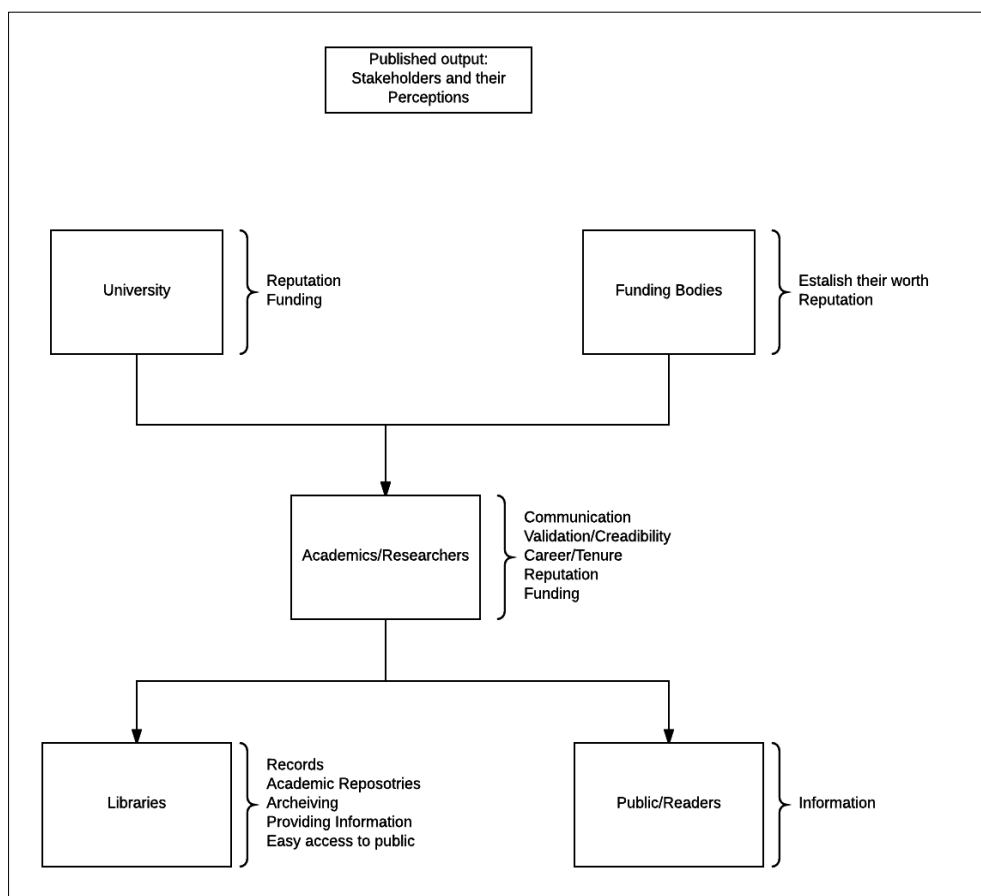
Figure 2.1 Stakeholders' perceptions of academic publishing (figure based researcher's interpretation).

Figure 2.1 is not a representation of hierarchical structure of the fields of higher education or academic publishing, nor does it seek to establish any process flow with regard to publishing activity. However, it is important to recognise the importance of capital in the field of higher education. Emirbayer and Johnson (2008) argue that, in any field, a relationship is based on the power relations, which usually are based on the financial capital. Applying this to the academic field, we can see that a large proportion of research in the Australian context is either funded directly or indirectly (through universities) by the government, and the research environment including the infrastructure and facilities is provided by the university. Therefore, universities and funding bodies tend to have an equal or even higher claim on research outcome and research communication. Adopting the Giddens

(2013) argument on power relations in a social structure, we can conclude that universities and funding bodies exert authority over academics.

Academics, according to Bourdieu's concept, are dependent members within the field of higher education, and universities have power to stake a claim over any positive outcome of the action of academics. By extending Bourdieu's concept of capital, academic publishing is also an intellectual capital. Hence the institutional and funding bodies stake a claim over the intellectual capital; and also expect academics to share the credits for their intellectual capital (Martin-Sardesai and Guthrie 2018). As we have seen, academics also become stakeholders of publishing as readers. They are also the main consumers for the academic publications, and libraries ensure that the academic publications are available for the readers (Jubb 2012). Significantly, Jubb adds that, despite functioning as repositories for readers (consumers), libraries possess a smaller stake in the academic publications than universities or funding bodies. Their relation to academic publishing is therefore not dominant. As university libraries only ensure the accessibility of academic publications among the members of the academic community, they ultimately present little challenge to publishing practices of academics.

The roles and influence of various stakeholders[28] outlined above clearly illustrate that the publishing practices of academics are influenced by the norms of institutional and funding bodies due to the structural hierarchy established by the capital within the field (Bourdieu 1993b). Therefore, we could argue that, for good or bad, academics become bound by the publishing expectations of their universities and funding bodies.

In highlighting the plight of STEM academics who are encouraged to publish voluminous publications (in many cases, more than 10 papers per year) by their research laboratories or research consortia, Fischer et al. (2012) underscore the

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[28] The role of publishers in academic publishing and their impact on publishing practices have already been discussed in Section 2.3.

need to pay attention to the relationship between output and funding. Pop-Vasileva et al. (2014) argue that, in countries such as Australia, where the government funding is linked to research output,[29] it has become necessary for academics to pursue publications to the expectation of their universities or funding bodies. Most universities have strategically adopted publishing expectations of the government research framework or funding criteria by inculcating the publishing expectations as a part of the university's performance criteria for academics. Therefore, it becomes necessary for academics to meet the publishing criteria of their respective universities to improve their career. In other words, to improve their position within the field, academics have to ensure that they meet the publishing criteria defined by government and also meet the publishing expectation of their university.

Government and Research

Knowledge plays a significant role in the growth and economy of nations. Globalisation and the growth of the Internet has initiated a knowledge-based economy, where intellectual capital plays a crucial role in commercial success (Godin 2006). Within this context, Miller et al. (2018) observe that there has also been an increase in collaboration between government and universities in economic development. They argue that universities experience pressure from the government to increase their knowledge transfer. Universities, in turn, encourage academics to be research active by rewarding them with various incentives for publishing, to ensure that universities receive economic benefits from government (Hemmings et al. 2007). According to Auranen and Nieminen (2010), the renewed interest of government to link research and innovation with transferable knowledge is reflected in funding policies such as reviewing, tracking and monitoring of the performance of research on a regular basis. Jubb (2012) thus argues that, as

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[29] Research output is linked to funding not only in Australia but also in the UK and many European Union countries. However, the method followed in evaluating the funding applications and factors that contribute toward evaluation are different for each country.

governments of various countries have increased R&D expenditure to improve their economic growth, they have also sought to ensure knowledge growth through tangible outcomes. As knowledge is perceived as capital, performance and output are monitored to ensure the return of investment (Liedman 2013) – not dissimilar to a business investment model. Therefore, to ensure research performance, policy makers have introduced the performance-based approach for funding of research.

Auranen and Nieminen (2010) point out that research has become a policy-driven process, with rigorous regulations and legislation that are translated into the framework of research and research assessment policies. As explained earlier (Section 2.2), published outcomes have become one of the most important tools for assessing the performance as well as the impact of research. This measure has inadvertently created an additional purpose for academic publication.

Geuna and Martin (2003) argue that the performance-based approach for funding was implemented by developed countries to ensure their focus on innovation through research and scientific developments. As governments are focussed on assessing research using academic publications, universities, to improve their position in the field of higher education, design their research strategies to demonstrate the quality and relevance of their research activities to ensure better funding from the government (Carter 2013). Research and research communication, therefore, become an important means to attain capital not only for the governments but also for the universities. As universities are institutional bodies, whose research is either funded by the government or other research-funding organisations, Miller et al. (2018) contend that it has become necessary for universities to manage their stakeholders' (funders') interests. Naidoo (2004) asserts that universities, within Bourdieu's conceptualisation, are dependent on government. Miller et al. (2018) assert that governments exert power over the universities to achieve their goals, i.e. ensuring commercialisation of research, in which reviewed publications hold significant position. As the research environment is guided by research frameworks delineated by the government, the research strategies of universities are closely aligned to these research frameworks and

assessment policies. Researchers function as individual members within the field and are dependent on the universities. Consequently, it is expected that academics will ensure that their research outcomes can be assessed in ways that conform to both the university and government expectations.

According to Bourdieu (1990b), practices of agents, or individual members of the field, are "objectively attuned to objective structures" (p. 160). Practices are a result of 'habitus', which Bourdieu describes as a product of structure and hierarchy. Hence, academics become agents within the field while their practices are "valued as means of manifesting power" (p. 131) and "legitimation of the prevailing hierarchies" (p. 131). Crespo (2016) claims that institutions consciously or unconsciously reinforce certain habits or behaviour among their members. Bögenhold et al. (2016) offers a different interpretation, claiming that institutions emphasise their options only by narrowing down the possible choices rather than restricting the freedom of choice. Thus, while academics are free to choose their options in communicating and disseminating their research findings, their choices nevertheless remain limited by the publication norms provided in the research framework of universities and government. According to DiMaggio and Powell (2012b), the norms within a field could either be explicitly stated or be a practice that members are expected to follow. Therefore, in regard to research publications, academics are expected to follow the norms that are practised and accepted in their university or research environment. Hence, publication or communication of the scholarly works becomes an informed publication or calculated communication process that would help them in fulfilling the expectations of the universities and their government, rather than an individual process of communicating or discussing research findings.

2.4. University Research Strategies and Academic Publishing

Hicks (2012) argues that the university research environment is shaped by dual factors, the governance of the university (and its policies) and the "national innovation system" (p. 251). This is particularly evident in the UK, the USA, the European Union and Australia, where university research strategies are based on national research bodies or research funding organisations such as the Wellcome Trust and Research Councils in the UK, the US National Institutes of Health (NIH), the European Union (EU), the Australian Research Council (ARC), and Australian National Health and Medical Research Council (ANHMRC). Miller et al. (2018) observe that pressure on universities to collaborate with governmental and semi-governmental research organisations has led universities to formulate their research strategies to align with the objectives and goals of national and research funding organisations. National policies can change in response to political and economic pressures, which can also affect the research policies and strategies of universities. This situation has resulted in a top-down approach by universities whereby the emphasis on specific-type published outcomes for the funded research plays a key role in ensuring that the research contributions are translated into economic and social well-being (Nylander et al. 2013). Hewitt-Dundas (2012) laments that the universities' top-down emphasis on publishing outcomes coupled with the mandatory publication of research findings have fostered a 'publish or perish' culture among academics. Al-Khatib and da Silva (2017) fear that the pressure from universities and institutions to publish makes academics vulnerable and is leading to a "pay to publish or perish" (p. 68) culture (outlined in Section 2.3.7). Miller et al. (2018) contend that involvement of private investors in research further complicates the research policies of the universities. Academics at these universities are often required to ensure that their publications also adhere to the interests of these private organisations, such as ensuring openness of publications (for example, availability of published output for free access). These pressures on academics to ensure the interests of funding institutions illustrate the degree to which academic publications can be directly influenced by university research policies and research assessment criteria.

Auranen and Nieminen (2010) argue that the publishing performance of academics is also related to the competitiveness of research funding environments. Marinova and Newman (2008) explain that, in a research-focused country such as Australia,[30] the emphasis on research output has been in practice since the early 1990s. Nicholls and Cargill (2011) claim that there has consequently been a steady increase of scholarly output from Australia for more than a decade[31]. Herbert et al. (2015) thus argue that the practice of using academics' publishing track record to determine the funds for research proposals means that research-active academics risk being left behind if they do not produce a sufficient track record of research outputs. Ware and Mabe (2015) observe the significant growth of academic publications from countries in Asia and South America in recent years. Indian universities, for example, placed an emphasis on research and research outputs in the late 2000s (Das and Chattopadhyay 2014). The growth of scholarly output from various countries such as India, China, Brazil or South Africa in recent years (Ware and Mabe 2015) similarly demonstrates that academic publication levels are influenced by the research policies and funding practices of the respective countries.

The significant growth in scholarly output not only creates more competitive publishing environments for academics but also for the universities, as published output is an important criterion for calculating university rank (Sørensen et al. 2016). Therefore, countries and regions (such as Australia, the EU, UK, and USA) that focus on a knowledge-based economy continually revise their research policies (such as introducing performance-based funding) to ensure steady output of academic publications.

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[30] Australia is considered as a research-focused nation when compared other nations such as India, China, South Africa or Brazil.

[31] The journal-based publication metrics in evaluation have increased journal publications. Therefore, the discussions in the present study are predominantly based on journal publications.

Hasselberg (2013) argues that academic publications are a means to achieve their institutional goals in a knowledge-based economy; while Jubb (2012) suggests that the performance indicators of academics are strategically aligned to strengthen and promote the institutional goals. As discussed in Chapter 1, academics working in the Australian research environment are only classified 'research active' if they are producing "refereed conference papers, refereed journal articles, academic books and academic book chapters" (Hemmings et al. 2007, p. 308) as per the guidelines of the Australian Department of Education Science and Training (DEST). Understanding the broader research environment and publishing policies in Australia is therefore vital in identifying the challenges in publishing for academics in Australian universities.

2.4.1. Research Funding Policies in Australia

Research funding in Australia has been an output-oriented system, where the funding for research has been focused on measurable research outcomes as specified in the handbook of Excellence of Research in Australia (ERA). The research environment in Australian universities is based on the research framework (known as ERA) of the Australian Research Council (ARC) (Hicks 2012), which is regularly evaluated and updated. The measurable research outcomes include income from research and the number of academic publications (Auranen and Nieminen 2010).

Genesis of Evaluation Process in Australia

The system of measuring research outcome was partly implemented in 1996. This system affirms the arguments of Marinova and Newman (2008) that the emphasis on published output by the research assessment bodies results in increased publication. The ARC administers research quality through the ERA framework. As noted, the ERA research framework also undergoes changes and modifications at regular intervals to be more competitive on the global front. As the quality

framework aims to identify, promote and strengthen research activities, it follows an evaluation process.

Publication and Research Funding

The practice of using scholarly output for evaluation has been a norm for Australian universities since 1991 (Butler 2003). Although scholarly outputs were part of the evaluation metrics, Butler (2010) observes that allocation of funds for research was not solely based on the publication metrics. The earlier systems adopted in Australia, the 'Relative Funding Model' introduced in 1990 and Research Quantum/Institutional Grants Scheme introduced in 1999, followed a somewhat different approach to the ERA (Butler 2010). Martin-Sardesai et al. (2016) note that the earlier assessments consisted of a combination of performance indicators of which only 10% was allotted to research publications. However, Herbert et al. (2015) observe that the inclusion of publication record and bibliometric measures in the research fund allocation has made publication a compulsory and inevitable process.

The ERA system is a 'university performance review' system based on defined research publications (Martin-Sardesai et al. (2016). With its goals of excellence in research, ERA was trialled in 2009 before being implemented on a permanent basis from 2010 (ARC 2009). As ERA policies are updated on a regular basis every two years, the evaluation criteria are also revised regularly. The research framework of Australia is a broad spectrum that clearly defines what would be considered as research and research activity. It also outlines clearly the eligibility of Australian education institutions (which are referred as Units of Evaluation or UoE in the guidelines) for conducting research activities. The type of publications which could be submitted by the research institutions, even though academics are not restricted from publishing their scholarly works according to their own preference, are also delineated in the research framework. ERA therefore evaluates the research of Australian universities by evaluating the research outputs of their academics.

Australian Research Council (ARC) Framework

The Australian Research Council (ARC) framework and its supporting documentation only articulates the indicators used for evaluation. The documentation thus lists the details of publication types that may be used for evaluating research outcomes and the types of publication that need to be submitted by eligible higher education institutes in Australia. The framework does not provide any information or explanation of the publishing practices that need to be adhered to by the universities. In short, the framework is a simple guideline detailing the information about the documents and details that need to be provided by universities and educational institutions to the research evaluation committees.

Publication Indicators in ERA

The research evaluation criteria included in the ARC framework is not solely based on research publications. However, as the initial ERA (2010) had categorised journals (ranked as A*, A, B and C), the universities moved to implement more rigid publication norms which forced academics to publish only in specified, high-rated journals (Martin-Sardesai et al. 2017a; Cooper and Coulson 2014). Scholars observe that the journal-based publication metrics in evaluation have increased journal publications. Sheil (2014) argues that, even though the journal categorisations helped in identifying good publications, the universities' publication initiatives in relation to journal rankings was misinterpreted by young academics. The journal ranking was dropped from subsequent ERAs (since 2012), as the evaluation criteria based on journal ranking received wide criticism from the academic community across Australia (Martin-Sardesai et al. 2017b). The constant changes to ERA indicate that the ARC is not rigid in its approach to research communication, and that it is proactive in responding to broader changes and stakeholder concerns. Hence, adopting Fligstein's explanation of field, we could conclude that this fluidity in approach to publishing norms ensures that 'rules' within the field are not fixed

and also provide opportunities for its members to enhance their position by seizing the opportunities. However, whether academics are able to seize the opportunity of fluidity of publishing norms needs to be further analysed.

The ARC evaluation, according to Neave (2007), paved way for a ranking system, as the government funding is based on the ARC evaluation report. Liedman (2013) argues that universities, in the present governance approach, have incorporated the evaluation criteria as performance indicators for Australian academics to retain their position in the field of higher education. As the quality and performance report generated through the ARC evaluation process is used for various purposes, including identifying the potential areas of research and innovation for funding (ARC 2015a), academics are under (self)compulsion to align their academic publications based on criteria of ERA evaluation indicators.

Excellence in Research (ERA) Indicators

ERA indicators used for evaluation in 2015-2017 are: volume (research volume) and activity, publishing profiles, citation analysis, peer review, esteem measures, research income, and applied measures (ARC 2016).[32] Although the ERA indicators are broadly classified as indicators of research quality, activity, application and recognition, these indicators are either purely based on publications or include at least one component related to publishing. For example, ERA evaluates research quality "on the basis of a publishing profile, citation analysis, ERA peer review, and peer reviewed Australian and international income" (ARC 2015a, p. 4). Figure 2.2 (extracted from *ERA 2015 Evaluation Handbook 2015*) provides a snapshot of the indicators used by the ERA for evaluation since 2015. The indicator 'volume and activity' helps in determining the published outcomes based on discipline and academic levels. It includes research output for six years, i.e. bibliometric details for

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[32] Although the ERA guidelines are revised in 2018 and include assessment of 'engagement and impact', the previous ERA guideline published in 2016 is analysed and discussed in the present study as the publishing habits gathered from the collected data are for the period 2014-2016.

six years are considered for evaluation; while 'publishing profile' determines the types of publication. The indicator 'citation analysis' is based on publication metrics such as journal and article impact factors. The availability of the published outcomes in specific 'indexed databases' also becomes significant. The indicator 'peer review' clearly categories academic output based on the publication process. While the published outcome is partially included in the indicator 'esteem measures', the two other indicators do not directly include inputs based on published output. However, as Crowe and Watt (2016) point out, ERA indicators and ratings are not entirely dependent on weightage given to publications (even though universities place greater emphasis on publications for the ease of measurement as well as the possibility of achieving the metrics when compared to other metrics specified in ERA).

ERA 2015 indicators

Explanatory Statement

Volume and Activity	Publishing Profile	Citation Analysis	Peer Review	Esteem Measures	Research Income	Applied measures
- Research Outputs - FTE Profile by Academic Level (Staffing Profile) - Research Output by Year	- Books - Book Chapters - Journal Articles - Conference publications - Research Reports for an External Body	- Relative Citation Impact (RCI) profile - Distribution of papers based on world centile threshold and Australian HEP average (centile analysis profile) - Distribution of papers against RCI classes	- Peer Review	- Editor of prestigious works of reference - Recipient of Category 1 Fellowship or Australia Council Grant or Fellowship - Membership of, statutory committee or Learned Academy	- Category 1-4	- Patents - Research Commercialisation Income - Plant Breeder's Rights - NHMRC Endorsed Guidelines - Registered Designs
- FoR codes are apportioned to journal articles from the *ERA Submission Journal List* or FoR of institution's choice where content >66% - All other outputs and eligible researchers can be assigned and apportioned to up to three four-digit FoR codes of the institution's choice - Eligible researchers must be employed on the census date to count towards 'FTE'.	- Journal articles are apportioned against the FoR codes of the *ERA Submission Journal List* or - Institutions may assign to a journal article an FoR code outside of the *ERA Submission Journal List* FoR code, if 66% or more of the journal article belongs to another FoR code.	- Scopus is the ERA 2015 citation supplier - Only applicable to eligible journal articles indexed by Scopus - Low volume threshold is 50 apportioned indexed journal articles.	- Applies to a range of outputs including journal articles, books, book chapters, and non-traditional research outputs - Low volume threshold is 50 apportioned outputs (any type) - Institutions nominate 30% of total output for a FoR for peer review - a research statement is provided with each non-traditional research output for peer review.	- Each individual esteem measure can be apportioned up to three four-digit FoRs of the institution's choice - Esteem must be linked to an eligible researcher of the institution - Individual researchers cannot be identified through the esteem measures.	- Institutions can apportion each income item between as many four-digit FoRs as relevant. - Number of grants is collected for Category 1 income only - FTE is used as a denominator for all categories - Category 3 income is disaggregated into the three subcategories (Australian, International A and International B).	- Institutions can select up to three four-digit FoRs (apportioned) for each applied measure submitted, except for Research Commercialisation Income where there is no limit on the number of four-digit FoR codes submitted - Applied measures are linked to either the institution or individual eligible researchers.

Figure 2.2. Snapshot of ERA indicators at a glance (adapted from *ERA 2015 Evaluation Handbook*, p. 24).

The explanatory statement of ERA indicators (Figure 2.2) further details how scholarly outcomes are used in measuring the performance of the research activity as well as of the researchers. Hicks (2012) explains that indicators used by the ERA align with the research metrics used by world university ranking bodies such as Shanghai Rankings, QS Rankings or Times Higher Education Rankings, which are commonly used to attract international students. Bonnell (2016) also argues that publication metrics directly contribute to these academic rankings. Therefore, to provide clarity, ERA's explanatory statements seek to provide exhaustive detail on

the publication activity and its application in evaluation, based on which an assessment report is created by the ERA team. The assessment report from ERA provides a final comprehensive summary of research quality and performance in Australian higher education institutions and serves multiple purposes, including providing useful information to various government organisations, especially for mapping research priorities, to allocate research funds (ARC 2016). Therefore, universities consider reviewed academic publications to be vital for their existence in the field.

The submission of details, such as journal publications of academics with Field of Research (FoR)[33] codes, are done through the universities, as ERA also rates the research quality of institutions (Crowe and Watt 2016). This process also results in situations where universities emphasise to their academics to submit only articles published in high-ranking, peer-review, FOR-coded journals, to avoid negative impact with the ERA (Trounson 2015). According to Crowe and Watt (2016), institutional discretion plays a significant role in ERA submissions, as universities seek to strategically align the submitted portfolios to the ERA indicators in order to improve their ERA rating. For Bonnell (2016), the emphasis on meeting the ERA assessment criteria by the Australian universities places further pressure on academics on meet research metrics. He argues that this has resulted in researchers chasing the assessment metrics rather than metrics measuring research success. Wilsdon et al. (2015) argue that the use of the same ERA indicators across disciplines has not only led to the misuse of these indicators but also to bias over the disciplines, as journal publication metrics could not be efficiently used in inter-disciplinary or novel areas. Therefore, scholars (such as Bonnell 2016; Wilsdon et al. 2015) argue that using journal publication metrics for evaluating individual academic performance seems unfair. Despite the problems associated with implementation of the evaluation assessment criteria and the ERA process more

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[33]A two-digit code is used for identifying or categorising the broader area of research, while four-digit codes are used for classifying the research into specific sub-disciplines. The FoR list is provided in Appendix C.

generally, their significance for academics' publishing practices has been profound. As Martin-Sardesai et al. (2017a) contend, the ERA represents a predetermined performance goal which has resulted in establishing organisational goals and aligning the academic activities to achieve these goals and aspirations. The ERA, therefore, facilitates universities in strategic decisions to achieve the evaluation metrics. This consequently changes academics' approach to their publishing activities, as the emphasis is on aligning their publishing activities to measurable goals by adhering to measurement indicators.

According to the ERA, 30% of the published output under each FoR category (see Figure 2.2) is reviewed by the internal peer reviewers identified by the ARC to evaluate the publications and rate the research performance of the universities. However, there is no mention about OA in the ERA explanatory statement. The availability of published outcomes through OA repositories is used only for reporting or analysis purposes. It is not an indicator for review by Research Evaluation Committees (RECs), as the committee acknowledges individual preferences and various other factors, such as confidentiality or restrictions on publications, that influence availability of published research output in the open domain (ARC 2016). The ARC, therefore, only encourages scholars to maximise the benefits of research publications by disseminating outcomes to the wider community, by providing access to other researchers through depositing the published outcome into "an open access institutional repository" within one year, and does not emphasise publication outlets (ARC 2015b). The ARC, nevertheless, claims that it provides researchers with the freedom of choice of publication outlet:

> ARC acknowledges that researchers take into account a wide range of factors in deciding on the best outlets for publications arising from their research.
>
> (i) Such considerations include the status and reputation of a journal, book, publisher or conference, the peer review process of evaluating their research outputs, access by other stakeholders to their work, the likely impact of their work on users of research and the further dissemination and production of knowledge (ARC 2015b).

Such statements also clearly indicate that the primary focus of ARC is on the reputation of publishers and the peer review process that was followed rather than on the availability of the published outcome. Although ERA indicators do not emphasise publication outlets, only journal articles available in the indexed database, Scopus, provided by a commercial publisher, would be considered for evaluation. Thus, neither the academics nor the universities can afford to ignore the role of commercial publishers. As universities strategically align their publishing policies to the ARC, only the indicators that are specifically used for ERA evaluation are included in the performance criteria of the academics. This establishes that universities also do not insist on the choice of publication outlet such as print, online or OA to academics. Similarly, universities also take academic ranking into account in their performance criteria, as ERA indicator 'volume and activity' is based on the academic positions. Based on these performance guidelines, we could argue that, even though the academics have freedom of choice in publication, it is the 'capital', i.e. an opportunity to achieve capital to improve their position within the field, that determines their publishing practices.

2.4.2. Publishing: An Interplay of Imperatives

As explained in Section 2.3.7, Harley (2013) argues that academics are motivated to publish for their individual imperatives such as career, tenure, research funding and personal recognition. These individual imperatives constitute 'capital' in the Bourdeusian sense; which is also based on the institutional policies for the individual members of the field; while university ranking, government funds and other imperatives from government are capital for the universities. Hence, academic publishing becomes an important link to attain the capital not only for academics but also for universities and research institutions. Therefore, academic publishing is not just a transmission of information from author to reader but also an interplay of various factors that makes it effective, powerful and useful in addressing the multiple imperatives of the varied stakeholders of the academic publishing environment.

Auranen and Nieminen (2010) argue that research is affected by contextual factors. As academic publishing is an outcome of research activity, it also becomes a practice that is influenced by the contextual factors such as social, political, economical and organisational factors. Although the interplay of different factors that influence the publishing practices have been discussed in this chapter, it is necessary to encapsulate the field of the academic publishing by considering various factors. This study, therefore, postulates Bourdieu's concepts as used by scholars Naidoo (2004), Petit-dit-Dariel et al. (2014) and Vaughan (2008) as a theoretical framework to explain the relationship among various factors of the communication circuit within the field of academic publishing.

2.5. Conclusion

Academics publish their scholarly work not only to communicate their research findings but also to retain and strengthen their position in the field. As any research is conducted with the economic support of their university or other external funding bodies, it is necessary for the academics to ensure that the published outcomes serve the interests of universities and funding bodies. In this chapter, the role of different stakeholders of the academic publishing, namely, universities and funding bodies, publishers and readers, are also analysed. An overview of the publishing policies that govern higher education in Australia has also been presented in this chapter for a better understanding of the background of the research environment prevalent in Australia. As academic publishers are global, the publishing industry, its challenges, practices, and significance in relation to Australian academia, have been discussed. The relationship of the fields of higher education and academic publishing is explored in greater depth in the next chapter, using the theoretical concepts of Bourdieu.

Chapter 3.   Theoretical Framework

The academic publishing background outlined in Chapter 2 is further extended in this chapter by delineating the academic publishing environment using Bourdieu's theory. Where Chapter 2 positioned the role of academic publishing within the field of higher education and explained the dynamics of inter-dependency of academics on the field of publishing for resources, this chapter considers those discussions in greater theoretical depth by considering them in relation to Bourdieu's concepts of field, capital and habitus. Such concepts are more than a theoretical lens; they offer an important methodological foundation for this thesis. By situating academic publishing within its broader social, cultural, political and technological contexts, this chapter will focus on how each of these play a significant role in influencing the publishing practices of academics.

3.1. Overview

Adams and Barker (1993) revised Darnton's concept of communication circuit in publishing in order to demonstrate the critical role that socio-economic factors play in communication within the digital world. Darnton also justifies Adams and Barker's logic. He agrees that the revised concept of communication circuit in publishing also emphasises Bourdieu's argument in *Outline of a Theory Practice* that field norms determine the relationship among various members. Communication of research, therefore, is also determined by various members related to academia. Liedman (2013) argues that academia in the globalised era is influenced by public management models, because universities function as public organisations. Academia, especially in Australia (see Chapter 1), follows an academic governance based on public management (Yates et al. 2017b). The academic governance leads

to the argument that universities could be considered as institutional organisations within a field because universities exhibit their own individual characteristics as well as the collective identity of the higher education field (Naidoo 2004; Petit-dit-Dariel et al. 2014). DiMaggio and Powell (2012a) emphasise that Bourdieu's concept of habitus in *The Logic of Practice* is a powerful concept that could be used in organisation theories to link the micro- and macro-level processes within the organisation. However, Emirbayer and Johnson (2008) argue that organisations themselves are embedded within social and political spheres. Hence, adopting Bourdieu's concept of field for academic organisations, we could argue that universities are organisations embedded within the social sphere, with unique characteristics and identities that could be identified and explained using Bourdieu's concept of habitus.

Adopting the Bourdieu's concepts of field, capital and habitus, Nolan (2012) posits that the activities of the individuals in an organisation are always aligned to meet the goals of the organisation. The present study, following the approach of scholars such as Nolan (2012), Naidoo (2004), Petit-dit-Dariel et al. (2014) and many others who adopted Bourdieu's concepts to explain and understand the practices of individuals in an organisation environment, uses Bourdieu's three main concepts – field, capital and habitus – to identify the relations of individual practices within the environment of institutional fields.

The publishing activities of academics as outlined in Section 2.4 are one of the expected outcomes of research (Nylander et al. 2013). While universities are considered the institutional organisations within the field of higher education (explained in detail in Section 3.3), academics are the members, whose core activities include teaching or research (ERA 2015). To this end, the present study considers the field of higher education as a main or parent field, due to the proximity of academics to the field of higher education. While Bourdieu explains his concepts of field, capital and habitus using the field of higher education; for the purpose of the present study, the field of higher education and its role are re-examined in relation to academic publishing. Before providing an overview of the

field of higher education and related activities (in Section 3.3), it is also necessary to briefly understand Bourdieu's perception of higher education, and its significance in this study.

3.2. Higher Education: Bourdieu's Concept and Its Limitations

Bourdieu conceptualises higher education as a field with values and behavioural imperatives (1986). According to Bourdieu, fields are:

(i) structured spaces of positions (or posts) whose properties depend on their position within these spaces and which can be analyzed independently of the characteristics of their occupants (which are partly determined by them) (Bourdieu 1993b, p. 72).

He further explains that the structured spaces (such as institutional environment or organisation) struggle for dominance (1993). His definition of field manifests that structures exist within the field; they struggle to establish authority or supremacy, the characteristics of the structure depend on their position whereas its uniqueness is not only represented by its members but also reflected through its members. Following on from this view, we can see that, while higher education is a field, universities are organisational structures that struggle to dominate one another within the field by gaining capital (1993). Bourdieu delineates that universities are homologous institutions that are capable of developing their own strategies as a response to the external pressures such as socio-political factors (Bourdieu 1996). Universities, he writes, are 'relatively autonomous' bodies which, through a hierarchical structure, are capable of reproducing a social class (Bourdieu 1996). However, Maton (2005) argues that universities and educational institutions are not only autonomous but also heterogeneous bodies. However, Naidoo's emphasis on the significance of Bourdieu's concept in understanding the institutional relationship with the society offers a slightly different perspective. In his analysis of

the strategies used by South African universities in times of political instability, Naidoo (2004) argues that Bourdieu's concept of higher education as a field critically explains the complex relationship of the educational institutions and the society. However, Naidoo and Jamieson (2002) recognise that Bourdieu limits the use of his concepts to provide an understanding of the institutional structures to society only, and does not focus on internal struggles or processes within the university structure to ensure their dominance in the field.

Various scholars (Naidoo 1999, DiMaggio 1979) feel that Bourdieu purposefully excluded the details of internal institutional structure in his study. DiMaggio (1979) argues that, although Bourdieu's idea of 'relative autonomy' of the university in *Homos Academicus* (Bourdieu 1988) is important for understanding higher education as a field, it nevertheless lacks clarity in explaining the idea of relative autonomy in his study. Similarly, Maton (2005) emphasises the need for further expansion of the concept of 'autonomy' for better understanding the field of higher education. Naidoo (2004) also argues that Bourdieu's concept of field ignores the 'process' of relating universities' choices for reproducing social structures and also the internal structuring in relation to social structures. However, Sullivan (2002) asserts that, despite Bourdieu's limiting his concepts to explain the relationship of educational institutions and society, his theory remains highly influential and useful for any empirical research within the educational environment. At this point, it should be noted that the role of universities in reproducing structure is not necessarily related to the present study, because the emphasis here is on choices of members or agents in the field and not how social structure is emulated.

Although scholars argue that Bourdieu has avoided or excluded the internal struggles of the field are valid, his concept of 'field' is nevertheless effective in relating the choices of the field members to internal structure as well as in relation to social structures, which is the core focus of the present study. As this study explores the ways in which academic publishing practices are related to internal structure (university policies) as well as related to social structure (governmental

framework and economic focus), Bourdieu's concept of 'field' presents an appropriate and revealing framework.

Academic publishing is complex, on account of the multiple stakeholders with diverse interests. To this end, Bourdieu's theory presents a further opportunity to identify and explore the various influential factors involved in publishing practices of academics. The lack of clarity on 'autonomy' of universities in Bourdieu's theory is explained using the organisational theory of DiMaggio and Powell (200; 2012); while internal changes and transformation according to the changing society are explained using the sub-field theory of Fligstein and McAdam (2012).[34] While institutional theory helps in explaining the autonomy as well as the corporatised functioning of Australian universities (universities as organisation within a field), Fligstein and McAdam's theory on 'strategic actions' of field helps in understanding the reasons as well as relational structure of universities; which, according to some scholars (such as Naidoo and Jamieson 2002; Naidoo 1999; DiMaggio 1979), have been unexplained or unexplored by Bourdieu. In summary, these theories, as extensions of Bourdieu's theory, explain the complexities, adaptability and rationale of internal structures, while Bourdieu's concepts explain: to what extend the habits and behaviours of individual members are influenced by the internal and external social structures; and how the individual strategies and practices help them to retain their identity within the field. Hence, in the present study, Bourdieu's theory is relevant for addressing the key issue analysed: the logic of publishing practices followed by academics in Australian universities.

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[34] Both these theories are influenced by Bourdieu's concepts and theory, and could be considered as expansions of Bourdieu's field theory.

3.3. Relevance of Bourdieu's Theory in this Study

In *Outline of a Theory of Practice*, Bourdieu unveils the internal function and social role of higher education using an empirically grounded framework based on the notions of fields, capital, symbolic power and habitus. He uses these notions to explore the higher education system of France (Deer 2003). Naidoo (2004) argues that even though Bourdieu's theory was developed during an era where higher education enjoyed autonomy and was free from commercialisation, his theory is arguably even more appropriate in the present context, because it helps in explaining the role of hierarchy as well as top-down management approach prevalent in the field of higher education. The conditions that could lead to de-autonomisation[35] explained by Bourdieu in his work, *The Rules of Art: Genesis and Structure of the Literary Field* (Bourdieu 1996), provide an insight into the sociological understanding of the economic factors influencing the restructuring of higher educational institutions (Naidoo 2004, Robbins 1993). Robbins (1993) emphasises that educational institutions, in the present context, are no longer autonomous, and function like corporate organisations since they "market themselves as institutions" (p. 159) to attract students, gain financial benefits from industry in way of sponsorship, and so on. This, according to Robbins (1993), reinforces Bourdieu's theory of practice that "individual agents are impotently subordinate instruments of institutional instruments" (p. 159). Deer (2003) argues that Bourdieu's analysis of the role of social practices within higher education unintentionally explores "the extent to which knowledge and research could become fully-fledged commodities increasingly devoid of culturally symbolic value and submitted to the law and influence of the economic field" (p. 198). Since the performance evaluation measures implemented in higher education for academics hinges on research and research publication, Bourdieu's concepts, the thinking-

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[35] Bourdieu argues that economic resources from external fields have the ability to dictate terms within a field; resulting in potential destabilisation of the autonomous power of the field.

tools, field, capital and habitus, become the appropriate tools for the present study to explain and explore the publishing practices of academics.

Bourdieu's theory of practice has also been used by various scholars (Petit-dit-Dariel et al. 2014; Nolan 2012) to analyse the challenges and complexities of educators in performing their roles as facilitators of knowledge, practitioners, and faculty. Thompson (2005), however, uses only the concept of field to analyse the technological impact within the publishing industry.[36] Naidoo (2004) argues that universities implement strategies "to improve or defend their positions in relation to other occupants" (p. 459) of the field by gaining capital with the help of individual members of the field. She also argues that using Bourdieu's constructs help us to understand the relationship between structure and occupants of the field. Albright et al. (2017) posit that Bourdieusian field analysis provides relational understanding of: (a) the 'macro-forces'[37], the external structures and internal organisations (meso-structures; i.e., the universities); and (b) how these structures determine the different individual (micro-level) strategies or practices that are adopted in response to the external pressures. The interplay of the different hierarchical levels of the higher educational field is significant in relation to publishing practices, as the interplay also offer insights into the role of universities in creating the hierarchical structure. To understand academics' publishing practices, it is necessary to identify the challenges and its relation to the practices. This understanding is possible only by examining publishing practices using Bourdieu's concepts of field, capital and habitus as research method. These concepts provide us with an opportunity to evaluate succinctly how publishing practices become embedded within the larger structure of institutional organisations such as a university or government.

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[36] According to Thompson, the field of academic publishing is highly interwoven with the field of higher education; Bourdieu also referred higher education as an academic field.

[37] 'Macro forces' refers to the overall factors that influence universities and includes factors that are not directly related to education.

3.3.1. Universities as 'Institutional Organisations'

The structure of higher education, as explained by Petit-dit-Dariel et al. (2014), can be categorised into three levels: micro (the immediate day-to-day activities or functions of individuals), meso (the collective actions that represent the group or university or department) and macro (overall governing bodies that set the goals of the organisation that are to be achieved). As Emirbayer and Johnson (2008) note, micro-level actions are the results of meso- and macro-level phenomena. However, Gray et al. (2015) argue that macro-level actions are societal norms, whereby field-level structures and actions can be translated as institutional logics leading to the meso-level activities. Therefore, the individual imperatives of academics, within the institutional environment, are guided by objective structures (Naidoo 2004), such as universities or research funding bodies. According to DiMaggio and Powell (2000), the structures within the field are results of 'patterns of relations' of organisations that are involved in the common enterprise. Therefore, we could conclude that universities and research funding bodies, based on their definition, are autonomous members that are related by institutional practices. To this end, they exhibit similarities in their activities and aim to achieve similar goals; they connect and compete with other similar organisations of the higher education field. Martin (2003) argues that, even though institutions are defined by definite patterns or rules, the opportunities of arbitrary choice are narrowed when the individual members enter or associate themselves with an organisation. DiMaggio and Powell (2012b) state that the organisational structures align themselves to the norms and expectations of the field, thereby establishing a meso-level structure within the field. Hence, universities and research organisations with their similar goals (contributing to society by creating knowledge) occupy a meso-level position in the structural hierarchy of the higher education field. When universities become the meso-level structure, academics (more specifically, researchers) are the individual members that constitute the organisation, i.e., micro-level members of the field. Petit-dit-Dariel et al. (2014) emphasise that the publishing practices of academics are based on different contextual variables which we could associate with macro-

and meso-level structure. Although academics perform various activities that are related to macro- and meso-level structures, this study's focus on the publishing habits of individual academics positions itself at the micro-level – but this cannot be separated from the other levels. Discussions of the theoretical approach to the field of higher education reveal that micro-level publishing activity is strongly influenced by meso-level factors such as university publishing guidelines, which in turn are bounded by the norms of the macro-environment of national research framework as well as the higher education field (i.e. other governmental policies that influence research and research output).

The macro-levels factors influencing the publishing industry include, but are not limited to, the economic and political factors and meso-level factors. These include institutional strategies, including their vision and mission, which have been discussed in various studies (Carreiro 2010; Cope and Kalantzis 2011; Clarke 2012; Böing 2012). Although these factors are associated with macro- and meso-structures, they do not necessarily determine the behaviour of individuals (Power 1999). This is because neither the field nor the structures within the field dictate practices. Practices adopted by the members are 'contextual' and are related to their position in the structural environment (Watkins 2017). Emphasising that Bourdieu's concept of habitus explains how individual behaviours (micro-level actions) are shaped by the social structure (meso- and macro-structures) and reflected in their individual practices (micro-level activities), Reay (2004) illustrates the insights that Bourdieu offers to the present study.

Adopting Bourdieusian theoretical lens, we can see that 'field structures the habitus' (Reay 2004). Government research policies, as well as the research policies adopted by the universities (specifically, ERA and performance metrics adopted by Australian universities), thus determine or at least directly impact on the publishing practices of academics. However, what remains to be explored is the extent to which the publishing practices are influenced by external and internal field as well as how members at different positions (academics at different levels) perceive the influence. Furthermore, why and what different factors of the field shape the

individual publishing practices of academics need to be explored and analysed to understand how academics ensure their publication numbers despite their constraints and challenges.

Although Bourdieu's concepts have been discussed throughout this chapter (and in previous chapters), it is important to articulate a clear delineation of the concepts, field, capital and habitus. This will establish the boundaries of the field, provide an understanding of the capital at stake, and, in turn, illustrate what constitutes the publishing habits or practices of academics within Australian academia. Following Albright and Hartman (2017) claim that a clear delineation also helps in understanding the limitations of a field analysed (along with the limitations of a study), the next sections outline these concepts in greater detail.

3.3.2. Concept of Field in this Study

Field, according to Bourdieu is "a structured space of positions (or post) whose properties depend on the position within these spaces and which can be analysed independently of the characteristics of their occupants" (1993, p. 72). His definition establishes that field exhibits a structure and could only be understood or explained relationally, that is, by taking into account different inter-related factors, including the power relations within the defined space (Nolan 2012). In other words, Bourdieu's concept of 'field' can be summed up as "a structured space of social positions whose properties are defined primarily by the relations between these positions and by resources attached to them" (Nolan 2012, p. 30).

De Nooy (2003) argues that Bourdieu's emphasis on social positions manifests the meaning of a structure to be relational. In other words, whether institutions or individuals, the social structure is derived from their respective "position to one another within the field" (De Nooy 2003; p. 305) rather than their characteristics. Hence, field is constructed based on 'system of relations and differences' rather than 'a set of attributes' (De Nooy 2003).

Nolan (2012) contends that Bourdieu's emphasis on the power relation existing among its members or occupants creates hierarchy with the field. Bourdieu and Wacquant (1992) argue that field in itself is a social construction where members compete to gain advantage over one another, because it is a "network or configuration, of objective relations between positions" (p. 97). The positions are not only objectively defined, but each "commands access to specific profits that are at stake in the field" (Bourdieu and Wacquant 1992, p. 97). Therefore, according to Bourdieu, structure within a society is caused by power relations (De Nooy 2003). A field within a society, then, can be understood to be structured by the power relations within society as well as the field's relations among one another (De Nooy 2003). De Nooy also argues that Bourdieu's emphasis on 'power' establishes that relations are not based on subjective interactions. The relation is, rather, objective because it is based on capital which the members have to endure consciously or unconsciously (Emirbayer and Johnson 2008).

Albright et al. (2017) contend that Bourdieu asserted that any actions or interactions of the field are structural rather than intentional in nature. Hence, field is not a social network but a network of social structures (Nolan 2012); which, according to Vaughan (2008), makes it a place of constant struggle as power results in inequality and each agent will try to retain or attain dominant position. These interpretations of Bourdieu's concept of field emphasise the inherent competitiveness that exists within any field. Although many scholars emphasise 'objectivity' of field in Bourdieu's concept, Fligstein and McAdam argue that Bourdieu also considers 'field' as a subjective social construction that is based on shared meanings of social setting and situations (2012). Hence, field forms a meaningful cultural understanding within the context – in other words, field is contextual. Field, thus, can be situated within a context; and it is necessary to explain the context by explaining the background, social, political, cultural and economic factors that contribute towards the setting of the field (Mutch 2006). Therefore, it is necessary to provide a brief understanding of field from the

perspective of academic publishing in Australian academia which is adopted in this study.

Field of Higher Education in Australia

Bourdieu conceptualises educational institutes as members of cultural understanding that function within the framework of a social structure to transmit the inherited culture and knowledge, which is regarded as the "undivided property of the society" (Bourdieu 2003, p. 64). Naidoo (2004) explains that educational institutions also successfully reproduce a social class by following the fundamental principles that exist within the society. Institutions, according to Lincoln (1995), possess a "tendency for social structures and processes to acquire meaning and stability in their own right rather than as instrumental tools for the achievement of specialized ends"(p. 1147). Therefore, the field of higher education at macro-level, within the present study, is the political and economic factors that lead to an objective relation of the field to the government policies related to research, research funding and other related higher education policies.

Universities are organisational members within the broader environment of field. According to Fligstein and McAdam (2012), field is not an autonomous world. Multiple fields are therefore embedded within each other as a complex network. The external (related or non-related) fields of the society to which the organisational members or individual members have an objective relation become the macro-level social factors of the field. According to Bourdieu, the "external influences are always translated into internal logics of fields, mediated through structure and dynamic of the field" (Bourdieu and Wacquant 1992). Therefore, any field-level objective relations could result in a field being directly or indirectly dependent on other fields. However, there are occasions where a field may remain unrelated or unaffected by other fields (Fligstein and McAdam 2012). Swartz (2012) notes that this status is also dependent on the value of capital they possess.

As this thesis centres on the factors that impede the publishing practices of academics in Australian universities, only the fields (as well as structures) that are closely associated with the publishing activity of Australian academics will be considered as related fields. To this end, this study is an exploration of the structural relation between "the occupants, agents or institutions", based on the structures in dominant (power) or homologous positions to influence academic publishing or communication of research outputs. Within this study, the field of higher education is dependent on the governmental bureaucracy of Australia for its existence. However, it is also dependent on the field of publishing (adopting Thompson's argument) to ensure the published output. Meanwhile, in this study, other fields, such as the technological field, which impact publishers are not considered to be a (direct) relational field to Australian academia in regard to its publishing-related activities.

Robbins further elaborates Bourdieu's argument of higher education as field by explaining that academics, tutors and researchers all operate as individual actors who are "subordinate instruments of institutional intentions" and possess an "ability to modify the institutions by which they are partly constrained" (Robbins 1993, p. 159). DiMaggio (1979) elaborates Bourdieu's recognition of the educational institutions as relatively autonomous members embedded into the field of higher education. The autonomous institutions are therefore meso-level structures that are influenced by the norms of the broader environment – the field of higher education, therefore establishing the norms of the structural hierarchy within the field.

Based on the theory of Fligstein and McAdam and DiMaggio and Powell, we can conclude that universities are autonomous members of the field of higher education, which cooperate as well as compete amongst themselves, as their position within the field is dependent on the resources they possess. However, it should also be noted that the present study is not concerned with the role or structures of higher education institutions in relation to teaching or educating the society, such as in Naidoo (2004) or Mutch (2006). Similarly, this thesis does not examine the focus of the field of higher education in transforming the society or its relational position

within the society. In short, the dependent or external fields of this study concern resources related to publishing. Bourdieu refers to such resources possessed by the occupants of the field as 'capital', which will be examined in the following section.

