

# Three good reasons to understand the research impact of a technology-enabled initiative

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The real-world impact of research is gaining much attention across the international Higher Education sector. Funding agencies, government organisations and community groups are seeking evidence that research initiatives are delivering impact beyond contributions to academia. Researchers, practitioners, educators, learning designers and developers require a good understanding of research impact, and associated terminology, to articulate the real-world benefits of technology-enabled initiatives. There are three good reasons to understand research impact in a Higher Education context. Firstly, comprehending the language of research impact facilitates meaningful discussion with research stakeholders. Secondly, recognising and communicating the real-world impact of an initiative affirms the ‘so what’ factor of a research project. And thirdly, demonstrating research impact, rather than reporting research outputs, is becoming more important in funding applications and project documentation. This paper concludes with a brief review of assessment frameworks developed to evaluate the real-world impact of Higher Education research.

Keywords: research impact, higher education, technology, funding, impact

## Background

The contemporary research environment is increasingly competitive due to an overall decrease in the total research funding pool and an increase in the number of research applications (Research Excellence Framework, 2013). Increased scrutiny around funding and resource allocation are driving an increased demand for universities to demonstrate accountability (Lyall, Bruce, Firn, Firn, & Tait, 2004) and value to society (Martin, 2011; Winckler & Fieder, 2012). The Higher Education sector is under great pressure to demonstrate the real-world impact of its research (Kelly & McNicoll, 2011). Real-world impact is possible when research responds to “real and tangible everyday needs” (O’Leary, 2004, p. 5).

Despite the focus on real-world impact, the international Higher Education sector continues to use academic metrics for assessing the impact of research (Qin 2010). Academic metrics of bibliographic citations, web citations, altmetrics and impact factors measure peer accountability rather than social accountability (Hazelkorn, 2012) and limitations of this approach are widely recognized (Katz & Martin, 1997; Seglen, 1997). Although academic metrics remain important for reputational and reward reasons (Aguinis, Suarez-Gonzalez, Lannelongue, & Joo, 2012; Stergiou & Lessenich, 2013), they fail to capture the true impact of research on society.

## The research impact environment

Research bodies across the globe are recognizing and seeking to identify those research impacts beyond contributions to academia. The Australian Research Council (ARC) manages public sector investment in research and development and provides advice to the Australian Government on research matters (Research Excellence Framework, 2013). The ARC defines research impact 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’ (Australian Research Council, 2014). In 2011, the Australian Government undertook a review to determine the quality and value of its investment in publicly-funded research. One of the review recommendations was that the Government explore ‘research impact assessment

mechanisms' to evaluate the broader benefits of publicly funded research (Department of Innovation Industry Science and Research, 2011). Two years later, the Australian Government released a discussion paper entitled 'Assessing the wider benefits arising from university-based research' (Department of Industry Innovation Climate Change Science Research and Tertiary Education, 2013). The paper sought public comment on a concept to assess the wider benefits of university-based research by seeking submission of case studies in addition to research-reporting metrics (publications, patents, grants, and so on).

In New Zealand, the Tertiary Education Commission (TEC) administers the Performance Based Research Fund (PBRF). The primary purpose of the PBRF is to ensure that excellent research in the tertiary education sector is encouraged and rewarded (Tertiary Education Commission, 2014). The TEC recognises the significant economic, social, cultural and environmental benefits provided by education research.

Each of these frameworks has been inspired by work undertaken in the United Kingdom to assess research excellence as a basis for allocating research funding (Watermeyer, 2014). In 1986, the first Research Assessment Exercise (RAE) was conducted in UK higher education institutions (Bence & Oppenheim, 2005). The main purpose of the RAE was to enable higher education funding bodies to distribute public funds for research selectively on the basis of quality (Research Assessment Exercise, 2002). The RAE has since been replaced by the Research Excellence Framework (REF) administered by the Higher Education Funding Council for England (HEFCE). HEFCE defines research impact as 'an effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia' (Research Excellence Framework, 2011). In an attempt to recognise the broader contribution of research, the 2014 REF accepted case study submissions as evidence of research impact (Higher Education Funding Council of England, 2014). Assessments of impact are being made on the basis of 'reach and significance' and will contribute 20% to each university's research quality profile, with research outputs and research environment contributing 65% and 15% respectively. REF results will be publicly available on 18 December 2014.

