Reconceptualising research impact: Reflections on the real-world impact of research in an Australian context

A focus on research impact is influencing the way research is undertaken in Australian higher education institutions. Research activities are planned, funded, conducted, assessed and reported in a way that highlights the real-world impact of research on society. The contemporary prioritisation of research impact, beyond scholarly contribution, reflects a logic model approach to understanding impact that may not adequately reflect the entwined nature of how research achieves impact within and outside academia. This paper presents the results of a study conducted with researchers in a regional Australian university to explore the lived experience of research impact. The findings suggest a new definition of research impact as the process whereby research knowledge makes a difference to the knowledge beneficiary. Reconceptualising research impact as a process presents an alternative perspective for explaining how research achieves real-world impact, and helps to address the limitations of logic model approaches. A process-orientation to understanding how research achieves impact acknowledges the indirect, intangible, unexpected and endless influences of research that may be difficult to anticipate and demonstrate.

Keywords: higher education policy; research impact; Australia; academic identity; qualitative research

Introduction

During 2017, the Australian government conducted an Engagement and Impact Assessment Pilot (the EI pilot) to test methodology for examining how Australia's university sector is interacting with research end-users and achieving economic, social and other benefits (ARC, 2017b). A total of 39 Australian universities made submissions for the pilot, providing quantitative and qualitative information as evidence of engagement and impact (ARC, 2017b). The results of the EI pilot were published in November 2017, and will inform future research assessment exercises in Australia, including the Engagement and Impact Assessment in 2018 (EI 2018) process. EI 2018 is being conducted as a companion exercise to Excellence in Research for Australia (ERA) in 2018 (ARC, 2017a). ERA is the process by which the

Australian government assesses the quality of research undertaken by eligible higher education providers, for the purpose of identifying and promoting research excellence (ARC, 2014). The last round of ERA, conducted in 2015, assessed contributions from 41 eligible higher education institutions in Australia. Institutions submitted data on research outputs, research income, applied measures and esteem measures to demonstrate the quality of research being undertaken.

Since the 1960s, there have been increasing attempts to understand how research benefits society (Marjanovic, Hanney, & Wooding, 2009). The real-world impact of research is evident when research findings influence 'policy, managerial and professional practices, social behaviour or public discourse' (Sumner, Crichton, Theobald, Zulu, & Parkhurst, 2011, p. 3), and is more than a scholarly or intellectual contribution. A diversity of frameworks, developed to assess the influence of research on policy and practice, reflect continuing efforts to understand the science-society relationship (Marjanovic et al., 2009). As an example, Cruz, Kyte, Aiyegbusi, Keeley, and Calvert (2017) have identified twenty-four unique methodological frameworks for assessing the impact of healthcare research. Evidence of the real-world impact of research helps to ensure society understands the value of research, and does not under-appreciate and under-invest in universities (Kelly & McNicoll, 2011).

The Australian government is committed to introducing a national process for assessing the wider influences of research. In 2004, the government initiated the development of a Research Quality Framework (RQF) to assess the real-world benefits of research (Donovan, 2008). The RQF sought to determine the wider influences of research on society, and was intended for implementation by the Liberal-National Coalition in 2008. However, the Australian Labor Party won the 2007 election, and the RQF was replaced with ERA which relies heavily upon quantitative indicators to assess research excellence. In 2012, the Labor government announced plans to 'develop a mechanism to assess the broader economic,

social and environmental benefits resulting from all elements of government research investment, including the benefits arising from university-based research' (Australian Government, 2013, p. 3). A pilot of the proposed case-study approach was intended to take place in 2014, however plans were disrupted due to a change in government to the Coalition in 2013.

The quest to develop mechanisms for encouraging real-world impact from publicly-funded research continued under the Coalition. In 2014 and 2015, engagement, collaboration and commercialisation were promoted as ways of improving research impact. The development of an *impact and engagement assessment framework* was recommended in late 2015 (Watt, 2015). Introducing a national system for assessing engagement and impact is based on the premise that improved research collaboration, between universities and industry, and other end-users of research, will facilitate the process of translating research into impact (ARC, 2017a).