3.3.3. Concept of Capital in this Study

In his study, *The Forms of Capital*, Bourdieu defines 'capital' as:

> an accumulated labour (in its materialised form or its "incorporated" embodied form), which when appropriated on a private, i.e., exclusive, basis by the agents or group of agents, enables them to appropriate social energy in the form of reified or living labour (Bourdieu 1986, p. 241)

Manifesting itself either in material or embedded forms, capital has the ability to produce profits beyond economic gain to encompass cultural and social capital (Svendsen and Svendsen 2003). According to Bourdieu, capital is also "the aggregate of the actual or potential resources linked to the possession of durable network of more or less institutionalised relationships of mutual acquaintance and recognition" (p. 248). Bourdieu's capital therefore includes "all its forms not only in the one form which is recognised by the economic theory" (p. 248). Hence, Svendsen and Svendsen (2003) argue that capital can be operationalised to include a broad range such as financial, cultural, technological, social, political and symbolic forms of capital, both material and non-material aspects. Vaughan (2008) notes that Bourdieu's conceptualisation of capital is the key factor that explains the dominance of members within the field as well as the domination of the field. As power is linked with possessed resources or capital, De Nooy (2003) argues that Bourdieu's emphasis on power relations in the field enables institutions or individuals with the right capital to acquire or maintain more power. According to Naidoo (2004), Bourdieu's concept delineates that possession of capital not only provides membership to the field but also the power and ability to influence and dominate other agents (Petit-dit-Dariel et al. 2014). Therefore, the factors that contribute towards various form of capital include: research funding or salary, career or tenure

(economic), education or knowledge (cultural), peers, academic or publishing network, academic positions (social), and status or reputation (intellectual or symbolic capital).

The ability of actors to accumulate capital determines their "power or influence, and thus, to exist, in the field" (Bourdieu and Wacquant 1992, p. 98). Capital is also dependent to the structure of the field, actors' position within that field, and their personal or social traits, which have helped them to enter the field (Petit-dit-Dariel et al. 2014). Institutional bodies (in the present study, universities) compete against one other within the field to improve their position (DiMaggio and Powell 1991). Universities also struggle to gain capital in the field of higher education to attain dominance and to strengthen their position in the knowledge-based economy (Naidoo 2004). Naidoo and Jamieson (2002) further argue that elite intuitions have a competitive edge over other institutions, as they possess greater financial capital as well as other resources to protect and restructure themselves, in order to retain their dominance in the field and to withstand any adverse socio-political and/or economic changes. Economic capital thus plays a significant role in the field of higher education.

Flemmen et al. (2018) argue that the positional relation of structure within the field is defined by the possession of the capital. Bourdieu argues that, even though each field is dominated by a particular form of capital (either economic or non-economic capital as cultural capital), it is possible to notice the predominance of economic and market success in a field – particularly where it involves large-scale production (Bourdieu and Wacquant 1992; Anheier et al. 1995). Despite the importance of cultural and symbolic capital within the higher education field (owing to its significance in knowledge production), the field of higher education or research continues to be dominated by economic capital. Not surprisingly, the positional relation of the institutions and their members within the field of higher education are collectively motivated to accumulate cultural, intellectual and economic capital.

DiMaggio (1987) argues that the hierarchical structure of institutions within a field is the dominant form of capital (economic) and that the social structure is based on cultural and intellectual capital. Svendsen and Svendsen (2003) argue that Bourdieu's concept of capital provides the micro-meso-macro linkage between the structures, as capital operates at all levels. For universities, research is an important subfield, and academics are individual social actors within that field who are in a position to assist them in acquiring wealth. In a knowledge-based economy, research and research communication is considered to be an important activity that will help universities and educational institutions in improving their positions in the field. Therefore, the relation between the universities and individuals of the field continue to be dependent on the cultural (or intellectual) capital they possess, which is materialised through the research publications.

Cooper and Coulson (2014) opine that academic qualifications and their ability to foster research and research-related activities (including communicating their research outcomes) are personal and social traits that help researchers to successfully enter the field of higher education. Consequently, academic publications become an important factor for accumulating all capital[38] not only for universities but also for individual actors (Cooper and Coulson 2014). Naidoo (2004) argues that, since field is a place of constant struggle, institutional embodiments within the field use strategies to overcome the challenges. Therefore, micro-level (in other words, normal or regular) actions of individual academics are also linked to macro-level processes of the institutions, because habits or practices shape organisations, and vice versa. The personal and social traits that influence daily activities are referred to by Bourdieu as *habitus*.

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[38] Academic publishing helps in accumulation of economic capital, as it is closely linked to funding allocation and helps in improving the international ranking which attracts students. As it increases the reputation of the university, academic publishing represents intellectual or symbolic capital; and its contribution to knowledge helps to attain cultural capital. As academic publication helps to gain recognition as well as an edge among other universities, it helps in accumulating social capital.

3.3.4. Concept of Habitus of this Study

Habitus is defined by Bourdieu as a "system of durable transposable dispositions" which leads to "generate and organise practices and representations that can be objectively adapted" (Bourdieu 1990b, p. 53). It therefore is a "designated a way of being, a habitual state" (1984, 562, footnote 2). The term habitus, according to Petit-dit-Dariel et al. (2014), is used by Bourdieu to explain an implicit feature which leads to habitual practices. Nolan (2012) argues that Bourdieu's habitus might be better understood as the underlying actions, such as thoughts, beliefs, perceptions or altitudes, of the agents in a field, which are unconsciously shaped by the practices within the field. Habitus refers to an individual's 'disposition' to think or act in particular way (Naidoo 2004) and manifests "as an interplay between the individual and the collective" practices (Petit-dit-Dariel et al. 2014). According to Bourdieu, habitus produces specific practices insofar as "it organises practices and perception of practices, but also a structured structure" (1984, p. 170). Habitus is formed by the "objective structures" and is the source of socially constituted and structured situations "in which agents' interests are defined" (1977, p. 76).

According to Bourdieu, practices can be accounted for only by relating "the objective *structure* defining the social conditions in which habitus is operating" (1977, p. 78). He affirms that "habitus is the universalizing mediation which causes an individual agent's practices" (1977, p. 79) (either as an individual or collective group). Habitus, or in other words, practices, is shaped (or formed) in the relationship/s that exist between the individual 'habitus dispositions' and the structure of the field (Albright et al. 2017). Therefore, the publishing habits of academics help individual academics to establish their own identity, as well as that of their universities (or nations), to build their credibility and reputation in society (or, indeed, the broader world) as centres of excellence for education and innovation.

According to Nolan (2012), habitus is important in understanding social practices, as every decision or choice of the individuals in a field is determined by how they embody their experience of the structure and relations. As emphasised by Bourdieu, habitus is not only formed or produced by social interactions; it is also reproduced by social interactions. Habitus is therefore based on individual understanding, interpretations and actions from different layers of structures, such as micro-, meso- and macro-levels (Vaughan 2008) and its relation to capital (Widin 2017). To this end, the concept of habitus in the present study becomes a way of understanding how social structures, i.e. the macro- and meso-level factors (research policies, funding organisations and universities), shape the micro-level activities that result in publishing practices of academics.

For Bourdieu, habitus is an embodiment that shapes one's way of thinking (Albright et al. 2017). Hence, scholars (Reay 2004; Albright et al. 2017 and others) consider Bourdieu's concept of habitus as being multi-layered and complex. They also see it as being dependent on each situation. Habitus therefore encompasses the general actions of individuals as part of a society (collective), as well as the individual actions that differentiate or shape them from other members or practices. Albright et al. (2017) further argue that the multi-layered complexity of the concept explains how the same instances of habitus could lead to different practices and understandings, owing to their position or situation with the field. Therefore, the concept of habitus becomes a significant tool in explaining how academics following the same or similar publishing habits devise and implement different practices and strategies in achieving their capital. This helps to account for the fact that, although publishing habits are an essential part of academic life in Australian universities, not every academic can claim to have successful publishing practices.

According to Emirbayer and Johnson (2008), habitus is a process that links actions to the macro-structures within the field through the individual actors. Vaughan (2008) also considers habitus as an analytical link that helps us to relate the behaviours of individuals to the social structure. As the communication process integrates itself with the organisation and field they are associated with, the

publishing practices of academics emerge as individual behaviours that help them to connect with their field of expertise. This relationship rationale of the Bourdieusian concepts, habitus, field and capital, in the present study helps in addressing the subtle interplay of different stakes in academic publishing.

3.3.5. Analytical Link of Bourdieusian Concepts in this Study

In the field of higher education, publishing habits of academics are underpinned by the inherent desire to communicate and disseminate research outcomes (habitus produced by field). As academics are also the representatives of the university, they are associated with the identity of the university as well as their goals. Such identification will also be reflected through their habits: their individual choice of publications is determined by the strategic process they adopt to meet their respective university expectations (influenced by structural positioning).

Since the 1990s, academic publications have become increasingly important proxies by which new academics prove their eligibility to enter the field of higher education (i.e., possession of cultural capital). Naidoo (2004) argues that, as habitus is based on conceived notions of the social structures in the field, it is not static and could be changed over a period of time depending on the various other factors. To this end, habitus helps individual or collective actors not only to enter the field but also in accumulating the capital to improve their position in the field. DiMaggio and Powell (2012a) emphasise that habitus, as a micro-level process, is also the foundation for meso- and macro-level structures within the field, and that it additionally helps in building the organisation structure. They argue that the selective perspectives of the actors are shaped by 'motivation' and 'need' to retain or achieve dominant position within the field. According to Bourdieu (1977), the dominance of the field is attained only by habitus. Habitus offers a practical as well as a creative guide that helps to address the relations within the field and overcome micro and macro divisions. Therefore, the habitus of academics, which leads to practices, are the core strength of the universities for their existence in the field.

Academics are actors in the field of higher education, who seek opportunities to improve their position in the field. They are also collective actors who are instruments of the universities to strengthen their position in the wider field. Figure 3.1 shows the relations between micro-, meso- and macro-levels in the higher education field. The individual parameters are micro-level; whereas university or department issues are meso-level; and the broader environment such as education policies of the countries and global higher education environment are macro-level.
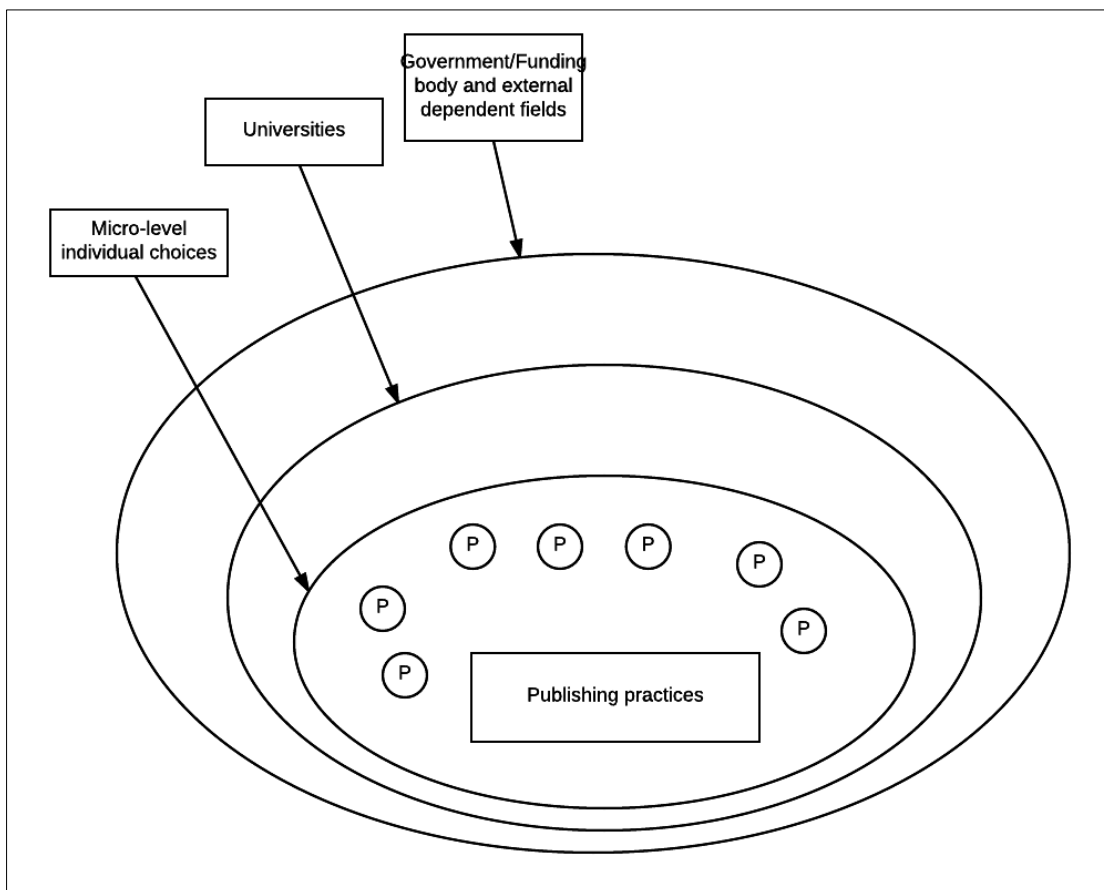
Figure 3.1. Representation of structure of higher education and publishing practices of academics (inspired from a graphical representation from Petit-dit-Dariel et al. (2014)).

Although actors are independent in their actions, they nevertheless follow the inherent norms of the field as a class or group (Bourdieu 1993b). In the present

study, the only inherent norm considered is academic publishing. Academic publishing is therefore used by individual academics to distinguish themselves, as the expertise of their discipline. The criteria set by the ARC, and publishing policies and criteria adopted by Australian universities, likewise contribute as field factors. Professional or research goals of academics become the factors that contribute towards capital. Bourdieu's concepts thus provide an important and useful way of understanding and explaining how the publishing habits of academics interact with external and internal factors on the one hand, and the degree to which individuals correspondingly tailor their publishing strategies on the other hand.

3.4. Conclusion

The field of higher education is closely interwoven with the field of academic publishing. Higher education, in a Bourdieusian sense, is a field with structured hierarchy, where the organisations (universities and educational institutions) as well as the agents (academics) of the field struggle to dominate the field by acquiring capital (professional goals). Bourdieu's concepts, field, capital and habitus, provide an important framework for developing a nuanced understanding of the publishing environment from the perspective of academics. It also provides scope to identify the extent of challenges faced by academics when publishing, as well as the nature of the strategies they adopt to overcome those challenges, to ensure their publication goals, and to establish their position as having expertise in their discipline.

By outlining Bourdieu's concepts, this chapter illustrated the ways in which these concepts can be used as a structure for understanding the Australian academic publishing environment. Moreover, Bourdieu's concepts provide a framework for the research design and questions that will be discussed in the next chapter.

Chapter 4.   Methodology

4.1. Introduction

This chapter presents a detailed discussion on the research design process, constructs and methods adopted to address the research questions discussed in Chapter 1. The chapter draws on the conceptual and theoretical frameworks formulated in Chapters 2 and 3 to explain the operational indicators framing the issues from the collected data. The chapter justifies the research paradigm whilst explaining the respondent criteria and data collection strategy. Finally, a comprehensive discussion on the statistical procedures adopted for evaluating statistical inferences of the data collected from the survey are explained.

As discussed in Chapter 2, despite the significance of academic publishing in various ways, the challenges faced by academics in ensuring their publication numbers and academics' perceptions on issues related to publishing have not been adequately explored. Hence, this study attempts to address the gap in understanding of how academics ensure their research output, by describing the extent and nature of the adaptive strategies adopted by academics in research-focussed universities to overcome their challenges.

This overarching research aim is addressed using the following hypothesises:

> **H1:** Researchers adopt strategies to overcome these challenges to ensure high-volume publications
>
> **H2:** Publishing habits of researchers are framed by universities or institutional policies.
>
> **H3:** Individual publishing choices are influenced by publishing opportunities provided by publishers only if they help to meet university expectations.

These hypotheses are examined using a systematic approach. Creswell (2013) explains that a research design provides a systematic approach to a study. In the present study, the research design is based on the quantitative approach (explained in detail in Section 4.2). According to Creswell, a research design is formulated by three elements: (i) form of inquiry, namely, knowledge claims; (ii) strategies; and (iii) methods that will be adopted for the study. The following section explains the design by detailing the nuances of the above-mentioned elements in this study.

4.2. Research Framework

A research study, according to Crotty (1998), is guided by a theoretical perspective and a methodology, i.e. the strategy or plan that relates our choice of methods, such as techniques and procedures followed to achieve the outcome. Creswell (2013) classifies the approaches as quantitative, qualitative, and mixed, based on the inquiry strategy. The technique that is used to identify the participants for gathering the necessary information that helps in answering the research questions, and how the collected data will be interpreted, are the plan and method in a research design, respectively; also known as framework of the study. The research framework of the study, as emphasised by Silverman (2013), is based on the research inquiry as well as the aims and objectives of the project. A quantitative approach is considered to be more suitable for answering the research questions and addressing the problems that are explored in the present study, which can be motivated as follows.

Firstly, this study addresses *what* is the research problem, *how* extensive the problem is and the ways in which the problem may be overcome, rather than analysing *why* there is a problem. This study, according to the rationale of Neuman and Kreuger (2006), is influenced by positivism. The aim of positivism is to seek, understand and identify the variables to objectively measure and predict the relationship among different factors (Neuman and Kreuger 2006). The aim of this study, thus, is to seek, understand and identify the variables that challenge academics in publishing their research. The study also objectively measures the

relationship among various factors that cause challenges for academics in publishing.

Secondly, the attributes common to a positivist paradigm, according to Neuman and Kreuger (2006), are: objectivity and detachment of the researcher; discovery or development of knowledge through precise measurements; and deducing the inferences by testing the hypotheses using abstract theories. The rationale behind choosing a positivist paradigm for the present research is explained in the next paragraph. The rationale adopted in this study, supported by scholars such as Babbie (2014) and Bryman (2015) is based on the attributes described by Neuman and Kreuger, which are detailed in Table 4.1 .

Table 4.1. Research paradigm used in this study, adapted from Neuman and Kreuger (2006).

Attributes (Neuman and Kreuger 2006)	Positivism	This study
Why research?	To discover laws and to improve or predict outcomes	Describe the nature of the publishing challenges for academics
Nature of social reality	Pre-existing patterns can be identified or discovered	Understand the practices and extent of the practices adopted and followed by academics to ensure prolific publishing
Nature of human beings	Self-interested, rational human beings who are affected by external factors	Factors and extent of factors that affect the publishing choices of academics
Role of common sense	Clear distinction between concepts and notions	Assumptions are based on existing practices and norms identified through literature review
Theory or explanation	Logical and deductive based on definitions and axioms	Used as lens in deducing the information from data
Determining whether explanation is true or false	Is it logically connected to theory based on facts?	The study can be replicated and the findings could be generalized
Good evidence	Based on precise observations	Arguments of the study are based on information deducted from the data and not based on intuitions or feelings
Values	Science is value free and values plays no role other than choosing the topic	This study is based on a systematic approach and researcher plays the role of objective observer, that is, does not influence the participants

The third column in Table 4.1 explains how the positivist interpretation for each attribute of Neuman and Kreuger is reflected in this study. According to Neuman and Kreuger, the role of a researcher in a positivist paradigm should be objective, and information should be deduced from the data using scientific calculation and observation. In the present study, the researcher plays the role of objective observer and facilitator rather than being directly involved as participant, because the information is collected from the participants with minimal intervention by the researcher. A positivist approach helps in measuring and understanding the reality of the issues explored in this study. Arguments in this study are based on the logical facts deduced from the collected data and are not based on any intuition or feeling. Inferences are deduced from the data using Bourdieu's theory of field, capital and habitus as lens. Bourdieu's theory guides this research in delineating the publishing environment, and identifying the hierarchical structure and factors that influence publishing, as well as in providing an understanding of academics' practices and behaviour in relation to publishing. All the above-mentioned attributes (also explained in Table 4.1) reflect positivism (as explained by Neuman and Kreuger). Hence, the positivist paradigm becomes a natural choice for this study. The information collected from the participants are categorised based on the operational constructs (detailed in Section 4.4.1) and critically evaluated using theoretical framework (detailed in Section 4.3) adopted in this study.

4.3. Theoretical Framework

In this study, theory acts as a lens in analysing the findings. Theory, in this study, informs how different factors become significant in the publishing environment, and it also helps in identifying the operational constructs related to challenges and strategies. As explained in Chapter 3, Bourdieu's theory of practice (Bourdieu 1977) allows us to analyse how objective social structures such as university and research environment influence the individual habits (publishing mechanisms followed by academics) in this professional environment. The operational variables of this study are defined using this theory. The theoretical constructs used for measuring data in this study are deduced using Bourdieu's concepts of 'field', 'capital' and 'habitus'.

The term 'habitus' (explained in detail in Chapter 3) refers to the daily or normal activities of the individual. Here, in this study, habitus is used to explain the publishing practices of academics. As detailed in Chapter 3, academics possess different forms of capital, i.e. economic, social, cultural and intellectual capital, in varying proportion. Publishing practices (micro-level activities) are influenced by factors such as field, the research framework of their respective countries (macro-level factors), and their university norms and policies, as related to research publications (meso-level factors). Academics aspire to increase their possession of capital (thereby achieving professional goals or personal aspirations) to improve their position within their university and research environment[39]. The hypotheses of this study also reflect that the strategies or mechanisms followed by academics are individual publishing practices (habitus) which help them in achieving their capital. The strategies are also determined by external factors, such as policies and norms of the universities and research environment they are associated with (the field of existence) as well as the publishing opportunities that are available to them (through the related field). These basic understandings (elaborated in Chapter 2) define the conceptual and operational variables.

The process of defining the conceptual and operational variables that are used as a measuring aid to address issues examined in a research is known as 'operationalisation' or research strategy (Bernard 2012; Bryman 2008). The research strategy followed in the present study is explained in detail in the following section.

4.4. Research Strategy

A research strategy has the following components: context of research; and concepts that will be measured and processed from the collected information to infer the outcomes of a research (Bryman 2008). As emphasised earlier, the primary

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[39] The concepts are explained in detail in the section, 'Theoretical Framework', in Chapter 2.

aim of this research is to describe the challenges faced by academics in ensuring regular publication of research work. Hence, the two main concepts measured in this study are 'challenges' of publishing in academic environment and 'strategies' adopted to overcome these challenges. The operational concepts have been formulated by critically evaluating the existing literature. The parameters that help in identifying publishing challenges faced by academics are used as variables for measuring the impact of publishing challenges. The procedural steps, followed for collecting the required information related to the constructs, *challenges*[40] and *strategies,* to address the aims of this study are detailed in the following section.

4.4.1. Research Procedure

This study is divided into three stages. In the first stage, existing literature was analysed to identify the underlying issues faced by academics in publishing. My experience of working in the publishing industry helped me in correlating the discussions about the issues and challenges faced by academics in publishing within the real-time context of industry practices; thereby providing a better understanding of the academic publishing environment for developing the questions to collect information. The operational (conceptual and theoretical) variables deduced from the literature are discussed below.

Conceptual and Theoretical Variables

A thorough analysis of the literature and policy documents on research publication guidelines in Australia are available in the public domain on Go8 universities, and the performance criteria of Australian Research Council were also used, to identify the variables that impede publishing practices. The analysis of literature also reveals that, as regular and steady research publication is vital for career prospects, scholars such as Peters et al. (2016) assert that academics focus on publishing to ensure career prospects rather than dissemination of knowledge. These

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[40] Italics are used signify that the words are used as variable(s). Henceforth, a term in italics indicates that it refers to a variable rather than the lexical meaning. The terms challenges and strategies are italicised throughout the thesis when they denote variables.

considerations form the background of the propositions adopted in the conceptual framework.

The conceptual framework of the present study is based on the following propositions:

(i) academics, while trying to adhere to the publishing norms of universities and research environment, experience hardships or challenges either due to their personal attributes or work issues and social contingencies (Hemmings et al. 2007; Nisar 2015); and

(ii) personal and collaborative publishing strategies are adopted to overcome these challenges (Butler 2010; Muscio et al. 2013; Martin-Sardesai et al. 2017a).

Figure 4.1 presents the graphical (linear) representation of the conceptual framework of this study. The dotted line with an arrow indicates academics' goal. Various factors that influencing publishing are grouped, along with the sub-factors, and presented within boxes.
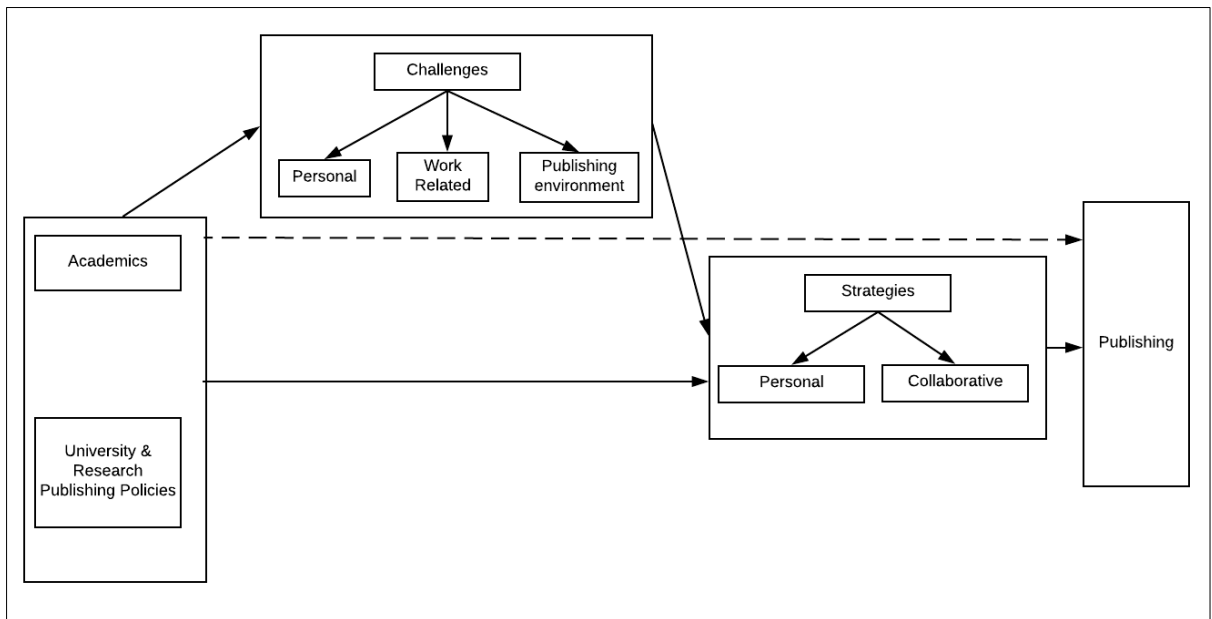
Figure 4.1. A linear graphical representation of the conceptual framework adopted in this study. The *dotted-line arrows* represent the goals of academics, while the real-time setting is represented using *solid arrows* (figure based on researcher's interpretation).

The conceptual constructs measured in this study are the *challenges* and *publishing strategies* of research-active academics in humanities, arts and social science disciplines. These constructs are independent and inter-related variables influenced by various external factors and internal factors. From the theoretical perspective, the conceptual construct *challenges* is dependent on the theoretical constructs *field* (research and university environment) and *capital,* which are explained in detail in Chapter 3*. A linear graphical presentation is shown in Figure 4.2 for better understanding. The conceptual construct *publishing strategies (*referred to as *strategies)* is nothing but *habitus*, the publishing habits followed by academics to acquire *capital* to dominate the *field* (see Chapter 3, for details on habitus, capital and field)*.

Oval-shaped symbols are used to denote the theoretical constructs and squares for the conceptual construct in Figure 4.2. As a conceptual construct, the *challenges*

faced by academics could also be subjective depending on individual perceptions. In this study, only the critical factors, related to professional and publishing environment, are considered as indicators for measuring the impact.
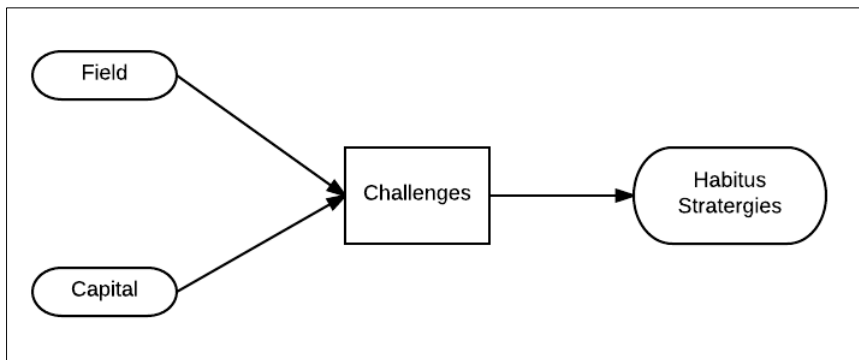
Figure 4.2. A linear representation of theoretical framework adopted in this study. Theoretical variables are given in *ovals* and *square* is used for conceptual variable (figure based on researcher's interpretation).

The operational indicators used for identifying the conceptual and theoretical concepts are explained as follows.

Identifying Operational Indicators

The critical factors that could impact publishing scholarship are:

- time constraint[41] (Hemmings et al. 2007, Waitere et al. 2011)
- not interested or motivated to publish (Bromley and Neal 2011)
- teaching or management load (Worrall-Carter and Snell 2003, Hemmings et al. 2007)
- restricted opportunities (Butler 2010, Waitere et al. 2011)
- meeting the expectations of universities or funding organisations (Butler 2010, Waitere et al. 2011)

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[41] Other professional or personal commitments of academics that hardly provide them the adequate time for research or writing are also identified as a time management issue: lack of time for writing or publishing activities.

- no friends or editors from publishing industry who contact academics with a request for publications (Peters et al. 2016)
- identifying appropriate journals that align with their research focus (Peters et al. 2016)
- cost involved in publishing (Peters et al. 2016)
- publishing preferences (Butler 2010, Peters et al. 2016).

These factors could further be grouped under broad categories as, 'personal traits' (factors a and b), 'work environment' (factors c to e), and 'publishing environment' (factors f to i). The indicators are related to 'work environment' and 'publishing environment' and are also based on external factors that influence publishing habits of academics. It is evident from the literature that research publications are directly influenced by the publishing strategies (Hemmings et al. 2007, Waitere et al. 2011, Hicks 2012, Peters et al. 2016). Strategies adopted by academics also include techniques to overcome the impending challenges in publishing.

From the analysis of the literature, the operational variables for the construct strategies are as follows. It is evident, from the literature, that the strategies adopted by academics to overcome the publishing challenges include individual personal strategies (Waitere et al. 2011) as well as collaborations (Waitere et al. 2011, Peters et al. 2016). Collaborative strategies include support from their respective department or university (Hemmings et al. 2007, Waitere et al. 2011) and also exploring different publishing opportunities (Peters et al. 2016). Individual personal strategies also include techniques based on the opportunities provided by publishers. Academics also try to improve their publishing opportunities by collaborating with other researchers as well as through enhancing the reach and impact of their earlier published works by promoting them through social media, websites or portals (Peters et al. 2016). Therefore, the indictors used for measuring collaborative publishing strategies are classified as 'within-field support' and 'outside field support'. The 'within-field support' indicators include publishing mentors (Hemmings et al. 2007), support groups (Worrall-Carter and Snell 2003), university support, such as publishing aid, employing assistants, opportunity to reduce workload (Worrall-Carter and Snell 2003; Hemmings et al. 2007), and

collaborations with other researchers (Hemmings et al. 2007, Waitere et al. 2011). The 'outside field support' indicators include opportunities offered by the publishers as well as by new media technology, including social platforms. The indicators 'within-field support' and 'outside field support' are mutually dependent variables, as the support function is also based on the opportunities provided by publishers. The constructs, the indicators and the items used to identify the variables for gathering information from the participants are listed in Table 4.2 .

Table 4.2 . Conceptual constructs and indicators used for collecting and measuring the information from the participants.

Constructs	Indicators	Items
Challenges	Personal traits	Time Lack of interest in publishing Lack of motivation or ideas to write
	Work environment	Teaching load Restricted opportunities (lack of funds, academic position) Meeting the expectations of university and funding organisations
	Publishing environment	No contacts from publishing industry requesting materials for publishing Difficulty in identifying suitable journals Publishing cost Preferences in publishing
Publishing strategies	Personal strategy	Individual strategy Based on publishing opportunities (publishing types)
	Collaborative strategy (a) Within-field collaboration (collaboration with academic community)	Publishing mentors University support (includes funds, research assistants, reduced workload, writing groups) Collaboration with other researchers (including collaborative projects or research grants)
	(b) Outside-field collaboration	Different publication options Collaboration for publications Holding (honorary) positions in publishing field, e.g. editor, reviewer

The indicators (mentioned in Table 4.2) that are used to measure the conceptual variables are also used to explain the relationship among the variables within theoretical framework. The relationship between the conceptual constructs and theoretical constructs are shown in Figure 4.3. The squares and arrows are used for representing the conceptual constructs and indicators. The indicators, 'work

environment' and 'publishing environment', also provide insights about the theoretical constructs *field* and *capital*, and the indicator 'collaborative strategies' is also informed by the theoretical construct *field.* Theoretical constructs are represented in ovals and the indicators related to the theoretical constructs are connected using dashed-line arrows.
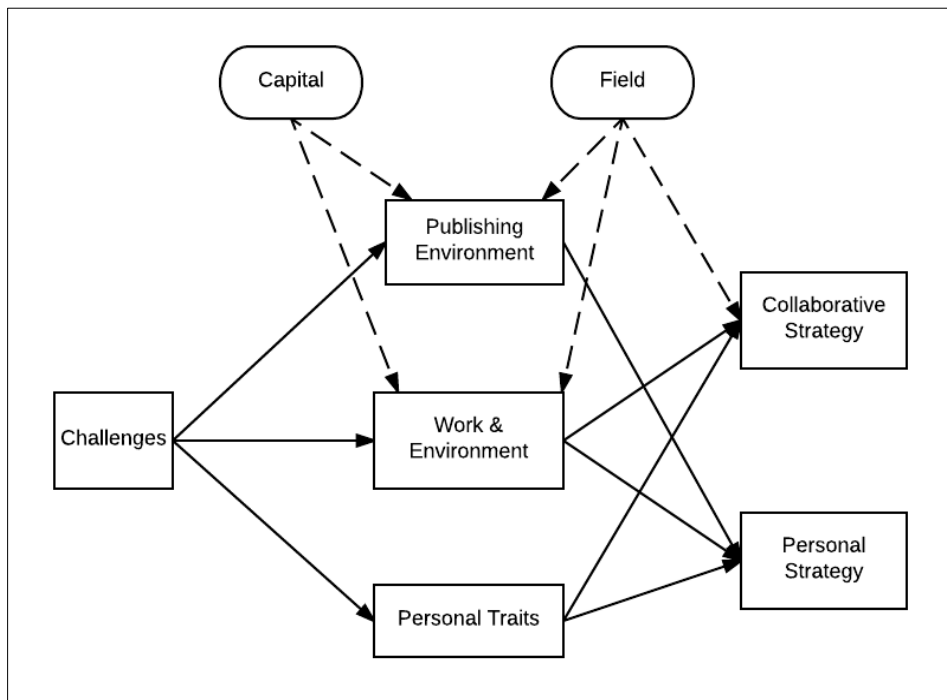
Figure 4.3. A linear graphical representation of the theoretical constructs relationship between indicators and variables. *Squares* are used for conceptual constructs, and indicators are connected using *solid arrows*, while *ovals* are used for theoretical constructs and *dotted-line arrows* used to relate them to the indicators (figure based on researcher's interpretation).

These conceptual and theoretical constructs (also listed in Table 4.2) are measured using a self-administered online survey (provided in Appendix A). The details of each item and the corresponding questions in the survey are also given in Appendix A. The instrument (survey) used to collect information are discussed in detail in the section 'Instrument' in Section 4.4.2, which discusses the data collection procedure and process followed in this study.

4.4.2. Data Collection

Instrument

In this study, an online survey is used as an instrument to collect data. The survey was administered online using Qualtrics software supported by RMIT University. A direct link of the online survey was sent to academics identified following the sampling process. The questionnaire used in this study is given in Appendix A. The survey questions are developed based on the variables (listed in Table 4.2) that need to be measured based on the conceptual and theoretical concepts.

Variables in a survey can be measured using an 'index' or 'scales' (Neuman 2007). In the present study, the variables are measured using scales. According to Bernard (2012, p. 281), a "scale is a device for assigning units of analysis to categories of a variable". The survey measured the conceptual variables *challenges* and *publishing strategies* (the latter, henceforth, *strategies*). The indicators used to measure these variables are described in Table 4.2 and also discussed in Section 4.4.1. As theoretical constructs are also latent variables, they are deduced from the measured conceptual variables, i.e. the measured indicators. The key concepts of the conceptual and theoretical framework discussed in Section 4.4.1 are measured using the identified operational variables.

The variables can be measured directly or indirectly. Variables measured directly from the survey questions are known as observed variables or indicators. Variables measured indirectly (secondary inferences) are the latent variables or constructs (Wong 2013). In the present study, *challenges* and *strategies* are the main constructs (second-order latent variables). The main construct, *challenges*, is measured using the latent variables 'personal traits', 'work environment' and 'publishing environment', which are measured using the indicators time, writing issues, workload, lack of network, publishing policy and publishing-related opportunities provided by publisher, which are referred to as items in Table 4.2.

The main construct *strategies* is measured using the latent variables, 'varying', 'skilful', 'fund-based' and 'unique' approaches (classified as personal strategy); and the variables 'collaborative approach' (with colleagues and other researchers) and 'support factors' are also referred to as 'within-field collaborative approach', while 'outside-field collaborative' approach includes the publisher-related variables, 'publishing reputation', 'authorship', 'book-type publications', 'online publications' and 'opportunists publishing', which are also been detailed in Table 4.2. No assumptions about the relation among the observed variables or constructs were made while designing the questionnaire. The design and structure of survey have already been explained in the section, *Identifying Operational Variables*. The details of questions in each section are explained below (and the survey questionnaire used to collect the data is provided as Figure A.1 in Appendix A).

Survey Questionnaire

The general demographic and background information (Sections A and B) required to analyse the variables are collected using single and multiple response questions. The items for the independent variables, personal traits, work environment and publishing environment (*challenges*), are measured using a five-point Likert-scale ranging from 1 (strongly disagree) to 5 (strongly agree) in Section C.

Section D has two parts, publishing techniques and publishing choices. The part, 'publishing techniques', measures the items for the variables related to individual strategies, 'within-field' and 'outside-field' collaboration. The questions related to publishing techniques are measured using a five-point Likert-scale ranging from 1 (definitely no) to 5 (definitely yes). The second part, 'publishing choices', includes items for measuring strategies based on publishing opportunities. They are measured using a Likert-scale ranging from 1 (never) to 5 (always).

The final Section E includes questions which focus on publication types. These are multiple-response questions and are measured using ordinal scale. The items in

Section E will help to identify the underlying reasons on why academics focus on the specific publishing output and its relation to the publishing goals of academics. The open-ended questions are included at the end of each section to provide an opportunity for the participants to share their suggestions or comments.

Unit of Analysis

In a quantitative approach, which uses survey as tool to collect information, it is necessary that participants need to share a similar background to reduce the statistical variation in the collected data (Neuman and Kreuger 2006). Therefore, the participants of this study need to be from similar research and publishing environments. As this study focuses on the challenges and strategies adopted by academics to ensure their high-volume publications, it is necessary that the participants should be research-active academics, i.e. academics who are regularly publishing their research works. The hypotheses of this study are formulated based on the assumption that academics' research environment and their affiliated university influence their publishing practices. Thus, the participants are restricted to Australian universities. As research environment and culture fostered by the universities also play a significant role in research practices, to avoid variation in the data collected, the range of participants is further narrowed to research-focus universities in Australia, i.e. only academics from Group of Eight (Go8)[42] universities in Australia are considered for the study. Go8 universities are leading research universities in Australia, and not only consistently enjoy higher university rankings among Australian universities but are also on par with other top universities in the world (Australian Universities Guide, Universities 2016), which also justifies the choice of Go8 universities as unit of analysis because research publications are significant for academics in these universities.

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[42] "The Group of Eight (Go8) comprises Australia's eight leading research Universities - The University of Melbourne, The Australian National University, The University of Sydney, The University of Queensland, The University of Western Australia, The University of Adelaide, Monash University and UNSW Australia" (Group of Eight Australia).

Research publications, as explained in Chapter 2, play a significant role in the credibility of research and are also a key factor in calculating international rankings of universities.[43] In addition, Go8 universities are recipients of the two-thirds of the total research funds allotted by the Australian Research Council (and the government) (Thomson 2016). According to the quality evaluation of the "Excellence in Research for Australia" (ERA), the Go8 universities have been consistent in their research performance (Thomson 2016). Hence, academics from these research-focused universities are considered to be the most appropriate participants for this study of the research activities of Australian academics'.

Importantly, publishing practices followed differ between the disciplines. For example, the research environment in science disciplines is different from that of arts, humanities or social sciences disciplines. Therefore, to ensure salience in academics' publishing practice, only academics from non-science subjects, i.e. academics from humanities, arts and social sciences, including business subjects (henceforth, referred to as HASS), will be considered for the study. ERA classification of FoR codes (ARC 2015a) is also used as guideline for identifying the disciplines. In this study, academics whose field of research is classified under FoR division codes 12 to 22 (codes 1 to 11 refer to STEM subjects) were approached for collecting information (the FoR table from ERA document is also provided in Appendix C). Table 4.3 provides the details of the universities and the respective faculties from which the academics were identified for answering the survey.

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[43] The ranking bodies of all three university ranking lists, *Times Higher Education* World University Rankings, QS World University Ranking and Shanghai Ranking, consider research, research-related activities and citation factors as key performance indicators (receiving more than 50% weightage) while grading the universities (websites: https://www.timeshighereducation.com, http://www.topuniversities.com/ and http://www.shanghairanking.com/, respectively).

Table 4.3 Details of university and faculty of the participants chosen for this study.

University	Faculty
University of Melbourne	Faculty of Architecture, Building and Planning
	Faculty of Arts
	Faculty of Business and Economics
	Melbourne Graduate School of Education
University of Queensland	Faculties of Business, Economics & Law
	Faculties of Humanities and Social Sciences
University of Sydney	Faculty of Architecture, Design and Planning
	Faculty of Arts and Social Sciences
	Faculty of Education and Social Work
	The University of Sydney Business School
	Sydney College of Arts
	Sydney Conservatorium of Music
University of Western Australia	Faculty of Architecture, Landscape and Visual Arts
	Faculty of Arts
	Faculty of Business
	Faculty of Education
University of New South Wales	Faculty of Arts and Design
	Faculty of Arts and Social Sciences
	Faculty of Built Environment
	Faculty of Business
University of Adelaide	Faculty of Arts
	Faculty of Professions
University of Monash	Faculty of Art, Design & Architecture
	Faculty of Arts
	Faculty of Business and Economics
	Faculty of Education
Australian National University	ANU College of Arts & Social Sciences
	ANU College of Asia & the Pacific
	ANU College of Business & Economics

It was necessary to narrow the unit of analysis and the population of the study due to the specific focus of the research and assumptions based on which the hypotheses were formulated. There was also one other factor -- the expected publication output of academics, which varies according their affiliated university and their individual ranks. This internal variation was not considered while

collecting data. This variation was used to analyse the data. The academics from the above-mentioned faculties have been identified using the following the sampling method.

Sampling

Sampling is the technique of identifying or selecting representatives from the population (Balvanes and Caputi 2001). According to Babbie (2011), sampling is the process of selecting what or who needs to be observed; in other words, identifying the population that would help the researcher in gathering the necessary information to answer the research questions. Based on the technique involved in identifying the sample, sampling is classified as probability sampling or non-probability sampling. If the sample is selected using the probability theory, it is called probability sampling, i.e., random or systematic sampling (Babbie 2011). The sampling technique that does not follow the suggestions of the probability theory is called non-probability sampling, i.e., purposive sampling (Babbie 2011). The sampling technique followed in the present study is non-probability sampling.

The key factors that determine the participants of this study are their experience in publishing their research output, i.e. their history of research publication, and number of research publications after completing their doctoral degree. Hence, for this study, I selected participants based on the information of their publishing record available online. The participants of the study were identified from the information available in the public domain for Go8 universities. Only academics listed under the category 'available for research supervision' in their respective schools (mentioned in Table 4.3) in the Go8 universities were considered, to ensure that participants are research-active academics. Furthermore, only academics with an average of four publications between the year 2014 and 2016 were finally selected as research participants, because the focus of the study is to identify how academics overcome their challenges and achieve their publication numbers, and thus it is necessary that participants have a track record of publishing three or more research publications in recent years. Only academics who publish actively and

successfully under the recent performance criteria will be able to provide insights on their successful publishing strategies. Based on the information of their respective publication histories available online at the university websites, there are around 1400 research-active academics in HASS faculties (business, education, humanities, arts and social sciences) in Go8 universities. Only these academics were invited to participate in the online survey.

A pilot study was conducted internally among the academics of HASS schools in RMIT university to refine the questionnaire. The purpose of the pilot study was to ensure that the survey questions conveyed intended meaning to the participants so that the answers provided by participants would be appropriate and proficient in addressing the research questions. The pilot questionnaire also included an option for the participants to provide feedback and share their thoughts on the questionnaire. The pilot study resulted in a revised final questionnaire for the online survey.

The online survey was administered to 1374 academics in Go8 universities by sending the survey link to the email address mentioned in their research profile. The criteria of the participants were also confirmed in the online questionnaire. There were also questions related to the number of publications and the research discipline. These questions ensured that participants fall within the criteria.

4.5. Data Processing

There were 165 respondents, or a 12% response rate. Data screening was performed to ensure the appropriateness of the participants, who had to have a doctoral qualification and an average of 4 publications over the 3 years. The relatively low response rate could indicate various reasons such as that academics are not interested in answering online surveys or are busy in their work, or that the survey link might have been missed in the huge number of emails they receive on a daily basis. This is further discussed in Chapter 5.

Missing value analysis was performed using SPSS, and responses that had more than 20% missing values were ignored from further processes, resulting in 123 responses for final analysis after the cleaning and filtering processes. After the deletion of the unusable responses from the data set, the survey was further checked for missing data. There were one or null missing values in some instances, which are ignorable as the incomplete and completed data are not systematically different (Kline 2010). The next stage was initial statistical analysis of the collected data.

In this study, SPSS software was used for statistical analysis of the collected data. Descriptive statistics were calculated for each item in the questionnaire. The descriptive statistics for the indicators observed for the construct *challenges* are listed in Table 4.4.

Table 4.4. Descriptive statistics of the indicator observed for the construct

Challenges.

Challenges	Range	Mean	Median	Std. Deviation	Variance	Skewness
Time	4	2.99	3	1.264	1.598	0.065
Personal traits						
Unwillingness to publish	3	4.39	5	.764	.584	-1.246
Preference to teaching	4	4.30	5	.999	.999	-1.689
Struggle to formulate research strategy	4	3.99	4	1.079	1.165	-.945
Trouble in generating original research project ideas	4	4.37	5	.960	.922	-1.642
Lack of network for collaboration	4	3.88	4	1.205	1.452	-0.962
Colleagues-appropriated research ideas	4	3.69	4	1.167	1.363	-0.661
Work-related issues						
University workload	4	2.66	2	1.298	1.686	0.410
Lack of publishing grants	4	3.57	4	1.255	1.575	-0.551
Lack of internal support from my institution, publishing funds	4	3.46	4	1.326	1.759	-0.734
Publishing policies dictated by natural sciences	4	2.98	3	1.306	1.705	-0.014
Unrealistic publishing expectations	4	3.07	3	1.242	1.544	-0.089
Publishing environment						
Conference proceedings are limited.	4	3.09	3	1.293	1.672	-0.007
I am unable to identify appropriate journals	3	4.43	5	.704	.496	-1.280
I have trouble in identifying non-predatory journals	3	4.49	5	.730	.533	-1.332
I am unable to identify high impact journals within my field	4	4.25	4	1.045	1.092	-1.400
High impact journals charge high fees for open access publishing	4	3.11	5	1.415	2.003	-0.099
Publishing field: I have trouble in aligning my output to ensure citation impact	4	3.33	4	1.128	1.273	-0.133

It could be noted from the above table (Table 4.4) that all the values are skewed between 0.066 and -1.6, which means that data distribution is not symmetric for all items and the skewness varies from moderate to high. Therefore, data distribution is non-normal. The *p*-values calculated using one-sample K-S normality test for the variables are also less than .000. Therefore, the null hypothesis was rejected, meaning that none of the variables are normally distributed. This shows that the challenges faced by academics vary based on other factors, which could either be demographic characteristics or other theoretical or conceptual variables. The underlying factors that determine the publishing challenges will be discussed in Chapter 5. The same method was followed for calculating the descriptive statistics for the items of the construct using the same method, and details are given in Table 4.5.