Australian activities to understand the impact of research on society are being influenced by work undertaken in the United Kingdom. For example, the discussion paper *Assessing the Wider Benefits Arising from University-based Research* (Australian Government, 2013) suggests that Australia's efforts to develop a new framework for assessing research should be informed by lessons learnt from the United Kingdom's implementation of the Research Excellence Framework (REF). The REF, undertaken for the first time in 2014, assessed 1,911 submissions from 154 universities in the United Kingdom to examine the quality of research being undertaken (Higher Education Funding Council for England, 2014). Universities were assessed on the basis of research outputs, environment and impact. In demonstrating the impact of research, institutions submitted four-page case studies, that were assessed by expert panels for 'reach and significance' (Higher Education Funding Council for England, 2014, p. 4). The case study approach to assessing the real-

world impact of research assumes that impact is demonstrable, timely, and can be attributed to a specific research activity. Assuming a linear causal relationship between research and impact reflects a logic model approach to understanding impact. However, research does not always achieve impact in a direct or immediate way (Davies & Nutley, 2008, p. 3). Logic models fail to adequately capture how research influences the real-world (Martin, 2011), and their use for understanding how research achieves impact has been challenged (McCormack, 2011; Walker, 2016).

This paper reports the results of an Australian study to explore perceptions and experiences of research impact shared by researchers in a higher education institution. The findings suggest that the contemporary focus on research impact is influencing the behaviour of researchers in Australia, and may be encouraging a myopic approach to the way research activities are planned, funded, conducted, assessed and reported. It may be time to reconceptualise research impact in a way that acknowledges the subtle influences of research, and reflects the nebulous nature of real-world impact.

Background

It is generally accepted that the research undertaken by universities will achieve public good outcomes (Eynon, 2012). Public good arises from the civic mission of universities whereby they endeavour to address complex contemporary issues to deliver benefits for society (Cuthill, 2012). Although Dill (2012) notes there has been some criticism of the public good role of universities in the 21st century, strong interest remains in understanding how investment in university research makes a difference beyond academia to demonstrate the public good of universities (de Jong, Barker, Cox, Sveinsdottir, & Van den Besselaar, 2014; McKenna, 2015).

The Australian Research Council (ARC), which is responsible for administering Australia's public investment in research and development, has progressively refined its definition of research impact. In 2016, research impact was defined as 'the demonstrable contribution that research makes to the economy, society, culture, national security, public policy or services, health, the environment, or quality of life, *beyond contributions to academia* [emphasis added]' (ARC, 2016b, p. 1). For the purposes of the EI pilot, the word *demonstrable* was removed, and research impact was defined as 'the contribution that research makes to the economy, society and environment, beyond the contribution to academic research' (ARC, 2017b, p. 13). Following the EI pilot, and for the purpose of EI 2018, the definition of research impact was amended to 'the contribution that research makes to the economy, society, environment and culture, beyond the contribution to academic research (ARC, 2017a, p. 5). The updated definition recognises the potential for impact to be cultural, and the absence of *demonstrable* appears to acknowledge that impact may not always be apparent. However, each of these definitions of research impact distinguish between academic and non-academic impact, suggesting that real-world impact is more than a contribution to knowledge.

Researchers' ability to undertake research with real-world impact often depends upon the availability of funding. Competitive research grants aim to support high quality research through a nationally competitive approach to assessing research proposals. In Australia, two major schemes provide funding for university research: the National Competitive Grants Program that is administered by the Australian Research Council, and the National Health and Medical Research Council (NHMRC) grants program. The National Competitive Grants Program includes the ARC Linkage and ARC Discovery schemes. The ARC Linkage scheme seeks to promote research collaboration for economic, social or cultural benefit (ARC, 2016c), and the ARC Discovery scheme supports individual researchers or research teams to

undertake fundamental research (ARC, 2016a). The NHMRC is Australia's leading expert body for health and medical research, and funds a range of programs that aim to accelerate research impact by improving the process of research translation (NHMRC, 2014). In seeking to secure funding for research, Australian researchers prepare and submit funding applications to these schemes as well as to a multitude of other government and philanthropic agencies that understand the value of research for global benefit.