Table 4.5. Descriptive statistics of the individual and within-field indicators of the construct *strategies* (*N=123*).

Strategies	Range	Mean	Median	Std. Deviation	Variance	Skewness
I have devised a personal publishing strategy	4	2.20	3	1.012	1.024	0.647
I continually benchmark my research outputs with my co-workers	4	3.12	2	1.237	1.530	-0.158
I continually revise and update my publishing strategies	4	2.72	5	1.134	1.287	0.226
I am continually looking for opportunities to improve my publication outputs.	4	2.13	2	1.044	1.090	0.840
I am reluctant to share my publishing strategies with others.	4	4.25	3	.975	.951	-1.564
I prefer to work on multiple research projects simultaneously.	4	2.32	2	1.240	1.537	0.616

Strategies	Range	Mean	Median	Std. Deviation	Variance	Skewness
I focus on publishing as many outputs as possible from one sub-discipline or field of study.	4	2.89	3	1.274	1.623	0.097
My research outputs span multiple sub-disciplines or related fields to improve my publication record.	4	2.49	4	1.228	1.508	0.482
My research outputs include the scholarship of teaching and learning of the discipline.	4	3.26	5	1.531	2.344	-0.158
I have a mentor who advises and guides me on publishing strategies.	4	3.66	2	1.364	1.861	-0.659
Assistance from junior staff facilitates my higher publishing record.	4	4.19	3	1.188	1.410	-1.336
I collaborate with my colleagues to improve my publication output	4	2.13	3.5	1.052	1.107	0.816
I collaborate with my research students to improve my publishing outcome.	4	2.89	2	1.415	2.003	0.153
I actively engage and collaborate on my colleagues' research grants projects to improve my publication output.	4	3.31	2	1.324	1.753	-0.289
Research funding facilitates a sound publishing record.	4	2.29	3	1.110	1.231	0.738
Engaging research assistants on my project help improve my publication outputs.	4	2.61	3	1.223	1.495	.0446

Strategies	Range	Mean	Median	Std. Deviation	Variance	Skewness
My non-reviewed publication outputs are stepping stones to my peer-reviewed publication(s).	4	2.87	3	1.317	1.735	0.158
I am willing to explore non-conventional publishing models to gain publishing experience.	4	3.29	2	1.256	1.578	-0.255
I serve on editorial board(s) of journals to gain insights on publishing avenues.	4	2.80	4	1.430	2.044	0.250
I focus on publishing more journal articles to improve my publication record.	4	2.08	4	1.057	1.117	0.901
I prefer publishing my conference papers as peer-reviewed conference proceedings.	4	3.52	3	1.528	2.334	-0.556
I actively use social media platforms such as blogs, Twitter, ResearchGate, Academia.edu, etc. to improve my citation impact.	4	3.29	2	1.507	2.272	-0.251

It should be noted that all the values are skewed between 0.73 and -0.66, which means that the distribution is moderately skewed, i.e. data distribution is non-normal. The *p*-values calculated using one-sample K-S normality test for the variables are also less than 0.05. Therefore, null hypothesis was rejected, meaning that none of the variables are normally distributed. The non-normal distribution of the data shows that strategies are influenced by other factors, which could be either demographic variables or theoretical or conceptual variables related to the construct *challenges*.

The next stage in processing the data was identifying the relation among the individual items, indicators and the relation of the indicators to the latent variables. According to Hair et al. (2010), factor analysis and multiple regression analysis techniques are ideal for analysing the inter-relation among the indicators and latent variables.

4.5.1. Factor Analysis

Field (2013) asserts that factor analysis helps to identify the latent factors based on the correlation of the variables. Byrne (2016) also emphasises that, in a study, the underlying relationship between the observed variables and latent constructs are examined using exploratory or confirmatory factor analysis, based on an understanding of the underlying relation of latent variable structure. In other words, exploratory factor analysis method is adopted in a study when the relation between the observed and latent variables are unknown or unclear and to know to what extent the observed variables are related to the underlying factors, as the researcher does not have any prior knowledge whether the items measure the intended latent constructs. Hair et al. (2010) emphasise that, if the main objective of factor analysis is to identify the constructs or latent variables in data and the researcher is unaware of the amount of error variance, then exploratory factor analysis (EFA) method is the appropriate method. According to Hair et al., non-normal data distribution and small number of participants are also significant factors that determine the use of EFA. This analysis also helps in establishing whether the conceptual assumptions about the constructs are appropriate and supported by the data. Therefore, in the present study, EFA was used to identify and measure the various inter-correlation measures.

According to Matsunaga (2010), factor analysis is a 'diagnostic tool' that helps in identifying the unobserved variables (i.e. latent variables) and the relationship between the observed variables. It also identifies the pattern and structure of the

collected data, thereby helping in determining whether the data collected serves the intended purpose by measuring the appropriate variables. As the constructs in the present study have been derived from the main constructs, *challenges* and *strategies*, they are reflective in nature, as constructs result in the variables(Diamantopoulos and Siguaw 2006). In other words, in the hierarchical structure, the items observed are exogenous variables and the relationship between the items observed and the latent variables are endogenous (dependent). In the present study, EFA is performed for the first-order variables, that is, on the exogenous variables, to identify the latent variables (dependent variables) that influence the observed variables.

Factor analysis was performed (using SPSS) separately for each construct, *challenges* and *strategies.* The correlation and anti-correlation matrix (provided in Appendix B) show that correlations among the variables are moderate, meaning that factor analysis is the appropriate method for these data. The latent factors are identified by combining the Kaiser criterion, where eigenvalue value should be greater than 1, and scree plot, a graphical representation of the eigenvalues, where the number of data above the elbow bend is considered (Thompson 2004). Details of the factors for the constructs *challenges* and *strategies* based on eigenvalue and scree plot are provided in Appendix B, Tables B.1 and B.2.

The details of factor analysis for the construct *challenges* are discussed first. There were 18 items measured for *challenges*. The first step is to ensure that the items measured for the construct belong to the group, and the appropriateness of performing factor analysis for the construct. The KMO and Bartlett test results (shown in Table 4.6) and the measuring sampling adequacy (MSA) .685 indicate that correlation among the variables is mediocre (above acceptable level), and significance value below .05 indicates that sufficient correlation exists among the variables and the measured items represent the construct. No variables were omitted at this stage, as the MSA values are above .50. According to Hof (2012), the KMO and MSA values also help in establishing the reliability of the questionnaire due to the non-presumptuous nature of correlation of the variables.

Table 4.6. KMO and Bartlett's Test for the construct *challenges.*

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.685
Bartlett's Test of sphericity	Approx. Chi-Square	615.793
	Df	120
	Sig.	.000

The factor matrix and pattern matrix for the variables related to *challenges* show that only 7 factors impact the observed variables (shown in Tables 4.7 and 4.8).

Table 4.7. Factor matrix of the construct challenges.

Factor[a] / Items	1	2	3	4	5	6	7
Time	.453		-.420				
DisPub	.497				-.540		
PT	.387						
SRI	.504		-.484	-.353			
TGI	.422	-.398	-.451				
LNet	.518						
CAI							
Workload	.381	.381	-.451	.548			
PG	.580					-.363	
LIS	.495	.432					
PP	.382	.528	.374				
UPE	.570	.511					
PubConfProc							
UIJournals	.500						
UInonPred	.380	-.492					
NoHIJ	.490	-.465					
HIJCH							
TAIJ	.601						

Extraction Method: Principal Axis Factoring.

[a]Attempted to extract 7 factors. More than 50 iterations required. (Convergence=.004). Extraction was terminated.

The rotated factor matrix is the simplified version of factor loading, which helps the researcher to establish the number of factors that influence the variables (Thompson 2004). Only factors that have loadings higher than .35 are listed in the tables. It is evident from the tables that factor 1 influences the items LNet (lack of network), UIJournals (unable to identify appropriate journals), UInonPred (unable to identify non-predatory journals), NoHIJ (non-availability of high impact journals) and TAIJ (trouble in aligning papers to international journals); and the factor loading is also high (above .6) for more than 3 items. Based on these results, the

seven factors (latent variables) that influence *challenges* are publisher-related (factor 1), personal writing issues/writing bloc (factor 2), time management (factor 3), publishing policy (factor 4), university work/research environment (factor 5), (personal) work preferences (factor 6), and financial support (factor 7). These factors are the different latent variables that reflect the main construct *challenges.* The analysis, therefore, confirms that academics face challenges in publishing due to seven main factors.

Table 4.8. Rotated factor matrix[a] of the construct *challenges*

Factor[a] / Items	1	2	3	4	5	6	7
Time			.650				
DisPub						.773	
PT						.379	
SRI		.730					
TGI		.832					
LNet	.398						
CAI							
Workload			.927				
PG					.400		.479
LIS					.517		
PP				.803			
UPE				.519	.395		.414
PubConfProc					.453		
UIJournals	.723						
UInonPred	.665						
NoHIJ	.779						
HIJCH							
TAIJ	.444			.441			

Extraction Method: Principal Axis Factoring.

 Rotation Method: Varimax with Kaiser Normalization.

[a]Rotation converged in 8 iterations.

The exploratory factor analysis was performed for the construct *strategies*. There were 35 items in the questionnaire that are related to the construct *strategies.* The items were split into two major groups: *Group 1*: individual and collaborative strategies (adopted in pre-publication stage); and *Group 2*: strategies based on publishing types and classification (output-based). The number of items observed in Group 1 is 22, whereas it is 13 in Group 2. Factor analysis was performed for each group separately to identify the latent factors separately for each group. Table 4.9 shows the details of KMO and Bartlett's test for Groups 1 and 2. KMO value (MSA) for Group 1 is .720, indicating that the correlation among the variables is good, while it is .566 (above the acceptance level) for Group 2. The significance values for both the groups are below .05, indicating that sufficient correlation exists between among some of the variables. There were no items excluded from analysis for the construct strategies, as the MSA values were above .5. The values also establish that items measured belong to the construct *strategies*.

Table 4.9. KMO and Bartlett's Test for the construct *strategies.*

		Group 1	Group 2
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.632	.566
Bartlett's Test of sphericity	Approx. Chi-Square	611.942	326.458
	Df	231	78
	Sig.	.000	.000

The factor matrix and pattern matrix for the items related to the construct *strategies* shows that only 8 factors impact the observed variables of Group 1 (shown in Table 4.10), while it is 5 factors for Group 2 (shown in Table 4.11). The 8 factors (identified from data) that impact Group 1 are:

- *Varying approach*: benchmark, revising and updating personal publishing plan, identifying opportunities to improve publications;
- *Collaborative factors*: collaboration with colleagues, research students and colleagues with research grants;
- *Funds-based factors*: research funding facilitates publication, engaging research assistant;

- *Skilful approach*: personal publishing plan, revise and update publishing plan, many output from single study, serving editorial boards;
- *Unconventional methods*: non-reviewed and unconventional publication types;
- *Journal-based*: focus on journal publication;
- *Support factors*: multiple research projects, conference proceedings and using social media;
- *Unique approach*: personal publishing plan and reluctance to share personal publishing plan.

Table 4.10. Pattern matrix[a] of observed variables *strategies.*

Factors / Items	1	2	3	4	5	6	7	8
PS							.414	-.501
Benchmark	.579							
ReviseUp	.646							
Improve	.788							
RectoShare								.421
Mres						-.362		
ManyOut							.398	
MultiDis								
TS								
Mentor								
Ajs								
CollabC			-.690					
CollabRS			-.727					
ECRG			-.506					
RF		.657						
ERA		.750						
NRP					.662			
UPubModel					.533			
EdB							.509	
FJ				-.729				
ConfProc						.391		
USocMed						.416		

Extraction Method: Principal Axis Factoring.

Rotation Method: Oblimin with Kaiser Normalization.

[a]Rotation converged in 19 iterations.

The factors of the Group 2 (shown in Table 4.11) are: *publishing reputation* (publishing in high impact journals, internal journals, reputed publishers), *authorship* (co-authorship and preference to be single author), *book-type publishing* (preference to book chapters to journal articles, publishing book chapters as book editors), *online publications* (publish in online as well as OA journals that do not charge author processing fees), and *opportunist publishing* (print and online with or without paying for publications).

Table 4.11. Pattern matrix[a] for Group 2 of observed variables of strategies.

Factors / Items	1	2	3	4	5
PjPnO					.537
PjO			.633		
OAC					.384
OANoC			.544		-.506
HiJ		.718			
IntJ		.866			
PubRep		.423			
BCtoJ				.654	
BCasBE				.765	
RevConfProc					
NotResPR					
CoAuth	-.807				
PrefSA	.842				

Extraction Method: Principal Axis Factoring.

Rotation Method: Oblimin with Kaiser Normalization.

[a]Rotation converged in 24 iterations.

In any study, the underlying factors that impact the observed items are the latent variables. According to Coltman et al. (2008), the logical approach to understanding latent variables is by analysing the inter-correlation among the observed variables

and forming constructs. Constructs formed could be either reflective or formative in nature. According to Roy et al. (2012), if a construct is formed or determined by the indicators, it is called a formative construct; whereas, if the indicators are determined by a construct, it is known as reflective construct. In the words of MacCallum and Browne (1993, p. 533), in a formative construct, "indicators could be viewed as causing rather than being caused by latent variables measured by the indicators". In the present study, the latent constructs have been determined based on the commonality of the factors that impact the observed variables. In other words, the observed variables reflect the latent constructs. Byrne (2016) argues that factor analysis method only focuses *on how it is related* and the extent of the relationship between the factors and measured variables, while regression structure (i.e. inter-relation of factors) is not considered or taken into account. In the present study, while the relation between the observed and latent variables is identified using EFA, structural equation model (SEM) analysis is used to identify the relation between the latent factors, i.e. the regression structure of the variables. Therefore, the analysis technique followed is a 'measurement' model within the multiple regression model / structural equation model (SEM). While the measurement model analyses the underlying relation between observed items and latent variables, the structural model analyses the relation among the latent variables. This method also helps in examining the validity and reliability of the constructs.

4.5.2. SEM Approach

SEM method is an efficient and convenient approach to describe the underlying latent structure among the observed variables (Byrne 2016). Covariance-based SEM (CB-SEM) and partial-least square SEM (PLS-SEM) are two types of SEM approach. According to Wong (2013), PLS-SEM is useful when the sample size is small and there are no assumptions about the data distribution. Lowry and Gaskin (2014) argue that larger sample size, non-normal distribution and non-homogeneity of variance are preferred for CB-SEM. However, Jannoo et al. (2014), on evaluating the

performance of CB-SEM and PLS-SEM, conclude that CB-SEM estimates are more accurate than PLS-SEM for data with 'non-normal distribution with a sample size 50 and above'. As the data distribution in the present research is non-normal and sample size is above 100, CB-SEM approach was followed. The AMOS package in SPSS was used for analysis.

The four stages involved in the SEM approach are model specification, model estimation, model evaluation and model modification (Ullman 2006). According to Byrne (2016), the model represents a hypothesised structure that links the observed variables to particular latent variables, and data are the representation of the measurements related to observed variables derived from the sample. The measurement model generated through EFA is confirmed by observing the data fit to hypothesised structure. The analysis of the 'fit' of data to the hypothesised structure can be either used to understand the relation between the observed variables or to hypothesise and predict the behaviour of the data from the sample (Kline 2010). In the present study, covariance-based analysis is performed for each latent variable (i.e. measurement model) to confirm that the hypothesised structure is supported by the collected data; while at the later stage (discussed in Chapter 5), analysis is performed to understand the relation among each latent variables.

4.5.3. Analysis of the Measurement Models

Measurement Models: Challenges

First-order model
The first stage in analysing a model is model specification, which also includes model identification. The relation between the indicators and variables and also among the latent variables are hypothesised using the diagram, and are directly converted into equations by the software for model identification (Ullman 2006). The direct relations between indicators (represented in squares/rectangular shapes) and variables (represented in bigger ovals or circles) are represented using lines with a single arrow (lack of line denotes no direct relation between indictors

and constructs). A line with double-headed arrow denotes that the variables are correlated. Figure 4.4 and 4.5 are the hypothesised structure for the constructs, publisher-related issues (F1) and university/research environment (F5).
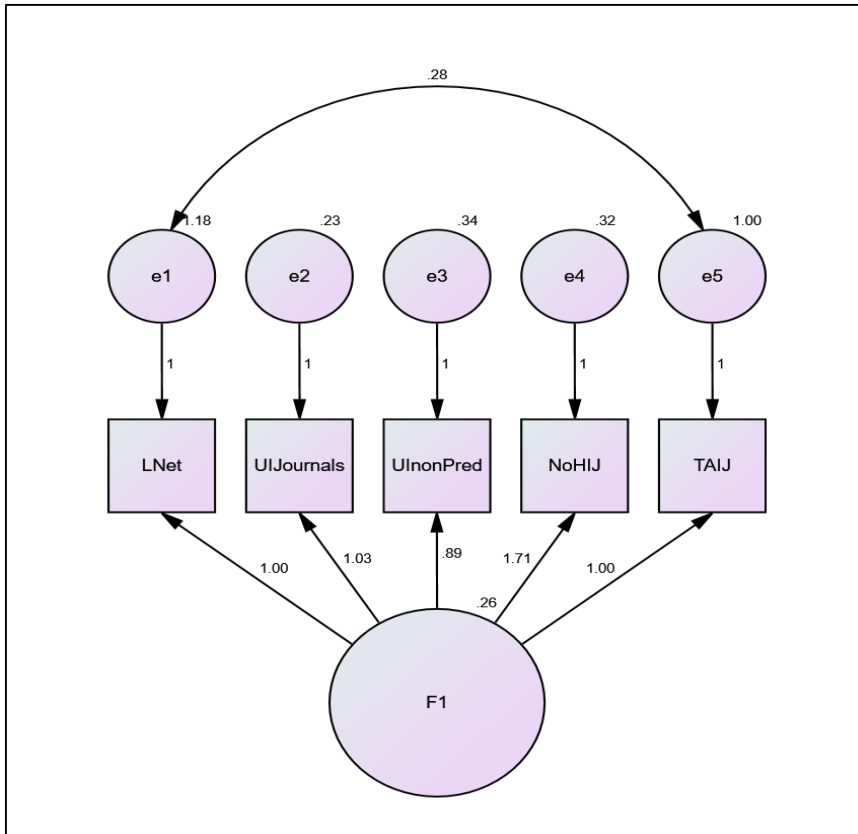
Figure 4.4. Graphical representation of relation between indication and the latent variable 'publisher-related issues' (F1) with estimates.
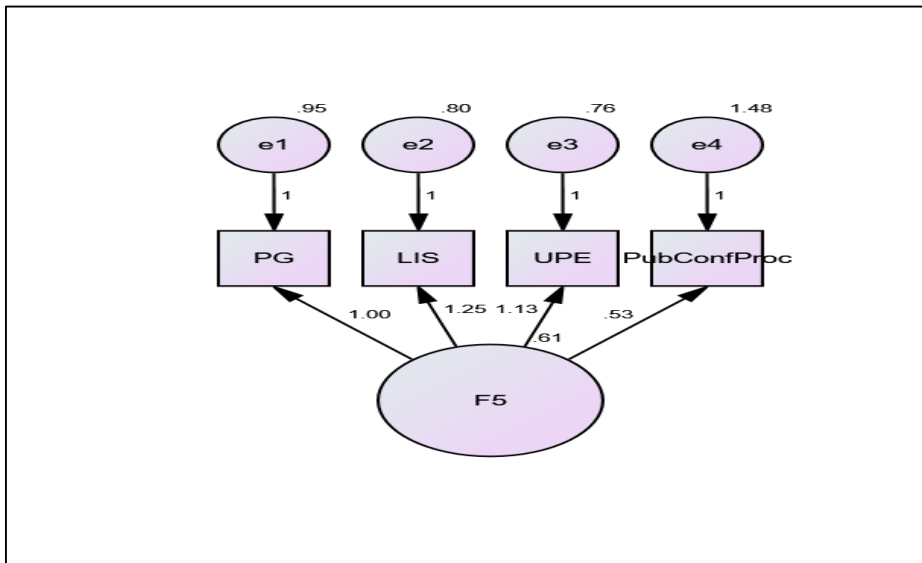
Figure 4.5. Graphical representation of the relation between variable f5 (university/research environment) and its indicators.

The relation between the indicators and construct is reflective, i.e. the characteristics of the constructs, 'publisher-related issues' (F1) and 'university/research environment' (F5), are reflected in the respective indicators. The indicator, 'lack of network' (LNet), is correlated to the indicator 'trouble in aligning output to ensure citation impact' (TAIJ) for the construct F1, which means that the academics' 'lack of network' affects their ability to align their research output to international journals, and vice versa. There is no correlation among the indicators of the latent variable, 'university/research environment'. The numbers shown near the figures are parameter values (explained below) obtained during the identification process. This also establishes that the items used for measuring the variables are appropriate and that any change to the indicators will alter the variables, 'publisher-related issues' and 'university/research environment'.

The next stage is model identification. For a model to be identified, it is necessary for a model to have unique numerical solution for each of the parameters, and the number of parameters should not exceed the number of sample variances and covariances (Hoyle 1995). As the mathematical parameters and analysis of a unique solution are outside the scope of the present study, only the results obtained after

analysis are presented and discussed here. For the variable, 'publisher-related issues', the number of sample moments (i.e. variance and covariance) is 15 and the number of parameters is 11; whereas they are 10 and 8, respectively, for 'university/research environment'. Therefore, both the models could be identified. The variables marked using the letter 'e' (e1, e2, etc.) are error variance caused while measuring the variable. The regression weights between error variance and the indicators are fixed at point 1 (shown next to arrows between indicator and error variance). The value near the double-headed arrow is the correlation value between the indicator and error variance. The values between the latent construct and indicators are the coefficient value which represents the dependency of the variable on each indicator and variation that would be caused due to change in the indicator. For example, it can be observed that most indicators of variable 'publisher-related issues' are between 0.89 and 1.71, with most them being close to 1. This means that all the indicators are of equal importance and deleting or omitting any one indicator would affect the p-value of the variable[44] significantly. The value near the latent variable is the value of the proportion of variance (known as R^2 values) dependent on the indicators. Although removing the variables that have least R^2 is recommended to ensure the appropriateness of the model, none of the observed variables were deleted at this stage of the model estimation. The deletion process will be performed during the model evaluation stage, and will be discussed in next chapter.

As variables that have only two indicators or three indicators with at least one correlated indicator will not yield solutions for model identification (Byrne 2016), models could be identified only for the variables, 'publisher-related issues' and 'university/research environment'. Other variables of the construct *challenges* had only either two indicators or three indicators with correlation.

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[44] Higher values denote that the specific indicator has more impact or effect on the variable, i.e. an increase or decrease of a particular indicator will weaken or strengthen the latent construct. In this case, a slight change to indicator 'no high impact journal' will increase or strengthen 'publisher-related issues'.

A model identified is estimated based on sample size, missing data and multivariate normality factors (Barbara 2010). As the missing data were eliminated during the cleaning process of the present study, the model estimation is performed based on the sample size and normality. According to scholars (Wang et al. 1996; Jannoo et al. 2014), the multivariate non-normality causes variation in chi-square values, and the chance of rejecting the model is high when the sample size is small. Multivariate normality in AMOS is determined using the multivariate value represented by Mardia's coefficient of multivariate kurtosis. A Mardia's coefficient value greater than 7 is an indication of multivariate non-normality, and the use of Bollen-Stine Bootstrap is suggested to ensure that normality assumptions of the estimators do not vary the index values (Kline 2010). In the present study, multivariate kurtosis was calculated for each latent variable to ensure the normality of data. As the multivariate values for the factor 'publisher-related issues' are 6.857 and -1.706 for 'research/university environment', general least square (GLS) estimates are used for evaluating the model based the recommendation of West et al. (1995)[45]. The results obtained are then evaluated for acceptance.

A model is evaluated using the adequacy of goodness-of-fit for each latent construct (Jöreskog 1993). It is necessary to evaluate the individual latent constructs of the variables *challenges* and *strategies* using various fit indices, because the accuracy of the structural model is dependent on the measured model; in other words, accuracy of relation between the constructs is based on the appropriateness between the indicators and individual latent variables (Jöreskog 1993). Reisinger and Mavondo (2007) classify fit indices into absolute, parsimony, relative and non-centrality indices. Although all these fit indices assess how well the sample data fits the theory (i.e. hypothesised structure), the difference among them lies in different factors considered for assessment (Hair et al. 2010). The indices that directly measure the appropriateness of theory and data fits using the indices such as Chi-square

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[45] Although ML estimator is appropriate for the variable 'university/research environment', GLS estimator is used for the variables to ensure consistency of the measured values.

statistics, goodness-of-fit index (GFI), root mean square error approximation (RMSEA), root mean square residual (RMR) and normed chi-square, are absolute fit indices; while fit indices that compare the incremental or relative model to common baseline or null model are incremental or relative indices that include normed fit index (NFI), Tucker Lewis index (TLI) and comparative fit index (CFI). The values of fit indices for relative fit generally vary between 0 and 1, and values closer to 1 (above .90) are considered to indicate a good fit (Reisinger and Mavondo 2007), while statistical values are used to assess model fit for absolute indices. While *p*-values (above 0.05) are considered good fit using chi-statistics, higher values (closer to 1) of RMSEA (less than 0.07 accepted as moderate fit) and RMR are considered as poor fit and GFI values greater than 0.90 are good fit (Hair et al. 2010). Most scholars (Jannoo et al. 2014; Kline 2010) emphasise that the model must be acceptable using at least three indices, with one absolute and incremental or relative index to ensure that the model is fit across wide range of situations. The fit indices values for the variables 'publisher-related issues' and 'university/research environment' are as follows.

The summary of model fit indices for publisher-related issues is given in Table 4.12. It can be noted that the *p*-value is .62, above 0.05; chi-square value (CMIN/DF) is .647, which is acceptable even though values between 1 and 3 are considered as ideal; and RMR (0.22) and RMSEA (0.000) values are closer to 0, therefore being within the accepted range. GFI and AGFI values, .992 and .968, respectively, are also above the accepted range, .90 (the closer to 1, the higher the fit). Hence, the model is acceptable based on the four absolute fit indices. Two relative fit indices, NFI (.948) and CFI (1.000), are also within the accepted range even though TLI value (1.019) is slightly outside the accepted range. Hence, the model is acceptable based also on relative indices. This indicates that the observed challenges, lack of network, being unable to identify appropriate journals, trouble in identifying non-predatory journals, lack of high ranking journals, and trouble in aligning research output to international journals, represent the publisher-related challenges faced by academics.

Table 4.12. Summary of fit indices for the construct, publisher-related issues.

Model	CMIN	*p*-value	CMIN /DF	RMR	GFI	AGFI	RM SEA	NF I	TL I	CFI
Default model	2.587	.620	.647	.022	.992	.968	.00 0	.9 48	1.0 19	1.0 00
Saturated model	.000			.000	1.00 0			1. 00 0		1.0 00
Independ ence model	49.48 5	.000	4.98 4	.393	.838	.757	.18 0	.0 00	.00 0	.00 0

The summary of model fit indices for university/research environment is given in Table 4.13. It can be noted that the *p*-value is .779, above 0.05; chi-square value (CMIN/DF) is .225, which is acceptable even though values between 1 and 3 are considered as ideal; and RMR (0.022) and RMSEA (0.000) values are closer to 0, therefore within the accepted range. GFI and AGFI values, .998 and .991, respectively, are also above the accepted range, .90. Hence, the model is acceptable based on the four absolute fit indices. The relative fit indices values for NFI and CFI are .987 and 1.000, respectively, which are also with the accepted range of above .90; while TLI value is 1.170, which is slightly above the accepted range. Hence, the model is also acceptable based on relative index. This indicates that the observed challenges, lack of publishing grant, lack of internal support, publishing expectation of universities, and lack of opportunity to publish conference proceedings as reviewed output, reflect challenges faced by academics in publishing caused by university/research environment.

Table 4.13. Summary of fit indices for the construct, publisher-related issues.

Model	CMIN	*p*-value	CMIN/DF	RMR	GFI	AGFI	RMSEA	NFI	TLI	CFI
Default model	.450	.799	.225	.022	.998	.991	.000	.987	1.1170	1.000
Saturated model	.000			.000	1.000			1.0000		1.000
Independence model	33.347	.000	5.558	.608	.863	.772	.193	.000	.000	.000

Second-order measurement model: challenges

The process followed for model estimation of the individual variables was repeated for the main construct, *challenges.* All the latent variables (including the ones where the individual model was not identified) were included for the overall measurement model of the variable *challenges.* The relations among the variables are presented in Figure 4.6. The ovals in the figure represent latent variables, publisher-related issues (F1), writing/research writing bloc (F2), work preferences (F3), time management (F4) and university/research environment (5) It can be observed that the variables F1 and F5 are correlated with most other variables, F1 to F2, F3 and F5; whereas F5 is correlated to F4 and F3; while F2 is correlated to only F1 and F3, F3 to F2, F4 and F5, and F4 with F3 and F5. Some indicators are also correlated.
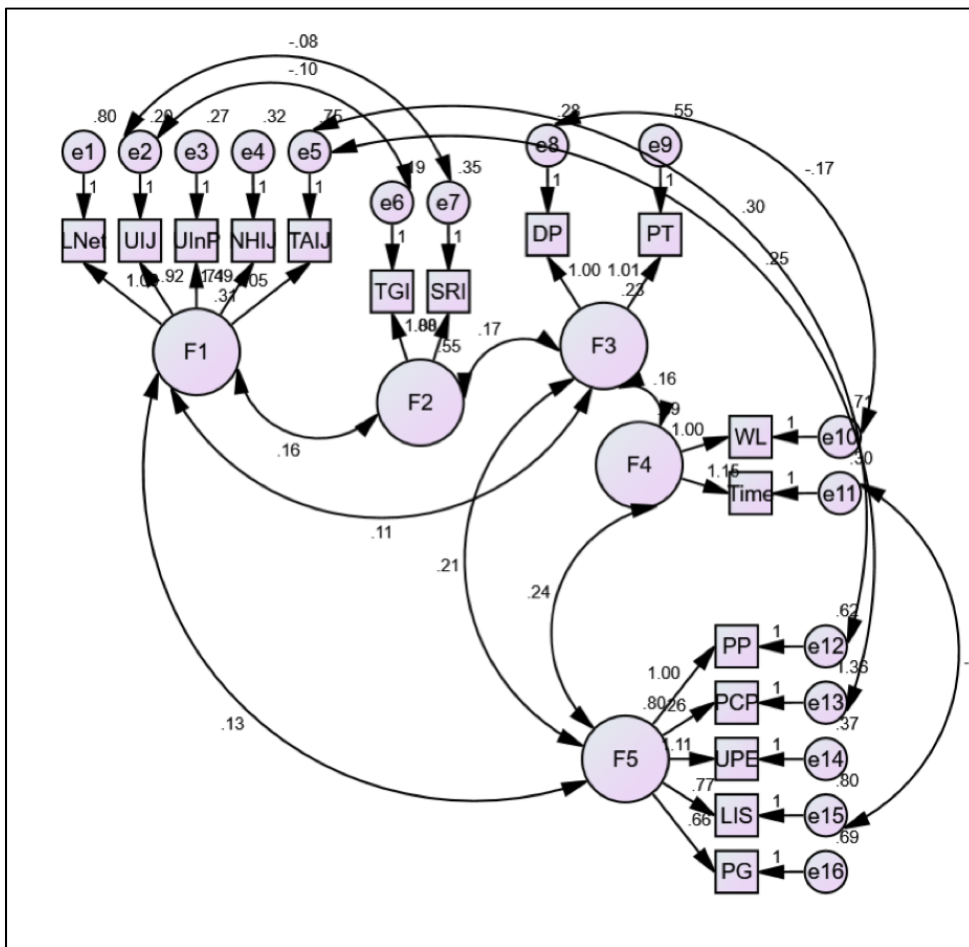
Figure 4.6. Graphical representation of the relations among the variables of the construct *challenges.*

This indicates that: 'publisher-related' issues are inter-related to the challenges caused by university/research environment; publisher-related issues are also inter-linked with the writing bloc; individual work-preferences also reflect in the challenges caused by university/research environment; and the issue of time-management is related to the challenges caused by university/research environment factors. Similarly, academics' trouble in generating research ideas and their struggle in finding ideas to write are also related to the issue of identifying international journals, i.e., their challenge is producing research output appropriate for international journals; their troubles in aligning their research output to international journals are related to university publishing policies and the publishing expectation; and their dislike for publishing is related to their workload,

while lack of internal support is also related to their lack of time. It could also be observed that the relations among the variables in the latent constructs are only indirect (correlated), and none of the variables lead to another variable. The summary for the fit indices is given in Table 4.14

Table 4.14. Summary of fit indices for the variable *challenges*.

Model	CMIN	*p*-value	CMIN/DF	RMR	GFI	AGFI	RMSEA	NFI	TLI	CFI
Default model	95.282	.359	1.047	.163	.902	.854	.020	.641	.961	.971
Saturated model	.000			.000	1.000			1.000		1.000
Independence model	265.218	.000	2.210	.394	.728	.692	.100	.000	.000	.000

It can be noted that the *p*-value is .359, i.e. above 0.05; chi-square value (CMIN/DF) is 1.047, between 1 and 3, which is considered as ideal; and RMR (0.163) is above 1, indicating that the model is poor fit and could not be accepted based on RMR values. Only GFI .902 is within the accepted range; while AGFI value .854 is slightly below the accepted range. However, RMSEA (0.022) value is closer to 0 indicating that it is fit and can be accepted based on RMSEA values. As it is impossible for a model to fit according to all the indices, a model is considered fit if it is accepted for any three indices, with at least one absolute and relative index (Kline 2010). The relative fit indices values for NFI (.641) are below the accepted range, whereas CFI (.971) is within the accepted range of above .90; and TLI value .961, and IFI (.975) above .95, are perfectly within the accepted range. Hence, the model is acceptable based on three absolute fit indices and three relative indices. The results, therefore, affirm that the observed variables of challenges faced by academics in ensuring their research publications are inter-related. The meaning and significance of their relation are analysed in depth in later chapters.

The same process is repeated for variables in the measurement model of the construct *strategies*.

Measurement Model: Strategies

First-order model

The model specification and identification process adopted for the construct, *challenges*, was followed for the construct, *strategies*, also. The relation between the indicators and variables was first identified (Ullman 2006) before proceeding with the model estimation process. As explained in the EFA process for the variable *strategies* in Section 4.5.1, the individual variables are grouped into two groups: latent variables related to individual and collaborative strategies (adopted for publication process); and group 2, latent variables based on publication type (output-based). Hence, the model identification, i.e. the relation between indicators and variables, was identified, and model appropriateness was estimated for the variables within each group, before the identification and estimation process was performed for the groups.

As explained in Section, *Measurement Model: Challenges*, earlier a model could be identified only if more than three uncorrelated indicators form a latent construct. It could be observed from the EFA that most of the underlying constructs impede only three or four indicators. Hence, even though eight constructs were identified in the EFA process, during the model specification process variables with three or less indicators were included to the latent variable that exhibited closest proximity, to ensure that the specified model could be identified. The main purpose for merging similar variables is to ensure that the indicators with above-average coefficients are not left out of the model. Based on this, a model was specified for four latent variables, 'customising approach', 'collaborative approach', 'unconventional approach' and 'skilful approach' (including use of support factors) in group 1. The details on model specification and identification of each variable are as follows.

Customising approach. The indicators, benchmark, revising and updating personal publishing plan, identifying opportunities to improve publications, focus on journal articles, and handling multiple research projects, are the part of the variable 'customising approach', denoted as F1 in Figure 4.7. The relation between the indicators and variable is reflective in nature.
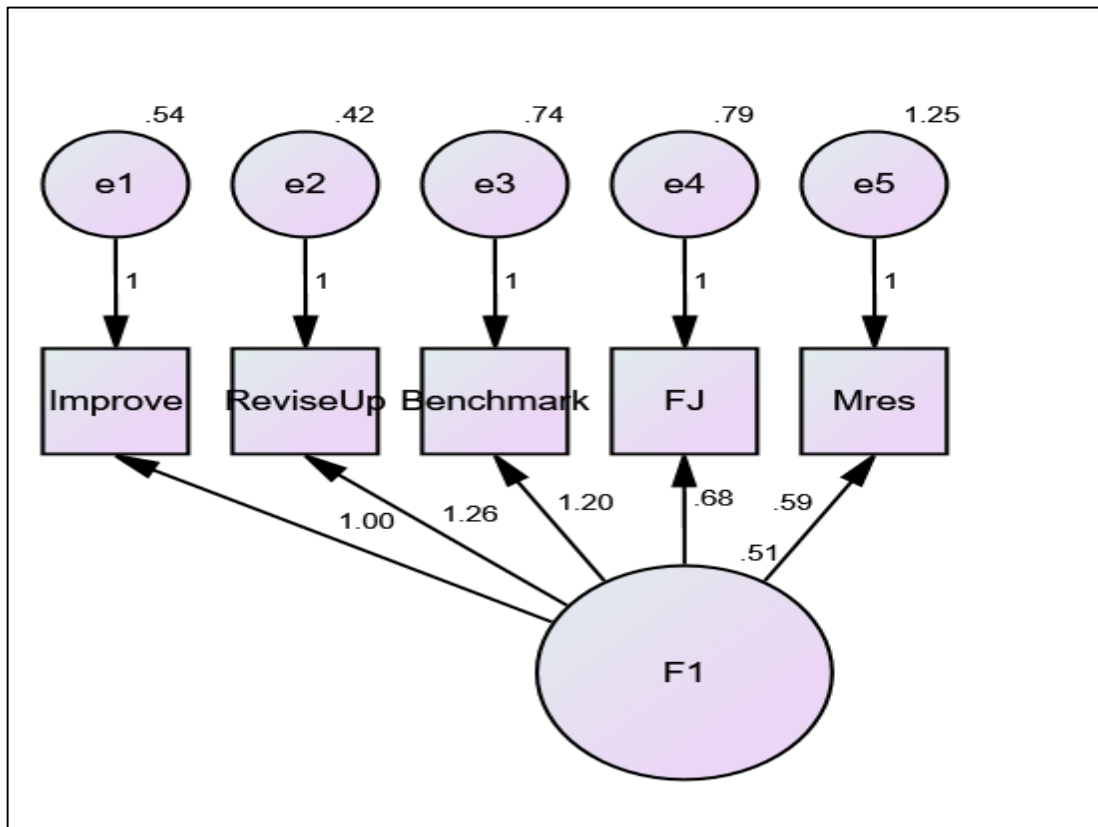
Figure 4.7. Graphical representation of the relation among the indicator and variable *customising approach.*

As explained earlier, indicators are presented in squares and error variance represented using the letter 'e', and values outside the circles are parameter values. The coefficient values are represented near the arrows. The same parameters adopted for the variables of the construct *challenges* were also followed for the variables of the construct *strategies.* Mardia's coefficient of multivariate kurtosis for the variable is 3.057. This indicates that the data show multivariate normality. Although maximum likelihood (ML) estimator could be used for estimating the

appropriateness of the model, GLS estimator is adopted for estimating all the specified models for the construct *strategies* to ensure consistency in the model estimating process. The summary of model fit statistics for the variable *customising approach* in Group 1 of the *construct strategies* is given in Table 4.15.

Table 4.15. Summary of fit indices for the variable 'customising approach' in Group 1 of the construct *strategies*.

Model	CMIN	*p-value*	CMIN/DF	RMR	GFI	AGFI	RMSEA	IFI	TLI	CFI
Default model	8.292	.141	1.658	.067	.973	.918	.073	.923	.826	.913
Saturated model	.000			.000	1.000		.176	1.0000		1.000
Independence model	47.853	.000	4.785	.510	.843	.765	.100	.000	.000	.000

It can be noted that the *p*-value is .141, i.e. above 0.05; chi-square value (CMIN/DF) is 1.658 which is between 1 and 3, which indicates ideal fit of the model; and RMR (0.067) is above .05, indicating that the model is moderate fit and could be accepted based on RMR values. GFI and AGFI values, .973 and .918, respectively, are also above the accepted range of .90 RMSEA (0.073) value is close to accepted value, less than 0.07, indicating that is a moderate fit and can also be accepted based on RMSEA value. The relative fit indices values for IFI (.923) and CFI (.913) are within the accepted range of above .90; but TLI value .826 is slightly below the accepted range. As explained earlier, since it is not possible for a model to have accepted fit values for all indices, we can accept the model if it is accepted by any three indices but includes at least one absolute and relative index (Kline 2010). Hence, the model for the variable 'customising approach' is acceptable based on four absolute fit indices

and two relative indices. This indicates that the strategies reflected by the indicators can be grouped together.

Collaborative approach. The indicators: collaboration with colleagues, research students in general and collaborating with colleagues who have research grants, and employing research assistants or junior staff in research projects, are part of the variable 'collaborative approach', denoted as F2 in Figure 4.8.
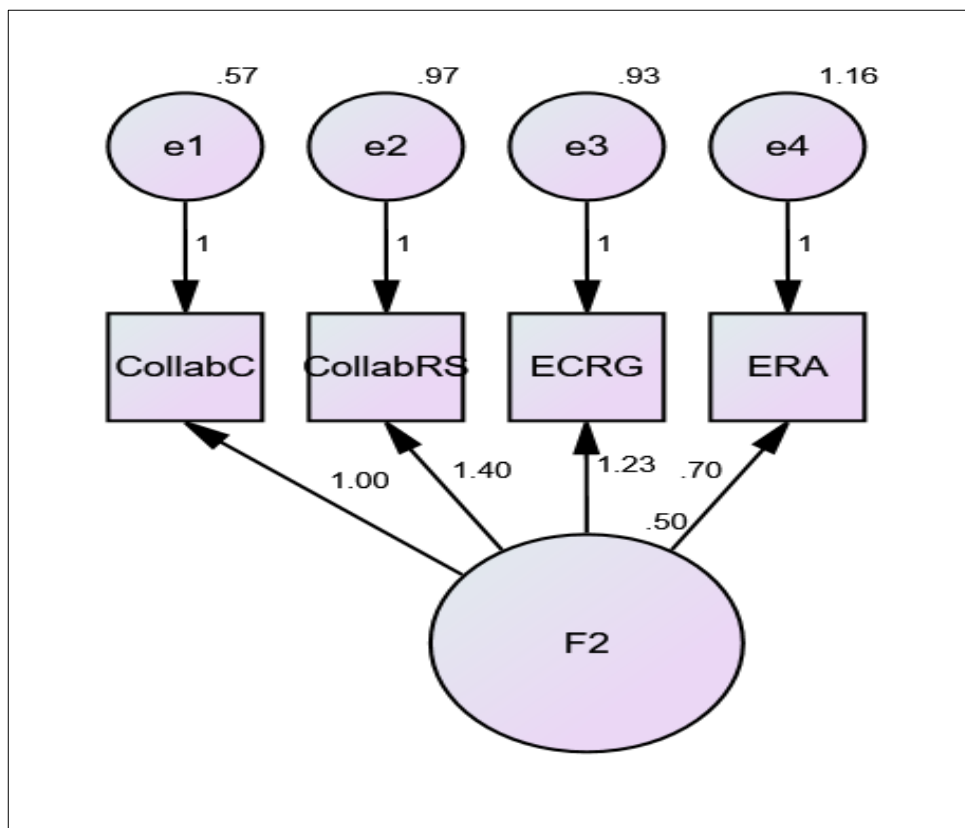
Figure 4.8. Graphical representation of the relation among the indicator and variable 'collaborating approach'.

It could be observed from Figure 4.8 that the relation between the variable and its indicators is reflective in nature. The data indicate multivariate normality even though the Mardia's coefficient of multivariate kurtosis is negative (-1.631), as it does not exceed the value 7 (or below -7). Hence, bootstrapping was not performed.

The summary of model fit statistics for the variable 'collaborating approach' is given in Table 4.16.

Table 4.16. Summary of fit indices for the variable 'collaborating approach'.

Model	CMIN	*p*-value	CMIN/DF	RMR	GFI	AGFI	RMSEA	IFI	TLI	CFI
Default model	4.066	.131	2.033	.063	.983	.917	.092	.941	.801	.934
Saturated model	.000			.000	1.000			1.000		1.000
Independence model	37.164	.000	6.194	.621	.848	.746	.206	.000	.000	.000

It can be noted that the *p*-value is .131, i.e. above 0.05; chi-square value (CMIN/DF) is 2.033, between 1 and 3, which indicates ideal fit of the model; and RMR (0.063) is even slightly higher than .05, thus the model can be considered as moderate fit since it is higher than .05 and lower than .1, and could be accepted. GFI and AGFI values, .983 and .917, respectively, are above the accepted range .90. Similar to RMR, RMSEA (0.092) value is slightly higher than accepted value (less than 0.07), indicating that the model cannot be accepted based on the RMSEA value. However, the model can be considered fit based on other fit indices. The relative fit indices values for IFI (.941) and CFI (.934) are within the accepted range of above .90; but TLI value .801 is slightly below the accepted range. As explained earlier, a model needs to be accepted only by any three indices but to include at least one absolute and relative index (Kline 2010). Hence, the model for the variable 'collaborative approach' is acceptable based on three absolute fit indices and two relative indices. This establishes that the indicators are reflective of the collaborative techniques used by academics to ensure their required publication output.

Unconventional methods. The indicators, non-reviewed and unconventional publication types, publishing in multiple sub-disciplines, and using research funds to enhance publication, are the indicators that belong to the variable, unconventional approach, denoted as F3 in Figure 4.9.
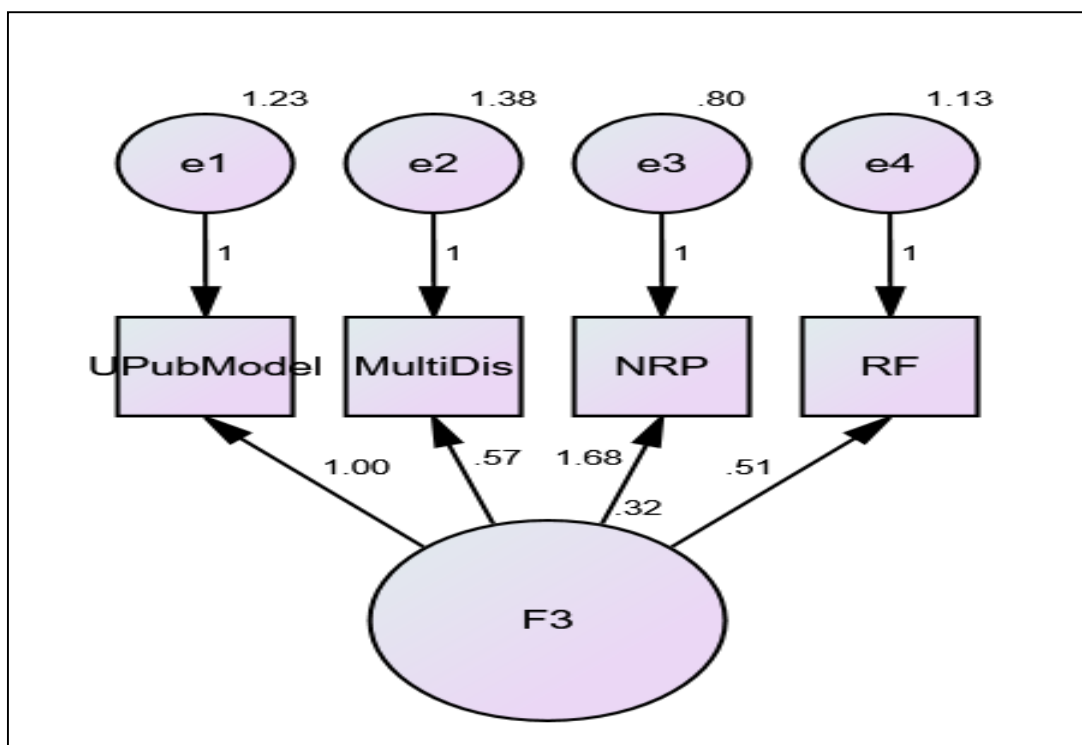
Figure 4.9. Graphical representation of the relation among the indicator and variable 'unconventional methods'.