The ARC and NHMRC funding schemes encourage research with real-world impact. Since 2014, the ARC has required funding submissions to include statements of impact. The aim of the statements is to encourage researchers to consider the potential real-world impact of research activities when developing funding submissions. In applying for funding, researchers are required to explain the impact and sustainability of research findings, with pressure to tailor research activities to areas identified as national research priorities. The Australian government initiated research funding priorities in 2012 as a way of ensuring that 'some proportion of the public investment in research is prioritised towards the societal challenges that confront us as a nation, right now'(Office of the Chief Scientist, 2012, p. 1). Research priorities guide the allocation of funding for university research by strategically targeting Australia's research effort to areas that 'reflect the needs of industry, the national economy and the community' (Department of Industry Innovation and Science, 2016). The national science and research priorities are food, soil and water, transport, cybersecurity, energy, resources, advanced manufacturing, environmental change and health (Department of Industry Innovation and Science, 2016). Over half of the ARC Discovery projects approved for funding commencing in 2018 addressed areas identified as research priorities (ARC, 2017c), and over three-quarters of projects approved in ARC Linkage 2016 Round 1 and Round 2 identified with the research priorities (ARC, 2016c, 2017d). The proportion of submitted projects identifying with research priorities reflects the proportion of those that

received funding, suggesting that researchers understand the need to tailor research activities to areas deemed to be nationally significant.

Despite the government's efforts to encourage research with real-world impact, it is possible that a focus on impact may be undermining the purpose of research. The ARC (2014) defines research as 'the creation of new knowledge and/or the use of existing knowledge in a new and creative way so as to generate new concepts, methodologies, inventions and understandings [and] could include synthesis and analysis of previous research to the extent that it is new and creative' (p. 12). However, funding guidelines require researchers to articulate the impact of research endeavours when preparing funding submissions, prior to the research being undertaken. It is difficult to anticipate the impact of some research, particularly in the case of curiosity-led blue-sky research. The requirement for researchers to specify impact, prior to the research being undertaken, may encourage research that delivers pre-determined findings.

Method

During 2015 and 2016, an Australian study was undertaken to explore perceptions and experiences of research impact shared by researchers involved in a multidisciplinary research program. The Digital Futures Collaborative Research Network (Digital Futures CRN) program was one of fifteen CRN programs funded by the Australian Government in 2011 and 2012. The aim of the CRN initiative was to increase the research capacity of regional higher education institutions (ACIL Allen Consulting, 2015).

The Digital Futures CRN was selected for exploring the phenomenon of research impact as it is a thematically-bound case study that features many elements typical of large multidisciplinary research programs in higher education. Researchers within the program had a diversity of research experience across a range of disciplines including sciences,

engineering, education, economics and commerce. The study also collected data from research executives who held positions that provided special access to knowledge about the research system (Ragupathy, Tordoff, Norris, & Reith, 2012). This group of participants included chief executive officers, directors and senior academics from a range of research organisations across Australia.

The aim of the study was to enhance understanding about how higher education research influences society by exploring the lived experience of research impact through the eyes of those who experience the phenomenon (Titchen & Hobson, 2005). The study used a qualitative research approach to answer the main research question: *How do researchers involved in a collaborative multidisciplinary research program perceive the real-world impact of their research?* A purposive stratified sampling approach was employed to ensure research participants were familiar with the phenomenon of research impact, and to collect data from researchers with diverse disciplinary orientations and research experience. Approval was obtained from the Human Research Ethics Committee, and data was collected from 27 participants over a period of five months.

A three-stage data collection process used interviews and focus groups to collect data on perceptions and experiences of research impact. During Stage 1, a convergent interviewing process collected data from research executives and institutional leaders of the Digital Futures CRN. In convergent interviewing, a series of in-depth interviews are conducted, with questions becoming more specific as the interviews progress, to explore issues given priority by multiple interviewees (Bohle, Quinlan, Kennedy, & Williamson, 2004). The issues of convergence identified from the Stage 1 interviews informed the questions posed to researchers and senior research officers in Stage 2 of the research. Issues of convergence included confusion regarding impact terminology, responsibility for achieving impact from research, and the challenge of assessing impact. The aim of Stage 2

was to explore perceptions and experiences of research impact by asking questions such as *What do you understand by the term research impact? How do you determine whether your research has had an impact?* During Stage 3, focus groups were conducted to refine concepts emerging from the Stage 2 interviews. Each participant provided written consent to participate in the interviews and focus groups, and all data collected from participants was de-identified following the interviews and focus groups. Data was analysed using a process of thematic analysis informed by Smith, Larkin, and Flowers (2009). NVivo qualitative data management software supported the process of dissecting transcripts and interrogating data for associations (Bazeley & Jackson, 2013).

Results

The perceptions and experiences of research impact shared by the participants revealed four themes: research impact is about making a difference; research impact is a nebulous concept; research impact includes scholarly and real-world impact; and research impact is a shared responsibility. The themes capture a common construction of the reality of research impact (Guba & Lincoln, 1989) to reflect how the phenomenon of research impact is experienced (Hesse-Biber & Leavy, 2010). This paper does not seek to discuss these themes in detail, but rather, explores comments made by participants in explaining how a contemporary focus on research impact has influenced research activities.

During the interviews and focus groups, research participants shared concerns about the prioritisation of research impact as a demonstrable contribution to society, and expressed dissatisfaction with the sector's adoption of neoliberalist management practices. Australian universities have been incrementally affected by neoliberal doctrine that began to influence Australian public policy in the 1980s and 1990s, evident in a focus on productivity, accountability, managerialism, marketisation, entrepreneurialism and commercialisation

(Thornton, 2017). In a previous edition of this journal, McCarthy, Song, and Jayasuriya (2017) discuss how academics have become de-professionalised by the sector's adoption of practices that measure and regulate academic performance. Despite suggestions that neoliberalism may be in ruins (Grantham & Miller, 2010), the doctrine continues to impact the contemporary higher education sector (Olssen, 2016).

The next sections present evidence to demonstrate how the researchers in this study are frustrated by contemporary practices including the prioritisation of research that addresses pre-determined research priorities, the pressure to achieve both real-world and scholarly impact, and the requirement to articulate real-world impact prior to research being undertaken. To provide context for the comments shared in this paper, researchers have been classified according to research experience: Senior researchers (over 15 years of research experience), Mid-career researchers (between 5 and 15 years of research experience), and Early career researchers (less than five years of research experience).

Research priorities and goal-driven research

The specification of national research priorities by the Australian government aims to encourage research in areas deemed to be nationally significant. Researchers in Australian higher education institutions are encouraged by institutions, and the government, to align research activities with areas deemed to be national research priorities in order to secure funding for research. Contemporary research is being driven by national priorities with the potential to deliver economic and social advantage, rather than by the intellectual curiosity of researchers (Hazelkorn, 2013). Yet the research that has greatest impact is often that which is undertaken without immediate practical application (Group of Eight Australia, 2014).