The relation between the indicators and the variable is reflective in nature. As the Mardia's coefficient of multivariate kurtosis is .341, the multivariate normality is established, therefore it is not necessary to perform bootstrapping. The summary of model fit statistics for the variable 'collaborating approach' is given in Table 4.17.

Table 4.17. Summary of fit indices for the variable 'unconventional methods'.

Model	CMIN	*p*-value	CMIN /DF	RMR	GFI	AGFI	RMSEA	IFI	TLI	CFI
Default model	1.864	.394	.932	.049	.992	.962	.000	1.006	1.020	1.000
Saturated model	.000			.000	1.000			1.000		1.000

Independence model	36.196	.000	4.366	.235	.898	.829	.166	.000	.000	.000

It can be noted that the *p*-value is .394, i.e. above 0.05; chi-square value (CMIN/DF) is .932, which indicates that the model is moderately fit; and RMR (0.043) is below .05, i.e. the model is considered as fit and accepted. GFI and AGFI values, .992 and .962, respectively, are above the accepted range .90. and considered as excellent fit, as the values are above .95. RMSEA (0.000) value indicates that the model can be considered as absolute fit. The relative fit indices values for IFI (1.006), CFI (1.000) and TLI (1.020) are approximately equal to 1, hence can be accepted. Therefore, the model for the variable 'unconventional methods' is acceptable based on three absolute fit indices and three relative indices. This establishes that the measured variables are reflective of academics' publishing techniques that include unconventional publishing options.

Skilful approach (including using support factors). The indicators, having a mentor, personal publishing plan, conference proceedings, using social media, reluctance to share publishing plan, many outputs from a single study, and serving editorial boards, are the indicators that belong to the variable 'skilful approach', denoted as F4 in Figure 4.10. The relations between the indicators and the variable are reflective in nature. The variable exhibits multivariate normality, as the Mardia's coefficient of multivariate kurtosis is .103, i.e. below 7; therefore, bootstrapping was not performed.
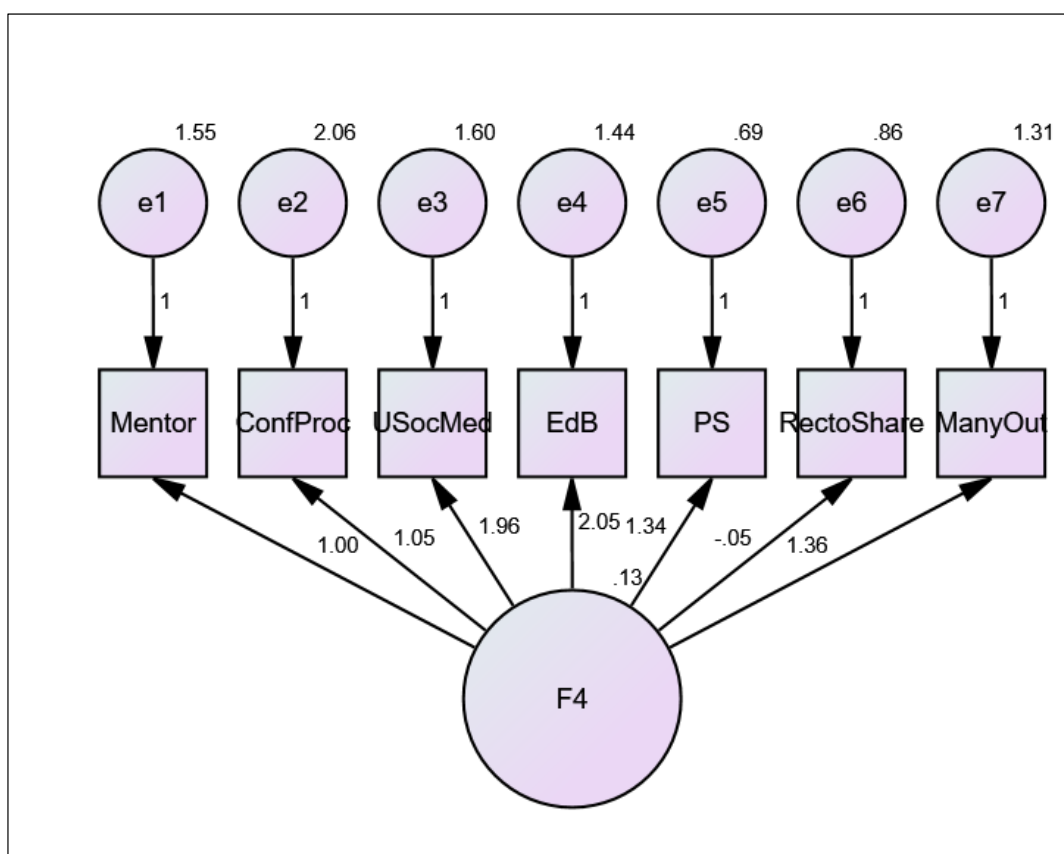
Figure 4.10. Graphical representation of the relation among the indicators and variable 'skilful approach'.

The summary of model fit statistics for the variable 'skilful approach' is given in Table 4.18. It can be noted that the *p*-value is .393, i.e. above 0.05; chi-square value (CMIN/DF) is 1.056, which indicates that the model is adequately fit; and RMR (.117) is above the accepted value of .05, i.e. the model cannot be considered fit or accepted based on RMR value. GFI and AGFI values, .965 and .931, respectively, are above the accepted range .90. and considered as fit. RMSEA (0.021) value indicates that the model can be considered as absolute fit. The relative fit indices values for IFI (.960), CFI (.938) and TLI (.907) are also above the accepted range .90, hence can be accepted. Therefore, the model for the variable 'skilful approach' is acceptable based on three absolute fit indices and three relative indices. This indicates that the measured variables reflect academics' publishing techniques that involve the variable skilful approach.

Table 4.18. Summary of fit indices for the variable 'skilful approach'.

Model	CMIN	*p*-value	CMIN/DF	RMR	GFI	AGFI	RMSEA	IFI	TLI	CFI
Default model	14.785	.393	1.056	.117	.965	.931	.021	.960	.907	.938
Saturated model	.000			.000	1.000			1.000		1.000
Independence model	33.600	.000	1.600	.275	.921	.895	.070	.000	.000	.000

The latent variables for the indicators for the output-based strategies, as explained in EFA, are: publishing reputation, authorship, book-type publishing, online publications and opportunist publishing. However, the model specification and identification could not be specified for these latent variables, as there are only two or three indicators that contributed towards the latent variable. Therefore, these variables were considered only during the specification and identification of the measurement model of the construct strategies.

Second-order measurement model: strategies

This set of variables, customising approach (F1), collaborative approach (F2), unconventional methods (F3) and skilful approach (F4), comprises techniques adopted by academics to ensure their publications (which happen at pre-publication stage). These techniques are related to the process before publication and are referred to as Group 1 for calculation purpose and understanding the relation among the variables of the construct *strategies*. The relationships among the variables of Group 1 are shown in Figure 4.11. It can be observed from Figure 4.11 that all the variables of the group are correlated to each other. This shows that each of the pre-publication techniques impact or influence the other techniques within the group. The indicator 'reluctance among academics in sharing their

individual publishing strategies' affects academics' collaboration with their colleges; their technique of 'focussing on journal output' is related to having 'many output from one study', which in turn is also related to publishing in multiple sub-disciplines; and academics who have a personal publishing strategy are also willing to using unconventional publishing models to increase their publication output.
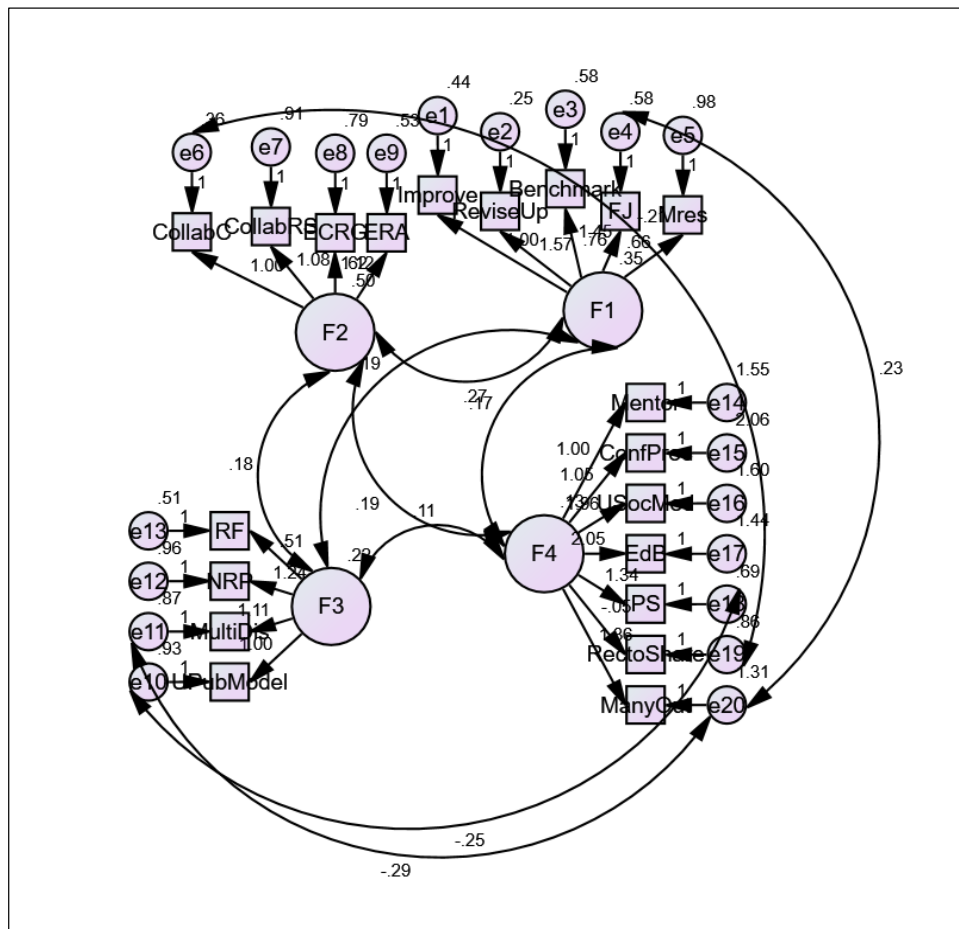
Figure 4.11. Graphical representation of the relation among the variables of the group 1, pre-publication techniques.

The significance, of the relations as well as an in depth-analysis of the relationship among the variables within the group, are discussed in Chapters 5 and 6. The summary of fit statistics for Group 1 is given in Table 4.19. As the multivariate kurtosis coefficient is 5.514, there was no necessity to perform bootstrapping for estimating the appropriateness of the model (and the relation among the variables).

Table 4.19. Summary of fit indices for the group pre-publication techniques.

Model	CMIN	*p*-value	CMIN /DF	RMR	GFI	AGFI	RMSEA	IFI	TLI	CFI
Default model	178.112	.400	1.024	.166	.854	.824	.014	.952	.936	.941
Saturated model	.000			.000	1.000			1.000		1.000
Independence model	33.600	.000	1.367	.361	.787	.765	.055	.000	.000	.000

It can be noted that the *p*-value is .400, i.e. above 0.05; chi-square value (CMIN/DF) is 1.056, which indicates that the model is adequately fit; and RMR (.166), GFI (.854) and AGFI (.824) values are outside the accepted level. Therefore, this model is not fit and cannot be accepted according to RMR and GFI values. RMSEA (0.014) value indicates that the model can be considered as absolute fit. The relative fit indices values for IFI (.952), CFI (.941) and TLI (.936) are above the accepted range .90; hence, the model is fit and can be accepted. As the model needs to be fit only according to three indices, including both absolute and relative indices, the model for the group variable 'pre-publication techniques' is acceptable based on two absolute fit indices and three relative indices. This also emphasises that the observed variables indicate the presence of pre-publication technique followed by academics to ensure their publication output.

The same process was followed for output-based techniques also. However, the model could not be identified when the variables *online publications* and *opportunist publishing* were included. Therefore, the model identified for output-based strategies included only the variables *publishing reputation, authorship* and *book-*

type publishing and their indicators. The relationships among these variables are shown in Figure 4.12. It can be observed from Figure 4.12 that only the variables *authorship* and *book-publications* are correlated and the indicator 'high-impact journals' is correlated to co-authoring. This shows that the output-based techniques are mostly independent of other variables of the group.
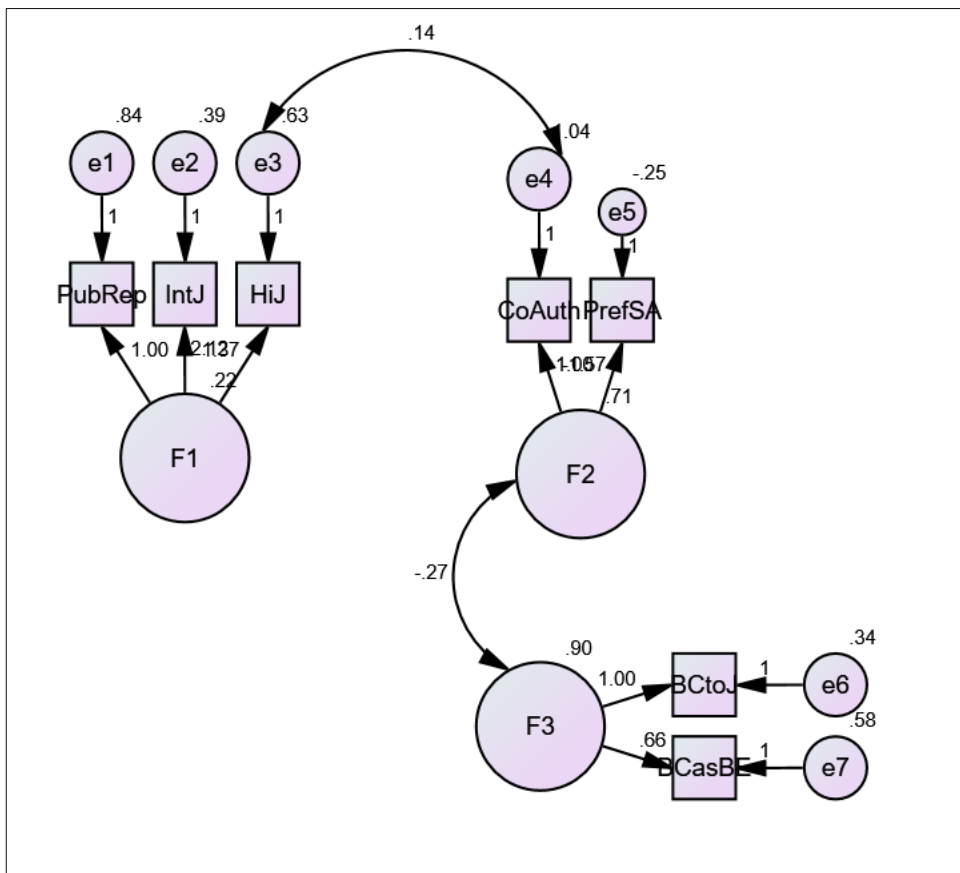
Figure 4.12. Graphical representation of the relations among the variables of the group, output-based techniques.

The details of the relations among the other variables of the construct *strategies* which are not included for model identification are discussed in Chapters 5 and 6, where the overall model estimation and analysis will be detailed.

The summary of fit statistics for the output-based techniques is given in Table 4.20. As the multivariate kurtosis coefficient is 2.344, there was no necessity to perform bootstrapping for estimating the appropriateness of the model (and the relations among the variables).

Table 4.20. Summary of fit indices for the group output-based techniques.

Model	CMIN	*p*-value	CMIN /DF	RMR	GFI	AGFI	RMSEA	IFI	TLI	CFI
Default model	12.846	.380	1.071	.104	.970	.930	.024	.991	.982	.990
Saturated model	.000			.000	1.000			1.000		1.000
Independence model	104.987	.000	4.999	.529	.754	.672	.181	.000	.000	.000

It can be noted that the *p*-value is .380, i.e. above 0.05; chi-square value (CMIN/DF) is 1.071, which indicates that the model is adequately fit; while RMR (.104) is outside the accepted value range, and GFI (.970) and AGFI (.930) values are within the accepted range. Therefore, this model is not fit according to RMR value but is fit and accepted according to GFI and AGFI values. RMSEA (0.024) value indicates that model can be considered as absolute fit. The relative fit indices values for IFI (.991), CFI (.990) and TLI (.982) are above.95 indicating that the model is adequately fit. Therefore, the model specified for output-based techniques is fit according to both absolute and relative indices. This emphasises that the output-based techniques include only the variables related to *publishing reputation, authorship* and *book-type publishing* and that these observed variables have minimal influence among each other.

At this phase of data processing, only model identification is performed. The model estimation and analysis are the next phase, which will be discussed along with the results of other characteristics and background information gathered from the survey.

4.5.4. Reliability and Validity

Reliability and validity are considered to be prominent factors in a quantitative approach. In a survey, these are based on items measured. Reliability is based on the error-free observations of the items measured, and validity depends on the ability of the survey item to convey the meaning of the constructs appropriately (Babbie 2011). According to Neuman and Kreuger (2006), reliability is consistency or dependability, whereas validity is the measure of the reality of the constructs. In the present study, construct reliability and internal reliability are followed and calculated during the data processing using SPSS software. The internal reliability was also determined using Cronbach's alpha for each construct. According to scholars (Babbie 2014, Neuman and Kreuger 2006), alpha values.65 or higher indicate adequate reliability of the items. The Cronbach's alpha value of the indicators for the construct *challenges* is .776, and .756 for the construct *strategies*, establishing the item reliability for the constructs. The reliability of the indicators and validity of the constructs were established during the EFA process using the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA) values. These values (explained in Section 4.5.1) indicated are moderate (i.e. above average), thereby establishing construct validity. Construct validity is also established using fitness indices, discussed in Section 4.5.3.

4.6. Conclusion

In this chapter, the research design including the theoretical and conceptual frameworks adopted for answering the research hypothesis was outlined. In a

quantitative study, the design of the questionnaire, the steps followed in collecting data, and the procedures used for analysing the collected information, play significant roles, because the assumptions and arguments must be statistically established. The process followed for analysing the data and the significance of the statistical methods, including the software and techniques used, and adequacy and reliability of the data, have been provided in this chapter. The statistical results of various types of information gathered from the survey and their relation to the hypotheses explored in this study are the focus of the next chapter, Chapter 5.

Chapter 5.   Results

5.1. Introduction

The statistical inferences of the information gathered from the online survey are evaluated in this chapter. While the details of procedures followed in identifying the participants and delineation of the online survey, as well as the initial data processing, were discussed in Chapter 4, the focus of the present chapter is on the statistical interpretation of the results. This chapter begins by discussing the demographic characteristics such as gender, age, academic rank, areas of research focus, publication output details, and other related details gathered from the participants. The impacts of demographic variables on the constructs, *challenges* and *strategies*, of research-active academics of HASS disciplines in Go8 universities are analysed, before exploring the relation among theoretical and conceptual constructs. This analysis is followed by the statistical interpretation of the relations among the variables using regression and structural equation modelling technique. The structural model analysis of the constructs *challenges* and *strategies* and their underlying relations to the volume of published output is also evaluated and discussed in this chapter. The chapter concludes with a discussion on the relevance to and implications of the statistical inferences for the assumptions and hypotheses in this study formulated and discussed in Chapters 1 and 4.

5.2. Background: Data Collection and Categorising

The online survey was administered to 1384 academics identified through the sampling process detailed in Chapter 4. Based on the public information available

on university websites, only 25%[46] of research-active academics of Go8 universities matched the study's research criteria, explained in detail in Chapter 4, for participating in this survey. Although there were 165 participants (12%), only data from 123 participants were available for final analysis, as responses with missing or incomplete information (with less 75% questions unanswered, especially in relation to the variables) were not included for final analysis. During the data cleaning process, responses of the participants who did not match the important criteria, such as minimum number of publications, were also excluded from the analysis before proceeding with the coding process. The data collected were then coded for calculating the statistical details. The questions that used Likert scale to collect data were coded 1 to 5 (also explained in Table 2 in Appendix B), 1 being lowest and 5 being highest (i.e., 1=Strongly Disagree and 5=Strongly Agree) and 0 and 1 for multiple response questions, where 0=null or not chosen, and 1=selected. The demographic details of the participants are as follows.

5.3. Demographic Details

The demographic information of the participants of this study is presented in Table 5.1. The participant details presented in the table are: age, gender, primary research area, workload, and type and number of publications in the years between 2013 and 2016.

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[46] The percentage has been calculated based on the information provided in the information (2017 Staff Data, Appendix 1) available in https://www.education.gov.au/higher-education-statistics.

Table 5.1. Demographic details of the participants.

		Participants (N=123)	Participants in %
Age Group	> 50	60	48.3
	45-49	9	7.3
	40-44	22	17.9
	35-39	24	19.5
	30-34	7	5.8
	Not disclosed	3	2.4
Gender	Male	61	49.6
	Female	60	48.8
	Unwilling to disclose	2	1.6
Academic position	Lecturer	29	23.6
	Senior Lecturer	34	27.6
	Associate Professor	38	30.9
	Professor	22	17.9
Primary research area	Creative Arts	3	2.4
	Built Environment and Design	12	9.8
	Business, Economics & Management	33	26.8
	Education	4	3.3
	Social Sciences	30	24.4
	Society and Culture	18	14.6
	Others, please specify*	23	18.7
Workload	Management, Teaching and Research	80	65.12
	Management and Research	2	1.6
	Teaching and Research	28	22.8
	Only Teaching	2	1.6
	Only Research	6	4.9
	Others, please specify	5	4.1

*Other areas mentioned include law, archaeology, literature, humanities, tourism, media and communication.

These areas can also be classified into the above-mentioned primary research areas.

Age. Most of the participants (48.3%) in the survey were above the age of 50. It can also be noted that there were no participants between the age group 25 and 30, while 3 participants (2.4%) did not disclose their age group. The lack of participants

between the age group of 25 and 30 is not surprising, as 20% of academics across disciplines within Australia universities are at the level of either lecturer or below lecturer (Staff Data 2017, Higher Education Statistics, Australia[47]). The majority of participants being above the age of 50 emphasises that they have rich experience in handling research as well as publication; and their professional success can be attributed to their ability in ensuring publications in with the ever-changing publishing policies of the universities and Australian Research Council, because studies (such as Nicholls and Cargill 2011) show that publications have been an imperative part of Australian academics since 1990s.

Gender. The gender distribution is almost equal, as there are 61 (49.6%) males and 60 (48.8%) female, while 1.6% chose not to disclose their gender. The equal representation of gender among the participants also reflects the overall level of gender disparity in Australian universities. According to statistical details in the *Staff 2017*, overall gender disparity in Australian universities is less even though the gender gap widens based on the individual academic ranks or full-time and casual positions. Since only academics with PhDs qualified to be research supervisors were considered for the present study, gender inequality appears to be insignificant for this study based on the details provided by the participants. As the study does not focus on gender disparity in publications, gender representation based on academic rank is neither provided nor discussed in this chapter.

Academic Position. The majority of the participants are Associate Professor (30.9%), followed by Senior Lecturer (27.3%), and Lecturer (23.6%), while only 17.9% are Professors. According to the information available from Department of Education and Training, most academics (across disciplines) in Go8 universities are above the rank of level C, i.e. Senior Grade Lecturer. Therefore, the highest number

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[47] Statistical details of academic staff members in Go8 universities or other universities in Australia are from the details available in the 2017 Staff Numbers document in the Document Library of Department of Education and Training, Australia (TRIM reference: D17/2098264).

of participants belonging to senior level is a fair representation based on their academic rank, even though the percentage can vary slightly based on the discipline.

Primary Research Area. The primary research areas of academics in this survey are: Social Sciences (39%,); Social and Culture (39%); other Arts and Humanities such as Creative Arts, Built, Environment, Design, Education, Law, Archaeology, Humanities, Tourism, and Media and Communication (34.2%); and Business, Economics and Management (26.8%). These percentages also reflect the real-world population of Go8 academics based on their discipline (Staff Data 2017). According to the 2017 Staff Data published by the Department of Education and Training, in HASS disciplines of Go8 universities, 48% academics belong to the discipline, Society and Culture, while 20% belong to the Management and Commerce discipline and 32% belong to other Arts and Humanities disciplines.

Workload. The workload component of most of the participants (65.12%) included Management, Teaching and Research, while 22.8% of the participants had Teaching and Research and 4.9% participants were engaged only in Research. However, 2% of participants did not have Research as their work component; while 2% were involved in Management and Research. Since the focus of the study is publishing, which is related to academics' work component of research, details of workload were gathered from the participants is significant for understanding the factors that impact publications. The workload component of the participants echoes the overall workload component across disciplines in Go8 universities provided in Staff Data 2017. According to the government data, only 2% of academics employed on a full-time basis have a Teaching-only position, while 35% have Research-only positions; however, there might be a slight change in research-only positions when academics of STEM disciplines are excluded48. Some academics (4.1%) mentioned that their workload includes other activities such as administrative work, service engagement

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[48] As only consolidated details of academic staff in each university are available in the open domain, individual discipline-wise details have not been included for comparison.

and PhD or research supervision. Table 5.2 shows a further breakdown of workload of participants in this study.

Table 5.2. Ratio of workload as percentage.

Workload range in %	Management (%)	Teaching (%)	Research (%)
0-9	13	3	0
10-20	16	11	1
21-30	48	7	6
31-40	12	14	11
41-50	5	45	50
51-60	2	10	10
61-70	3	7	6
71-80	0	1	3
81-90	2	1	9
91-100	0	3	4

The workload component was divided into ten categories for easy understanding of the time spent on different work activities. While 48% of participants have *Management* load between 21% and 30%, 45% have *Teaching* load between 41% and 50%, and 50% have *Research* load between 41% and 50%. It can be also noted that 3% of participants have 100% *Teaching* load while 4% have 100% *Research* load. The values in Table 5.2 also indicate how the workload is divided among Management, Teaching and Research activities. In accordance with the 2017 Staff Data, 45% of academics across disciplines in Go8 universities handle research and teaching. Therefore, it is natural that most of the participants (90%) of the present study also handle an equal workload in teaching and research (41-50%).

The percentage of participants' workload in Teaching, Management and Research is significant for this study, because with the introduction of the performance management system, universities have changed their workload allocation to align

their success with competitive research funds (Martin-Sardesai et al. 2017a). Thus, it is natural that academics who have higher workload of Research will be able to (and are also expected to) publish more than academics with less Research in their workload. Therefore, workload is one of the factors that is very likely to impact the number of publications of the academics.

5.3.1. Details Related to Publishing

Publishing experience. Figures 5.1 and Figure 5.2 show the publishing experience of the participants and the number of publications they have over the three-year period considered in this study. Most of the participants (53%) had been publishing for more than 10 years after completing their doctoral degree; which complements age group, because most participants are over 40 years, which reveal they have good grasp of the publishing environment. Only 4% had been publishing for less than 2 year and belong to the age group between 30 and 40 years.
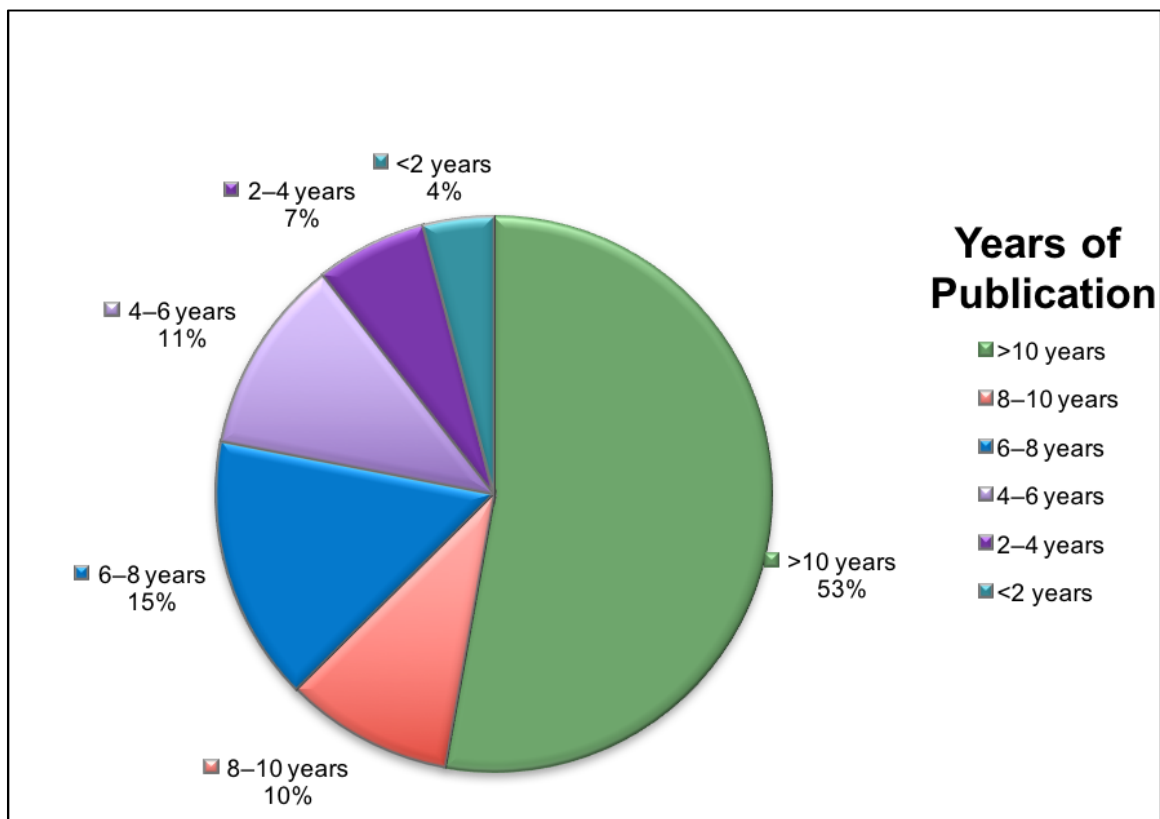
Figure 5.1. Participant details based on the years of publication after doctoral degree.

It is not surprising to note that there are only very few respondents with less than two years of experience in publishing after their doctoral degree, because more than 80% of participants are above the age of 40%; hardly any were below the age of 30 and only 6% were below the age of 34. This statistical information is also in tandem with the demographic age group of academics in Australian universities discussed earlier. The long years of publishing experience imply that the respondents of this survey have an adequate knowledge of the academic publishing environment. It also implicates that the information they provide about publishing challenges or strategies will not be based on any one or two instances which could be considered as a rare or exceptional situation.
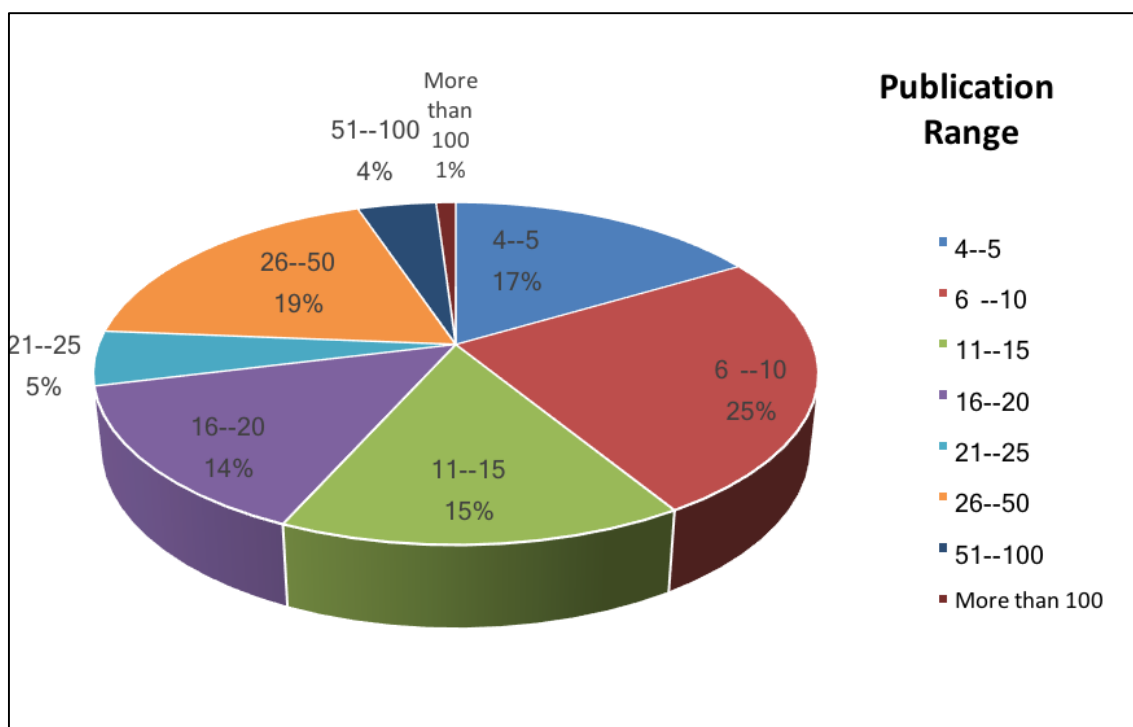
Figure 5.2. Participants (%) based on the number of publications between 2013 and 2016.

Number of publications. When it comes to the published output (Figure 5.2), 17% have 4—5 publications, 25% participants have 6—10 publications, 15% participants have11—15 publications, and 14% have 16—20 publications between the years 2013 and 2016. It can also be noted that 24% have published output between 20 and 50, 4% between 51 and 100, and 1% have more than 100. Figure 5.3 shows the details of published output based on the publishing experience.
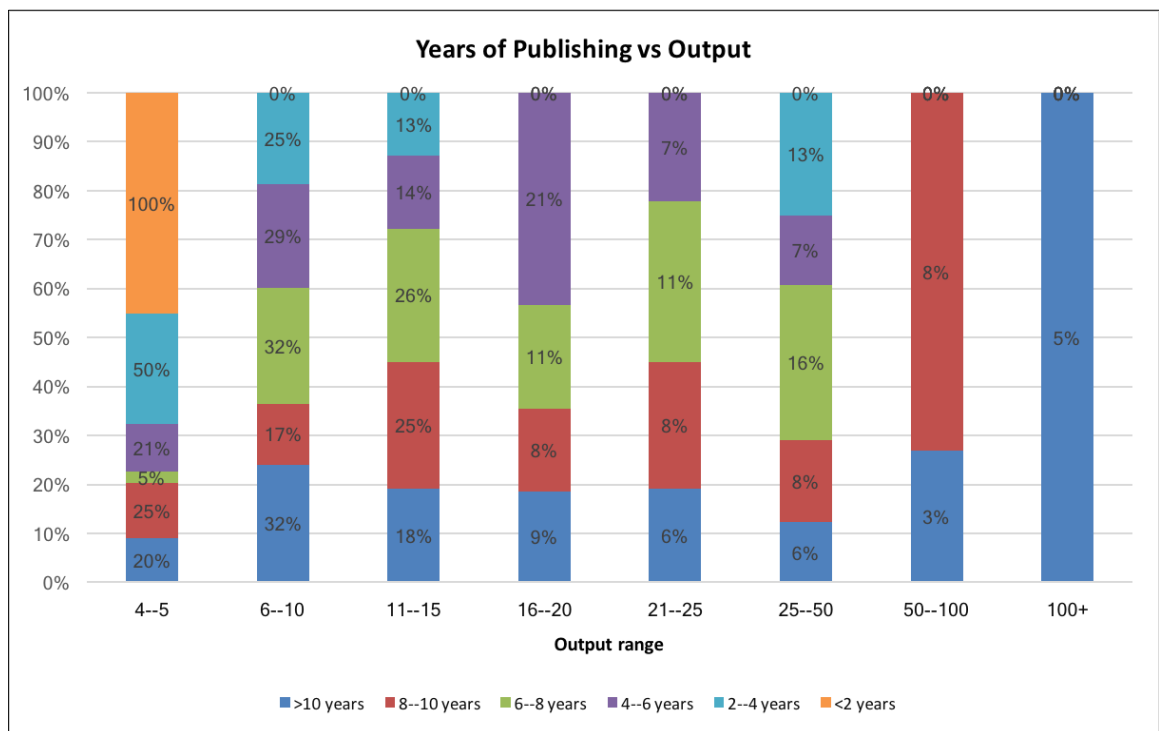
Figure 5.3. Participants' publishing experience vs reviewed published output (in percent) between the years 2013 and 2016.

As evident from Figure 5.3, academics with high publishing experience tend to have a high volume of publications. It was also noted that other factors such as age or gender did not influence the publication output. The study shows that only publishing experience influenced the total number of published output. This implies that the participants are achieving their desired publication volumes by understanding the key publishing factors through their exposure and experience in publishing. Furthermore, there was also no commonality between publication

outputs and type of workload (be it Management, Research or Teaching). This study does not intend to probe the pattern of publication over the years. Therefore, no information about the type (i.e. what they first published — reviewed article as co-author, or technical briefs; how many journal articles they published before publishing book chapters or monograph and so on) or stage (e.g. were they an honours, master's or PhD student) during which academics had their first published output was collected during the study. Since the focus of the survey is to collect information about their contemporary publishing environment; questions such as whether 'focussing on publication during the doctoral degree helps in improving the publishing record' are outside the purview of this study, and if required, need to be explored separately under a different context or study.

The information about the different types of reviewed publications in which academics chose to communicate their research is presented in Figure 5.4. Journal articles appear to be the most preferred publication type, as 98.3% have published at least one journal article, 85.3% have book chapters, 50.4% conference proceedings, and 39.2% and 35%, edited books and monographs, respectively. The high percent of journal articles is not surprising, as the maximum number of reviewed publications (60% in HASS disciplines alone) received for evaluation by the Australian Research Council (ARC) committee in the last round completed in 2014 belonged to journal type (ERA 2015).

The results show that there exists a clear relation between the type of publication and ERA guidelines. On evaluating the ERA 2015 guidelines, we can observe that the research output that helps in contributing towards many indicators of Unit of Evaluation (UoE) is journal articles. This is because journals articles contribute towards 'volume and activity' and 'citation analysis'. It can also be observed that less than 6% of the academics only who have a high number of published outputs (15 publications in 3 years) have published more book chapters than journal articles during the period. Therefore, it is evident that the publication practices of academics echo the evaluation of publications followed by ERA.
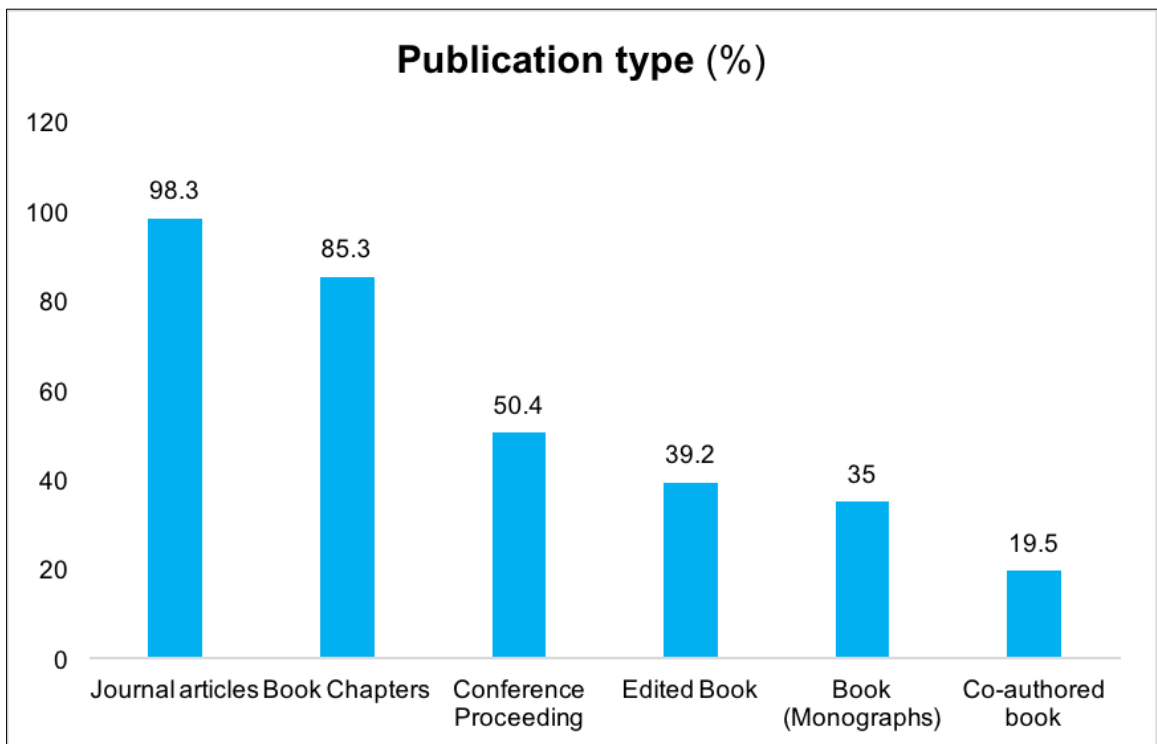
Figure 5.4. Publication format chosen by participants (%) between the years 2013 and 2016.

Participants were provided with nine options from which they could choose all the applicable reasons for publishing. These options are arranged in descending order based on their priority in Table 5.3. The five main reasons are: To share knowledge with others (84.38 %), followed by Personal satisfaction (79.69 %), Career advancement (67.97 %), Fulfilling professional responsibility (67.19 %), and To be an authority of the field of research (64.84 %). It was observed that the underlying reasons for publishing do not influence or determine the type of publication, and vice-versa. A further analysis of these reasons reveals that the academic rank of the individuals influences their underlying reasons for publishing, which is further explained in Chapter 6.

Table 5.3. Reasons for academic publications.

Reasons	Participants in %
To share knowledge with others	86.2
For personal satisfaction	79.7
For career advancement	68.3
To fulfil my professional responsibility	68.3
To be an authority of my field	65.0
To influence policy decisions	40.7
To meet research funding requirements	37.4
Others, please specify*	7.03
For monetary benefits	3.91

*Others include contributing to knowledge body, to establish credibility as a university teacher, engage with others in dialogue.

The results show that career advancement is also an important reason for academic publications. On evaluating the role of ERA indicators (as discussed in Chapters 2 and 3) and the relation to type of publication (discussed earlier), the focus on journal articles seems logical, because only journal articles contribute towards the two indicators (the volume and citation analysis indicator applicable only to journal articles through Scopus, see Figure 2.2 in Chapter 2). The results, therefore, emphasise that most academics have regular publication of journal articles, since they contribute toward two indicators in the performance metrics (see Figure 2.2). The perspectives of academics on each type of publication is discussed in the following section.

5.3.2. Choice of Publication Types

Section C of the questionnaire focussed on understanding the reasons underlying different publication types such as journals, books and conference proceedings. Table 5.4 to Table 5.6 show the underlying reasons for choosing a publication type. Building reputation (81.30%), review comments helping to improve the quality of

research (73.98%), meeting or exceeding the performance goal set by the university (66.67%), and ease of gaining recognition in the research field (56.10%), are the main reasons for choosing journal publications. Establishing credibility in the field (57.85%) and building reputation as subject expert (54.55%) are the main reasons for book or monograph publications. It can also be noted that most of the academics do not focus on conference proceedings publication, while less than 1% of academics only do not have a journal-type publication. The reasons for choosing each type of publication are analysed later in Chapter 6. It can be noted (from Table 5.4) that 47.15% of academics opined that their journal articles contributed towards improving their citation impact, and 44.72% of academics opined that the availability of high-impact journals in their discipline was their reason for publishing in journals. The responses to these options further establishes the role of performance metrics in publications.

Table 5.4. Publication type: Journal articles.

Reasons	Percent (%)
Builds my reputation as a subject expert	81.30
Review comments help me to improve the quality of my research	73.98
Helps to meet/exceed the performance goals set by the university	66.67
Ease of gaining recognition in my research field	56.10
Helps in improving my citation factor	47.15
I receive invites from journal editors for writing articles	44.72
High-impact journals in my field are readily available	44.72
Opportunity to reduce my workload	14.63
Helps to get funds for book projects	7.32
I do not prefer to publish in journals	2.44
None of the above	2.44
I do not have any journal publications	0.81

Table 5.5. Publication type: Book or monograph.

Reason	Percent (%)
It establishes my credibility in the field	57.85
Builds my reputation as a subject expert	54.55
It helps to increase my esteem	36.36
Opportunity for improving my prospects on receiving research funding in the future	26.45
My university gives higher publishing credits for book publications	21.49
It provides me an opportunity to reduce my teaching and/or management workload	9.09
It helps to improve my citation factor	17.36
Publishers approach me to write books	16.53
It is an expected outcome of my research grant	14.05
None of the above	14.05
I do not have any monograph or co-authored book publication	18.18

Table 5.6. Publication type: Conference proceedings.

Reason	Percent (%)
I do not focus on conference proceedings	47.11
I see it as an opportunity to build my publishing profile	23.14
None of the above	19.83
Conferences increase opportunities for industry collaborations	18.18
I do not have any publications from conference proceedings	12.40

Table 5.5 shows that book publications are associated with research funding, as 26.5% opine that book publications help them in improving their future funding projects, while 14.05% opine that their book publication was an expected outcome of their research grant. In order to analyse the significance of funding organisations in the academic publications, there were questions related to funding details of academics, which are explained in the next section.

5.3.3. Funding Background

Tables 5.7Table 5.7. and Table 5.8 show the details of organisations from which academics receive their funds for both present and previous research. The information regarding the organisations from which the academics received their funding was collected to analyse the role and impact of these organisations in the publishing practices of academics. It should be noted that the majority of the academics were funded by their universities, followed by the Australian Research Council/National Health and Medical Research Council (ARC/HNMRC). We can note that 18.5% (in present funding) and 19.2% of academics (in past funding) indicated 'Others' as their funding organisations. 'Others' also includes self-funding (including being a salaried academic with no research funding or partially funded by an ARC grant), international fellowships and other competitive grants that are not considered to be part of the ARC or other government grants in the present funding, while foreign agencies such as the UK research agencies, EU funds or Swedish Development Assistance Agency and Consultancies or Professional bodies are included in the previous funding details. Academics receiving funding from foreign agencies for their previous research projects indicates that these academics could have worked in universities in other countries. It could also imply that they have worked in an environment that follows performance-based metrics and includes publication as an important component due to a knowledge-based economy (because the foreign funding agencies are mainly from developed nations such as the UK or in the EU). The overall funding received in the past is higher than the

funding received at present. This also echoes the budget constraints in universities and the competiveness in receiving funds.

Table 5.7. Participant details based on present funding.

Funding Organisation/body	Participant in %
University	75.4%
ARC/NHMRC	30.9%
Industry/Business	10.3%
Philanthropic funding agencies	6.2%
Other government bodies (state, federal, local, etc.)	16.2%
Others, please specify*	18.5%

*Others include self-funding, International fellowships, funding from Cooperative Research Centre or other competitive funds such as Ian Potter or Australian Academy of Humanities.

Table 5.8. Participant details based on earlier funding.

Funding Organisation/body	Participant in %
University	87.7%
ARC/NHMRC	44.6%
Industry/Business	22.3%
Philanthropic funding agencies	19.2%
Other government bodies (state, federal, local, etc.)	29.2%
Others, please specify*	19.2%

*Others include self-funding as well as funding from foreign funding bodies such as UK research agencies, fellowships from overseas foundations or Overseas Research Partners.