Contemporary researchers in countries including Australia are being asked to accept externally-determined research priorities, and tailor research activities accordingly. The

vulnerability of researchers was evident in comments by participants, particularly those referencing the potential for research activities to be manipulated. Researchers were concerned that efforts to target research activities may be encouraging pre-determined results through an underlying message of 'we want this outcome; will you please go and prove it for us' (Early career researcher). As further explained by the same researcher:

> Isn't true research supposed to start without a specific goal in mind, because you are not trying to direct the outcome of the research? If you try to direct the outcome of your research then you might be imposing too much on that outcome. (Early career researcher)

Although research participants were concerned about the need to modify research activities to suit research priorities, they were motivated by the opportunity to achieve public good:

> I enjoy when my research is used somewhere to make some informed decisions… The end goal is to do something good, produce something good out of the research, for society, and for humanity… Honestly I am not interested in producing hundreds and hundreds of papers. My target is to do something which is good for humanity. Because at the end of the day, when I am retired, I won't be judged that I have written hundreds of papers, but I will be judged by what I have done for society. (Mid-career researcher)

The contemporary pressure to tailor research activities to achieve and demonstrate real-world impact was evident across interviews. Researchers acknowledged the need to manipulate research activities to suit institutional requirements and government-directed research funding priorities, reflecting a utilitarian approach to seeking support and funding for research.

Scholarly impact and the imperative to publish

A culture of publish-or-perish continues to drive academic activities in Australia, with researcher reputations dependent upon the generation of scholarly impact. Phrases such as

‘visible or vanish’ (Lamp, 2012) and ‘be discoverable or die’ (Enslin, 2013) reflect the publish-or-perish imperative in the era of digital scholarship. Comments by research participants acknowledged a responsibility for disseminating research findings, with one Senior researcher noting that research knowledge shouldn’t be ‘sitting on a shelf [but] actually linking with people and being useful to people’. However, there was evidence of frustration with sectoral and institutional publishing priorities that continue to favour peer-reviewed publications in high impact factor journals that are not easily accessed by those who would most benefit from the knowledge:

> Most purely academic journals are not read by others for all sorts of reasons. Some of it's to do with just the cost and difficulty of accessing the journals, and some of it's to do with the fact that the journal article, in that kind of rigid form, has a number of features that make them difficult to translate and to use for lessons for practitioners. (Research executive)

> You’ve got to go beyond simple academic publishing. You’ve got to make your research accessible, and by doing that, you really broaden the audience that can benefit from it. (Mid-career researcher)

There was also criticism of the sector’s focus on quantitative measures such as citation counts and impact factors:

> Impact factors are an outdated concept because they haven’t updated their understanding about how people access research any more… With the internet making knowledge so freely available, those impact factors might not necessarily be reflective of what really makes an impact in any case. (Early career researcher)

As suggested by one Research executive, ‘citation metrics are for peer review esteem, so they're entirely to do with how other academics have reacted to an article by citing it in their own work, so that’s kind of part of the circular ivory tower kind of notion of academic quality’. Achieving scholarly impact was perceived by senior researchers to be a key concern

for junior researchers:

> It depends where you are in your career… They probably mean more to young researchers and up-and-coming early career researchers than they do to more established folks who are further on and approaching the end of their career… For me, I would much rather know I was making an impact on the world than about impact factors. (Senior researcher)

> Research impact factors are career motivators for more junior researchers, and when you get to the level of senior researcher, you either want impact factors for your group, or you would like to go and make an impact in the world, before you shuffle off your mortal coil… The average researcher would have an increasing interest in making an impact on the world. (Senior researcher)

An Early career researcher was critical of the way scholarly impact is generated, suggesting that 'in a system that rewards early for impact, and not much later, that a vast number of researchers just pretty much tail off into obscurity and time serving'.

Research participants acknowledged the need to demonstrate scholarly impact in order to sustain a research career. However, sharing research knowledge with those who would benefit from the knowledge, and demonstrating how research makes a difference to society, were perceived as equally important activities.