The significance of organisations from which academics have received funding is further explored in Chapter 6, while the impact of the funding is analysed in the discussion related to the main constructs – challenges and strategies. The details of the measured indicators and how the individual indicators are related to the latent

variables were discussed in Chapter 4, while explaining the procedures adopted during data processing. The basic information gathered about each indicator is discussed in the following section.

5.4. Descriptive Statistics: Variables

5.4.1. Observed Indicators: Challenges

Academics' perceptions of challenges are measured using the indicators listed in Table 5.9. These results provide the basic information about the factors that are perceived by academics as a challenge in ensuring their publications. The understanding of academics' perceptions helps in exploring the underlying factors that are influences on the construct challenges.

Table 5.9. Academics' perspectives on the variable *Challenges*.

Construct	Indicators	Participants perspective*
Challenges	Time	Agree 49%
	Personal Traits	Disagree 91%
	Work environment	
	(i) Colleagues	Disagree 74%
	(ii) Workload	Agree 60%
	(iii) Funding issues	Disagree 66
	University publishing policies	
	Dictated by natural sciences	Agree 46%
	Unrealistic publishing expectation	Disagree 59%
	Publishing environment	
	Lack of network	Disagree 80%
	Difficulty in identifying suitable journals	Disagree 94%
	Publishing cost	Disagree 48%
	Preferences in publishing	Disagree 53%

*Based on weighted average for each item.

The results presented in the table show that only the indicators, time, workload, and university publishing policies dictated by natural sciences, are perceived to be challenging factors, while other indicators (such as personal traits or publishing expectations of the universities) are not perceived as a challenge (explained in depth later) for ensuring their publication record. The details of factor analysis of individual items of the construct challenges, discussed in Chapter 4 (Table 4.8), show that they could be categorised or grouped into six indicators or latent variables. These indicators are: time management; personal traits (writing issues and preferences in workload); factors related to work environment, namely, workload; publishing policy; financial support; and the publisher-related indicator, referred to as publishing environment. It is evident from the analysis that items related to 'Colleagues' couldn't be categorised with any of the latent variables and had least impact on the construct. The results shown in Table 5.9 show that academics do not perceive the characteristics of their colleagues as a challenge. The factor analysis, explained in detail in Chapter 4, established the relationship between the items and indicators (the latent variables) using the model estimation process of a structural equation modelling (SEM) approach. This SEM approach in estimating the relation is also referred to as 'analysis of the measurement model', because the relations among the construct (such as personal traits) and measured variables (such as writing issues, personal preferences) are established. The same procedure is adopted to establish the relationships between the observed indicators and the construct strategies.

5.4.2. Observed Indicators: Strategies

The measured indicators for the construct *strategies* are grouped as (pre-) publication strategy (henceforth, referred to as general strategy) and output-based strategy (henceforth, referred to as publisher-based strategy). Table 5.10 shows the

academics' perspective of the various indicators related to general strategies[49]. The indicators of collaborative strategies (see Table 5.10) include opportunities provided by the field (university and research environment, referred to as within-field collaboration) and publishing environment (outside field collaboration).[50]

Table 5.10. Academics' perspectives on the variable (pre-)publication *strategies.*

Variable	Indicators	Participants' perspective*
Publishing strategies	*Personal strategy* Individual strategy	Yes 53%
	Based on publishing opportunities	Yes 52%
	Collaborative strategy Within-field collaboration	
	(i) Publishing mentors	No 72%
	University support	Yes 67%
	(ii) Collaboration with other researchers	Yes 54%
	Outside-field collaboration	
	(iii) Non-conventional publishing	Yes 51%
	(iv)Network and opportunities	Yes 51%

*Based on weighted average for each item.

It should be noted (from Table 5.10) that academics adopt most of these strategies. Only the indicator 'publishing mentors' is not included or perceived to be a part of

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[49] 5-point Likert scale, of *Definitely Yes* to *Definitely No*, was used. Weighted average is used to categorise responses into three categories, namely Yes, No and Neutral. Only the category with maximum percent is listed in the table.

[50] The basis for choosing the mentioned indicators for the variables *challenges* and *strategies* has been explained in Chapter 4, while discussing the variables and indicators.

publishing strategy by the academics. It can be noted from Table 4.10 in Chapter 4, which explains the relation among the indicators of the variables of the main construct strategies, that the item, mentor, did not belong to any latent variable. The indicators, non-conventional publishing and network and opportunities, are considered as a strategy by a very thin margin. According to the results of the factor analysis explained in Chapter 4, the indicators related to the construct *strategies* can be categorised into eight factors or latent variables. These latent variables and their items are listed in Table 4.11, in Chapter 4. The indicators listed are: individual strategy (variables related to varying and unique approach), publishing tactics (skilful approach), collaboration with other researchers (collaborative factors), university support (fund-based factors), network and exploring opportunities (using support factors), and non-convention publishing (unconventional methods).

The indicators of publisher-based strategies adopted by academics are presented in Table 5.11 [51]. The indicators of publisher strategies include the opportunities based on output types and publisher-related factors. According to factor analysis, detailed in Chapter 4, the measured items of output-based strategies belong to five different variables. The indicator, journal-type publishing, refers to the publication type such as online publications (with or without print), opportunist publishing (includes OA publications with or without author charges), book-type publishing, publisher reputation, and authorship.

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[51] 5-point Likert scale, of *Definitely Yes* to *Definitely No*, was used. Weighted average is used to categorise responses into three categories, namely Yes, No and Neutral. Only the category with maximum percent is listed in the table.

Table 5.11. Academics' perspective on the variable output-based techniques.

Variable	Indicators	Participants' perspective*
Publishing strategies	*Journal-type publishing techniques* (both print and online)	Yes 46%
Output-based techniques	Open Access (non-predatory journals)	No 64%
	Preference to book-type publishing	No 78%
	Reputation (publisher/journals)	Yes 62%
	(Co-)Authorship	Yes 46%

*Based on weighted average for each item.

Even though only 46% of academics prefer publishing in journals that are available both in print and online versions, more than 10% are neutral about the presence of print version of the journals. This shows that a significant number of academics are unsure that insistence on print version of journals is helpful in achieving their publication goals. Similarly, when it comes to non-predatory OA journals, the results of this study show that most of the academics in Go8 Australian universities are unwilling to publish in OA journals. This perception will be further probed in Chapter 6. Since OA type publication has been a major area of discussion in various studies (see Chapters 1 and 2), the results were examined to understand whether there are any factors that impact academics in OA type publication. It is observed that academic rank plays a significant part in their willingness to explore OA journals, which will be discussed in detail in Chapter 6, where publishing techniques based on the individual academic rank will be analysed in depth. Even though a majority of academics do not prefer book-type publications over the journal type, the similar observation made for open journals, that is, influence of academic rank,

was noticed for academics' preference for book-type publications. The reputation of publishers and co-authorship are considered as an important technique by academics to enhance their publication output. The factor analysis adopted to identify the items to their indicators (explained in Chapter 4) helped in understanding the relation of the items to the indicators, and the relationships among the latent variables and the indicators (measurement model) was established using the model estimation process of the SEM approach (also explained in Chapter 4). While the validity and reliability of the items to their latent variables were explained, and established in Chapter 4 using the SEM approach, the relationship between the main constructs, challenges and strategies, and their relation to the published output, known as evaluation of the structural model, are discussed in detail later, in Section 5.5.

The above-mentioned statistical details about the publishing techniques adopted by academics provide only overall information about their perceptions on various techniques adopted by the academic community of HASS disciplines of Go8 universities. However, how academics at different levels perceive the challenges and adopt these strategies vary depending on their individual academic rank and their goals; and this is discussed in detail in Chapter 6. While the publishing strategies provided details on different publishing opportunities, their choice of publication type, and underlying reasons for choosing these for publication, have already been discussed in Section 5.3.2, the following section provides details on what motivates academics in choosing the different publication types.

5.4.3. Purpose of Publications

Table 5.12 provides us with information on academics' perceptions about their peer-reviewed publications. According to most academics, their peer-review publications help them to gain recognition in their respective field(s) (87.70%), establish their research credibility (83.61%), reflect on research knowledge (77.05%), meet institutional publishing expectations (75.4%), and improve their career (73.77%). It can be noted that the majority of academics opine that peer-reviewed publications help in securing research funds in future. It is also observed

that there exists a significance correlation between meeting institutional expectations and securing funds (sig.=0.001). The results also emphasise that meeting institutional publishing expectations helps in improving their research income in future. However, when it comes to exceeding university or institutional publication expectations, only 38.52% say that their publication output exceeds the institutional publishing expectations. This implies that two-thirds of the academics, despite having more than four publications in three years, do not surpass the publishing expectations of their institutions or, in other words, only meet the expectations of their universities.

Table 5.12. Purpose served by the peer-review publications.

Purpose	Percent (%)
Gain recognition in my research field(s)	87.70
Establish my research credibility	83.61
Reflect on my research knowledge	77.05
Meet institutional publishing expectations	75.41
Improve my career	73.77
Increase my esteem among peers	67.21
Secure future research funds	58.20
Exceed institutional publishing expectations	38.52
Generate additional income	13.11
Others, please specify	5.74

Academics not exceeding publishing expectations of their university could mean that the publishing expectations of the research-focussed universities are very high, because the publication record of academics show that more than 80% academics on an average have six publications in three years (Figure 5.2). As the publication-based performance metrics play a significant role in future research funding of academics, it is evident that meeting university publishing expectations itself will help the academics to secure research funds (in future). The multiple connotations

and implications of the statistical results on meeting and exceeding expectations are discussed in detail in Chapter 6.

Based on the category of number of publications shown in Figure 5.2 (publishing output of 57% of academics can be categorised in the group of around 15 publications in 3 years), it is evident that academics need to have a publishing average above 3 per year[52] to exceed their university's publishing expectation[53].

Articles in high-ranking journals (84.17%), book chapters (42.50%) and monograph(s) (40.83%) help them in securing future funds (Table 4.15). As explained in Chapter 2, the individual publication outcomes are also used by Higher Education Research Data Collection (HERDC) to gather information about research publication to determine the research block grants of the Australian Higher Education Department. The choice related to securing funds (see Table 5.13) emphasises the role of publication in funding, as more than 50% of academics aimed to secure research funds with the help of published output. Only 17.50% had not indicated that their publications are not based on securing research funding. The relation between funding and publications are further explored in Chapter 6.

Table 5.13. Publications that help in future funding.

Publication type	Percent (%)
Articles in high-ranking journals	84.17
Book chapters	42.50
Monograph(s)	40.83
Articles in any journal	20.83
My publications are not based on funding requirements	17.50
Conference paper(s)	6.67

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[52] The average number includes the weighted average given to monograph books as indicated in ERA guidelines.

[53] The number of publication output and its relation to other variables are further explored, analysed and explained in Chapter 6.

The next step in the analysis process is identifying the statistical correlations between the observed indicators and variables.

5.5. Relationship among the Variables: An Analysis

The SPSS software was used to process the statistical information for the observed items. The analysis of inter-relation among the variables was performed by calculating the Spearman's and Pearson's correlation coefficient. The correlations between the indicators of the variable *challenges* are provided in detail in Table B.1 (Tables B.1a--c), Appendix B. The calculated coefficients provide the significant values of the correlation within the variables of the construct challenges as well as strategies (within each variable and between the variables). We can conclude that the indicators are correlated if the significant value is less than or equal to 0.05. In other words, significant values less than 0.05 show that there exists a relation among the respective individual items within the variable challenges or strategies. For example, the indicator *time* is correlated (directly related) to other indicators such as some personal traits, dislike toward publishing, preference to teaching, struggle in formulating research strategies, and university workload (Table B.1, Appendix B); in other words, personal and work-related indicators contribute towards the time issue, and vice-versa.

As explained in Chapter 4, the use of the structural equation modelling (SEM) approach not only helps in providing an understanding of the relationship among different variables or ensuring the appropriateness of the conceptual and theoretical assumptions of this study, but also in establishing the validity of the measured items. According to Ullman (2006), the SEM approach involves model evaluation, that is, analysis of the model and modification of the model if necessary to ensure the appropriateness of the relation among the indicators and variables. Although the relationships between the individual (observed) items to their latent

variables were established using the model identification process in Chapter 4, it is necessary to identify the significance of the indicators for the latent variables and analyse the second-order hierarchical structure, that is, the measured model, to understand and evaluate the structural model, that is, the relations among the constructs and their relation to published output.

5.6. Measured Models: An Analysis

According to Barbara (2010), the accuracy of a structural model is dependent on the measured model. In other words, accuracy of relations among the constructs is based on the appropriateness of the indicators and individual latent variables (Jöreskog 1993). The identified measurement models become the basis of the structural model, which is thus substantially meaningful and statistically appropriate. As the underlying relationships between the latent constructs are unclear, the model-fitting (model-testing) process using SEM approach in the study serves the purpose of model-generating rather than model testing (Jöreskog 1993). As emphasised by Jöreskog (1993), the primary objective of analysing the measurement model in the study is to identify the sources that misfit the equation, in this case of academics' strategies and their publications. In the present study, model evaluation is performed to identify whether the strength of the relations between the indicators and their corresponding variable in the measured model and also the relation between the latent variables and the constructs are appropriate.

In other words, the strength of the relation among the indicators and the variables, and between the variables and constructs, establishes the convergent validity (Kline 2010). The standard regression values, also known as factor loading, of each indicator establishes the relationship of the indicator with the variable; the higher the value, the stronger the relationship. According to Steiger (1990), in social science disciplines, as the measurements are based on psychometric scales, indicators with factor loading values higher than 0.5 are accepted as valid, as they

establish moderate or adequately significance (and values above .7 highly significant) to the variables. However, scholars (such as Hoyle 1995; Kline 2010) emphasise that, if the values are higher than .9, then the indicators lack discriminant validity, because the values indicate that items measure the same or an equivalent factor. In the study, there are three measurement models, namely, one for the construct challenges and two for the construct strategies.

The measurement model, as explained by Byrne (2016), establishes the relations between the measured indicators and the latent variable to which they are hypothesized or categorised, and various individual parameters are used to establish the validity of the classification. The deletion or omission of measured indicators that exhibit low significance towards the group is usually recommended to ensure that the hypothesised variables include indicators that are only moderately or adequately significant. However, scholars such as Mulaik and James (1995) argue that it is not necessary to establish the relation by omission when the aim of the study is understanding the relationship rather than establishing the validity or testing of the hypothesised structure. Hence, in the present study, indicators have been retained even if the significant value is slightly below the accepted level.

The statistical values for the measurement model of the construct challenges, explained in Chapter 4, are presented in Table 5.14[54]. The values indicate the significance of the indicators for the latent variable. As explained earlier, higher values indicate greater impact of the indicator on the variable[55]. Only the indicator 'PubConfProc', i.e. 'opportunities to publish as conference proceedings', has a low value (.197) below .5.

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[54] For details of the indicators, please refer to Section 4.5.3 in Chapter 4.

[55] The expansion of the indicators and what the variables F1, F2, etc. denote have already been discussed in Chapter 4.

Table 5.14. Significance of indicators in the latent variables of construct challenges calculated using the SEM method (standard factor loading).

Indicators←Variable	Estimate values
LNet ← F1	.531
UIJournals ← F1	.756
UInonPred ← F1	.608
NoHIJ ← F1	.829
TAIJ ←F1	.560
TGI ← F2	.859
SRI ← F2	.742
DisPub ← F3	.667
PT ← F3	.545
Workload ← F4	.701
Time ← F4	.867
PP ←F5	.751
PubConfProc ← F5	.197
UPE ← F5	.855
LIS ←F5	.609
PG ← F5	.582

The indicators except 'PubConfProc' have moderate to high influence on their respective latent variables, as the values are between .53 and .86. Hence, we can conclude that the indicators belong to the construct *challenge*s and belong to the respective latent variables (F1, publisher-related; F2, writing issues; F3, personal (work) preferences; F4, time-related issues and F5, university research environment).

Similarly, the two measurement models, pre-publication techniques (general strategies) and output-based techniques (publishing strategies), are analysed for the construct *strategies*. The significance values between the observed items and latent variables of the general strategies are given in Table 5.15. Only the items that have value above .39 are presented in the table. It was observed that the indicators

related to 'skilful approach'[56] (F4) have low impact on the variables, even though the model is appropriate based on the summary of fit indices statistics.

Table 5.15a Significance of indicators in the latent variables for general strategies calculated using the SEM method (standard factor loading).

Indicators←Variable	Estimate values
FJ ← F1	.508
Benchmark ← F1	.748
ReviseUp ← F1	.881
Improve ← F1	.665
ERA ←F2	.514
CollabC ← F2	.760
CollabRS ← F2	.623
NRP ← F3	.514
UPubModel ← F3	.545
MultiDis ← F3	.491
ManyOut ← F4	.391
PS ←F4	.503
EdB ← F4	.524
USocMed ← F4	.488

The indicators categorised to the group labelled as publisher strategy have moderate to high impact on their respective latent variables, as the factor loadings are between .45 and -1 (see Table 5.15b). It can be observed from Table 5.15b that item 'PrefSA' (prefer to be single author) has a negative value and is above 1. High significance value indicates that the item is highly correlated or related to another indicator (Hoyle 1995; Kline 2010); in thie present study, it is correlated to the item 'CoAuth' (co-authoring). This high similarity has been addressed in the structural model by adopting parcelling techniques of measured items.

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[56] The details of each items have already been explained in Chapter 4.

Table 5.15b Significance of indicators in the latent variables for the construct strategies –publisher-based strategies calculated using the SEM method (standard factor loading).

Indicators←Variable	Estimate values
PubRep ← F1	.448
IntJ ← F1	.852
HiJ ← F1	.631
CoAuth ← F2	.656
PrefSA←F2	-1.048
BCtoJ ← F3	.876
BCasBE ← F3	.614

A hierarchical approach is adopted to evaluate measurement models, whether the observed indicators are conceptualised into first-order latent variables with correlation among them (Koufteros et al. 2009; Kline 2010). According to Martin (1996), in a higher hierarchical model, that is, the structural model, the first-order variables form the dimensions for the second-order, the second-order for the third-order, and so on. Scholars, such as Koufteros et al. (2009), argue that one efficient method in presenting higher-order latent variables is by using the parcelling technique where items that measure the same first-order latent variable are grouped or 'parcelled' together.

Although the use of parcelling technique is a common approach followed in social science research and has various advantages (Bandalos and Finney 2001), the technique also involves the risk of parcelling unidimensional or non-normal items together (Marsh and O'Neill 1984; Marsh et al. 1998). To avoid parcelling errors, in the present study, the higher-order variables are formed using the factorial analysis method as suggested by scholars Chu (2008) and Koufteros et al. (2009). DiStefano et al. (2009) emphasise that the Bartlett scores are more advantageous than other

scores such as regression or Andreson-Rubin scores, because Bartlett scores are calculated using only the shared or common factors and provide unbiased estimates of the factor. Hence, the present study uses Bartlett scores for parcelled items.

As explained in Chapter 4, the Bartlett scores in this study were calculated during the factorial analysis using principal component extraction method and the option correlation rotation method (Section 4.5.1). Scholars (Bandalos and Finney 2001; DiStefano et al. 2009) argue that it is highly unlikely to find item indicators without correlation when factors of the same constructs are evaluated. The Bartlett scores serve as indicators to the latent variables, challenges and strategies, in the structural model, as recommended by Coffman and MacCallum (2005). As suggested by them, the factors also proved to have overall fit (in the measurement model) based on model fit indicators, chi-square and RMSEA. As the Bartlett scores of the factors are used in the structural model all the factors (latent variables), even if they had least influence they were included in the structural model.

While the statistical inference and appropriateness of relation between the observed variables and latent variables is the measurement (as discussed in Chapter 4), the statistical inference and appropriateness among the latent variables analysed in the structural model is also known as the hypothesised structure. The analysis of the hypothesised structure is detailed in the following section.

5.6.1. Analysis of the Conceptual Structural Model

The hypothesised structure, or the structural model, as explained in Chapter 4, is based on the conceptual framework. In other words, the conceptual model is formulated based on the hypotheses of the study. Hence, the hypotheses of this study, that academics adopt strategies (categorised as individual strategies and publisher-based strategies, explained in Chapter 4 as well as in earlier paragraphs) to overcome their publishing challenges and individual publishing habits are influenced by the publishing opportunities to meet the university expectations, are

translated as the conceptual model for the purpose of statistical analysis. The main concepts or constructs of this study are publishing practices, expressed as 'challenges' and 'strategies' (see Chapter 4 for details). As the focus of the study is to identify the relationships between the constructs in determining the publishing output, the aim of statistical analysis of the hypothesised structure is to statistically understand the significance of strategies that are used to overcome the challenges; in other words, the interrelations between specific strategies and the challenges, and which of the strategies help academics in achieving their goal of ensuring their publication numbers.

As explained earlier, the latent variables of the main constructs, challenges and strategies, are represented using the scores of latent variables (which are the factor scores -- Bartlett scores) calculated from the observed variables during the factor analysis performed during the data processing stage. DiStefano et al. (2009) explain that, although the factor scores (Bartlett scores) are calculated based on the correlation of the factors, these factor scores may not be correlated with the other factor scores. Therefore, even though the values represent the constructs challenges and strategies, grouping them to another second-order latent construct did not yield appropriate coefficient estimates even when the measurement indices (model fit values) supported the hypothesised model. In addition, it is common in social science research to focus on understanding the relationships from the collected data rather than evaluating the statistical significance of the data for the proposed model (Bandalos and Finney 2001; Coffman and MacCallum 2005). In addition, there are various studies (Chu 2008; Curran et al. 1996; DiStefano et al. 2009; Dattalo 2013) that focus on establishing the advantages and limitations of each method or process involved in model evaluation by examining the various statistical processes, methods and steps involved in analysis of the structural model or the hypothesised structure. However, the focus of the present study is not to establish an appropriate statistical method to evaluate the structural model of the constructs challenges and strategies in relation to the publication volumes.

According to the statistical approaches suggested by scholars such as Jöreskog (1993), Kelava and Brandt (2009), Koufteros et al. (2009), Lowry and Gaskin (2014) and many similar statisticians, analysis of the hypothesised model is performed either to understand and analyse the relationships among the latent variables of the constructs or to predict or understand the behaviours or relations of the variables (Hoyle 1995). Schreiber et al. (2006) also emphasise that, as the hypothesised model is a linear representation of the inter-relations among the constructs, which could either be observed or latent variables, analysis should focus on addressing the direct, indirect or total effects of the constructs either in relation to theory or empirical suppositions. According to them, the terms such as 'cause analysis' or 'causal modelling' lead to misunderstanding of the purpose of analysis. Therefore, in the present study, the hypothesised structure is analysed to assess the impact of different strategies on publishing output and how these strategies relate to the challenges.

As discussed in Chapter 4, there are six factors for the construct challenges: university work/research environment (C1), publisher-related (C2), time management (C3), writing-related issues/writing bloc (C4), (personal) work preferences (C5), and publishing policy (C6). The factors for the construct general strategies are, planned approach (S1), fund factors (S2), collaborative factors (S3), journal focus (S4), unconventional publishing methods (S5), support factors (S6), skilful approach (S7), and unique approach (S8); whereas publishing strategies are, authorship (PS1), reputed publications (PS2), online publications (PS3), book-type publishing (PS4), and opportunist publishing (PS5). The relations among these factors are represented in Figure 5.5.

Figure 5.5. Graphical representation of the relations among the variables without any other mediators.

It can be observed from Figure 5.5 that S4 (i.e. journal-based strategy) is missing. The factor S4 was deleted from the model because it neither had any impact on the output nor was related to any other factor (of challenges or publishing strategies). We could note that each of factors of the construct challenge is related to, or leads to, a factor in strategy (either individual or publishing-related strategy). In addition, most of the strategies have either direct or mediated (i.e. PS2 is mediated to Output through S2) relation to the observed construct output. It can also be observed that not all the strategies adopted by academics result in output; only strategies S1 to S3,

S5 and S8 in individual group and publishing strategy, PS3 (and PS2 mediated through S2), contribute towards publication volume of academics. In other words, strategies that help in ensuring the number of publications of academics are planned approach (S1), collaborative factors (S2), fund factors (S3), and unique approach, in the individual group; and online publications (i.e. publishing in journals that have only online presence and no print presence, and publisher reputation when adopted with collaborative factors) help in ensuring their publication numbers. The analysis of the relations among the constructs, challenges, strategies, and output, will be discussed and analysed further using the theoretical implications, in Chapter 6.

The statistical appropriateness of the hypothesised structure presented in Figure 5.5 was estimated using maximum likelihood (ML) estimates, and the results are summarised in Table 5.16.

Table 5.16. Summary of fit indices of the structural model.

Model	CMIN	*p*-value	CMIN/DF	RMR	GFI	RMSEA	PCLose	IFI	TLI	CFI
Default model	146.494	.404	1.024	.0685	.902	.014	.976	.983	.976	.980
Saturated model	.000			.000	1.000			1.000		1.000
Independence model	345.6161	.000	2.021	1.231	.803	.091	.000	.000	.000	.000

The process followed for evaluating the model fit of the measurement model (explained in Chapter 4) was adopted for evaluating this hypothesised structure. While generalised least square estimation was performed on the measurement model, the structural model was estimated using ML estimators, because the multivariate kurtosis value (explained in Chapter 4) was slighter higher[57]. In

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[57] The details of normality and multivariate are provided in Appendix Table B.2.

addition, according to Hoyle (1995), ML estimation is commonly used to evaluate the hypothesised model, when the sample size is small or kurtosis value is high. Bollen-Stine Bootstrap is used to ensure that the non-normality of the data is addressed. However, the results of model estimation reveal that the bootstrapping process had no effect on the estimation of the model.

The summary of the fit indices given in Table 5.16 shows that the model is a good fit based on chi-square value (p >.04), GFI (above .90), RMSEA (<.05), validated by PClose above .5, IFI, TLI and CFI (above .90). In other words, the relationship represented or evaluated is valid based on the cut-off values of absolute fit indices: chi-square, GFI, RMSEA; and relative indices, IFI, TLI and CFI (Hu and Bentler 1995). As discussed in Chapter 4, the model fit is evaluated using absolute, relative and parsimonious fit, and considered valid or accepted only if accepted by at least any three indices (as emphasised by Jannoo et al. 2014; Kline 2010).

Furthermore, to understand whether the academic rank had any significance for or effect on the relations among the challenges or strategies, the hypothesised model was also evaluated using 'Academic level' as mediator[58]. The linear representation of the inter-relations among the constructs with academic level as mediator is shown in Figure 5.6.

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[58] In addition, correlation, discussed in Section 4.5.3, shows that academic rank is correlated to the constructs challenges and strategies.
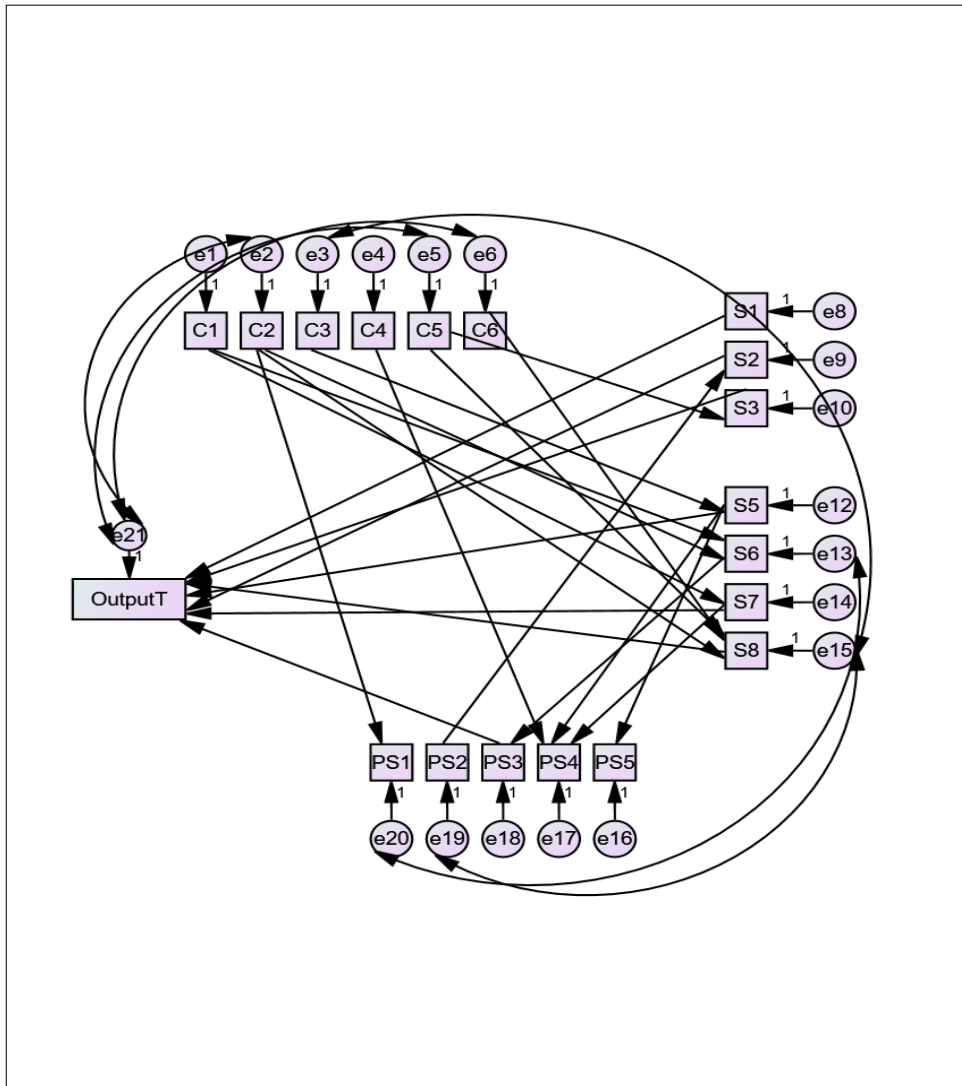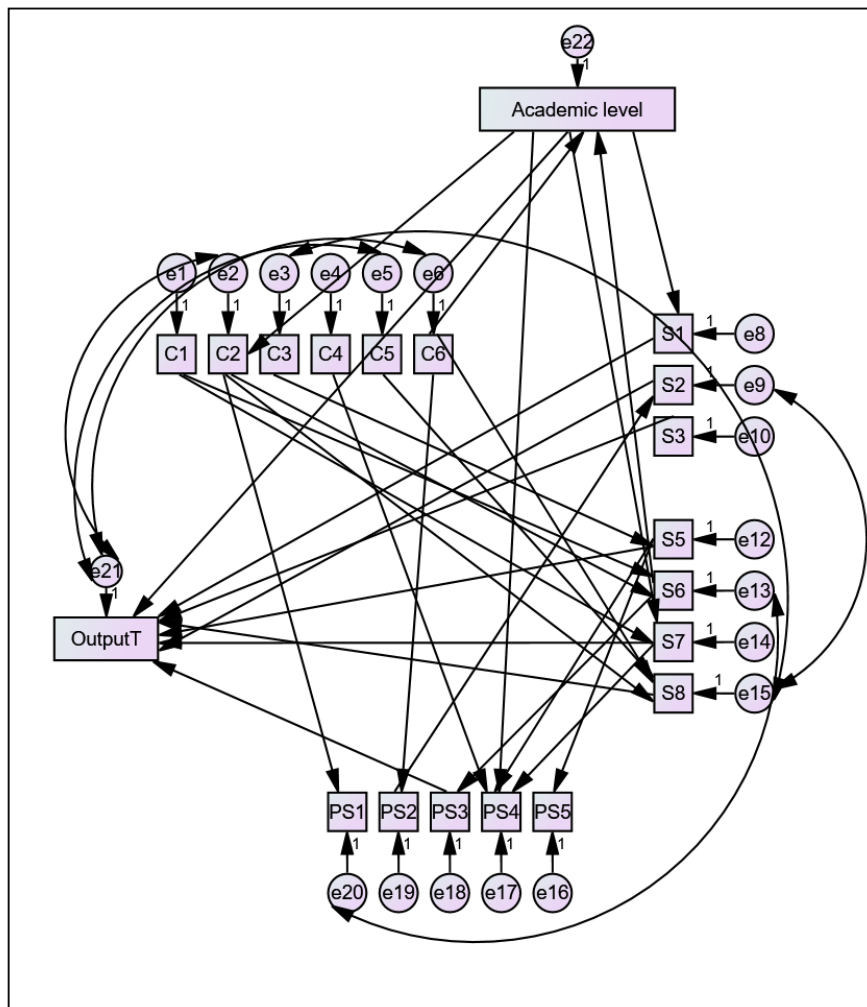
Figure 5.6. Graphical representation of the relations among the variables with 'academic level' as a mediator.

It can be observed from Figure 5.6 that the academic level mediates or influences the publisher-related challenges (C2), general strategies -- planned approach (S1) and skilful approach (S7), and publishing strategy book-type publications (PS4); whereas C6, the challenge based on publishing policy mediated through the general strategy based on support factors, S6, is related to academic-level. On comparing Figures 4.5 and 4.6, we can also observe that there is no change in the relations between the construct strategies (general strategies and publishing strategies) and

the output. The summary of the model fit indices evaluated for hypothesised structure with the academic level as mediator is presented in Table 5.17.[59]

Table 5.17. Summary of fit indices of the structural model with academic level as mediator.

Model	CMIN	*p*-value	CMIN/DF	RMR	GFI	RMSEA	PCLose	IFI	TLI	CFI
Default model	163.817	.298	1.057	1.014	.900	.022	.964	.967	.953	.961
Saturated model	.000			.000	1.000			1.000		1.000
Independence model	418.5971	.000	2.203	1.316	.778	.099	.000	.000	.000	.000

The summary of the fit indices given in Table 5.17 shows that the model is good fit based on chi-square value (*p* >.04), CMIN/DF (<2), GFI (above .90), RMSEA (<.05), validated by PClose above .5, IFI, TLI and CFI (above .90). In other words, the relationship represented is valid based on the cut-off values of absolute fit indices: chi-square, GFI, RMSEA; and relative indices IFI, TLI and CFI (Hu and Bentler 1995). The hypothesised model is considered valid, as the values are accepted by three indices (as emphasised by Jannoo et al. 2014; Kline 2010). The acceptance, or in other words, validity, of the hypothesised model with the factor academic level as a mediator establishes the role of the respective academic ranks in academics' perception of their challenges and the type of strategies adopted by them.

As explained earlier, the measurement model, discussed in Chapter 4, and the hypothesised model evaluated, are the linear representations of the conceptual framework as well as representing the theoretical framework. As explained in Chapters 3 and 4, academics experience challenges while trying to improve their position in their field by acquiring capital (see Section 3.3); which, in other words, are translated (in Chapter 4) as challenges experienced by academics in achieving

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[59] The same structural evaluation method used for the hypothesised structure without mediator is adopted for the model with mediator.

their publishing goal (*capital*) are related to the norms of the university and research environment which academics have to adhere to (i.e., field norms); and academics adopt strategies to overcome these challenges to achieve their goal. All the factors that contribute towards the construct challenges, C1 to C6 (explained earlier in this section), are related either to university publishing expectations or to the work or research environment. It could be observed from the hypothesised models that general strategies, S5 to S8, and publishing strategies, PS1 and PS2, are directly related to the challenges; while publishing strategies, PS3 to PS5, are followed in conjunction with general strategies, even though not all strategies lead to successful publication output. Dattalo (2013) argues that the main objective of calculating a model fit is to determine whether the variables observed in data reflect the association suggested or are assumed by the researcher. The results of the model fit of the hypothesised structure explained in the present study show that the associations suggested or assumed by the researcher are reflected in the observed data.

5.7. *Validation of Hypotheses*

The parameters of the standardised regression weights establish the relation between each construct and thereby validate the hypotheses of this study (Kline 2010; Hoyle 1995). In other words, the hypotheses of the study are evaluated using the path effect (estimate), the direction of the effect, and significance value. The hypothesis of study, *Researchers adopt strategies to overcome challenges to ensure high volume publications*, implies that researchers adopt strategies to overcome their challenges to ensure a high volume of publications. Table 5.18 summarises the results of the hypotheses. The values in the table show that, while academics use strategies to overcome their challenges, not all strategies improve or result in a high volume of publication. Therefore, the hypothesis could neither be accepted nor be rejected. Hence, this hypothesis (H1) is partially true and considered as valid.

Table 5.18. Hypothesis testing results.

Hypothesis		Standardised Path Estimate (Effect)	Hypothesised Direction	P-value (<0.05)	Supported?
H1a: Researchers overcome challenges by adopting strategies.	C1→S6	0.111	Positive	0.186	Yes (not significant)
	C1→S7	0.198	Positive	0.124	Yes (not significant)
	C1→PS3	-0.244	Negative	0.005	Yes (significant)
	C2→S6	-0.249	Negative	0.004	Yes (significant)
	C2→S8	-0.313	Negative	0.000	Yes (significant)
	C2→PS1	-0.247	Negative	0.005	Yes (significant)
	C3→S5	-0.269	Negative	0.002	Yes (significant)
	C4→PS4	0.165	Positive	0.049	Yes (weakly significant)
	C5→S3	-0.100	Negative	0.239	Yes (not significant)
	C5→S8	-0.485	Negative	<0.000	Yes (significant)
	C6→S8	-0.219	Negative	0.002	Yes (significant)
H1b: Strategies are adopted to ensure high volume of publications.	S1→Output	2.9630.122	Positive	0.082	Yes (not significant)
	S2→Output	0.072	Positive	0.336	Yes (not significant)
	S3→Output	-0.172	Negative	0.025	No (significant)
	S5→Output	-0.112	Negative	0.146	No (not significant)
	S7→Output	0.121	Positive	0.114	Yes (not significant)
	S8→Output	0.28	Positive	0.001	Yes (significant)
	PS3→Output	-0.190	Negative	0.013	No (significant)

The hypothesised direction shown in Table 5.18 shows whether the variable has a positive or negative connotation towards published output. We can observe that challenges have a negative impact on the strategies; which, considering the nature

of the variable observed (i.e., a challenge or obstacle), having a negative effect towards published output, is appropriate. Therefore, whether the hypothesis is supported or rejected cannot be based on the hypothesised direction, as the nature of the impact factors also should be considered (Hoyle 1995). Similarly, even though not all the strategies have a significant or positive effect, this does not mean that those strategies do not contribute towards published output, because output volume is measured as a discrete individual number (and highly skewed) and only a few academics have exactly the same output number. Therefore, negative effect (based on the hypothesis direction mentioned in Table 5.18) of a strategy toward output only signifies that the strategy does not contribute towards higher publication output of academics (especially for academics who have higher output volumes than the average output value), and vice versa. The analysis of the variations from the assumption based on which the hypothesis was formulated provides an understanding of the relations among the theoretical concepts in relation to publishing habits of academics. The relationships between strategies and the output and the underlying reasons for the inversely proportioned strategies are discussed in detail in Chapter 6. The detailed analysis will also address the hypotheses relating to publishing choices and publishing habits of academics.

5.8.   Discussion on Statistical Inferences

The statistical analysis of the data, descriptive statistical analysis, and the structural equation method (SEM) approach, show that academics in HASS disciplines of G8 universities adopt publishing strategies to ensure that they achieve the publishing goals set by their universities. The results show that demographic factors such as age and gender do not influence the publishing practices or published output of academics. The only demographic characteristics that have some significance or impact over the published output are the designation or academic rank. The strategies adopted by academics are influenced by various factors such as academic rank and are also related to their individual publishing goals, which in turn are

related to the performance metrics stipulated by the universities and the ERA indicators (discussed in Chapter 2). The relation and impact of various factors on the strategies are discussed in detail in the next chapter, Chapter 6.

The descriptive analyses reveal that the majority of the academics perceive only time, workload and university publishing policies based on natural science as a challenge for achieving their publication goal; and most of the academics adopt strategies to ensure their publication volume. The results of SEM using the structural model analysis for understanding and predicting the relationships among the variables, challenges and strategies (both general and publishing strategies) to published output also reveal that the strategies are not solely based on the challenges. In other words, strategies are adopted not only for overcoming the challenging factors in achieving their publishing goals but to ensure that they meet the university's publishing expectations. These inferences, therefore, partially support the hypothesis that 'researchers adopt strategies to overcome challenges to ensure publications', as strategies are not solely based on challenges. Strategies are used to ensure their publication goals rather than just for overcoming the challenging factors of publishing.

The responses for the questions related to publishing choices (see Table 5.11) clearly demonstrate that the academics prefer to publish using traditional output types. This implies that their choice of publication is dependent on the output types that contribute towards the performance measure (see discussions on ERA indicators in Chapter 2). Even though the research framework does not discourage academics from publishing in their preferred type or format, the present study shows that academics prefer to publish in the output types that are accepted by the norms of their universities rather than exploring unconventional publishing opportunities enabled by technology (see Table 5.11)). It is also observed from the structural model analysis that publishing strategy based on OA (PS3) is inversely proportional to the output volume, implying that, the higher the number of publications, the lesser the number of OA type publications.

The statistical results also emphasise that the publishing habits of academics are based on the publishing opportunities that help them to meet their university publishing expectations, rather than on the opportunities provided by publishers or technology to communicate their research output (see Tables 4.3 and 5.12). It can be observed from Figures 5.5 and 5.6 that publishing strategies other than OA-based strategy do not directly lead to published output (and OA-based strategies are inversely related to publication volumes). The publishing habits based on university expectations are analysed and discussed in Chapter 6.

5.9. Conclusion

The overall statistical results show that, even though academics adopt strategies to ensure their publication volume, not all these strategies help in achieving their publishing goals. Further analysis and interpretation of the statistical inferences using theoretical perspectives are necessary for better understanding of the relationships between the various parameters influencing the publishing habits of academics. The analysis of these results in relation to academic rank is further examined using the Bourdieu's concepts, in the next chapter, Chapter 6.

Chapter 6.   Analysis

6.1.   Introduction

The statistical inferences on the data collected from the survey, discussed in Chapters 4 and 5, are analysed in this chapter drawing on Bourdieu's concepts of field, capital and habits. This chapter, crucially, evaluates: the role of publishing-related factors such as publication indicators specified by ERA; and focus of the respective universities and academics' individual publishing goals that influence their publishing strategies. Bourdieu's concepts become the tools to explore how and why the external influences, that is, the macro- and meso-level factors, shape the publishing behaviour of academics. The collected data are used to identify how academics use publishing as tool to achieve their desired *capital*. Rather than exploring the merits of scholarly publication as an important performance metric or the top-down approach of government and universities that has established the 'publish or perish' environment, this chapter analyses the real-time issues faced by academics by exploring the inter-relations among the field, capital and habitus, and concludes by discussing the study's hypotheses and its implications.

6.2.   Academics and Publishing

The statistical interpretation of the collected data, analysed and discussed in Chapter 5, establishes the partial validity of the hypotheses (see Table 5.17) that researchers seek a high volume of publication by adopting publishing strategies to overcome their publishing challenges. The partial validity of the hypotheses leads to other questions such as: what strategies lead to publications; or alternatively, why certain strategies only are directly related to the volume of published output. On employing the concepts of *field, capital and habitus* as conceived by Bourdieu, to

interpret the collected data expedites understanding of the underlying relation between academics' strategies and their published output. As explained in Section 2.4 in Chapter 2, publishing practices adopted by academics are contextual, that is, related to their research and institutional environment (Watkins 2017); which implies that *field*, in Bourdieu's terms, is contextual (Mutch 2006). Therefore, to understand the publishing practices of academics in Australia, it is necessary to understand the hierarchical structure, that is, the macro-level (field) and meso-level (institutional) factors that function as context for publishing, which are explained in Chapters 2 and 3 (Sections 2.2.2, 2.2.3 and 3.3). Even though the primary aim of publishing, as opined by scholars like Jubb (2012) and Gasparyan et al. (2016), is dissemination of information, as argued by Martin-Sardesai et al. (2016), the role of performance indicators emphasised by the ERA plays a crucial role in publications. According to the information collected from the participants of the present study, the reasons detailed in Table 6.1 are considered to be the most important characteristics of publications.

Table 6.1. Important reasons for scholarly publication.

Reasons for publishing	Percentage
To share knowledge with others	84.38
For personal satisfaction	79.69
For career advancement	67.97
To fulfil my professional responsibility	67.19
To be an authority of my field	64.84

These reasons, listed in Table 6.1, not only establish the appropriateness of the arguments of scholars of both groups, dissemination of information (Jubb 2012; Gasparyan et al. 2016) and performance indicators (Martin-Sardesai et al. 2016), but also Bourdieu's argument (1984, 1985, 1990) that *habitus* is embodied social relations which are mediated through symbols such as thoughts, feelings, action, perceptions and judgment (Schmitt 2016). Adopting the argument by Schmitt (2016) on Bourdieu's delineation of *habitus*, we could observe that publishing

practices of academics hinge between subjective (sharing knowledge or personal satisfaction) and objective social indicators (career, profession). While the publication habits of academics have been already explained using Bourdieu's concept of 'habitus' in Chapter 3 (Section 3.3.4), the reasons listed in Table 6.1 manifest how the publishing practices are used by academics to achieve their goals. In other words, academics' choice of the reasons for publication only emphasise that academic publishing is a well-crafted communication strategy that helps academics to improve their possession of capital (either social or professional capital) within the field.

6.2.1. The Reasons Why Academics Publish

The five main reasons provided by academics for publishing their research not only establish the role of the performance indicators (of the ERA or their university, i.e. *field*) but also the impact of *capital*. Even though academics specify personal objectives such as sharing knowledge as the most important reason underlying their academic publication, the fact of more than 50% of academics (see Figure 5.2) having 10 or more publications in three years strengthens the argument of many scholars (such as Coggburn and Neely 2015, Langer 2017, Munigal 2017) that publishing has become a numbers 'game' due to the contextual factors related to performance, career and tenure.

Walker and Yoon (2017) argue that research in academia, in the Bourdieusian sense, is an amalgamation of cultural, social, symbolic and economic capital; hence, they coin the phrase, 'doctoral capital', to emphasise the significance of *capital* accumulated through research activities. They further emphasise that, while academic publications objectify and institutionalise the doctoral capital, different academic ranks are related to obtention of doctoral capital, which eventually leads to the development of scholarly habitus. Farrell (2010) also argues that cultural capital and *habitus* are intertwined in academia. Even though academics opine that 'dissemination of information' is the most important reason for publication, the average number of publications in a year seemingly indicates contradictory reasons

(for example, professional reasons). In reality, dissemination of information as well as the volume of published output represent different dimensions of academia. In other words, they are norms related to *field* and *capital* that help individual academics to exist within the social and hierarchical structure of academia. Hence, publishing for academics is not only a means to achieve their capital in academia but also embodies scholarly habitus and practices, and vice versa.

6.3.   Academic Publishing: A Means to Capital

Collyer (2015), echoing Reay (2000), adopts Bourdieu's concept to argue that habits or practices of academics, in academia, are relational, that is, dependent on academics' position or rank[60] within the university. In other words, the individual aspirations of academics within the university structure are determined by academics' rank in the institution. Hence, the individual position of academics within the university leads to subjective aspirations and value. Costa and Murphy (2015) emphasise that understanding of the function of the institutional environment as well as academics' experience in adopting to the norms or rules of the environment shape their values and subjective aspirations. The relationality of the academics' perception on the goals achieved through their publishing is probed by interpreting the observations detailed in Table 6.1 based on academic rank.

6.3.1. Academic Rank vs Purpose of Publication

According to Bourdieu, goals or aspirations of academics are determined by their position in the field which, in turn, is determined by the capital possessed by them as well as their perception of the field (Costa and Murphy 2015). The influence of academic position is reflected in their motivation for publications as well as the

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[60] The phrase 'academic position' refers to the academic rank. In this study, the word position is used interchangeably with rank or designation.

goals achieved through publication. Figures 6.1 and 6.2 provide an outline of how academics at different ranks perceive each motivation metric and the goals they achieve through publication. It can be observed from Figure 6.1 that academics at the rank of professor consider *personal satisfaction* and being an *authority of the field* to be more important aspects of publishing than academics at other ranks; while *career advancement* is the least important aspect for them. Academics at the rank of senior lecturer regard *sharing knowledge* and *meeting research funding requirements* to be more important than academics at other ranks do; while *career advancement*, *professional responsibility* and *influencing policy decisions* are regarded to be highly important aspects of publishing by the academics at lecturer rank. The details presented in Figure 6.1, therefore, emphasise the significance of individual positions of academics within the field.

	Share knowledge	Personal satisfaction	Career advancement	Fulfil professional responsibility	Be an authority of field	To influence policy decisions	To meet research funding requirements	For monetary Benefits
■ Lecturer	79.3%	75.9%	79.3%	75.9%	58.6%	48.3%	31.0%	0.0%
■ Senior Lecurer	91.2%	73.5%	76.5%	64.7%	64.7%	32.4%	52.9%	2.9%
■ Associate Professor	84.2%	81.6%	65.8%	65.8%	60.5%	39.5%	36.8%	5.3%
■ Professor	90.9%	90.9%	45.4%	68.2%	81.8%	45.5%	22.7%	4.5%

Figure 6.1. Perception of academic professional capital based on academic ranks.

Along with academic position, the publishing experience (that is, number of years) also influences academic perception; that is, academics with less than two years of publishing experience have different views on publishing than those of their seniors. It is observed that there exists a significant correlation (α=0.032) between the variable 'sharing knowledge' and 'years of publishing'. The primary focus of 60% of academics (rank: lecturer) with less than 2 years of publishing experience is not sharing new knowledge, as opposed to the focus of academics with longer publishing experience. Similarly, the primary focus of academics (rank: lecturer, senior lecturer and associate professor) with less than 4 years of publishing experience is fulfilling their professional responsibility (77%) and career advancement (69%). Similar differences are also reflected in the goal of publication, i.e. the type of capital acquired using scholarly publications. Figure 6.2 shows how academics' goal in publishing varies according to their position in the institution.

	Reflect on Research knowledge	Improve career	Establish credibility	Increase esteem	Gain recognition	Meet university publishing expectation	Exceed university publishing expecttions	Secure funds	Additional income
■ Lecturer	90.0%	79.3%	86.2%	55.2%	86.2%	82.8%	34.5%	72.4%	3.4%
■ Senior Lecturer	96.7%	79.4%	85.2%	64.7%	85.3%	85.3%	44.1%	67.6%	20.6%
■ Associate Professor	92.6%	68.4%	78.90%	76.30%	86.80%	65.80%	36.80%	50.00%	10.50%
■ Professor	88.9%	63.4%	81.80%	68.20%	90.90%	63.60%	36.40%	36.40%	18.20%

Figure 6.2. Academics' perception of role of academic publishing in achieving capital (based on academic rank).

It can be delineated from Figure 6.2 that *Recognition* (symbolic or intellectual capital) is the important aspect for professors, while it is *increasing esteem* (social capital) for associate professors. *Reflecting on research knowledge* (cultural capital), *meeting* as well as *exceeding university publishing expectations* and *additional income* (economic capital) are very important for senior lecturers. *Improving their career* (economic) is important for both lecturers and senior lecturers; *establishing credibility* (cultural capital) in their research area and *securing research funds* (economic capital) are also important for lecturers. In other words, lecturers and senior lecturers focus more on cultural and economic forms of capital, while

associate professors focus on symbolic capital and professors focus on social capital. Similarly, goals achieved through publications also reflect the values that are perceived to be significant by academics during various stages in their career. Since the capital possessed by academics varies according to their rank, their focus on acquiring different forms of capital to strengthen their position also varies.

According to Bourdieu (1988), for academics, intellectual capital in academia focuses on acquiring recognition outside their universities, that is, in the wider research community; while cultural, social or economic capital in academia are acquired and measured based on their position (or success) within the university. Rowlands (2017) argues that, in countries such as Australia and the UK that follow university governance in academia, the relational position of academics within the field becomes a challenge for them in acquiring the intellectual capital. According to Rowlands, senior members, due to their longevity in the field, occupy a dominant position, in the sense that they have better access to resources, especially research funds, or are better equipped to gain access to resources. Browning et al. (2017) argue that it is necessary for academics to develop a research track[61] record during the early years of their career (i.e. as lecturer and senior lecturer) to be leaders (professors) in the later years of their career. Therefore, achieving professional goals becomes a priority for early- and mid-career academics to ensure their long-term career goals as well as their allegiance to the institutional norms. Achieving professional goals, in turn, helps academics to acquire the professional capital that helps them in improving their position in the broader field. In other words, the individual publishing activity is aimed at achieving capital not only for themselves but also for their institutions. Scholars (Martin-Sardesai et al. 2016; Diezmann 2018) assert that institutions have defined the individual performance goals of their members based on the visions of the institutions. Hence, academics can improve their position within their institutions only by acquiring professional capital that is aligned with institutional goals.

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[61] As explained earlier in Chapters 2 and 3, scholarly publication is intertwined with research track record.

Martin (2003) observes that institutional norms and pressures of the field are reflected as goals and rewards in the institutional field. DiMaggio and Powell (2000) also identify that goals and rewards are important aspects in institutional fields. The career trajectory of academics is an institutional reward to the academics for achieving the institutional goals. The norms of rewards reflected as characteristics of institutional fields emphasise that academics as individual members within this field are bound by institutional field norms to perform within the field. As argued by Rowlands (2017), academics at senior level enjoy a dominant position within the institutional field because the existing capital possessed by senior members helps them in acquiring capital which helps universities to improve their position outside the institutional field. Therefore, academics whose positions are relational at a lower level of the hierarchical structure focus more on achieving institutional norms to improve their position. This is evident from the capital which academics at junior level perceive to be achieved through their publications.

Bourdieu's argument that people in different positions use different strategies to defend or improve their position emphasises that academics at various levels have different goals and practices to improve their positions (1983). On comparing the results of academics' perceptions of the purpose of scholarly output (Figure 6.1) and goals they perceive to be achieved through publishing outcomes (Figure 6.2), it is apparent that there exists a correlation between both these perceptions and goals. While senior academic members, that is, professors or associate professors, focus on intellectual and social capitals, senior lecturers and lecturers are focussed on meeting university expectations.

Bourdieu (1998) argues that individual choices, whether related to career or disseminating information, are influenced by their perceptions of the social structure of the field as well as the relative capital possessed by them. Vryonides (2009) ascertains that Bourdieu considers habitus as an embodiment of different forms of capital. Therefore, the capital that academics aspire to possess through scholarly publications is translated into their publishing habits and strategies. In

other words, publishing practices and strategies adopted by academics are shaped by capital. In the Bourdieusian sense, publishing practices and strategies become integrated within the field of higher education (and research), because practices are defined by the field; at the same time, this also has the potential to re-define the field (Reay 2004; Vaughan 2008; Ibrahim 2016). While this section analysed the significance of various forms of capital for academics at different ranks in Go8 universities of Australia, the relationship between capital and publishing habits is analysed in the following section to understand whether the publishing habits of academics have the potential to redefine the power relations of the field of higher education with other fields.

6.4. *Publishing Habits of Academics*

The 'publish or perish' mentality that is widely discussed as well as criticised is attributed to the neo-liberalisation governance within the higher education system by many scholars (Butler 2010; Hicks 2012; Kronman 2013; Liedman 2013; Coggburn and Neely 2015). According to these scholars, the introduction of research-focussed performance metrics has resulted in the 'publish' or 'perish' approach of academics. Youn and Price (2009) argue that the proliferation of scholarly publications can also be attributed to the institutional pressure, since research publications are a criterion for promotion and tenure. According to Hemmings et al. (2007), even though research evaluation guidelines and performance criteria of the universities are prime motivators for ensuring their reviewed publications, there are various inter-related factors that play a significant role in scholarly publications. The factors that influence scholarly publications are overarching of different areas both within and outside field of higher education. Generic analysis of the results of the present study shows, of many institutional-factors that play a significant part in academics' scholarly publication, only the factors related to *time*, *university workload* and *publishing norms of the institutions* are perceived as a challenge by the academics of Go8 universities in achieving their

capital through their published output (see Table 4.9 in Chapter 4). However, succinct analysis of the results reveals that the perceptions on challenges vary significantly according to their academic ranks.

6.4.1. Academic Ranks and Perceptions of Publishing Constraints

The academics' perceptions on the factors related to challenges highlight how their individual position within the hierarchy impacts their thoughts, actions and behaviour. A careful analysis of the results of this study provides us insights on academics' existing position within the field and their 'ways of feeling or thinking' (Bourdieu and Wacquant 1992). For example, a few academics (in the present study) also expressed that constant changes to publishing expectations and emphasis on international focus in published outcomes were a publishing constraint because of their niche research focus and discipline. Such perceptions are translated into 'institutional publishing policies' being a challenging factor. Academics' perceptions of their challenges in relation to scholarly publication also reflect whether the issues are related to the micro- (related to individual or group traits), meso- (related to the institution) or macro-level (related to the higher education policies). This inference on the micro or meso-level factor is further explained by comparing the perceptions on challenges related to time and personal traits (Figure 6.3).
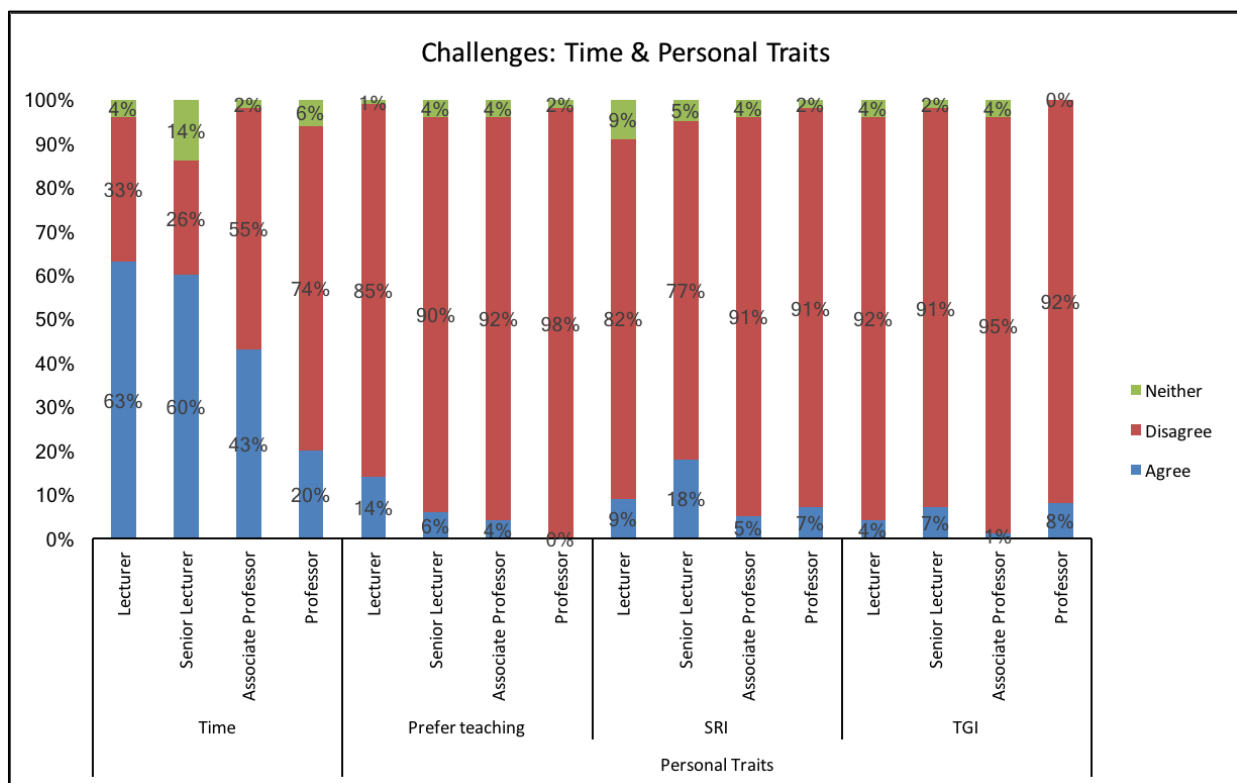
Figure 6.3. Perception of publishing challenges related to time and personal traits based on academic ranks.

While more than 60% of academics at rank of lecturer and senior lecturer consider 'time' as a challenge in ensuring their publication numbers, 70% of professors do not perceive time as a challenge. Similar traits could be observed for each factor related to personal traits (see Figure 6.3). Although academics as a collective group in unison disagree (91%) that their personal traits are challenging factors in ensuring their publications, diligent analysis reveals that 14% of lecturers agree that they prefer teaching to publication, contrary to professors (0% agree); while 18% of senior lecturers opine that they struggle in generating research ideas (see Figure 6.3). Even though the diligent analysis does not reveal any contradictory views on personal traits, it shows how perceptions vary drastically depending on academic position. The graph in Figure 6.4 provides insights on the relationality factors related to work environment.
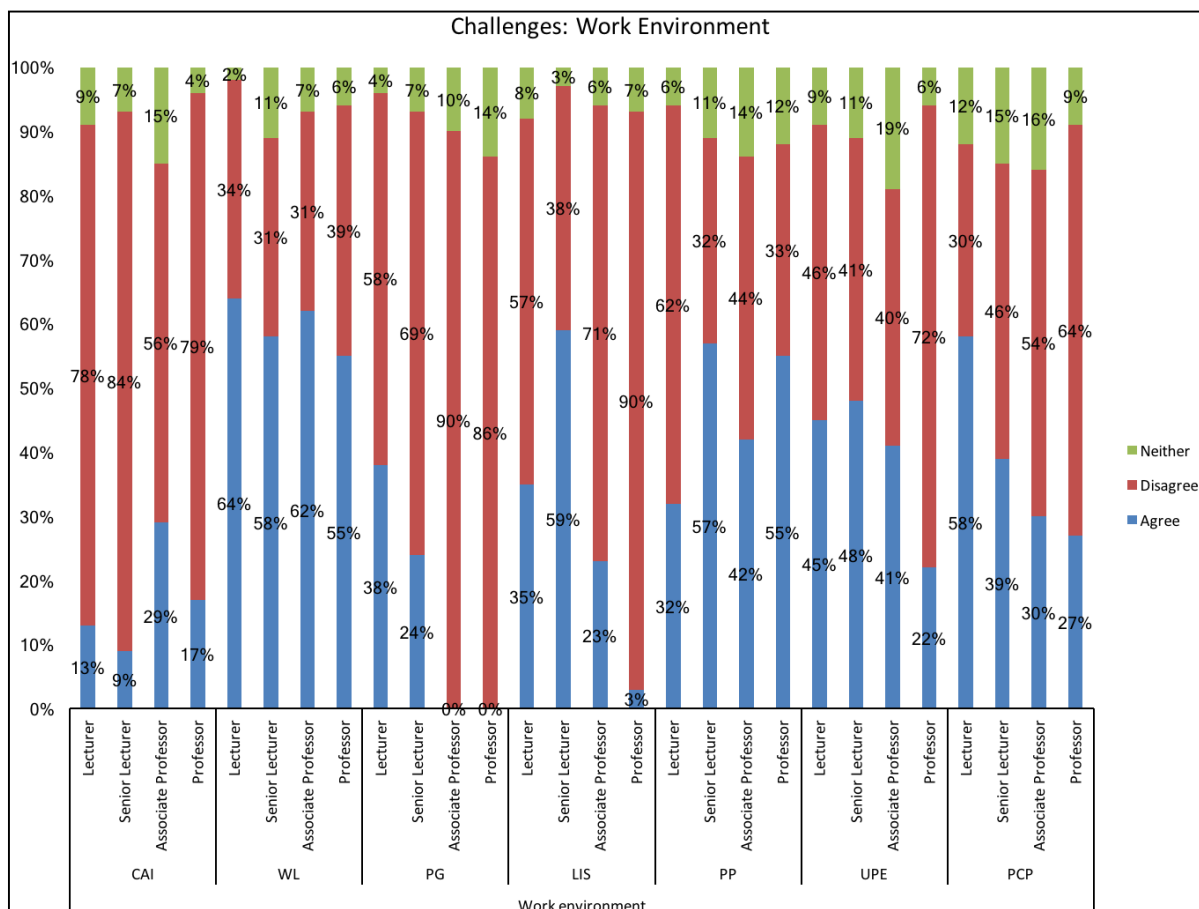
Figure 6.4. Perception of challenges related to work environment based on academic rank (CAI, colleagues appropriated ideas; WL, workload; PG, publishing grants; LIS, lack of internal support; PP, university publishing policies; UPE, university publishing expectations; PCP, publishing opportunities based on conference proceedings).

When it comes to issues related to work environment (see Figure 6.4), associate professors (29%) and professors (17%) opine that colleagues appropriating their research ideas (CAI) is a challenge; whereas only roughly 10% of lecturers and senior lecturers consider this as a challenge. By contrast, only lecturers disagree (more than 60%) that university publishing policies (PP) are dictated by the natural sciences, while all other academics agree with this; similarly, except professors (72% disagree), all other academics (more than 40% at each rank) agree on the statement that the 'publishing expectations of their universities are unrealistic' (UPE). This shows that academics in senior positions are more sensitive to work-

related constraints, that is, struggles (appropriation of ideas, university policies and expectation) caused by the objective social structures. In addition, while lecturers (34%) and senior lecturers (41%) agree that there is a lack of support from the university (LIS), including publishing grants (PG), for ensuring their publications (that is, lack of resource support), senior academics, associate professors and professors, unanimously disagree with that statement.

The heterogeneity of academics' opinions on constraints proves that perceptions and thoughts within the field are contextual, depending on their aims, aspirations and the goals they strive to achieve with the skills possessed by them (Bauder et al. 2017). The divided stance of academics also asserts that academics at higher levels focus on achieving symbolic and social forms of capital to accomplish their economic goals. Since symbolic and social forms of capital are closely associated with professional environment and institutional goals, they are more sensitive to and aware of nuanced issues they face in accomplishing their goals.

6.4.2. Publishing Constraints: Micro-level and Meso-level Issue

The differences in academics' perceptions, according to the argument established by Fligstein and McAdam (2012), are because actors at lower level struggle to adjust to the field norms (issues at micro-level). It can be observed that academics at junior level experience more micro-level challenges (such as personal traits), whereas senior academics (associate professors and professors) experience more challenges related to meso-level factors, related to work environment (colleagues appropriating ideas, university publishing policies). In other words, micro-level (individual) issues are faced by academics who are new to the field and want to improve their positions within the hierarchy. However, academics at junior level opine that there is lack of funding and internal support (lack of resources) for enhancing their publication volume, whereas senior academics do not feel lack of support or funds as a challenge (see Figure 6.4). The interpretation related to funding factors also establishes the dominant position of senior academics in assessing the resources.

Bourdieu (1984) highlights that members of a field who have longer access or exposure to resources would be more self-assured of their perceptions and actions. Therefore, as academics at senior level have been in the field for a longer time, they are in a more powerful position than the junior academics. Bourdieu further argues that actors with less experience or exposure to the field would feel lost (1984). Associate professors or professors, therefore, have authority or access to resources that help them in overcoming the challenges related to their personal traits or immediate economic capital. In other words, academics overcome the micro-level factors with their exposure and experience within the field. Bourdieu (1984) asserts that perceptions are relational thoughts and are closely linked to the social conditions. According to him, understanding of the field by senior academics is based on their direct exposure or experience as well as their social position (within the field). As senior academics are better adapted to the field structure, they are less affected by micro-level constraints. Since Bourdieu opines that social positions also distinguish the characteristic behaviours related to the class or group, adopting his interpretation, we could attest that differences in understanding and behaviour of each academic group within the university are dependent on their exposure to and understanding of the respective university norms or functioning. This understanding explains the underlying reasons for the publishing pressures experienced by the early career researchers. This characteristic nature of the actors in the field explains why publishing activity, in general, is not considered as a challenge by academics (see Table 5.9) even though there are a few challenging factors that impact or hinder their publishing volume.

6.4.3. Publishing as a Field Norm

Fligstein and McAdam (2012) argue that representatives within a field have similar perceptions of their opportunities or constraints, and act accordingly. Although academics at different ranks have slightly varying perceptions of the challenges related to micro- and meso-level factors, when it comes to factors of 'related field',

that is, issues related the publishing industry, academics have a unanimous voice, that none of these factors are a challenge in ensuring their publication volume. Perhaps the only exception is 'publishing-opportunities related to conference proceedings', where academics at the rank of lecturer (more than 50%) regard conference proceedings as an opportunity to improve their publication record, which contradicts the perceptions of academics at all other ranks. In other words, only entry-level academics consider conference proceedings as a publication opportunity.

The institutional theorists, DiMaggio and Powell, argue that representatives of the institutional field in most instances consciously or unconsciously follow the fixed rules to orient their behaviour to the field (1991). According to Bourdieu (1993b), despite the heterogeneity, these representatives are bound to the field by their belief in the institutional norms and their convictions to the norms. The individual constraints for ensuring publications (field norms) are only a 'microcosm' within the heteronomous field (Bourdieu 2005). Despite the differences in positions, academics as a collective group manifest similar approaches and behaviours because of their shared convictions, which is evident from academics' perceptions of factors related to publishing environment and their conformity towards the objective interests of their universities.

Jepperson (1991) emphasise that representatives of a field are accustomed to the meso-level (institutional) norms as an everyday reality. The norms are relational and determined by the field-specific capital which manifests 'field power' in the social space outside the field (Bourdieu and Wacquant 1992). As discussed in Chapter 2 (and also in Section 6.2), publishing manifests power by positioning not just universities or education institutions in a dominant position but even countries. Fligstein (2001) argues that representatives or actors within a field consider the norms or rules as a challenge only when the rules fail to yield their desired benefits. Academics, as representatives of the hierarchical legacy where the norms and capital are predefined, focus on enhancing their position by being attuned to the norms rather than confronting their legacy (Fligstein 2001). This is evident from the

overall perception of various factors that could be considered to impede their publication volume (also reflected in Figures 6.1 and 6.2), because only a few factors are perceived as a challenge. The constraints they experience in ensuring their publications are related to "objective structures", that is, "the shared beliefs" that are "independent of the consciousness and will" of the agents or representatives (Bourdieu 1985, p. 196). These objective structures, according to Bourdieu, guide and constrain the practices of representatives of the field.

The publishing constraints experienced by academics (see Table 5.9, Chapter 5) establish that struggles are structural constraints. Institutional norms related to publishing, in other words, publishing policies of their universities, and university workload, which also leads to time constraints, account for the collective struggle of academics[62] in achieving their capital through publication. The norms, however, become embedded into individual habits to pursue their desired capital.

6.4.4. Publishing Habits: An Embodiment of Field Norms

Bourdieu (1989) emphasises that objectives structures generate dispositions that are accepted or perceived as norms of the field. Research publication, according to Emirbayer and Johnson (2008), becomes a disposition of the field of higher education even at the micro-level, as it is the product of a field-specific capital. Systematic dispositions, according to Bourdieu, form habitus (Costa and Murphy 2015). According Bourdieu, habitus is the result of "embodiment of social structures" which reflect the perceptions of individuals within the structure (1990, p. 53). He argues that habitus is set of principles that "generate and organise practices" (1990, p. 53); that it "shapes and produces practice" (Power 1999, p. 49). The systematic publishing habits of academics, as an embodiment of the field of higher education, has led to publishing practices and strategies for realising the field capital (Power 1999; Vaughan 2008). Bourdieu (1990b) emphasises that practices

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[62] Individual class struggles experienced by academics are shown in Figures 6.3 and 6.4.

reflect the inter-relationships of habitus (behaviour) which are dependent on individual positions within the field and the capital possessed; habitus also generates strategies. Habitus, therefore, operates as an intermediary between the hierarchical structure and action, which, in the Bourdieusian sense, is a result of the "positions within the field and a structure of dispositions toward what is at stake in that field" (Schmitz et al. 2017, p. 52, based on Bourdieu's arguments in 1993a). Stahl (2015) emphasises that strategies are determined by perceptions as well as the position within the field; and adopted to achieve individual desired goals. Since the academic aspirations are determined by the probability of achieving their desired goals (Stahl 2015), the publishing strategies are adopted by academics to ensure that their goals are also within the limits of their institutional norms (Bourdieu and Wacquant 1992).

Beckert (1999) argues that strategies are nothing but planned actions that provide a basis for the actors within the field to respond to constraints they face in achieving their goals. Grenfell and James (2014b) opine that Bourdieu's theoretical approach of habitus and practices asserts that strategies are "individually constituted personal practices" (p. 44). Interpreting the publishing activities of academics in HASS disciplines of Go8 universities in Australia, it is conspicuous that the publishing strategies adopted by academics are a well-crafted, profit calculated approach to provide strategic advantage to them within the university or research environment for maximising or strengthening their individual positions. The present study also establishes that strategies adopted by academics reflect the publishing constraints experienced by the individual academics. The results of this study, therefore, emphasise that academics, in Bourdieu's terms, are not strugglers of the field but members of a strategist group.

6.5. *Academics: Publishing Strategists*

The statistical analysis of academics' publishing strategies, which have already been explained in Chapter 5 (also refer Table 4.10 in Chapter 4), proves that academics

adopt multiple strategies to ensure their publication numbers. The strategies adopted by academics are classified into personal and collaborative strategies. The personal strategies are individual, non-collaborative publishing techniques followed by the academics. The collaborative strategies include collaboration with other members of the field, including taking advantage of the university support (factors of the field), as well as other factors outside the field (i.e. related field). A deeper-level analysis of the results highlights that personal strategies (52.5%), including individual publishing techniques, are based either on their individual strengths (53%) or on the available publishing opportunities (52%). As publishing constraints experienced by academics vary according their position in the field, the strategies they adopt are also influenced by their position (academic ranks). The influence of academic position on the strategies adopted are delineated in Figure 6.5.
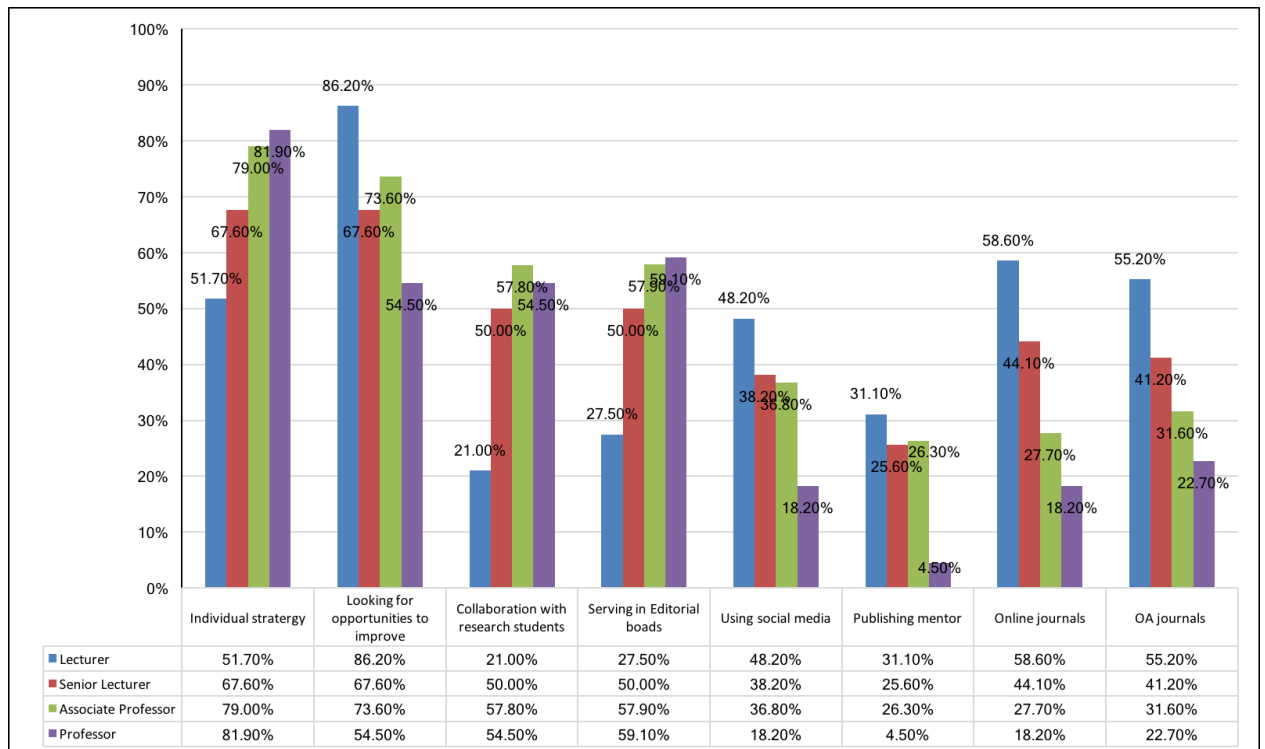
Figure 6.5. Strategic factors that vary significantly based on academic rank.

	Individual stratergy	Looking for opportunities to improve	Collaboration with research students	Serving in Editorial boads	Using social media	Publishing mentor	Online journals	OA journals
Lecturer	51.70%	86.20%	21.00%	27.50%	48.20%	31.10%	58.60%	55.20%
Senior Lecturer	67.60%	67.60%	50.00%	50.00%	38.20%	25.60%	44.10%	41.20%
Associate Professor	79.00%	73.60%	57.80%	57.90%	36.80%	26.30%	27.70%	31.60%
Professor	81.90%	54.50%	54.50%	59.10%	18.20%	4.50%	18.20%	22.70%

Figure 6.5 depicts how the strategic variables change in accord with the position of academics in the field. It can be noted that strategic variables such as *individual strategies*, *collaboration with research students* and *serving in editorial boards* are least adopted options among junior academics, whereas having a *publishing mentor*, *using social media*, *publishing in online and open access (OA) journals* are least preferred opportunities among the academics of higher ranks. As publishing practices are strategic decisions of individual academics who are shaped by institutional environments, these decisions in-turn are planned, goal-oriented activity dependent on the institutional and field opportunities (Chadwick and Raver 2015). DiMaggio (1979) argues that, for Bourdieu, actions that make the achievements or goals possible are nothing but habitus. Habitus, according to Wacquant (2014), are activities that exhibit a regularity and help us in tracing the patterns and preferences in practices, which are inferred as strategies. Since academics' challenges are relational, that is, dependent on their academic position

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(see Section 6.4), it is natural that the strategies are also relational and based on their academic positions. Since academics in junior positions experience constraints even at a micro-level, the strategies of junior academics also focus on addressing the micro-level issues. These publishing habits emphasise that strategies, in addition to academic ranks, also reflect the hierarchical structure of the field with regularity and pattern.

6.5.1. Publishing Habits vs Academic Ranks

McDonough and Polzer (2012) emphasise that habitus is shaped by the field: it is the actors' ability to identify the feasible options as well as the opportunities within the field, and its related environment, that help them to formulate a set of practices to achieve their goals. According to Bourdieu, *field*, as:

> The network of objective relations between positions [within the field] subtends and orients the strategies that the occupants of the different positions implement in their struggles to defend or improve their positions (1983, p. 132).

Publishing habit, therefore, is a regular set of practices that guides behaviour and thinking of actors in the field of higher education to achieve their institutional and field goals (Wacquant 2005). Therefore, publishing strategies adopted by academics at different ranks also reflect and relate to the factors that are perceived as a challenge in achieving their publishing goals (Stahl 2015; also see Figure 6.5 of this chapter). As explained in Section 6.4, despite only a few factors being perceived as a challenge in ensuring their publication volume (see Table 5.9), it is evident from Figures 6.3 and 6.4 that the perception of publishing challenges varies according to their academic rank.

Despite academics being collective representatives of the field, who act in a similar manner to achieve their institutional goals, there is a distinct difference in their approaches towards publishing. Fligstein and McAdam (2012) argue that representatives in different positions will not only react but also respond to

opportunities in different way due to the individual perceptions of strategic opportunities. Academics use their discretion to react to their routine real-time situations; and it is the individual practices of the actors within the field that help the institutions to improve their position in the field (Beckert 1999). According to Giddens' theory of structuration (2013), the actors, even if they are bounded by the structural norms, are at liberty to choose the options or decide their actions. The members have their freedom of choice to use opportunities without defying the field rules (Fligstein and McAdam 2012). However, Lemert (2015) propounds that the practices adopted by individual members of the field will be bounded by the institutional and field structures, thereby bonding the individuals to the hierarchical structure and creating an identity with the institutional structures (Emirbayer and Johnson 2008). Academics, therefore, strategically comply with the structural norms by using available opportunities, within or outside field, to orient their actions in achieving their goals. It could be remembered that academics at lower ranks opine that their foremost publishing constraints are factors related to time and personal traits (micro-level issues) followed by work environment-related factors (such as workload; lack of publishing grants and internal support from university; publishing expectation of their universities; and lack of opportunities for publishing conference proceedings). As strategic actions are nothing but a set of cognitive actions based on one's struggles and needs (Meisenhelder 2006), junior academics focus on improving their publication record by seeking different opportunities, including publishing in online and OA journals, leveraging social media for visibility, and having publishing mentors (see Figure 6.6 in Section 6.7). These observations ascertain that the publishing practices (habitus, micro-level actions) of academics are mainly regulated by the field (macro-level) and institutional (meso-level) factors, even though they use resources from the external field. The present study confirms that, while publishing is a tool for academics, the publishing process is a field in itself[63], and academics strategically use the opportunities from the publishing field to overcome their publishing challenges.

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[63] Thompson's interpretation of publishing as field was discussed in Chapter 2.

Table 6.2. Correlation values between the variables challenges and strategies.

Challenges / Strategies	Time	Personal Traits	Workload	Publishing Policies	University publishing expectations	High impact Journals charge high fees	Trouble to align output to international journals
Benchmark	0.071	0.463	0.208	0.168	**0.01**	0.783	**0.019**
Revise & Update	**0.036**	**0.043**	0.294	0.295	**0.016**	0.71	**0.044**
Opportunities to Improve	0.855	**0.028**	0.912	0.378	0.287	0.08	0.549
Engage in Multiple Research Projects	0.137	**0.032**	0.417	0.707	0.987	0.649	**0.032**
Many Outputs from 1 study	**0.003**	0.5	**0.005**	0.77	0.09	0.466	**0.001**
Collaborating with Colleagues	0.234	0.08	0.233	**0.031**	0.092	0.618	**0.001**
Engage with Colleagues' Research Grant projects	0.127	0.773	0.349	0.98	0.72	**0.025**	0.526
Employing Research Assistants	**0.006**	**0.006**	**0.048**	0.862	0.905	0.221	0.127
Non-reviewed Publications	0.561	0.306	0.369	0.947	**0.035**	0.604	**0.048**
Unconventional Publishing model	0.603	**0.054**	0.103	0.086	0.448	0.843	0.32
Member of Editorial Board	0.208	0.98	0.335	**0.034**	0.143	0.945	0.17
Conference Proceedings	0.148	0.664	**0.014**	0.189	0.613	0.443	0.647
Use Social Media	0.881	**0.042**	0.419	0.932	0.888	0.132	0.669

Publisher/Output based							
Print and Online Journals	0.047	0.583	0.005	0.133	0.254	0.299	0.262
Online Only Journals	0.531	0.881	0.533	0.124	0.129	0.365	**0.023**
Open Access (even if charged)	0.014	0.27	**0.026**	0.495	0.906	0.096	**0.013**
Open access journals without charges	0.877	0.523	0.953	0.528	0.956	0.807	**0.034**
High impact journals	0.065	**0.031**	0.125	0.064	**0.015**	0.069	**0**
International journals	0.319	0.062	0.688	0.71	0.185	0.714	**0.008**
Reputed Publisher	0.383	0.296	0.508	0.724	0.143	0.835	0.059
Book chapters to journals	0.469	**0.004**	0.354	0.056	**0.023**	0.368	0.794
Book chapters as book editors	0.7	0.058	0.69	0.446	0.276	0.399	0.814
Reviewed conference proceedings	0.843	0.736	0.256	0.924	0.187	0.757	0.852
Not restricted to reviewed publications	0.849	0.857	0.781	0.896	0.243	0.699	0.417
Authorship							
Co-Author	0.072	0.218	**0.017**	**0.013**	**0.001**	0.698	**0.004**
Prefer Single Authorship	0.516	0.314	0.235	**0.051**	**0.053**	0.723	0.12

Table 6.2 outlines the correlation between the challenging factors and strategies.
The values in bold indicate that there exists a significant correlation between both
the individual factors.

We can observe from Table 6.2 that academics who perceive time as constraint for their publications adopt techniques such as revising and updating their personal publishing plan, ensuring as much output as possible from one research project, and employing research assistants (values bolded). It can also be observed from the values in the table that publisher-based or output related techniques are adopted mostly for issues related to personal traits (preference to teaching) and to overcome the trouble in aligning their output to appropriate journals. The correlation values given in Table 6.2 also attest that publishing techniques adopted by academics are mostly related to the opportunities provided by their field rather than depending on the external field – publishing field. Academics' dependence on their field, that is, the field of higher education, for their strategic practices to achieve their goals establishes the dominance of the field of higher education in formulating their publishing strategies.

6.5.2. Autonomy of the Field of Higher Education and Publishing Practices

Bourdieu (1983) asserts that a field is 'relatively autonomous' when it exhibits its own internal logic and pattern which is not dominated by external forces (p. 315) even if the field has a potential to be dominated or influenced by an external field or forces (Krause 2018). According to Bourdieu, habitus and practices established within the field have a potential to be influenced or dominated by external fields, which makes the field competitive as well as heterogeneous (1984). The relations between the constraints and strategies outlined in Table 6.2 establish that, despite ability or potential (for the academics) to explore the publishing opportunities provided by academic publishers, only the constraint of aligning the output to international journals (an output-related constraint) is addressed using publisher-(output-) based strategies. As explained in Chapter 2, extending the argument by Fligstein and McAdam (2012), we could contrive that the field of higher education is proximately related to the field of academic publishing not only because they share resources but also because they mutually impact each other. The results of this

study imply that, despite the proximity of the publishing practices to the field of academic publishing, the publishing opportunities provided by publishers have minimal influence on the strategic publishing practices of academics (see Chapter 5 for further details). The results of this study evince that proximity to publishing field does not impact the relative autonomy of publishing practices in the field of higher education.

Field autonomy, according to Krause (2018), is dependent on particular conditions: different circumstances or practices within the field result in different forms of autonomy. The strategies adopted by academics ensure that dependency on publishers is on their own terms, thereby adhering to field norms. The statistical analysis of the factors related to 'challenges' and 'strategies' presented in Chapter 4 (Figures 4.5 and 4.6) establishes that academics identify one or more opportunities within the field to overcome every publishing struggle they experience. Each challenging factor related to publishing has a corresponding strategy[64] based on the opportunity from the field to overcome the constraints (see Table 6.3).

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[64] Details of the indicators and factors contributing towards each category of challenges and strategies have been discussed in Chapters 3 and 4.

Table 6.3 Publishing constraints and the corresponding strategies.

Publishing constraint	Strategy	
	Based on field opportunity*	Publisher/Output based
University work/research environment	Skilful approach and support factors	
Publisher-related issues	Unique approach and support factors	Authorship
Time	Unconventional publishing methods	
Writing-related (personal) issues		Focusing on book-type publications
Personal/work preferences	Unique approach and collaboration opportunities	
Publishing policy (or expectation)	Unique approach	

*See Chapters 4 and 5 for details on different factors that contribute towards each opportunity.

The strategy of unique approach (including techniques such as having a well-crafted publishing plan based on their strengths and weaknesses; strategically publishing the research outcomes of one or two study in multiple sub-disciplines) acts as an important strategy to address the publishing constraints related to publishers (such as limited opportunity for conference proceedings; inability to identify appropriate journals, including non-predatory or high impact journals; high article processing charges levied by high impact journals; trouble in aligning the work to high impact journals), preference toward teaching rather than publishing, and university publishing policies and publishing expectations. Another field-related strategy adopted by academics is the 'support factors' which include techniques such as handling multiple research projects simultaneously (instead of one large research project), publishing in peer-reviewed conference proceedings, and using social media such as Academia.com, ResearchGate or The Conversation as PR tools. Academics adopt unconventional publishing methods such as open review or non-reviewed publication to ensure that they have some publication output that would help them in ensuring reviewed publications in future, when faced with time

constraint. To overcome the issues related to university or research environment, that is, lack of network, publishing funds and internal support, and colleagues appropriating ideas, academics adopt a skilful approach of publishing many articles or book chapters from a single study, or serving on editorial boards. Academics who experience 'writing issues' adopt only an output-related strategy of focusing on book-type publications, or authorship, that is, publishing as a co-author, to overcome their challenges; while other strategies such as 'unique approach' and 'support factors' are adopted by academics to address their publisher-related issues. These results corroborate that, despite the publishing infrastructure provided by publishers, the field (or structure) of academic publishing has minimal influence on publishing practices (or habits) of academics. When actors within one field use resources of an external field to strengthen the individual or organisational (meso-level) position, this leads to a collation or interdependency among the fields (Fligstein and McAdam 2012). The micro-level collation or resource dependency of academics also creates a dependent relationship between the higher education and publishing fields. The results of the present study confirm that the relationship between both these fields has a collaborative characteristic, even though the results authenticate the relative autonomy of higher education in publishing practices. The results also advocate that academics as members of higher education prefer to look for opportunities within the field to strengthen their position within the field, even though they use resources from the external fields.

While the results in Table 6.3 assert the minimal role of academic publishers in publishing strategy, the role of hierarchical field structure in determining the strategies and publishing opportunities is examined in the following section to understand how academics strengthen their position as well as the field's dominance, by using their publishing strategies.

6.6. The Relationship Between Publishing Strategies and Field Structure

Bourdieu emphasises that knowledge and understanding of a field helps the actors in determining their choices for interaction with the external field (1990). Even though academics entering the field of higher education are conditioned by the shared understandings or norms of the field, their primary habitus and practices of the field are based on governance structures followed by the respective institutions and the field (Zipin and Brennan 2003). The governance structures, in relation to publishing practices adopted by academics in Australia, are the performance criteria of their universities and the framework of Excellence for Research in Australia (ERA). The boundaries between the meso- and macro-level factors in publishing practices are blurred, because numerous studies (Diezmann 2018; Martin-Sardesai et al. 2016; Collyer 2015; Hicks 2013; Nylander et al. 2013) associate the performance criteria of research to the research framework and policies of the government. Better performance of research-focussed universities (i.e. Go8) in the ERA ranking is attributed to the alignment of the individual research performance indicators of academics to the performance indicators of the ERA (Diezmann 2018). She argues[65] that Go8 universities successfully circumvent performance indicators to improve ERA ranking by aligning the micro-level activity to the macro-level. Her arguments also substantiate that Go8 universities skilful attune individual publishing choices or practices of academics to the field norms determined by the ERA (as discussed in Chapter 2). Diezmann's arguments, in other words, emphasise that a university, a meso-level field member, ensures or improves its position at the macro-level (i.e. field-level) by aligning the goals of micro-level activity to the dominant capital of field. Hence, it is imminent that the ERA plays a significant role

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[65] Deizmann's argument is based on the research strategies shared by the universities in the government funding agreement, the Mission-based Compact (available from the document library of the Department of Education, Australia).

in academics' publishing strategies whether they use resources from within the field or from external fields.

Fligstein (2001) argues that skilful actors could efficiently interact with the resources of external fields to establish and strengthen their individual as well as institutional positions. As argued by DiMaggio and Powell (2012b), and also explained in Chapter 2, individual choices within the field are determined by the field norms, which actors confirm to as long as the norms help them in achieving their capital; they also look for opportunities outside the field only if those opportunities are bounded to field norms. Since the results of the study show minimal use of resources from the publishing field, it is evident that academics explore the opportunities within the field to realise their publishing goals in achieving their field capital. Publishing habits of academics, therefore, are the 'taken-for-granted' practices, which, using Bourdieu's analytical concept of field, could be interpreted as competitive strategy (Bathmaker 2015). Despite the competitiveness evident in their practices, academics do use the resources of the external field, that is, resources provided by the publishers, only if they are aligned to the ERA norms adopted by the hierarchical structure of the university or higher education. Fraser (2009), echoing DiMaggio and Powell (2000), argues that practices could be either affirmative, that is, achieve their outcome without disturbing the existing fundamental hierarchical structure, or transformative, that is, aim to attain dominant position by restructuring the fundamental hierarchical structure. The present study shows that the publishing practices of academics in Australian universities are affirmative strategies, because they seek to address the challenges in achieving their publishing goals without transforming the generative framework which, in the first place, has led to this habitus.

6.6.1. Publishing Practices and ERA Guidelines

Academics perceptions on different factors related to strategies are delineated in Table 6.3. Although the individual factors, evaluated through the survey of the

study, have been categorised as different strategies and discussed in Chapters 4 and 5, the results of comparison are delineated in Tables 6.3 (in Section 6.5) and 6.4 (below). It is transparent from the results of this study that academics adopt strategies to ensure their publication numbers (also see Figures 5.5 and 5.6, Chapter 2) rather than overcoming their publishing constraints. We can also observe that only a few, selected strategies (mostly related to conventional publishing formats) are dependent on the opportunities provided by the publishers. Krause (2018) argues that dependency of a field on another field does not necessarily imply less autonomy, but on the contrary could help the dependent field to establish its dominance and power in the broader environment. It is evident from the present study that publishing strategies are dependent on their shared understanding of the publishing norms outlined in the ERA guidelines. This strategic action (based on ERA guidelines) establishes that academics engage only in consensus activities rather than contestation of the field norms (DiMaggio and Powell 2000). The synopsis of the strategies adopted by academics presented in Table 6.4 attests that the strategies are according to the norms of the field and that, as explained earlier, academics share the resources of the academic publishers only to achieve their field capital.

Table 6.4. Synopsis of publishing strategies.

Variables	Is it a strategy	Percent (%)
Individual personal strategy	Yes	53%
Personal strategy based on publishing options	Yes	52%
Collaboration using university support	Yes	67%
Collaboration with other researchers	Yes	54%
Serving on editorial boards	Yes	53
Focus on journal articles	Yes	83
Collaborative strategy: publishing mentors	No	72%
Non-reviewed publications as stepping stone	Yes	50%
Publisher-related		
Publish only if print and online versions available	Yes	46%
Publish only in high impact journals	Yes	60%
Publish only in international journals	Yes	53%
Publish only with reputed publishers	Yes	73%
Using social media platforms, such as Academia, ResearchGate	No	59%
Non-conventional publication model	No	56%
Publish in 'only online' journals, i.e. no print version	No	44.5%
Publish in open access journals - paying publishing charges	No	80%
Publish in open access journals - without paying publishing charges	No	47%
Publications not restricted to reviewed publications	No	41%

Deeper critical evaluation of each factor related to strategies evinces that every factor is related either directly or indirectly to the ERA indicators or the performance metrics of their universities. For example, serving on editorial boards contributes towards the 'Esteem Measure' that increases the university's research

contribution, rather than to the individual measure. It could be noted from Figure 6.5 that senior academics are more likely to leverage this strategy than the academics at junior level, because academics at junior levels are focussed on establishing individual goals rather than university goals.

The publishing strategies adopted by participants of the present study also reveal the veracity of Diezmann's argument (see Section 6.5 for details) that performance criteria of academics in Go8 universities are aligned to the performance assessment framework stipulated by ERA. The factors such as being editorial board member or engaging in peer review activities, and successful publications of their PhD students, are adopted by more than 50% of academics (especially associate professors and professors; see Figure 6.5 for details), as they contribute towards research performance metrics of universities (for example, refer to the Academic Performance Framework, Monash University[66]). As factors related to engagement in activities that foster knowledge creation (being journal editors or learned committee members) also have the potential to contribute towards the indicator 'Esteem Meaures' of the ERA, universities motivate academics to pursue such publishing-related activities. Similarly, since achievements of PhD students also contribute towards research metrics of academics (fostering research knowledge), collaboration with research students is higher among the senior academics. In addition, the willingness among academics to serve on editorial boards or being a reviewer for publications, despite time constraints, can be attributed to the indicator 'esteem measure'; and non-reviewed works (based on specific criteria such as government reports) could also contribute toward 'peer review' metrics, which could be considered as reviewed publications if reviewed and accepted by the peer review body of the ERA. Although Fyfe et al. (2017) emphasise that, despite the crunch of time and rising burdens, academics are committed to be peer reviewers as voluntary service to their discipline, it is difficult to ignore the role of the Australian research framework in Australian academics' contribution towards peer review or

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[66] Source: https://www.monash.edu/academic-promotion/tools-and-resources/standards##facultyresearchstandards, last accessed on 15 September 2018.

editorial boards. The factors contributing to the indicator 'Esteem Measures' of the ERA, therefore, indirectly help the publishers to retain their pool of peer reviewers without adding to their publishing cost.