Real-world impact and evidence

Researchers want their research to deliver benefits for society, and improve the public good. In this study, the essence of real-world impact was perceived as the act of *making a difference*, with research participants using variations of the term in the interviews and focus groups. However, participants accepted that the full impact of research would never be known, 'not in the long term' (Early career researcher) because 'you can never completely quantify the impact of research' (Early career researcher). Understanding how research influences society is complicated by issues of timing and attribution. The impact of some

research may take many years to become apparent, and it is difficult to attribute impact to a specific research activity. The incremental way in which research knowledge achieves real-world impact was highlighted by research participants:

> Research is built on research… research is designed to build on research… you can't write a paper without referencing thought leaders that have gone before, and it might end up on a shelf, but the grain of knowledge in each publication will spark a grain of knowledge in another… the original research may end up on a shelf, but the idea will move forward and change and adapt and transform. (Early career researcher)

> Research leads to a changing of people's minds or world view… it's an incremental contribution to a very grand enterprise which is to understand the world better and be able to do things better. (Senior researcher)

The ARC's previous definition of impact, and funding agency guidelines, suggest that impact is tangible and demonstrable. However, researchers in this study shared multiple soft impacts of research, such as advancing knowledge, raising awareness, influencing perspectives, satisfying curiosity, inciting enthusiasm and changing behaviour. Such impacts may be unpredictable and difficult to discern as noted by one researcher:

> I think all research has the elements of purely increasing the stock of knowledge, and you don't know how someone else might make use of that; whether it's as ideas, or whether it's something they can apply, and if it's just ideas it may lead onto another project, or another question, or another discovery, that you can't predict. (Senior researcher)

Although some research has immediate impact, other research may require years or decades before the value of the research knowledge becomes apparent:

> There's an awful lot of cases where research is worth nothing, and put it on a shelf, and then perhaps 200 years later, it is discovered… I like to think that my work is just sitting on a shelf… often we don't know the value of work. (Early career researcher)

> The impact of one particular paper or one year's research is often impossible to see, even if over 5-10 years, that body of research, or that area, or that direction, or that team, may be having an impact. Impacts aren't just a sudden bang or its contribution. (Senior researcher)

There was acknowledgement that curiosity-led blue-sky research may require longer timeframes to achieve impact:

> This is the thing about blue-sky research… you don't know why you might need to know something… you don't know what the application is… we've found, a number of times, that research has led to a whole range of outcomes that couldn't have been predicted at the time… like Marie Curie looking at radio-active materials… no-body knew where that was going to go. (Early career researcher)

Researchers emphasised that funding of research should not be limited to those activities where impact is immediate, demonstrable and tangible, noting that 'there's research that's right for now, and there's research that's right for later… the world just might not be ready for the research yet, but it will at some stage.' (Early career researcher). As noted by one research participant, 'we don't know, what we don't know' (Early career researcher) suggesting there is a need to fund research where impact may be less apparent. Comments by these researchers reflect the contemporary dilemma of allocating funding to solve today's known problems at the expense of solving tomorrow's unknown problems.

The requirement for researchers to anticipate and demonstrate research impact for agencies such as the ARC and the NHMRC may present a challenge for researchers who are not always aware of the influence of their research on society. A multitude of frameworks, developed to understand how research influences society, reflect the complexity of the task, reinforcing the nebulous nature of research impact.

Discussion

In Australia, the contemporary focus on research impact is having its own impact in the way

research is undertaken in higher education institutions. Government efforts to encourage research with real-world benefit are influencing how research is planned, funded, conducted, assessed and reported. More frequently, researchers are being required to justify their work by providing descriptions of impact in grant proposals, project reports and press releases (Kuruvilla, Mays, Pleasant, & Walt, 2006). Researchers manipulate research activities to meet national research priorities and address research funding guidelines, and are coerced into anticipating and specifying impact in funding submissions prior to undertaking the actual research. Research institutions are encouraged to optimise scholarly research outputs by performance reporting exercises that rate and rank institutional productivity and excellence. Research funding agencies encourage research activities that address pre-identified challenges, encouraging researchers to undertake applied research endeavours where impact is more evident within shorter timeframes than blue-sky curiosity-driven research.