The theoretical approach towards the factors related to publication format establishes that academics' choices of publication are also related to ERA metrics (refer to Figure 2.2 for ERA metrics). Academics' preferences for publishing in high-impact journals, or international journals are related to ERA indicators of 'Citation Analysis'. Since *Scopus* is the reference point for citation analysis metrics, academics are confident that publishing in international journals or journals from reputed publishers would ensure that the journal as well as their published work would be available in Scopus. In addition, the present study shows that 46% of academics prefer to publish in journals that have both print and online presence, and only 44.5% are willing to publish in journals that have only online presence, while 9.5% are neutral. Although the preferences change according to their individual ranks, that is, academics at ranks below associate professors are more willing to publish in journals that have only online presence (see Figure 6.5), the overall preference for both print and online presence (especially among senior academics) could also be partially attributed to the shared field norms of traditional publishing, while no specific reference to print or online version is specified in the ERA indicators. Senior academics' preference to include print versions of their published output strengthens the argument by Fyfe et al. (2017) that senior academics are "still heavily invested in traditional publishing outlets" (p. 4).

ERA guidelines are generic and applicable to all disciplines; hence, the performance criteria adopted by the universities are common to all disciplines. Since the indicators related to indexed journals and international-centric threshold are common factors for science-discipline academics, those in HASS disciplines regard university publishing policies as one of their publishing constraints. As discussed earlier, the present study also shows that academics not only seem to include very few strategies that are solely dependent on publishers but also opine that incompetent review comments (even though the majority opine that review

comments help to improve their research in general) and delay in publishing process are major concerns. These concerns in regard to publishers highlight not only that academics depend very sparingly on publishers but also that there exits some dissonance between the fields. This dissonance is further revealed in evaluation of the following hypothesis.

Hypothesis: Publishing habits of academics are framed by universities or institutional policies

Academics' habits conforming to the norms of the higher education field, according to Fligstein and McAdam (2012), is in a way self-confirmation of their identity and belongingness to the field. Rowlands (2013) argues that there exists a homologous relationship between members' habitus and the field. Therefore, it is apparent that the field representatives only act on principles that are beneficial to macro- (field) and meso-level (institutional) structures.

The relationship of the ERA and university performance indicators to the publishing practices validates the hypothesis that *Publishing habits of academics are framed by universities or institutional policies*. The validation of this hypothesis not also establishes the autonomy of the field of higher education in regard to publishing practices but also emphasises that the competition and cooperation of the members of the field are dominant elements rather than coercion (DiMaggio and Powell 2012b; Fligstein and McAdam 2012). Publishing strategies are a broader consensual frame interpreted by academics individually depending on their academic rank and position within the field (Fligstein and McAdam 2012). Although positional influence could be observed in the publishing strategies such as non-reviewed publications (Figure 6.5), the overall results clearly establish that academics craftily adopt the resources of the publishing industry to enhance their dominance at micro and meso levels (Krause 2018). The results elicit that the publishing practices depend on the broader environment of higher education policies, even though they are inter-dependent with field of academic publishing. The relationship between both the fields, therefore, is only 'horizontal integration', where the publishing

practices of the field of higher education is only inter-dependent (and not dependent) and do not contribute towards dominance of publishing industry over the publishing practices of the field. Although Fligstein and McAdam (2012) argue that an external field has the potential to affect the shared norms of their inter-dependent fields, the present study shows that it is highly unlikely that that field of academic publishing will be successful in mobilising the consensus of academics around the conception of their publishing practices.

Fligstein and McAdam (2012) argue that changes or transformation of an external field will be a threat or challenge to the embedded or inter-dependent field only if the changes in one field are a threat to the shared norms of a dependent field; and that only such changes have a potential for creating contention within the other field. However, scepticism of academics in HASS disciplines toward the opportunities such as 'open access' publishing models (see Table 6.4) emphasises not only the autonomy of the higher education field but also a possibility of 'contention' towards publishers. Rather than these publishing techniques creating a threat to the field of higher education or challenging academics' shared field norms of higher education, it only causes disharmony. By adhering to the institutional norms (and ERA guidelines), academics reinforce their individual allegiance to the institutional field as instrumental in acquiring capital and improving the institutional position. This empirical analysis, therefore, validates the statement that *publishing habits of academics are framed by universities or institutional policies.* While the analysis establishes that the relationship between challenges and strategies has been congruent with the institutional norms, the relationship between the strategies and the number of publications is analysed in the following section to understand the successful factors contributing towards the number of published output.

6.7. Successful Publishing Strategies

Martin-Sardesai et al. (2016) argue that, in a performance-driven university environment, publishing becomes the crucial performance indicator. As discussed earlier (Sections 6.3), since individual publishing practices connect the individual to the hierarchical (macro) structure (Emirbayer and Johnson 2008; Vaughan 2008), and from the relationship between the individual habits and macro/meso structures explained in Section 6.6, it is evident that scholarly publications become a powerful tool of academics to achieve their capital. In the Bourdieusian sense, as explained earlier, habitus is principles that generate and organise practices as well as strategies; it is positioned towards the future, thereby implicating capital (Bourdieu 1990b). As discussed earlier in Chapter 2 (and also in earlier sections of this chapter), performance indicators transcend capital. Since 'meeting' the performance indicators includes expected and aspirational published outcomes for tenure and promotion, the number of published outcomes plays a crucial role (Diezmann 2018). The relationship between the strategies adapted by academics and their published outputs is outlined in Table 6.5.

Table 6.5. Relationship between strategies and outputs.

Strategies→Output relation	Strategies	Contributes to publication, increases volume?
S1→Output (direct)	Planned approach	Yes, moderately
S2→ Output (direct)	Fund related factors	Yes, minimalistic
S3→ Output (indirect)	Collaboration with students and colleagues	The higher the collaboration, the lesser the number of publications
S5→ Output (indirect)	Unconventional publishing options (non-reviewed publications)	Alternate option to ensure publications in future
S7→ Output (direct)	Skilful approach	Yes, moderately
S8→Output (direct)	Unique approach	Yes, significantly
PS3→ Output (indirect)	Online publications	The higher the publication volume, the lesser the online-only publications

Table 6.5 provides a summary of the contributions of different strategies towards the publication volume of academics. The present study shows that, even though academics adopt different publishing strategies (Table 6.4) based on the ERA guidelines, it could be observed from the details in Table 6.3 (in Section 6.5) that their publishing constraints are overcome using only a few specific strategies. We can observe from the results of the study (also discussed in Chapter 4) that not all strategies adopted by academics translate into output or increase the volume of publications (see Figures 5.5 and 5.6, in Chapter 5). It can be observed (see Table 6.4) that only individual strategies based on opportunities provided by the field are helpful in achieving their publication volumes. Although academics adopt publisher-related opportunities, such as publishing in international or high impact journals and collaborating with reputed publishers, the results of this study (Table 6.5 and also Figures 4.5 and 4.6, Chapter 4) emphasise that these strategies do not

contribute towards publication volume. Preferences toward reputed publications based on their academic ranks are delineated in Figure 6.6 to provide a better understanding on the extent to which these publishing-related strategies are adopted by academics.

Academics vs Reputed Publication

	International Journals	High Impact Journals	Publisher Reputation
Lecturer	30%	35%	36%
Senior Lecturer	48%	44%	43%
Associate Professor	41%	42%	36%
Professor	38%	38%	52%
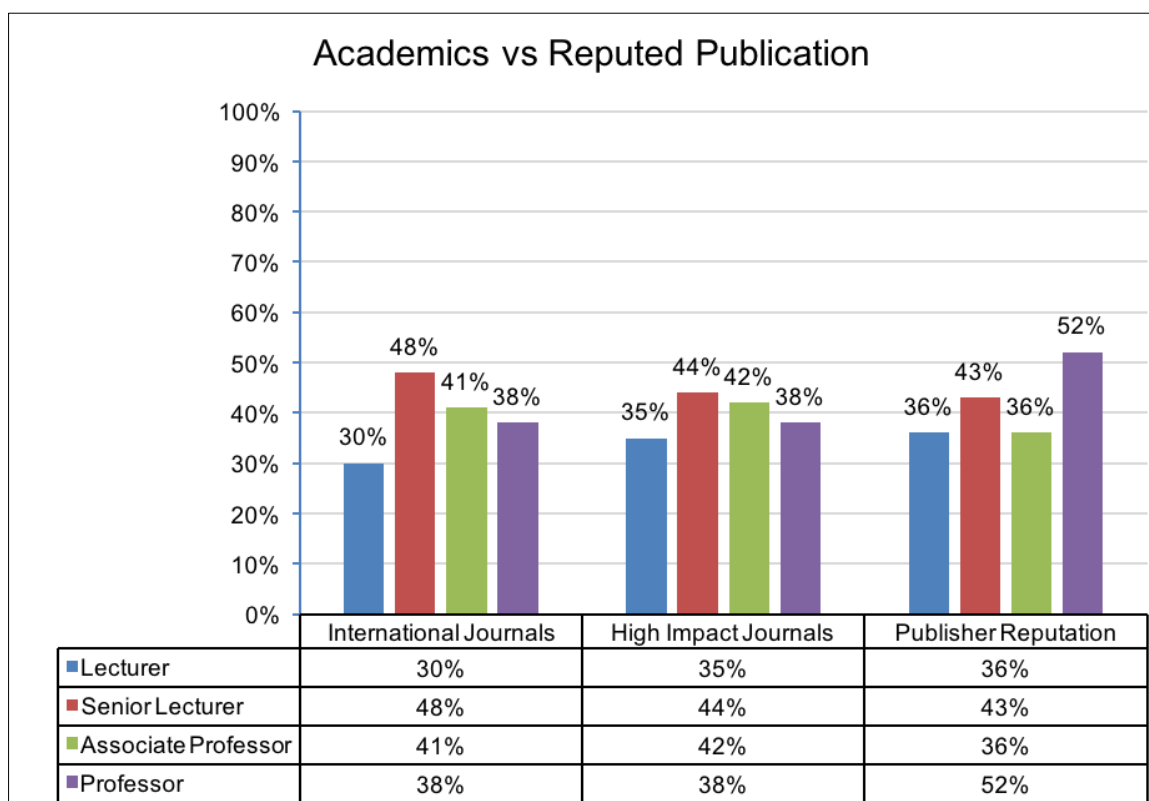
Figure 6.6. Academics' preferences for reputed publications.

It can be observed from Figure 6.6 that academics at mid-level, that is, senior lecturers and associate professors, have greater preference towards international and high impact journals, whereas professors focus on publisher reputation. The strategy of focusing on reputed publications can also be related to the indicator 'citation analysis' in ERA guidelines. Despite the argument that performance-based assessment of research outcome is primarily based on the quantity of publications (Martin-Sardesai and Guthrie 2018), more than 60% of academics consider publications with reputed publishers as an important component of their

publication record. The significance attached by academics to high ranking journals might also be an extension of a publishing strategy adopted prior to 2015 (2009 to 2015), as explained in Chapter 2, that ERA indicators of 2010 classified journals into different ranks such A*, A, B, thereby forcing academics to focus on publishing in high-impact(rated) journals for better benefits (Martin-Sardesai et al. 2017a; Cooper and Coulson 2014). As the link between publisher reputation and impact factors to the quality of content is ambivalent (Björk and Catani 2016; Boughton et al. 2018), we cannot affirm that academics take quality of published content into consideration by focussing on publishing in high impact or international journals. The focus of the present study is only to understand the relation between strategies and challenges or publication volume, and to probe 'how' they seek to achieve their aims through the publishing choices, rather than 'why' they adopt a strategy. Hence, academics' perception of high impact is not evaluated further in this study. In addition, the survey questions were not focused on quality of the published outputs, since the study focuses only on how academics address their publishing constraints and achieve their aspirational publication numbers. The significance of publishing choices in achieving their publication numbers is analysed in the following section.

6.7.1. Publishing Choices vs. Publishing Strategies

The results of the present study assert that strategies based on publication type such as journal articles, book chapters or conference proceedings do not contribute towards either strategies or publication volume. The results on academics' perceptions on different publication types, discussed in Chapter 5 (Section 5.3.2, Tables 5.4—5.6), emphasise the role played by each publication type in achieving their capital. However, the analysis of the relationship between strategies and published volume emphasises that type of publication plays hardly any role in enhancing or decreasing the number of publications. Since reviewed publication has to be in any one of the following format, journal article, book chapter, book or reviewed conference proceedings, we could argue that academics' reasons for choosing a different publication type is purely an individual preference. Their

preference might or might not be influenced by class consensus. According to Bourdieu (2017), since behaviour of individual members in a field reflects their own individual and class traits, academics' choice of publications falls into either of these categories and can be said to reflect the characteristics of the field. These habits, extending Bourdieu arguments, are unconscious practices; and therefore, are not necessarily to play any significant role in achieving the meso- or micro-level capital.

An analysis of academics' perceptions on significance of the different types of publication reveals (see Chapter 5 for details) that a journal article "Helps to meet/exceed the performance goals set by the university" (66.67%), and book publications help to "establish credibility" (57.85%) and build reputation in their field (55.55%). Since journal articles contribute towards multiple criteria of the ERA indicators (volume and activity, publishing profile, and citation analysis), academics opine that journal articles help in achieving their goals. The present study also shows that 98.3% of academics have published at least one journal article during the period 2013 to 2016 (see Figure 5.4), and 30% of the total publications of this study are journal articles. By contrast, the critical evaluation of the relationship between challenges and strategic factors and strategies and publication volume reveals that 'focussing on journal articles' as a strategy neither contributes towards overcoming any publishing challenge nor is related to the publication volume. Habits, according to Bourdieu, generate regular choices. Academics' choice of publication is guided by their perception of general publishing habits. The results in Tables 5.4 to 5.5 (in Chapter 5) reflect academics' perceptions and preferences, guided by their thoughts, as structured by the field (Meisenhelder 2006). The results emphasise Bourdieu's argument that habitus explains the subjectivity of the choices and is characterised by the shared understanding within the field. Hence, academics' choice of publication type is a subjective, micro-level activity based on the understanding of the environment.

Hypothesis: Individual Publishing Choices are influenced by the ability of publishing opportunities to meet the university's publishing expectation

The analysis of academics' preferences on publication type asserts the similarity of publication type to daily habits or everyday practices that establish a pattern or regularity. Online publication type is the only factor related to publishing format that has at least some role in addressing the challenges or achieving the publication numbers. From the critical analysis of the relation between challenges, strategies and publication volume, detailed in the earlier part of this section, it is apparent that neither academics' publishing choices nor publication volume are influenced by or dependent on publication type. Choice of publication, according to Bourdieu's concept of habitus, is a social characteristic, because it is individual and subjective in nature, while at the same time, collective and intersubjective (Bourdieu and Wacquant 1992). Since the present study clearly evinces that academics' publishing habits and practices are bounded by institutional norms, only opportunities that assist in achieving the institutional goals are considered by academics. Hence, the analytic approach to the publication choices (delineated in Tables 6.3—6.5), using Bourdieu's concept of habitus, establishes that:

> *Individual publishing choices of researchers are influenced by publishing opportunities provided by publishers to meet university expectations.*

In other words, publication choices of academics are conscious, individual publishing choices that reflect and represent the publishing expectation of the social structure - field, that is, the university or broader research environment.

6.8. Conclusion

Publishing practices and strategies, adopted by academics of HASS disciplines, are analytically approached using Bourdieu's conceptual tools, capital, field and habitus, as a method. These concepts, as explained in Chapter 3, help to understand the various dynamics of publishing practice within the field of higher education as well as the broader environment. Interpreting the statistical results, discussed in Chapters 4 and 5, using Bourdieu's concepts, field, habitus and capital, provides an understanding that the relationship between publishing constraints and strategies adopted by academics in ensuring the publication goals only strengthens academics' allegiance to their university as well as to the field of higher education. The subtlety of the dynamics and inter-relation of academics' publishing practices discussed in this chapter addresses the veracity of the other two hypotheses of the study.

This study establishes that academic publication is a well-crafted, strategic communication process to achieve desired goals (capital). Adopting Bourdieu's concepts, we can conclude that publications are the embodiment of cultural, social, symbolic and economic capital of field. Therefore, publishing habits of academics are relational. The results of this study ascertain that publishing strategies of academics, as the publishing constraints, are related to their position in the field, thereby emphasising that members occupying different positions in the same field will adopt different techniques to defend or improve their positions (Bourdieu 1983). The study shows that academics in junior positions experience publishing constraints even at a micro-level, such as personal traits and time, while academics at senior level experience constraints mostly related to work environment or institutional publishing policies.

According to Bourdieu, habitus is planned actions to achieve desired capital (Meisenhelder 2006); and as emphasised by DiMaggio and Powell (2012b), actions of academic members of the field are based on their shared understanding of the

field norms and their desire to achieve capital to improve their positions. The results of the present study manifest that publishing strategy is also relational to their positions, because academics at different levels have different challenges and goals to achieve. Despite the proximity and dependence of academics on publishers for publishing their scholarly communication, analysis of the publishing strategies shows that strategies are highly influenced by the field norms, that is, the ERA guidelines. In addition, the minimal role played by the opportunities provided by publishers in the publishing strategies refutes the probability of 'exogenous shocks' (critically assessed in Chapter 7) explained by Fligstein and McAdam (2012). The results demonstrate that the relation between the fields of higher education and publishing is horizontal and hence no significance over the hierarchical structure of higher education. Academics, by adhering to the institutional norms, that is, the ERA guidelines, reinforce their individual allegiance to the institutional field. The analysis, therefore, attests the hypothesis, *Publishing habits of researchers are framed by universities or institutional policies.*

The chapter identifies that publishing practices of academics foster the autonomy of the field of higher education from the external field, publishing, because only a few publisher-related strategies are adopted by academics. The study finds that publication format also plays a minimal role in enhancing academics' publication volume. The delineation of choices of publication by academics in this chapter indicates that these are only every day, unconscious practices of individuals and class traits reflecting the characteristics of the field, as emphasised by Bourdieu (2017). Furthermore, they do not contribute significantly towards achieving meso- or macro-level capital. This finding validates the hypothesis, *Individual publishing choices of researchers are influenced by publishing opportunities provided by publishers to meet university expectations.*

In this chapter, the publishing practices and strategies of academics of HASS disciplines in research-focussed universities are analysed using Bourdieusian concepts, and the inter-relations of the field of publishing to the publishing patterns and habits of academics are examined using the arguments by Fligstein and

McAdam (2012). Analysing the results using the inter-related theoretical approach emphasises not only the relative autonomy of the field but also that it is highly improbable for the field of academic publishing to change the existing perceptions of academics' publishing practices. These understandings also lead to validation of hypotheses of this study. While the scrutiny of the results delineates the relationship between publishing practices and the field of publishing, the final arguments, as conclusion of the study, along with further discussion on implicit messages for the publishing industry and recommendations from the study, are presented in the next chapter.

Chapter 7.   Conclusion

This purpose of this chapter is to summarise the conclusions from the research findings, the literature on academic publishing, and the theoretical implications of the study. In addition to validating the hypotheses of this study, the chapter also identifies the contributions of this study to nascent areas of academic activity such as research publishing policies, in the insights for publishers on publishing challenges from academics' perspectives, and most importantly, in extending the social field theories using Bourdieu's concepts of *field*, *capital* and *habitus* in a different environment. The chapter explicates the use of Bourdieu's thinking tools and arguments, as well as identifies the opportunities for further research and provides recommendations for further enquiry. The chapter concludes with the contribution to the body of knowledge on academic publishing, and finally acknowledges the limitations of the study.

7.1. Purpose of Study

Academic publishing, the scholarly communication process, has been volatile in recent years not just with the technological developments experienced by publishers but also with undue emphasis on published outcomes by research assessments in various countries such as the UK, Australia, New Zealand, most countries in Europe, North America, and also more recently in Asian countries such as Taiwan, Japan and Hong Kong. Adding to the pressure for publication from their government and funding organisations, there is also a growing resentment towards academic publishers, evident from boycott of Elsevier by senior academics in the UK. Despite these issues being very close to academia, the issues faced by academics in ensuring their publication numbers have hardly been explored from the perspectives of the academics. Therefore, motivated by the ever-increasing pressure

on academics in higher education, the present study investigates the challenges faced by academics in ensuring their publication volume and identifies the strategies they adopt to ensure their publications. The synopsis of this research journey, discussed extensively in previous chapters, can be summarised as follows.

Chapter 1

The genesis of the impeding research questions, the issues related to the publishing environment, the impact of these issues in academics publishing practices, and the challenges faced by academics and publishers, are discussed in Chapter 1. The chapter provides a brief overview of the contemporary academic publishing environment. The chapter situates the study in a particular context, formulates the research hypotheses, and identifies the research methods that are used to address the hypotheses. The chapter also briefly facilitates the understanding of how Bourdieu's concepts of *field*, *capital* and *habitus* inform the study to understand the publishing environment, and examine the issues related to publishing practices of academics in Humanities, Arts and Social Sciences (HASS) disciplines, and also academics relations with publishers.

Chapter 2

Extending the background of the academic publishing environment provided in Chapter 1, the next chapter evaluates the academic publishing environment over the last two decades. The chapter is focussed on identifying the global and, in particular, the Australian academic publishing environment. The challenges faced by academics in Australia, specifically by the academics of HASS disciplines, are also discussed. While delineating the publishing environment, the chapter acknowledges the role of different stakeholders of the publications, namely, the government, universities, publishers, libraries and readers. The chapter helps in understanding the social structure (the meso-level and macro-level) of academics' publishing practices which are directly dominated by government in the form of research publishing policies and performance indicators, universities or their affiliated

research institutes for their career and tenure, as well as the dependence on publishers for the infrastructure and capital related to publishing. The chapter, therefore, identifies academics' underlying motivations for publishing. The review of various issues related to publishers and publishing environment of academics further informs the research hypotheses explored in this study. Chapter 2 also helps in identifying challenges related to academic publishing which are not adequately discussed in the literature, because most studies focus on challenges related to publishing business rather than using a social, political, economical and technological approach inculcating the role of academics and publishing expectations of higher education. The chapter raises questions relating to the publishing environment of academics which are addressed in the later chapters.

Chapter 3

By situating academic publishing within its broader social, cultural, political and technological contexts, Chapter 3 focuses on how each of Bourdieu's concepts become significant in exploring academics' publishing practices. The chapter strengthens the critical analysis, briefly explained in Chapter 1, by interpreting and exploring the *field* of higher education in Australia using Bourdieu's concepts of *field*, capital and habitus. While the concept of field assists with identifying the field of higher education in relation to publishing, the concept of capital provides an understanding of the factors that are significant for academics in the field; while the capital academics aim to pursue and their publishing habits are explained using the concept of habitus. The theoretical and conceptual framework is explained in detail in Chapter 4.

Chapter 4

The research approach and methodology documented in Chapter 1 is further elaborated and mapped in Chapter 4. The rationale for choosing the research methods, the quantitative approach adopted in collecting data, and the procedure

followed for processing the survey results and ensuring reliability and validity of the survey data, are explained in detail in Chapter 4. The conceptual framework is formulated by extending the analysis of literature in Chapter 2, and the theoretical framework constructed from the discussion of theories in Chapter 3 is also explained in Chapter 4.

Chapter 5

After detailing the research approach in Chapter 4, the initial analysis of data, including statistical analysis and interpretation of the results gathered from the survey, is presented in Chapter 5. The chapter starts with discussions about demographic characteristics such as gender, age, academic rank, areas of research focus, publication output details, and other related background information. Then, the chapter proceeds to discuss relationships among the individual factors and of these to the conceptual constructs. The relations among the constructs are examined from a statistical perspective using regression and structural equation modelling techniques. The structural model analyses the constructs - *challenges* and *strategies* - and their inter-relationship with publication output. The chapter identifies that, although academics use different publishing strategies, only some strategies directly contribute toward the enhancing their publication volume. The chapter concludes with a discussion on the relevance and implication of these statistical inferences for the assumptions and hypotheses formulated in Chapter 1 and explained further in Chapters 2 and 3.

Chapter 6

In Chapter 6, the statistical inferences on the collected data, discussed in Chapters 4 and 5, are critically examined using Bourdieu's thinking tools, *field*, *capital* and *habits*. Although these concepts are informed in all chapters, Chapter 6 specifically probes the role of publishing-related factors—such as publication indicators specified by ERA, focus of their respective universities, and academics' individual

publishing goals—that influence the individual publishing strategies of academics and also the relation of these strategies to their publication volumes. The characteristics of the publishing practices in higher education and the different factors, such as the shared field norms, research indicators of ERA, and performance criteria that are based on the ERA, which shape publishing practices that lead to strategies, are delineated using Bourdieu's theories. How and why the external influences, that is, the macro- and meso-level factors, shape the publishing behaviour of academics are also critically assessed using Bourdieu's concepts. Using the information from the collected data, the unanswered questions of Chapter 2 are examined by adopting the theoretical techniques explained in Chapter 3. Chapter 6 critically evaluates the data to identify how academics successfully use academic publishing as a tool to achieve their desired capital. The chapter probes the statistical validation of the collected data using the concepts of *field*, *capital* and *habits* to postulate the three hypotheses of the study (also briefly summarised in Section 7.2). The chapter delineates the holistic interpretation of the academic publishing environment by evaluating various roles played by different members within and outside the field.

Next, this chapter recapitulates the final arguments of the study, the role of 'context' in publishing practices, and the relationship between academics and publishers (Section 7.2). The original findings of the study are detailed (Section 7.3), before assessing the different areas to which this study contributes (Section 7.4), and acknowledges the limitations of the study (Section 7.5). Finally, recommendations for future research are stipulated in Section 7.6.

7.2. Conclusions from Hypotheses

As explained in Chapter 1, to understand the relationship between publishing practices and the stakeholders of publication, mainly the field of higher education, this study explored the following hypotheses:

- Researchers adopt strategies to overcome challenges to ensure a high volume of publications
- Publishing habits of researchers are framed only by universities or institutional policies
- Individual publishing choices are influenced by publishing opportunities provided by publishers only if they help to meet the publishing expectations of their university.

Adopting a field-theoretical approach using Bourdieu's concepts of field, capital and habitus, as research method to validate these hypotheses, unravels various field-related factors that impact the publishing practices of the academics. A summary of the study is presented in Table 7.1.

Table 7.1. Summary of hypotheses major findings and implications of this study.

Hypothesis	Findings	Implications	
		Applied	Theoretical
Researchers adopt strategies to overcome challenges to ensure high volume of publications	Researchers adopt strategies to ensure publication volume. Only some strategies contribute towards the publication volume. Challenges are related to institutional or work-related factors (time, workload and publishing policies being favourable to science disciplines).	Neo-liberalism in academic governance, in form of publishing metrics of performance criteria of the universities (and research assessment indicators of ERA framework), has paramount impact on publishing	Extends Bourdieu's concepts of field and capital in achieving publishing goals. Publishing is 'implicit' or 'shared' field norm of higher education.

Hypothesis	Findings	Implications	
		Applied	Theoretical
	Academics adopt some specific strategies to overcome the challenges	strategies of academics. Academic publishing, especially in Australia, is highly contextualised.	Academics do not contest the field norms, instead adopting strategic techniques in overcoming the challenges.
Publishing habits of researchers are framed only by universities or institutional policies	Publishing habits of academics in HASS disciplines in Go8 universities of Australia are based on their publishing goal to achieve the publishing indicators specified by university or government research framework	Publishing habits of academics are relational to their academic positions within their universities and their individual goals.	Autonomy of the field at meso- and macro-level is evidenced through publishing habits. Also, relationality to academic positions evinces the heteronomy of the field at micro-level. The results contribute toward understanding of the structural hierarchy field.
Individual publishing choices are influenced by publishing opportunities	Publishing strategies that contribute toward the published outputs do not include opportunities provided by publishers.	There is minimal influence of publishers or their services in the	Contrary to possibility of dominance of field publishing in publishing

Hypothesis	Findings	Implications	
		Applied	Theoretical
provided by publishers only if they help to meet the publishing expectations of their university.	Only factor that has a relation to number of publications is 'open access type publications', which are negatively related. In other words, the stronger the preference for open access type publications, the lesser the publication volume.	publishing strategies of academics.	practices, or higher collaboration, this study elucidates the prevalence of norms of higher education in publishing practices. These arguments postulate that the field of higher education, especially research, does not depend entirely on academics' relative power or their dominance outside the field but in establishing the hierarchical structure of field.

The results of the study postulate that:

- Researchers adopt strategies to ensure their publication volume; strategies also help them in overcoming the publishing challenges, and only a few selected strategies help academics in ensuring their publications.
- Publishing habits are framed by institutional and university publishing policies, which form the individual publishing goals that academics aim to achieve to enhance their career or tenure. Publishing habits are also based on the opportunities and support provided by their institution or universities.
- Publishing choices are based on the opportunities that help in achieving their professional goals. The opportunities provided by publishers have least impact on publishing strategies of academics.

The applied and theoretical implications of these postulations are discussed in the following section.

7.3. *Implications of this Study*

This study, by exploring the publishing practices of academics, provides practical as well as theoretical implications.

7.3.1. *Practical Implications*

This study, by asserting that the strategies adopted by academics are related either to the performance criteria of their universities or to research assessment indicators of the ERA framework, provides empirical evidence that publishing practices of academics in Australia are highly contextual. By identifying the prevalent hierarchical structure of higher education, this study emphasises the

significance of the publishing 'context' created mainly due to performance-based systems implemented by universities (and the government) on the pretext of neo-liberalism. Academics' publishing strategies, therefore, aim to achieve the publishing goals defined by the performance-based evaluation system, which includes the publication norms of the ERA. The study, therefore, postulates that academic rank plays a significant role in determining the publishing strategies, because publishing aims are determined by performance evaluation criteria. In addition to evaluation norms, this study posits that academics at junior ranks experience publishing challenges even at the micro-level (individual level). Furthermore, contrary to the possibility of dominance of field publishing in publishing practices or higher collaboration between publishers and academics, this study elucidates that, due to the prevalence of norms of higher education, publishing practices are not dominated by publishers and collaboration with them is also minimal. These primary implications manifest the following theoretical implications.

7.3.2. Theoretical Implications

The critical interpretation of this study using Bourdieu's theoretical concepts postulates two important factors: (1) struggles or challenges experienced by academics of HASS disciplines in research-centric universities are *field-internal*[67], that is, they are relational to the field norms rather than being shaped by heteronomous field (external) relations; and (2) field-specific publishing practices of academics of HASS disciplines in research-centric universities establish a 'horizontal hierarchical' relationship between the publishing practices and the field of publishing, also ensuring that the field-specific norms of the publishing practices are neither contested by its members nor dominated by the publishers.

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[67] The term 'field-internal' is adopted from Schmitz et al. (2017), also explained in Chapter 3.

Guided by the arguments of DiMaggio and Powell (1991), it is apparent that the publishing challenges experienced by academics are nothing but struggles experienced by members of the field as they strive to improve their position by adhering to the norms of the field (discussed in detail in Chapter 3). Publishing, therefore, becomes an embedded habitual activity of the field, adopted to achieve the desired capital. The results of this study signify that academics do not contest the field norms, but instead adopt strategic techniques in overcoming the challenges.

According to Bourdieu and Wacquant (1992), the extent to which external factors impact academics' publishing practices establishes the autonomy of the hierarchical structure within the field. Field, as emphasised by Bourdieu (1985), does not exist in isolation but only in relation to other fields; and the autonomy of a field is determined by the extent to which an external field dominates or restructures the existing field. The critical evaluation of publishing habits of academics ascertains the heteronomy of the field at micro-level (since publishing challenges and goals vary according to their academic ranks) and autonomy of the field at meso- and macro-levels, because publishers or publishing has least impact on academics' publishing strategies. The analysis also indicates that relation between publishers and academics is not hierarchical (or dominant); that is, publishers do not dominate academics' publishing practices, and the field of higher education manifests relative autonomy in publishing practices.

The relative autonomy of the field of higher education in relation to publishing practices emphasises the argument by Fligstein and McAdam (2012) that the relation between related fields could be examined using various ways; and also that dependence of a field on another field does not always necessarily insinuate dominance of one field over another (Krause 2018). Although academics as 'authors' are crucial members of the field of publishing, they are dominant and dynamic members of the higher education field. Therefore, their habitus, that is, practices or strategic actions, are determined by the field-specific capital they aim to possess to improve their position within and outside the field (Bourdieu 1989).

Publishers exhibit a structural homology to publishing activities (detailed in Chapter 2) that is important to the field of higher education (Bourdieu and Wacquant 1992), because the research evaluation framework inculcates various publisher-related metrics, and academics are dependent on publishers for infrastructure. However, this study postulates that opportunities provided by the publishing field are insubstantial for academics in ensuring their publication goals. These arguments, therefore, posit (as in the theory by Fligstein and McAdam 2012) that the field of higher education, especially research, does not depend entirely on academics' relative power or their dominance outside the field in establishing the hierarchical structure of field.

Field, according to Bourdieu, is not a set of rules or condition; rather, it is a "social space that involves negotiation between participants" (Bathmaker 2015). On elucidation of academics' publishing challenges and strategies they adopt to ensure their publications, it is apparent that the negotiations between the academics and the field of publishing is much less. Fligstein and McAdam (2012) argue that the field is a complex network that includes 'within field' and 'outside field' interactions and collaboration. According to them, members play different roles not only within the field but also outside the field. In other words, field is not restricted to one particular group of actors, but their interest in a field is dependent on their stakes in the field (Fligstein 2001). Academics' stake in higher education is their professional (and personal) achievements, such as career, tenure and esteem in the society. The present study establishes that academics as members of the field of higher education do not strengthen their position with the help of *members* of the proximate field (i.e. publishers); rather, they are dependent on the resources (that is, process and infrastructure) provided by the field of publishing. This resource dependence is more on opportunities provided by the field; thereby, academics have the liberty to accept or reject these opportunities.

The relation between academics and field of publishing, in the Bourdieusian sense, is meso-level—a 'set of social relationships'—rather than interpersonal ties

(Fligstein and McAdam 2012). According to Fligstein and McAdam (2012), fields that are highly interrelated are vulnerable to the changes of external field (see Chapters 2 and 3 for detail); and 'systematic knowledge' and understanding of the relations between the fields are vital for identifying threats to the fields. The proximity of publishing activity (of higher education) to publishing industry, therefore, entails a close examination of the publishing industry. The aim of the present study, as discussed in Chapter 1, is to understand the underlying relationship between both these fields. The critical exploration of the publishing industry in Chapters 2 and 3 imparts the knowledge and understanding of 'turbulence' or 'shocks' (Fligstein and McAdam 2012) experienced by publishers in recent years. While the present study asserts that publishers have least impact on academics' publishing habits, an examination of academics' (of HASS disciplines in G8 universities) approach to publishing opportunities also substantiates the unlikeliness of the vulnerability of publishing practices due to exogenous shocks from the publishing industry. This validation leads to the question: what would be the reaction of academics towards an 'exogenous shock' received from the publishing field?

The answer to this question is probed in the following section.

Are Academics' Publishing Practices Vulnerable to the Publishing Industry?

Wainwright and Büscher (2017) argue that the publishing industry does not work in tandem with the academic community. Hence, academics, despite being significant members of the field of publishing, as evidenced in this study, are highly unrelated to the stakes in the field of publishing. Hence, the norms of publishers or the publishing industry seems to have little impact on academics' day to day publishing practices.

A thematic analysis of additional information from academics of HASS disciplines in Go8 universities on challenges (19%) reveals that their cynicism towards publishers is because, they opine, publishers are biased and also delay publishing their content to the extent that the information is no longer contemporary and has become archaic. In addition, academics adopting the tried and tested methods of publishing opportunities manifests the unwillingness of academics to explore the technological innovations in their publishing strategies. This perception provides a glimpse of the underlying reasons related to academics' support toward incidences such as 'cost of knowledge' (Timothy Grover's blog), or their sentiments towards OA publications. In addition, the boycott of Elsevier by universities in Germany, Netherlands, Taiwan and Peru due to unsuccessful access negotiations between the universities and the publisher further highlights that the role of hierarchy, as argued by Schiermeier and Mega (2017), instigates academics' perceptions on publishers. These instances posit that academics regard the changes within the publishing field as an 'intrusion' to the publishing norms of field of higher education; thereby, the relation between academics and field of publishing becomes a field of contention.

Publishing choices of academics, as discussed in Chapters 5 and 6, are predominantly dependent on their stake (the capital) in the field of higher education. Similarly, publishers' stake in publications are dependent on their profits from published output rather than academics' publishing goals. This varied dimensional approach toward publication causes an inclination toward contention with the field of publication, if the opportunities provided by publishers do not support academics in achieving their publishing goals (Fligstein and McAdam 2012). A closer critical assessment of the potential exogenous shocks from publishing industry reveals that such shocks would be related to the publishing process (such as changes to peer review process, access to published information, or database management of published information) rather than academics' pre-publication activities which include publishing strategies. While 'open access' is considered as a key challenge by publishers, the results of the present study reveal that 'open access' has no or little significance for academics of HASS disciplines in Go8 universities in ensuring their publication volume. In future, if the ERA framework

emphasises 'open access' for their publications, research-active academics of HASS disciplines might consider OA publications as an important publishing strategy. The probability of academics considering OA publications as a challenge would also be higher for the mushrooming predatory publishers; which, in turn, might result in further contention between both the fields, as dependence on OA would provide an opportunity for publishers to exploit the vulnerability of academics.

Another observation from the study is that academics as authors are least affected by technological disruptions in the field of publishing, since their publishing strategies are hardly based on technological innovations or the field of publishing. The aloofness in devising a publishing strategy based on the resources from publishing field naturally minimises the risk of exogenous shocks from the publishing field. In addition, academics, even though they compete within the field to improve their positions, are not 'challengers' of the field of higher education. Hence, academics do not actively seek for opportunities to improve their positions either by adopting techniques that are not part of shared norms or that defy the shared norms of their field. It is necessary for publishers to understand the contextuality of the publishing environment from the perspective of academics, to foster a cordial and integrated relation, rather than it existing as field of contention.

The possibility of the publishing field being a field of contention is higher if the publishers are not accommodative towards the contextual needs of the academics. In other words, a comprehensive understanding of the related fields is required for fostering a constructive relationship between the fields. Fligstein and McAdam (2012) argue that the rationale of the concept of field emphasises developing a comprehensive knowledge of the field by understanding the "rules that govern interaction in the field" (p. 219); and such understanding of the publishing practices of academics in the field of higher education provides an opportunity to identify the potential threats and opportunities which could destabilise or strengthen the position of the field. This study reveals that there does not exist any potential threat to the field of higher education from the publishing practices; in fact, academics' publishing practices only further strengthen the position of their universities or

research institutes not only at national level but also at global level. However, the ease in adopting successful publishing practices also depends on the flexibility and adaptability of publishers in ensuring the dissemination of knowledge according to the expected norms. Although the field of publishing is supportive and accommodative, it is dominated by business-oriented investors or stakeholders (commercial publishers). Since academics are not only part of field of publishing as contributors (authors) but also as consumers (readers) as well as decisive members (peer reviewers), the possibility for publishers to foster a highly interdependent constructive relation with the academics is high. The present study shows that there are plenty of opportunities for publishers for cementing their bond with academics, because even academics with commendable publication records experience publishing-related challenges (see Chapters 5 and 6 for further details). Publishers, by actively collaborating to address the pre-publication challenges and building publishing strategies, could transform the publishing field from a 'field of contention' to a 'field of agreement'. The accommodative approach of publishers has the potential to transform the field of publishing as a complementary field for academics in ensuring their publications. This recommended change in relationship, however, requires initiative and better understanding from the publishers.

7.4. Contributions of the Study

This study examines the challenges faced by academics in ensuring their publication volume as well as the real-time publishing problems of academia. By addressing real-time issues related to an activity that has multiple stakeholders, this study contributes to different fields at various levels. The study is significant for academics because this is an original empirical study from the academic world that discusses the issues of academics related to publishing and publishers. The study would serve as a reference point for similar or related studies on understanding the challenges faced by academics in ensuring their publishing volume. By evaluating

the strategies adopted by research-active academics from research-focussed universities of Australia for ensuring their publication output rate, that is, the rate of publication output, this study offers insights for early research careers and research students not only to understand the publishing environment but also to create successful publishing strategies. The relationality of research evaluation norms and publishing practices to academic positions imparts insights on Australian academia to academics who migrate from other countries, especially to academics who have less exposure to a performance-based research evaluation system.

The critical evaluation of academics' publishing goals imparts insights to universities for administering the best human resource practices for developing and retaining academic talent. The relationality of academic positions to the publishing challenges also postulates that universities need to focus on developing custom-made support programs to aid academics in achieving their publishing goals. The study serves as an opportunity for university leadership and policy makers to have an increased understanding of the realities and implications of university policies in the day-to-day practices of academics' life, including funding, governance and human resources issues.

By delineating successful publishing of academics in research-focussed universities, this study would aid academics, irrespective of their rank or university they are associated with, to devise their own successful publication strategies. Many studies (or even workshops and modules for academics in universities) focus only on issues relating to *writing* or being *accepted for publication* as a challenge in ensuring publications. The uniqueness of this study lies in identifying factors that contribute towards publishing challenges. Rather than focussing on improving academics' writing skills or time-management skills, the study opens different avenues that could support academics in research practice and communicating their research activities.

Another significant contribution of this study involves the publishing industry. While there have been many studies addressing the issues related to the publishing

process, this study, by critically assessing the publishing strategies of academics, provides insights on the impact of publishers in academics' publishing practices. This critical evaluation could serve as opportunity for publishers to understand not only Australian academia but also the significant factors that contribute towards the publishing environment of academics. The study provides an opportunity for the publishers to understand their customers, identify the potential market by acknowledging the areas of challenge from the perspective of academia, and to also customise their services to the Australian region.

As an applied research, the focus of the study was on addressing the specific issues pertaining to academic publishing. However, by adopting the Bourdieu's thinking tools, field, capital and habitus, and borrowing the arguments of field theories to explain different aspects of the publishing environment and Australian academia, this study makes a significant contribution to field theories. This study extends Bourdieu's theory of field, capital and habitus by striking a fine balance between his concepts and other related theories, such as organisational theory and Fligstein and McAdam's theory of fields. While Bourdieu's concepts are adopted to delineate the social structure of Australian academia, its members and focus, organisational theories are adopted to explain the functioning of the field, and the relation of academia to external or related field is addressed using the theory of sub-field. Hence, the study extended the field theories by understanding "the complementarities and reconciling the differences" (Fligstein and McAdam 2012, p. 221) of various field theories by using them in parallel to understand, explore and evaluate the field of Australian academia and publishing.

Using Bourdieu's concepts, this study validates Fligstein and McAdam's arguments about the relationship between the fields, namely his concepts: (1) structure of the field; (2) exogenous shocks; and (3) episodes of contention. Even though the aim of this research was not validation of field theories, the critical evaluation of the collected information provided a scope for validating the concepts of field theory with empirical evidence in the public—private management environment. The study, therefore, contributes towards the knowledge and enhancement of the field

theories. The study also strengthens the use of social and cultural theories in a management-related environment.

Despite the significant contributions of this study to various fields, the study is not without limitations.

7.5. *Limitations*

This study has successfully demonstrated the advantage of using social theories in critically examining the practices in a public management environment, by addressing the challenges of publishing and identifying the strategies that help academics in ensuring their publication volume in the competitive publishing environment. The study also addresses the opaque relationship between academics and the field of publishing. However, there are some limitations that need to be acknowledged.

Firstly, the study was conducted in a closed environment, that is, the study is restricted to Australia. Although Australian academia is a significant contributor of scholarly communication, the study does not represent a large population. Secondly, the study has been restricted to HASS disciplines of Go8 universities in Australia, due to the nature of enquiry. Therefore, findings of this research are limited to the Australian Go8 HASS context, and further empirical evidence is required to visit the challenges in other developed nations' universities. The study offers other researchers to replicate the study in other contexts; offering opportunities to benchmark and compare the research results.

7.6. Recommendations of the Study

The study attempts to offer insights into the practice of academics of HASS disciplines in ensuring their publication volume and identifies several key issues that exist in contemporary Australian academia as well the publishing environment. However, in this study, only issues perceived as challenges by academics in ensuring their publication volume are critically examined. Other issues that require critical evaluation in further studies are discussed in the following paragraphs.

In this study, the social boundaries of the field of higher education in Australia are evaluated using existing research policies and assessment metrics. Although the earlier policies are referred to in this study, further studies on the impact of various research assessment policies in shaping academics' publishing practices is suggested to understand how the shared norms have been adopted and integrated into the field.

This study shows that academics of HASS disciplines perceive that policies and metrics draw on the publishing models followed in science disciplines. Hence, a critical analysis of challenges faced by academics in STEM subjects, is highly recommended to further understand the research policies and assessment metrics. In addition, as the publishing industry is dominated by publishers of STEM subjects, to understand the relationship between academics and publishers in a wider perspective, a study including the STEM disciplines is highly recommended.

In describing the hierarchical structure of the higher education, this study identified university libraries and readers (mainly comprised of academics) as stakeholders of published output. The role of academics as readers, and of libraries and librarians, also add different dimensions to the relation between the fields of higher education and publishing. Even though these stakeholders have no direct impact on publishing

practices or strategies of academics, examining the relationship between university libraries (or librarians) and academics' role as readers would provide us valuable insights on the relationship between the field of higher education and field of academic publishing.

By using *habitus*, this study critically evaluates the position of academics, and the capital they aim to achieve to increase their position/dominance within the field. However, as participants were research-active academics, the representation of academics who prefer teaching to publishing is minimal. Evaluation of the position of research-focussed academics in relation that of to teaching-focussed academics using Bourdieu's conceptual tool would highlight various internal struggles of the field. A study probing the relationality of academics based on research and teaching will help us in providing not only the significance and dominance of research in academia but also how the access to resources of the field helps academics in ensuring publication.

The contextuality of publishing practices emphasises that, despite scholarly communications being a global phenomenon, the practices and strategies are highly regionalised. Therefore, this study suggests that global publishers include contextuality as a key component in their approach to authors and universities. This phenomenon is vital for publishers, especially in their approach towards academics of HASS disciplines, because 'bias' was the most recurring theme in qualitative responses of academics from Go8 universities[68]. Bias, according to the participants of this study, is more related to publisher's preference to authors from the US, UK or European universities rather than Australian universities, which is different from the 'bias' highlighted in studies from North America. A study addressing Australian academics' experience with different publishers is recommended to further understand the issues of 'bias' and identify potential opportunities to resolve them.

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[68] 'Bias' based on individual community or lineage is also a common theme of publishing challenge in scholarly studies from North America.

As explained in Chapters 1 and 4, the study focuses only on generic publishing practice. Only an in-depth study could address or identify what specific factors contributes towards each generic strategy. This study suggests that universities could play greater role in addressing the publishing challenges by increasing opportunities for collaboration as well as support in addressing the individual challenges related personal traits, support in identifying appropriate journals, and help in balancing workload and research.

The genesis of 'contextuality' identified in this study can be related to the new academic management approach due to the implementation of the neo-liberal policies in higher education. While this study acknowledges the neo-liberalism and policy changes in research education, the study did not address issues related to publishing policies formulated by selected academic committees. A critical examination of the research evaluation policies, which includes domain experts of all disciplines including the publishing field (not representatives of commercial publishers) is suggested to address various issues such as peer review or OA publications. While the results of this study reveal minimal influence of publishers in academics' publishing practices, analysis of the literature in Chapters 1 and 2 identifies the lack of academics' perceptions in studies related to publishing. This study, therefore, by providing academic's perspectives related to publishing, suggests an open-minded collaboration between the policy makers and publishers in addressing the issues for academic publishing.

Access to information - open access and management of access - are two issues that fall outside the focus of this study. Both of these are related to the publishers' role in providing access to information and libraries. These issues may not be directly related to publishing practices of academics; however, it is recommended that a study on the role of access to published information in scholarly communications from academics' or university librarians' perspective may assist in understanding and addressing the key issues which are often discussed from publishers' perspectives in studies related to the publishing industry.

Similar to the challenges of academics in teaching, their challenges and experience in negotiating with members of the publishing field during different publishing stages, such as editing, peer review, production/typesetting process (copy editing, proof reading, typesetting) and final publication, also need to be critically analysed and addressed to understand the meta-relation between publishers and academics. While the entire focus of this research has been on the perspectives of academics, this study identifies various issues in relation to publishers and the field of the academic publishing industry. As addressed in Chapters 1 and 2, the field of academic publishing has been explored only from publishers', or in other words, the business and industry, perspective. The social, cultural and political evaluation of the publishing field also address the issues of the publishing industry and the position of publishers in the field. However, a critical examination of the publishing field including the inter-dependent fields such as higher education and its members is essential for addressing publishers' challenges in relation to the varied publishing criteria that will be implemented in the coming years not only in Australia but also in other in countries that have an established knowledge-based economy.

As the term 'academic publishing' suggests, the field of academic publishing is a conglomeration of academics and publishers. Therefore, studies that address the challenges of publishers or the field of publishing should include all related and inter-dependent fields, as suggested by Fligstein and McAdam (2012). Further probing into the field of publishing, by deconstructing the publishing field and reconstructing it by identifying the roles of different members (their habitus, aims and goals) within and outside the field, is recommended. In addition, further studies acknowledging and addressing the significance of the 'external' field, that is, the fields that are related either hierarchically, as inter-dependent or not dependent, is recommended for understanding the threats and opportunities of the field of publishing. Such a critical examination adopting the social theories would not only help to analyse or address the relationship of publishers to other fields but also help in identifying the potential risks for the field. Although commercial publishers adopt various techniques to identify their potential market or understand their customers, critical evaluation of the relationship between publishers and academics, from

publisher's perspective using field theories, is highly recommended. Only such study will help in strengthening the relationship between publishers and academics. Furthermore, a critical probe using sociological theories with understanding of the distinct academic culture will help in understanding academics' perspectives on different services offered by the publishers, thereby providing an opportunity for identifying potential markets.

7.7. Final Word

In the era of innovation, research has increasingly become a key contributing factor in the economic growth of any country. That includes scholarly communication, which began in the 17th Century as a communication process to disseminate information, and which became the yardstick for measurement of research outcome and acts a dominant performance indicator for academics. The emphasis on research communication has resulted not only in the dominance of research-focussed academics but also the growth of the publishing industry, despite the disruption of the Internet. This study attempted to delineate the contemporary relationship between academics and publishing by providing insights on the academic information/dissemination practice and how it became a well-crafted strategic communication process to achieve capital. The study leads us to the realisation and understanding of the dimension of relationships among research assessment policies, universities and academics' in the communication process using digital media platforms, as well as the relation of universities and academics to academic publishers, who are comparatively less disrupted by digital technology when compared to those in other media industries.

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Appendix A

A snapshot of the Qualtrics view of the online survey questionnaire administered to the participants.

Figure A.1 Snapshot of the Qualtrics view of the survey questionnaire.

RMIT
UNIVERSITY
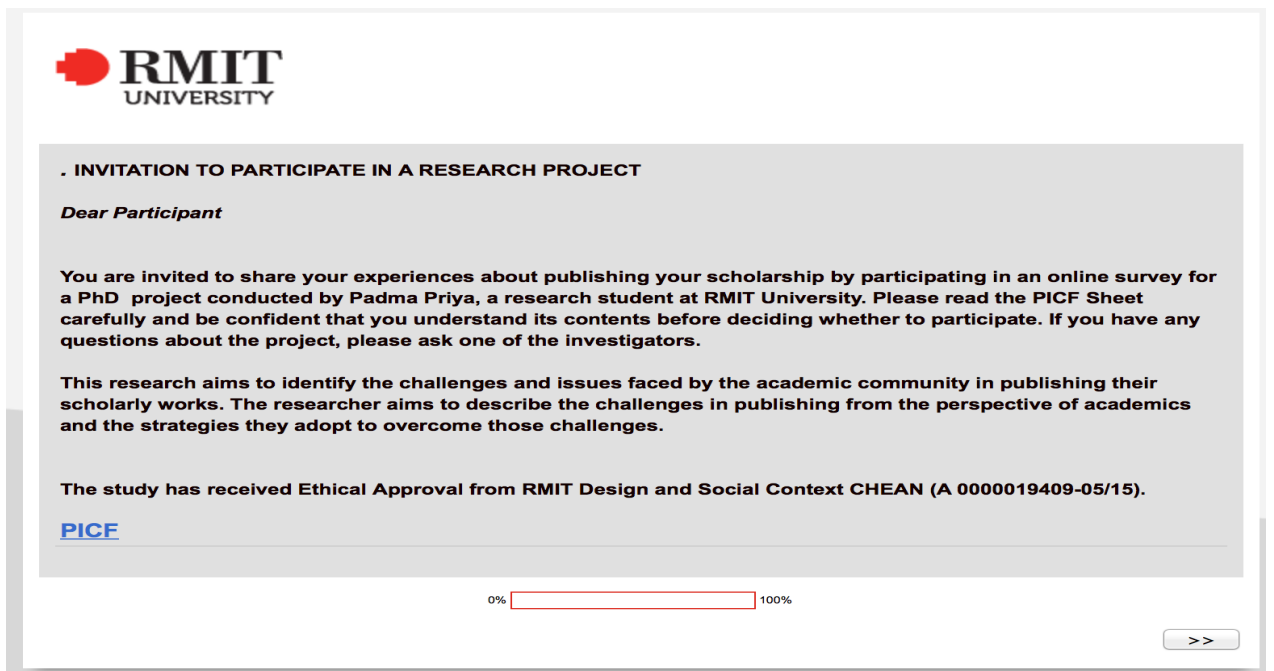
. Please indicate your consent by choosing the option Yes.

- I have read the information sheet.
- I agree to participate in the research project as described.
- I agree to participate in an online survey.
- I acknowledge that:
  (a) I understand that my participation is voluntary and that I am free to withdraw from the survey at any time.
  (b) The project is for the purpose of research. It may not be of direct benefit to me.
  (c) The privacy of the personal information I provide will be safeguarded and only disclosed where I have consented to the disclosure or as required by law.
  (d) The security of the research data will be protected 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 RMIT University. Any information which will identify me will not be used.

Choosing the option Yes is considered as your consent for being a participant in this study.

○ Yes

○ No

0% ▮▭▭▭▭▭▭▭ 100%

[<<] [>>]

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RMIT UNIVERSITY

Q1. Age group

○ 25-29 ○ 30-34 ○ 35-39 ○ 40-44 ○ 45-49 ○ > 50

Q2. Primary research field

☐ Creative Arts ☐ Built Environment and Design ☐ Business, Economics & Management ☐ Education

☐ Social Sciences ☐ Society and Culture ☐ Others, please specify [_____]

. Please specify discipline or sub-discipline of your research focus

[_____]

Q3. Gender

○ Male ○ Female ○ Unwilling to disclose

0% ▬▬▬ 100%

<< >>

RMIT UNIVERSITY

Q4. My highest qualification

○ Honours Degree ○ Masters Degree ○ Doctoral Degree

0% ▬▬ 100%

<< >>

Q5. I am an academic level

○ Lecturer ○ Senior Lecturer ○ Associate Professor ○ Professor

Q6. I am an

○ Ongoing staff ○ Contract staff ○ Casual staff

Q7. My university workload includes

☐ Management, Teaching and Research ☐ Management and Research ☐ Teaching and Research

☐ Only Teaching ☐ Only Research ☐ Others, please specify [_____]

Q8. My workload can be divided into

workload %

| 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

Management

Teaching

Research
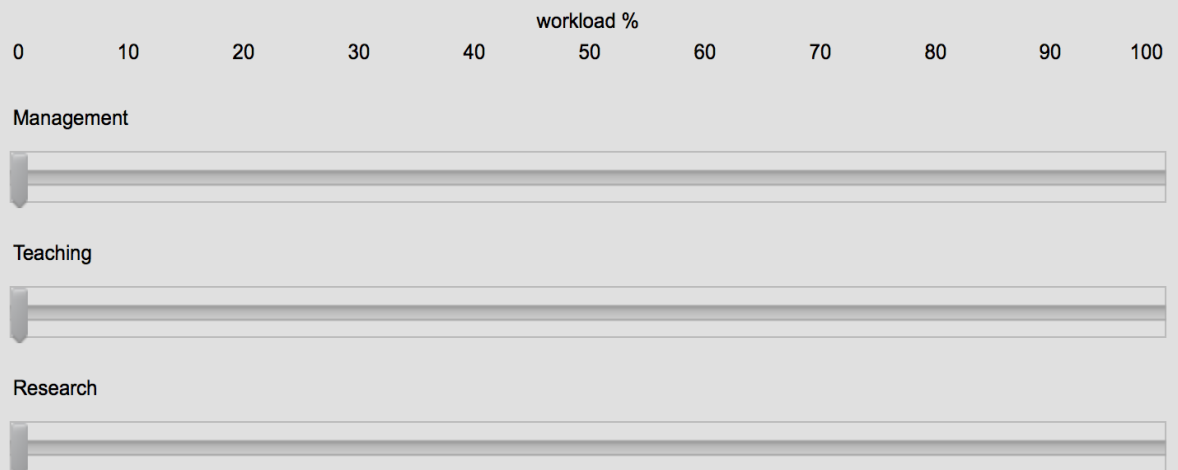
Q9. After completing my doctoral degree, I have been publishing for

○ <2 year ○ 2-4 years ○ 4-6 years ○ 6-8 years ○ 8-10 years ○ > 10 years

0% [�____] 100%

<< >>

Q10. Over the past 3 years, which of the following peer-reviewed publication types have you used to disseminate your research? (select all applicable items)

- ☐ Journal articles
- ☐ Book chapter
- ☐ Book (monograph)
- ☐ Conference proceedings
- ☐ Edited book
- ☐ Co-authored book

0% ▮▮▮▮▮▮ 100%

[<<] [>>]

Q11. How many successful peer-reviewed publications have you had in last 3 years? (select all applicable items)

	Total
Journal articles	
Conference proceedings	
Book chapters	
Book(s)	
Edited books	

. Are there any other type of successful publications that you would like to share? If so expand.

_____

Q12. I publish: (please select all the appropriate items)

- ☐ To be an authority of my field
- ☐ To influence policy decisions
- ☐ For career advancement
- ☐ To share knowledge with others
- ☐ For monetary benefits
- ☐ For personal satisfaction
- ☐ To meet research funding requirements
- ☐ To fulfill my professional responsibility
- ☐ Others, please specify _____

Q13. My current research is funded by (please select all the appropriate items)

- ☐ University
- ☐ ARC/NHMRC
- ☐ Other government bodies (state, federal, local, etc.)
- ☐ Philanthropic funding agencies
- ☐ Industry/Business
- ☐ Others, please specify _____

0% [====   ] 100%

<< >>

Q14. My past research(es) was(were) funded by (please select all the appropriate items)

- ☐ University
- ☐ ARC/NHMRC
- ☐ Other government bodies (state, federal, local, etc.)
- ☐ Philanthropic funding agencies
- ☐ Industry/Business
- ☐ Others, please specify _____

0% [====   ] 100%

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Q15. Please indicate how much you agree or disagree with the following statements:

Limitations on creating, disseminating, publishing and promoting my research outcomes in peer-reviewed scholarly works can be described as:

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
I do not have time to write.	○	○	○	○	○
I do not like to publish but I have to publish.	○	○	○	○	○
I prefer higher teaching load to research load.	○	○	○	○	○
I struggle to formulate viable research strategy for myself.	○	○	○	○	○
I have trouble in generating original research project ideas.	○	○	○	○	○
I do not have a network of researchers to collaborate with.	○	○	○	○	○
Colleagues have appropriated some of my research ideas or concepts in the past.	○	○	○	○	○
I have a high teaching/management workload.	○	○	○	○	○
I have limited opportunities to publish because I do not have research grants.	○	○	○	○	○
There is lack of internal support from my institution for publishing my research (e.g. lack of/no funding for presenting at refereed conferences, editing & proofreading my manuscripts, etc.).	○	○	○	○	○
My institution's publishing policies are dictated by natural sciences which have a different publishing culture.	○	○	○	○	○
My institution has set unrealistic publishing expectations.	○	○	○	○	○
Conference proceedings in my area or discipline are limited.	○	○	○	○	○
I am unable to identify appropriate journals within my field.	○	○	○	○	○
I have trouble in identifying non-predatory journals.	○	○	○	○	○
I am unable to identify high impact journals within my field.	○	○	○	○	○

I have trouble in identifying non-predatory journals.	○	○	○	○	○
I am unable to identify high impact journals within my field.	○	○	○	○	○
High impact journals charge high fees for open access publishing.	○	○	○	○	○
I have trouble in aligning my output to ensure citation impact.	○	○	○	○	○

Q16. Do you experience any other limitations? If so, please describe:

Q17. Publishing Strategies

Please answer the following based on your peer-reviewed publishing tactics

	Definitely Yes	Probably Yes	Might or Might Not be	Probably Not	Definitely Not
I have devised a personal publishing strategy that works for me.	○	○	○	○	○
I continually benchmark my research outputs with my co-workers to improve my publishing strategies.	○	○	○	○	○
I continually revise and update my publishing strategies/tactics.	○	○	○	○	○
I am continually looking for opportunities to improve my publication outputs.	○	○	○	○	○
I am reluctant to share my publishing strategies with others.	○	○	○	○	○
I prefer to work on multiple research projects simultaneously.	○	○	○	○	○
I focus on publishing as many outputs as possible from one sub-discipline or field of study.	○	○	○	○	○
My research outputs spans multiple sub-disciplines or related fields to improve my publication record.	○	○	○	○	○
My research outputs include the scholarship of teaching and learning of the discipline.	○	○	○	○	○
I have a mentor who advises and guides me on publishing strategies.	○	○	○	○	○
Assistance (e.g., proof reading and editing) from junior staff facilitate my higher publishing record.	○	○	○	○	○
I collaborate with my colleagues to improve my publication output.	○	○	○	○	○
I collaborate with my research students to improve my publishing outcome.	○	○	○	○	○
I actively engage and collaborate on my colleagues' research grants projects to improve my publication output.	○	○	○	○	○
Research funding facilitates a sound publishing record.	○	○	○	○	○
Engaging research assistants on my project help improve my publication outputs.	○	○	○	○	○

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My non-reviewed publication outputs (i.e. reports, technical papers, conference abstracts, blogs, mass media platforms) are stepping stones to my peer-reviewed publication(s).	○	○	○	○	○
I am willing to explore non-conventional publishing models (such open review, post publication review, etc.) to gain publishing experience.	○	○	○	○	○
I serve on editorial board(s) of journals to gain insights on publishing avenues.	○	○	○	○	○
I focus on publishing more journal articles to improve my publication record.	○	○	○	○	○
I prefer publishing my conference papers as peer-reviewed conference proceedings.	○	○	○	○	○
I actively use social media platforms such as blogs, Twitter, ResearchGate, Academia.edu, etc. to improve my citation impact.	○	○	○	○	○

Q18. Are there any other tactics you adopt to meet your publishing goals? If so, could you please describe them?

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0% ▮▮▮▮▮▮ 100%

[<<] [>>]

Q19. Publishing Choices

Please select your answers based on your peer-reviewed publishing choices

My preferred publishing choices are

	Definitely Yes	Probably Yes	Might or Might Not be	Probably Not	Definitely Not
I consider publishing in journals only if they are available in both print and online.	○	○	○	○	○
I consider publishing in only online journals (no print).	○	○	○	○	○
I publish in non-predatory open access journals even if they charge for this.	○	○	○	○	○
I only publish in non-predatory open access journals which do not charge.	○	○	○	○	○
I publish only in high impact journals.	○	○	○	○	○
I publish only in international journals.	○	○	○	○	○
I publish in journals only if the publisher is highly regarded in my field.	○	○	○	○	○
I prefer publishing book chapters to journal articles.	○	○	○	○	○
I prefer publishing book chapters as a book editor.	○	○	○	○	○
I publish mostly in peer reviewed conference proceedings.	○	○	○	○	○
My publications are not restricted to peer reviewed publications.	○	○	○	○	○

Q20. Do you have any other publishing choice? If so please expand.

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Q21. Authoring preferences

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Most of my publications are co-authored.	○	○	○	○	○
I prefer to publish as single author.	○	○	○	○	○

0% ▮▮▮▮▮▮▯▯▯ 100%

[<<] [>>]

Q22. Which of following statements apply to your journal publishing strategy (select all appropriate ones)

☐ I receive invites from journal editors for writing articles
☐ Builds my reputation as a subject expert
☐ Ease of gaining recognition in my research field

☐ Review comments help me to improve the quality of my research
☐ Opportunity to reduce my work load
☐ I do not prefer to publish in journals

☐ High-impact journals in my field are readily available
☐ Helps to meet/exceed the performance goals set by the university
☐ I do not have any journal publications

☐ Helps in improving my citation factor
☐ Helps to get funds for book projects
☐ None of the above

Q23. I publish monograph(s) and/or co-authored book(s) because:

☐ It establishes my credibility in the field
☐ My university gives higher publishing credits for book publications
☐ It helps to improve my citation factor

☐ It helps to increase my esteem
☐ Opportunity for improving my prospects on receiving research funding in the future
☐ Publishers approach me to write books

☐ Builds my reputation as a subject expert
☐ It is an expected outcome of my research grant
☐ I do not have any monograph or co-authored book publication

☐ It provides me an opportunity to reduce my teaching and/or management workload
☐ I received university funding for authoring book(s)
☐ None of the above

Q24. I publish in conference proceedings because:

☐ I see it as an opportunity to build my publishing profile
☐ Conferences increase opportunities for industry collaborations
☐ The proceedings increase my opportunities for receiving funds in the future

☐ I do not have any publications from conference proceedings
☐ I do not focus on conference proceedings
☐ None of the above

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Q25. My publications help me to

- [ ] Reflect on my research knowledge
- [ ] Gain recognition in my research field(s)
- [ ] Generate additional income
- [ ] Improve my career
- [ ] Meet institutional publishing expectations
- [ ] None of these
- [ ] Establish my research credibility
- [ ] Exceed institutional publishing expectations
- [ ] Others, please specify
- [ ] Increase my esteem among peers
- [ ] Secure future research funds

0% [███████████████   ] 100%

[<<] [>>]

Q26. The following publication type(s) help me meet my future funding requirements?

- [ ] Articles in high-ranking journals
- [ ] Book chapters
- [ ] My publications are not based on funding requirements
- [ ] Articles in any journal
- [ ] Conference paper(s)
- [ ] Others, please specify
- [ ] Monograph(s)

Q27. Is there any other information, suggestions or comments about your publishing experience that you would like to share? If so, please expand.

0% [███████████████   ] 100%

[<<] [>>]

Appendix B

Scree plot and eigen values

Figure B.1 Scree plot and eigen for the construct *challenges.*

Figure B.2 Scree plot and eigen for the construct Group 1 *strategies.*
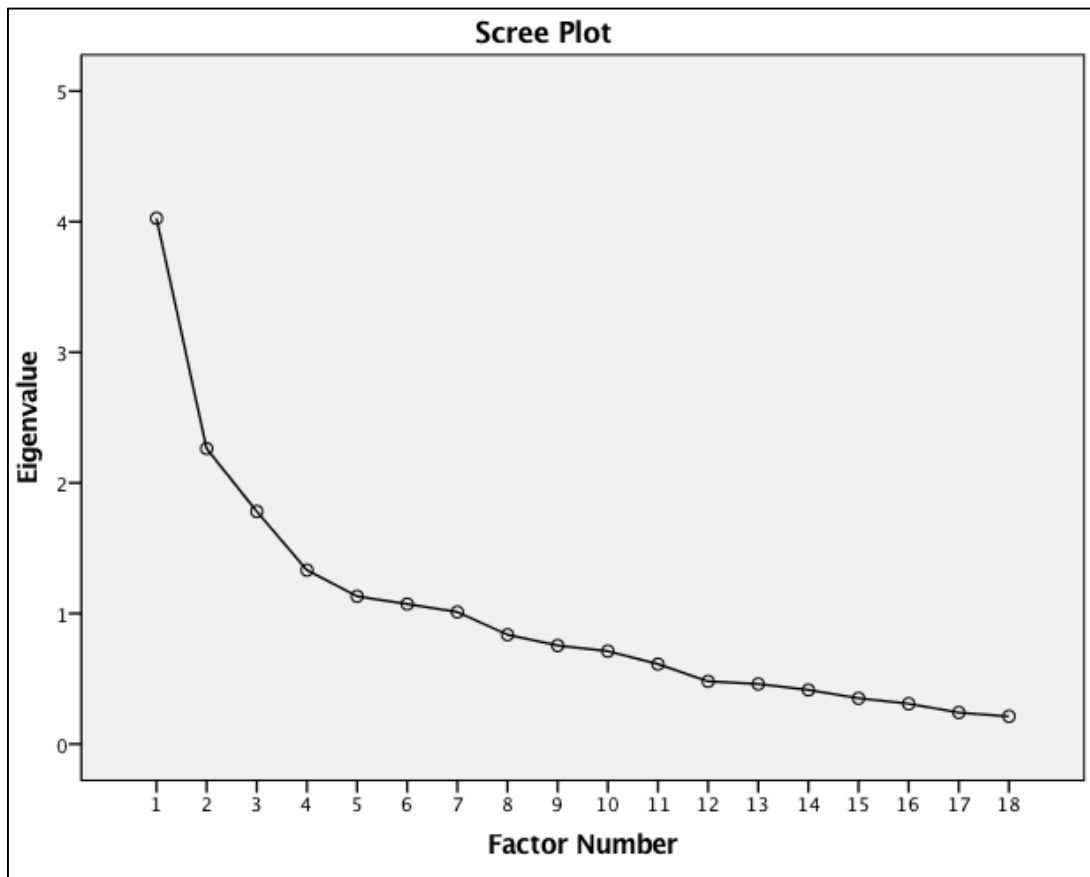
Correlation Values

The correlation between the indicators of the variable *Challenges* are provided in detail Table B.1 (Table B.1a--c). The shaded cells in the table denotes that a correlation exists between the variables. Both Spearman's rho and Pearson's coefficient were calculated. The significant level is indicated using the asterisks and explained at the end of the table.

Table B.1a. Correlation among the observed indicators of the variable Challenges.

Observed indicators	Correlation Coefficient	PT-c1	PT-c2	PT-c3	PT-c4	PT-c5.	PT-c6
Time (PT-c1)	Pearson Correlation	1	.343**	.203*	.311**	0.137	0.085
	Sig. (2-tailed)		0	0.024	0	0.129	0.347
	Spearman's rho	1	.358**	.247**	.324**	0.173	0.136
	Sig. (2-tailed)	.	0	0.006	0	0.055	0.133
Personal trait: Dislike publishing (PT-c2)	Pearson Correlation	.343**	1	.349**	.344**	.228*	0.132
	Sig. (2-tailed)	0		0	0	0.011	0.145
	Spearman's rho	.358**	1	.376**	.367**	.332**	0.122
	Sig. (2-tailed)	0	.	0	0	0	0.179
	Pearson Correlation	.203*	.349**	1	.213*	.243**	0.167

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Observed indicators	Correlation Coefficient	PT-c1	PT-c2	PT-c3	PT-c4	PT-c5.	PT-c6
Personal trait: Preference to teaching (PT-c3)	Sig. (2-tailed)	0.024	0		0.018	0.007	0.065
	Spearman's rho	.247**	.376**	1	.244**	.303**	.219*
	Sig. (2-tailed)	0.006	0	.	0.007	0.001	0.015
Personal trait: Struggle to formulate research strategy (PT-c4)	Pearson Correlation	.311**	.344**	.213*	1	.623**	.343**
	Sig. (2-tailed)	0	0	0.018		0	0
	Spearman's rho	.324**	.367**	.244**	1	.618**	.355**
	Sig. (2-tailed)	0	0	0.007	.	0	0
Personal traits: Trouble in generating original research project ideas (PT-c5).	Pearson Correlation	0.137	.228*	.243**	.623**	1	.258**
	Sig. (2-tailed)	0.129	0.011	0.007	0		0.004
	Spearman's rho	0.173	.332**	.303**	.618**	1	.336**
	Sig. (2-tailed)	0.055	0	0.001	0	.	0
Personal traits: - Lack of network for collaboration (Pt-c6)	Pearson Correlation	0.085	0.132	0.167	.343**	.258**	1
	Sig. (2-tailed)	0.347	0.145	0.065	0	0.004	
	Spearman's rho	0.136	0.122	.219*	.355**	.336**	1

Observed indicators	Correlation Coefficient	PT-c1	PT-c2	PT-c3	PT-c4	PT-c5.	PT-c6
	Sig. (2-tailed)	0.133	0.179	0.015	0	0	.
Work-related: Colleagues-appropriated research ideas (WR-c7)	Pearson Correlation	0.059	-0.048	-0.004	-0.067	-0.037	0.084
	Sig. (2-tailed)	0.514	0.602	0.965	0.461	0.682	0.357
	Spearman's rho	0.07	-0.064	0.008	-0.125	-0.088	0.12
	Sig. (2-tailed)	0.444	0.479	0.933	0.17	0.336	0.187
work-related: University - work load (WR-c8)	Pearson Correlation	.598**	0.045	0.099	0.121	0.134	0.062
	Sig. (2-tailed)	0	0.625	0.277	0.183	0.14	0.494
	Spearman's rho	.603**	0.034	0.138	0.109	0.093	0.036
	Sig. (2-tailed)	0	0.708	0.129	0.233	0.306	0.695
Work-related: Lack of Publishing grants (WR-c9)	Pearson Correlation	.277**	.194*	.294**	.226*	0.118	.344**
	Sig. (2-tailed)	0.002	0.032	0.001	0.012	0.193	0
	Spearman's rho	.301**	.223*	.301**	.229*	.183*	.367**
	Sig. (2-tailed)	0.001	0.013	0.001	0.011	0.043	0
Work-related - Lack of internal	Pearson Correlation	.242**	.216*	0.067	.189*	-0.044	.195*

Observed indicators	Correlation Coefficient	PT-c1	PT-c2	PT-c3	PT-c4	PT-c5.	PT-c6
support from my institution, publishing funds (WR-c10)	Sig. (2-tailed)	0.007	0.016	0.461	0.037	0.628	0.031
	Spearman's rho	.258**	0.169	0.089	.193*	-0.006	.236**
	Sig. (2-tailed)	0.004	0.062	0.328	0.033	0.947	0.009
Work-related: Publishing policies dictated by natural sciences (WR-c11)	Pearson Correlation	0.055	.195*	0.085	-0.077	-0.087	0.04
	Sig. (2-tailed)	0.549	0.03	0.347	0.4	0.34	0.657
	Spearman's rho	0.056	0.137	0.123	-0.092	-0.044	0.04
	Sig. (2-tailed)	0.54	0.129	0.175	0.314	0.632	0.664
Work-related: Unrealistic publishing expectations (WR-c12)	Pearson Correlation	.287**	.246**	0.127	0.148	0.032	.214*
	Sig. (2-tailed)	0.001	0.006	0.16	0.104	0.723	0.017
	Spearman's rho	.290**	.205*	.215*	0.14	0.062	.235**
	Sig. (2-tailed)	0.001	0.023	0.017	0.124	0.495	0.009
Publishing field: Conference proceedings limited (PF-c13)	Pearson Correlation	0.081	0.031	-0.046	0.083	-0.066	0.123
	Sig. (2-tailed)	0.375	0.736	0.611	0.363	0.467	0.176
	Spearman's rho	0.079	0.013	-0.04	0.113	-0.033	0.129

Observed indicators	Correlation Coefficient	PT-c1	PT-c2	PT-c3	PT-c4	PT-c5.	PT-c6
	Sig. (2-tailed)	0.385	0.882	0.657	0.215	0.716	0.154
Publishing field: I am unable to identify appropriate journals (PF-c13)	Pearson Correlation	0.124	.270**	0.157	0.108	0.084	.379**
	Sig. (2-tailed)	0.172	0.003	0.085	0.239	0.358	0
	Spearman's rho	0.143	.265**	.222*	0.119	.228*	.379**
	Sig. (2-tailed)	0.117	0.003	0.014	0.194	0.012	0
Publishing field: I have trouble in identifying non-predatory journals (PF-c14)	Pearson Correlation	0.067	0.146	.298**	0.11	.228*	.219*
	Sig. (2-tailed)	0.461	0.108	0.001	0.228	0.012	0.015
	Spearman's rho	0.093	0.171	.330**	0.128	.299**	.317**
	Sig. (2-tailed)	0.311	0.059	0	0.159	0.001	0
Publishing field: I am unable to identify high impact journals within my field (PF-c15)	Pearson Correlation	0.02	0.173	.225*	0.119	.193*	.337**
	Sig. (2-tailed)	0.825	0.055	0.012	0.192	0.032	0
	Spearman's rho	0.076	.222*	.255**	0.133	.211*	.379**
	Sig. (2-tailed)	0.402	0.014	0.004	0.146	0.019	0
Publishing field: High impact	Pearson Correlation	0.051	0.034	-0.036	-0.043	0.09	0.157

Observed indicators	Correlation Coefficient	PT-c1	PT-c2	PT-c3	PT-c4	PT-c5.	PT-c6
journals charge high fees for open access publishing (PF-c16)	Sig. (2-tailed)	0.576	0.706	0.693	0.64	0.324	0.083
	Spearman's rho	0.052	0.043	-0.01	-0.043	0.089	0.129
	Sig. (2-tailed)	0.569	0.636	0.911	0.639	0.325	0.156
Publishing field: I have trouble in aligning my output to ensure citation impact (PF-c17)	Pearson Correlation	0.14	0.171	0.114	.289**	.318**	.404**
	Sig. (2-tailed)	0.123	0.058	0.21	0.001	0	0
	Spearman's rho	0.142	.203*	0.143	.266**	.296**	.412**
	Sig. (2-tailed)	0.116	0.024	0.113	0.003	0.001	0

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

Table B.1b. Correlation among the observed indicators of the variable Challenges (contd.)

Observed indicators	Correlation	WR-c7	WR-c8	WR-c9	WR-c10	WR-c11	WR-c12
Time (PT-c1)	Pearson Correlation	0.059	.598**	.277**	.242**	0.055	.287**
	Sig. (2-tailed)	0.514	0	0.002	0.007	0.549	0.001
	Spearman's rho	0.07	.603**	.301**	.258**	0.056	.290**

Observed indicators	Correlation	WR-c7	WR-c8	WR-c9	WR-c10	WR-c11	WR-c12
	Sig. (2-tailed)	0.444	0	0.001	0.004	0.54	0.001
Personal trait- Dislike publishing (PT-c2)	Pearson Correlation	-0.048	0.045	.194*	.216*	.195*	.246**
	Sig. (2-tailed)	0.602	0.625	0.032	0.016	0.03	0.006
	Spearman's rho	-0.064	0.034	.223*	0.169	0.137	.205*
	Sig. (2-tailed)	0.479	0.708	0.013	0.062	0.129	0.023
Personal trait - Preference to teaching (PT-c3)	Pearson Correlation	-0.004	0.099	.294**	0.067	0.085	0.127
	Sig. (2-tailed)	0.965	0.277	0.001	0.461	0.347	0.16
	Spearman's rho	0.008	0.138	.301**	0.089	0.123	.215*
	Sig. (2-tailed)	0.933	0.129	0.001	0.328	0.175	0.017
Personal trait - Struggle to formulate research strategy (PT-c4)	Pearson Correlation	-0.067	0.121	.226*	.189*	-0.077	0.148
	Sig. (2-tailed)	0.461	0.183	0.012	0.037	0.4	0.104
	Spearman's rho	-0.125	0.109	.229*	.193*	-0.092	0.14
	Sig. (2-tailed)	0.17	0.233	0.011	0.033	0.314	0.124

Observed indicators	Correlation	WR-c7	WR-c8	WR-c9	WR-c10	WR-c11	WR-c12
Personal traits: Trouble in generating original research project ideas (PT-c5).	Pearson Correlation	-0.037	0.134	0.118	-0.044	-0.087	0.032
	Sig. (2-tailed)	0.682	0.14	0.193	0.628	0.34	0.723
	Spearman's rho	-0.088	0.093	.183*	-0.006	-0.044	0.062
	Sig. (2-tailed)	0.336	0.306	0.043	0.947	0.632	0.495
Personal traits: - Lack of network for collaboration (Pt-c6)	Pearson Correlation	0.084	0.062	.344**	.195*	0.04	.214*
	Sig. (2-tailed)	0.357	0.494	0	0.031	0.657	0.017
	Spearman's rho	0.12	0.036	.367**	.236**	0.04	.235**
	Sig. (2-tailed)	0.187	0.695	0	0.009	0.664	0.009
Work-related: Colleagues-appropriated research ideas (WR-c7)	Pearson Correlation	1	0.043	0.087	0.051	0.077	0.174
	Sig. (2-tailed)		0.634	0.336	0.576	0.395	0.054
	Spearman's rho	1	0.047	0.1	0.068	0.087	.201*
	Sig. (2-tailed)	.	0.605	0.27	0.455	0.339	0.026

Observed indicators	Correlation	WR-c7	WR-c8	WR-c9	WR-c10	WR-c11	WR-c12
Work-related: University - work load (WR-c8)	Pearson Correlation	0.043	1	.281**	.274**	0.132	.209*
	Sig. (2-tailed)	0.634		0.002	0.002	0.145	0.021
	Spearman's rho	0.047	1	.295**	.270**	0.135	.199*
	Sig. (2-tailed)	0.605	.	0.001	0.003	0.136	0.027
Work-related: Lack of Publishing grants (WR-c9)	Pearson Correlation	0.087	.281**	1	.466**	.216*	.441**
	Sig. (2-tailed)	0.336	0.002		0	0.017	0
	Spearman's rho	0.1	.295**	1	.500**	.225*	.461**
	Sig. (2-tailed)	0.27	0.001	.	0	0.012	0
Work-related - Lack of internal support from my institution, publishing funds (WR-c10)	Pearson Correlation	0.051	.274**	.466**	1	.374**	.516**
	Sig. (2-tailed)	0.576	0.002	0		0	0
	Spearman's rho	0.068	.270**	.500**	1	.368**	.527**
	Sig. (2-tailed)	0.455	0.003	0	.	0	0

Observed indicators	Correlation	WR-c7	WR-c8	WR-c9	WR-c10	WR-c11	WR-c12
Work-related: Publishing policies dictated by natural sciences (WR-c11)	Pearson Correlation	0.077	0.132	.216*	.374**	1	.607**
	Sig. (2-tailed)	0.395	0.145	0.017	0		0
	Spearman's rho	0.087	0.135	.225*	.368**	1	.598**
	Sig. (2-tailed)	0.339	0.136	0.012	0	.	0
Work-related: Unrealistic publishing expectations (WR-c12)	Pearson Correlation	0.174	.209*	.441**	.516**	.607**	1
	Sig. (2-tailed)	0.054	0.021	0	0	0	
	Spearman's rho	.201*	.199*	.461**	.527**	.598**	1
	Sig. (2-tailed)	0.026	0.027	0	0	0	.
Publishing options-Conference proceedings limited. (PF-c13)	Pearson Correlation	-0.052	-0.026	0.165	.234**	0.108	.251**
	Sig. (2-tailed)	0.567	0.779	0.068	0.009	0.236	0.005
	Spearman's rho	-0.058	-0.029	0.157	.226*	0.11	.244**
	Sig. (2-tailed)	0.524	0.749	0.083	0.012	0.225	0.006

Observed indicators	Correlation	WR-c7	WR-c8	WR-c9	WR-c10	WR-c11	WR-c12
Publishing field - I am unable to identify appropriate journals (PF-c13)	Pearson Correlation	0.001	0.052	.229*	0.121	0.124	0.133
	Sig. (2-tailed)	0.994	0.567	0.011	0.186	0.173	0.145
	Spearman's rho	-0.001	0.059	.293**	0.105	0.086	0.114
	Sig. (2-tailed)	0.99	0.518	0.001	0.25	0.348	0.211
Publishing field: I have trouble in identifying non-predatory journals (PF-c14)	Pearson Correlation	0.05	-0.012	0.152	-0.069	-0.07	0.01
	Sig. (2-tailed)	0.582	0.898	0.095	0.449	0.443	0.916
	Spearman's rho	0.075	0.002	.220*	-0.079	-0.097	-0.001
	Sig. (2-tailed)	0.413	0.983	0.015	0.389	0.289	0.991
Publishing field: I am unable to identify high impact journals within my field (PF-c15)	Pearson Correlation	0.011	-0.021	0.127	0.092	0.045	0.106
	Sig. (2-tailed)	0.907	0.821	0.161	0.309	0.62	0.245
	Spearman's rho	0.01	0.019	.193*	0.14	0.027	0.079
	Sig. (2-tailed)	0.917	0.835	0.033	0.122	0.767	0.386

Observed indicators	Correlation	WR-c7	WR-c8	WR-c9	WR-c10	WR-c11	WR-c12
Publishing field: High impact journals charge high fees for open access publishing (PF-c16)	Pearson Correlation	-0.033	0.061	0.083	.229*	.183*	.214*
	Sig. (2-tailed)	0.716	0.499	0.36	0.011	0.043	0.017
	Spearman's rho	-0.04	0.06	0.11	.212*	.181*	.204*
	Sig. (2-tailed)	0.657	0.509	0.225	0.019	0.045	0.023
Publishing field: I have trouble in aligning my output to ensure citation impact (PF-c17)	Pearson Correlation	-0.058	0.101	.230*	.181*	.293**	.228*
	Sig. (2-tailed)	0.523	0.268	0.011	0.045	0.001	0.011
	Spearman's rho	-0.035	0.091	.260**	.224*	.286**	.215*
	Sig. (2-tailed)	0.7	0.319	0.004	0.013	0.001	0.017

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

Table B.1c. Correlation among the observed indicators of the variable Challenges (contd.)

Observed indicators	Correlation	PF-c13	PF-c14	PF-c15	PF-c16	PF-c17	PF-c18
Time (PT-c1)	Pearson Correlation	.081	0.124	0.067	0.02	0.051	0.14
	Sig. (2-tailed)	0.375	0.172	0.461	0.825	0.576	0.123
	Spearman's rho	0.079	0.143	0.093	0.076	0.052	0.142
	Sig. (2-tailed)	0.385	0.117	0.311	0.402	0.569	0.116
Personal trait- Dislike publishing (PT-c2)	Pearson Correlation	0.031	.270**	0.146	0.173	0.034	0.171
	Sig. (2-tailed)	0.736	0.003	0.108	0.055	0.706	0.058
	Spearman's rho	0.013	.265**	0.171	.222*	0.043	.203*
	Sig. (2-tailed)	0.882	0.003	0.059	0.014	0.636	0.024
Personal trait - Preference to teaching (PT-c3)	Pearson Correlation	-0.046	0.157	.298**	.225*	-0.036	0.114
	Sig. (2-tailed)	0.611	0.085	0.001	0.012	0.693	0.21
	Spearman's rho	-0.04	.222*	.330**	.255**	-0.01	0.143
	Sig. (2-tailed)	0.657	0.014	0	0.004	0.911	0.113
Personal trait - Struggle to	Pearson Correlation	0.083	0.108	0.11	0.119	-0.043	.289**

Observed indicators	Correlation	PF-c13	PF-c14	PF-c15	PF-c16	PF-c17	PF-c18
formulate research strategy (PT-c4)	Sig. (2-tailed)	0.363	0.239	0.228	0.192	0.64	0.001
	Spearman's rho	0.113	0.119	0.128	0.133	-0.043	.266**
	Sig. (2-tailed)	0.215	0.194	0.159	0.146	0.639	0.003
Personal traits: Trouble in generating original research project ideas (PT-c5).	Pearson Correlation	-0.066	0.084	.228*	.193*	0.09	.318**
	Sig. (2-tailed)	0.467	0.358	0.012	0.032	0.324	0
	Spearman's rho	-0.033	.228*	.299**	.211*	0.089	.296**
	Sig. (2-tailed)	0.716	0.012	0.001	0.019	0.325	0.001
Personal traits: Lack of network for collaboration (Pt-c6)	Pearson Correlation	0.123	.379**	.219*	.337**	0.157	.404**
	Sig. (2-tailed)	0.176	0	0.015	0	0.083	0
	Spearman's rho	0.129	.379**	.317**	.379**	0.129	.412**
	Sig. (2-tailed)	0.154	0	0	0	0.156	0
Work-related: Colleagues-appropriated research ideas (WR-c7)	Pearson Correlation	-0.052	0.001	0.05	0.011	-0.033	-0.058
	Sig. (2-tailed)	0.567	0.994	0.582	0.907	0.716	0.523
	Spearman's rho	-0.058	-0.001	0.075	0.01	-0.04	-0.035

Observed indicators	Correlation	PF-c13	PF-c14	PF-c15	PF-c16	PF-c17	PF-c18
	Sig. (2-tailed)	0.524	0.99	0.413	0.917	0.657	0.7
work-related: University - work load (WR-c8)	Pearson Correlation	-0.026	0.052	-0.012	-0.021	0.061	0.101
	Sig. (2-tailed)	0.779	0.567	0.898	0.821	0.499	0.268
	Spearman's rho	-0.029	0.059	0.002	0.019	0.06	0.091
	Sig. (2-tailed)	0.749	0.518	0.983	0.835	0.509	0.319
Work-related: Lack of Publishing grants (WR-c9)	Pearson Correlation	0.165	.229*	0.152	0.127	0.083	.230*
	Sig. (2-tailed)	0.068	0.011	0.095	0.161	0.36	0.011
	Spearman's rho	0.157	.293**	.220*	.193*	0.11	.260**
	Sig. (2-tailed)	0.083	0.001	0.015	0.033	0.225	0.004
Work-related - Lack of internal support from my institution, publishing funds (WR-c10)	Pearson Correlation	.234**	0.121	-0.069	0.092	.229*	.181*
	Sig. (2-tailed)	0.009	0.186	0.449	0.309	0.011	0.045
	Spearman's rho	.226*	0.105	-0.079	0.14	.212*	.224*
	Sig. (2-tailed)	0.012	0.25	0.389	0.122	0.019	0.013
Work-related: Publishing	Pearson Correlation	0.108	0.124	-0.07	0.045	.183*	.293**

Observed indicators	Correlation	PF-c13	PF-c14	PF-c15	PF-c16	PF-c17	PF-c18
policies dictated by natural sciences (WR-c11)	Sig. (2-tailed)	0.236	0.173	0.443	0.62	0.043	0.001
	Spearman's rho	0.11	0.086	-0.097	0.027	.181[*]	.286[**]
	Sig. (2-tailed)	0.225	0.348	0.289	0.767	0.045	0.001
Work-related: Unrealistic publishing expectations (WR-c12)	Pearson Correlation	.251[**]	0.133	0.01	0.106	.214[*]	.228[*]
	Sig. (2-tailed)	0.005	0.145	0.916	0.245	0.017	0.011
	Spearman's rho	.244[**]	0.114	-0.001	0.079	.204[*]	.215[*]
	Sig. (2-tailed)	0.006	0.211	0.991	0.386	0.023	0.017
Publishing options-Conference proceedings limited. (PF-c13)	Pearson Correlation	1	0.129	-0.038	0.044	0.102	.249[**]
	Sig. (2-tailed)		0.158	0.674	0.63	0.262	0.005
	Spearman's rho	1	0.122	-0.014	0.027	0.101	.253[**]
	Sig. (2-tailed)	.	0.181	0.879	0.767	0.265	0.005
Publishing field - I am unable to identify appropriate journals (PF-c13)	Pearson Correlation	0.129	1	.463[**]	.639[**]	0.106	.429[**]
	Sig. (2-tailed)	0.158		0	0	0.243	0
	Spearman's rho	0.122	1	.544[**]	.689[**]	0.144	.417[**]

Observed indicators	Correlation	PF-c13	PF-c14	PF-c15	PF-c16	PF-c17	PF-c18
	Sig. (2-tailed)	0.181	.	0	0	0.112	0
Publishing field: I have trouble in identifying non-predatory journals (PF-c14)	Pearson Correlation	-0.038	.463**	1	.565**	0.057	.280**
	Sig. (2-tailed)	0.674	0		0	0.531	0.002
	Spearman's rho	-0.014	.544**	1	.647**	0.05	.286**
	Sig. (2-tailed)	0.879	0	.	0	0.583	0.001
Publishing field: I am unable to identify high impact journals within my field (PF-c15)	Pearson Correlation	0.044	.639**	.565**	1	0.147	.359**
	Sig. (2-tailed)	0.63	0	0		0.105	0
	Spearman's rho	0.027	.689**	.647**	1	0.158	.395**
	Sig. (2-tailed)	0.767	0	0	.	0.081	0
Publishing field: High impact journals charge high fees for open access publishing (PF-c16)	Pearson Correlation	0.102	0.106	0.057	0.147	1	.346**
	Sig. (2-tailed)	0.262	0.243	0.531	0.105		0
	Spearman's rho	0.101	0.144	0.05	0.158	1	.353**
	Sig. (2-tailed)	0.265	0.112	0.583	0.081	.	0
Publishing field: I have	Pearson Correlation	.249**	.429**	.280**	.359**	.346**	1

Observed indicators	Correlation	PF-c13	PF-c14	PF-c15	PF-c16	PF-c17	PF-c18
trouble in aligning my output to ensure citation impact (PF-c17)	Sig. (2-tailed)	0.005	0	0.002	0	0	
	Spearman's rho	.253**	.417**	.286**	.395**	.353**	1
	Sig. (2-tailed)	0.005	0	0.001	0	0	.

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

Table B.2. Assessment and normality values of the structural model.

Variable	min	max	skew	c.r.	kurtosis	c.r.
FAC2_1	-3.825	1.764	-.755	-3.418	-.055	-.126
FAC1_1	-1.694	2.094	.366	1.659	-.990	-2.241
FAC2_3	-2.221	2.315	-.026	-.116	-.812	-1.839
FAC6_2	-2.527	3.431	.661	2.991	.408	.924
FAC6_1	-3.894	2.939	-.346	-1.568	.176	.398
FAC5_1	-4.369	2.627	-1.132	-5.126	1.756	3.976
FAC3_1	-4.061	1.951	-1.361	-6.160	2.005	4.539
FAC8_2	-3.750	5.296	.329	1.489	.910	2.061
FAC3_3	-4.224	2.315	-.832	-3.767	1.028	2.327
FAC7_2	-4.125	3.211	-.326	-1.475	.050	.114
FAC5_2	-3.899	4.208	.207	.936	.515	1.165
FAC3_2	-3.327	3.187	.385	1.741	.271	.613
FAC2_2	-2.887	3.955	.483	2.189	.422	.955
FAC1_2	-2.998	3.662	.223	1.009	-.098	-.223
FAC4_1	-2.434	3.403	.051	.232	-.273	-.619
OutputT	4.000	197.000	5.352	24.233	31.787	71.962
FAC1_3	-2.043	2.614	.294	1.332	-.679	-1.537
FAC4_3	-2.479	3.273	.101	.457	-.776	-1.757
FAC5_3	-4.241	3.612	-.300	-1.359	.378	.856
Multivariate					54.603	**10.719**

Appendix C

Table C.1. List of FOR Codes as given in ERA (2015).

01	Mathematical Sciences
02	Physical Sciences
03	Chemical Sciences
04	Earth Sciences
05	Environmental Sciences
06	Biological Sciences
07	Agricultural and Veterinary Sciences
08	Information and Computing Sciences
09	Engineering
10	Technology
11	Medical and Health Sciences
12	Built Environment and Design
13	Education
14	Economics
15	Commerce, Management, Tourism and Services
16	Studies in Human Society
17	Psychology and Cognitive Sciences
18	Law and Legal Studies
19	Studies in Creative Arts and Writing
20	Language, Communication and Culture
21	History and Archaeology
22	Philosophy and Religious Studies