The findings from this study suggest that researchers are concerned by the prioritisation of particular types of research. There was evidence that researchers perceived the contemporary focus on research with real-world benefit to be encouraging research activities with the potential to deliver tangible outcomes in a shorter timeframe, and encouraging research with pre-determined outcomes in areas deemed to be nationally significant, at the expense of blue-sky curiosity-driven research that often requires longer timeframes to achieve impact (Cadogan, 2014). The potential for a myopic approach to research is further exacerbated by neoliberalism's emphasis on performativity (Ball, 2012), and the prevailing publish or perish environment that requires researchers to demonstrate scholarly impact for reward and recognition (Reich, 2013).

Although the Australian Government distinguishes and prioritises research impact as occurring 'beyond the contribution to academic research' (ARC, 2017a), the participants in this study perceived scholarly impact to be a form of real-world impact. Research impact was

articulated as the act of *making a difference*, irrespective of whether that difference is achieved within academia or outside academia. The entwined nature of scholarly and real-world impact, and the myriad ways in which research influences society, presents a challenge for those seeking to anticipate, and demonstrate, real-world impact by identifying, and isolating, impact beyond a contribution to knowledge.

The four themes of research impact revealed in this research, and the contemporary dilemmas explored in this paper, suggest there may be benefit in reconceptualising research impact. Rather than being perceived as a product of research, research impact may be better conceptualised as being part of the process of research, reflecting work by Spaapen et al. (2011) that productive interactions between researchers and stakeholders underpin the social impact of research.

Participants in this study emphasised the ongoing nature of research and impact, reflecting a perspective that impact is the process by which research makes a difference, rather than the product of having made a difference. The findings from this research suggest a new definition: *research impact is the process whereby research knowledge makes a difference to the knowledge beneficiary*. Such a definition reflects the contemporary reality of public good, without distinguishing between scholarly and real-world impact. Reconceptualising research impact as part of a complex process provides an alternative perspective to logic model approaches for understanding how research achieves impact.

Processes for assessing impact may be improved by focusing on how research knowledge makes a difference to the knowledge beneficiary, rather than focusing on impact as a product of research. A process-orientation to understanding research impact acknowledges the nebulous nature of research impact, and accommodates the indirect, intangible, unexpected and endless influences of research emphasised by the participants in this study.

Conclusion

In the 21st century, the prioritisation of research impact, beyond scholarly contribution, is influencing how research is planned, funded, conducted, assessed and reported. Researchers, research institutions and research funding agencies are promoting the real-world impact of research in order to demonstrate how research delivers benefits for society, and justify expenditure on research activities. However, higher education researchers and research institutions are enduring a disparity of polar objectives: the pursuit of real-world impact versus the need to demonstrate scholarly impact; the requirement to meet funding priorities versus the need to pursue intellectual inquiry; the imperative to collaborate versus the need to compete (for funding and citations); and the open dissemination of research findings to those who will benefit from the research knowledge versus the pressure to publish in high impact factor journals to maximise individual and institutional reward.

The Australian government is actively seeking to encourage research with real-world impact, and demonstrate how the research undertaken in higher education institutions makes a difference beyond a scholarly contribution. Changes made to the definition of research impact for EI 2018 broaden the understanding of real-world impact. However, the definition continues to emphasise research impact as a contribution occurring 'beyond the contribution to academic research' (ARC, 2017a, p. 5). The notion that research impact is a contribution emphasises a product-orientation approach to understanding how research influences the real-world. The findings from the research presented in this paper suggest there may be benefit in reconceptualising research impact using a process-orientation approach to understanding how research influences the real-world.

The researchers in this study were committed to achieving both real-world and scholarly impact, even though the real-world impact of some research may remain unknown due to challenges with identifying how research has made a difference to individuals, groups

and communities. Australia and the United Kingdom conduct research assessment exercises as a way of demonstrating the value of research undertaken in higher education institutions. However, history suggests that Australia's efforts to encourage and assess research with real-world impact may be influenced by the outcome of the next federal election. Given that the impact agenda is also a political agenda, as evidenced by the post-election retraction or mutation of previous impact initiatives, it is possible that the future of Australia's research impact activities may be as nebulous as the phenomenon of research impact itself.

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