### **Three good reasons for understanding research impact**

Measuring the difference that research makes to both practice and outcomes is important (Coolbear, 2014). Researchers, practitioners, educators, learning designers and developers need to understand and communicate the impact of technology-enabled initiatives. Contemporary learning environments are open and borderless (Leppisaari & Tenhunen, 2012) with students seeking an active learning experience that is social and participatory (McLoughlin & Lee, 2010). Ensuring that pedagogy and technology are aligned is a prime concern (Leppisaari & Tenhunen, 2012). Ensuring research initiatives deliver real-world impact is similarly important.

There are three good reasons for understanding the impact of technology-enabled learning and teaching initiatives. Firstly, there is general confusion over the terminology relating to research impact (Penfield, Baker, Scoble, & Wykes, 2013). A wide range of terms are used to describe research impact including knowledge translation, implementation science, utilisation, uptake, dissemination and diffusion, benefit, payback and utilisation (Buykx et al., 2012). Literature reveals that the term 'research impact' is used synonymously with journal impact factors, citation analysis, bibliometrics and other academic performance indicators (Leydesdorff, Zhou, & Bornmann, 2013; Marks, Marsh, Schroer, & Stevens, 2013; Rao, Iyengar, & Goldsby, 2013; Seglen, 1997). Academic metrics assess scholarly output rather than research impact. There is further confusion between research impact and research quality, and differentiating between terms such as outcomes, outputs and impact is challenging (Weiss, 2007). Outputs are the direct result of the project and by those directly involved in it, and include both core research activities as well as dissemination activities (Economic and Social Research Council nd). Outcomes are the difference made by the outputs (Mills-Schofield 2012) and have a direct relationship with the output (Nutley 2003). Outcomes may be at an individual, institutional, stakeholder or regional level. A shared and accurate understanding of research impact will enable researchers, practitioners, educators, learning designers and developers to clearly articulate the benefits of technology-enabled initiatives.

Secondly, there is an expectation that Higher Education research will generate real-world impact. Traditionally, universities existed for teaching, research and service (Mutemeri & Chetty, 2013) however the role of universities has expanded to include translating university-based research into benefits for society (Cuthill, O'Shea, Wilson, & Vijoen, 2014). Engaged scholarship presents many opportunities for academics to engage in diverse public, private and community sector collaborations (Cuthill, 2014). Understanding the 'so what' factor of research has never been so important.

And lastly, researchers are being required to explain the impact of their work in grant proposals, project reports, press releases and research assessment exercises (Kuruvilla, Mays, Pleasant, & Walt, 2006). There are greater

calls for research investment to be allocated on the basis of research excellence and quality (Research Excellence Framework, 2013) and claims about research making a difference must now be substantiated (Ebrahim, 2013). Researchers require a good understanding of research impact in order to articulate the real-world benefits of their research in funding applications and project documentation.

## **Driving impact into the real world**

Most researchers want their research to have a positive impact (Buxton, 2011). In the current Higher Education environment, high quality research with reach and significance is no longer an aspiration, but an imperative for many researchers. The uptake of research is improved when researchers are committed to translating research results to policy (Davis & Howden-Chapman, 1996) and when research users are involved in the research process (Morton, 2014).

Attempts to assess research need to acknowledge that using research is an ongoing process, rather than a single event, and that assessing research impact should not be conflated with assessing research worth (Davies, Nutley, & Walter, 2005). Assessing research is useful for three purposes: demonstrating the value derived from research investment, helping to ensure future investment is allocated to high-quality high-impact research, and supporting researchers with understanding how to enhance the impact of their own research (Bell, Shaw, & Boaz, 2011).

A number of research assessment frameworks have been developed and these are being used for examining the impacts of research. The Research Contribution Framework (Morton & Fleming, 2013) facilitates assessment of social impact by mapping a pathway from research uptake to research use to research impact. The framework is based on the concept of research contribution as a refinement of research impact. The Payback Framework features a series of categories to classify the benefits from research and has been used to evaluate the impacts arising from health research and social sciences programs (Donovan & Hanney, 2011). The Research Impact Framework identifies four broad areas for assessing health research: research-related impacts, policy impacts, services impacts and societal impacts (Kuruville, Mays, & Walt, 2007). The framework identifies key descriptive categories within each of these broad areas to help researchers identify and describe the impact of their research. In the United Kingdom, the London School of Economics and Political Science has undertaken extensive work in attempting to articulate the primary and secondary impacts of academic research. Their work identifies primary impacts as ‘observable occasions of influence’ and secondary impacts as ‘organisational or societal changes’ (London School of Economics and Political Science, 2013).

## **Conclusion**

The real-world impact of research delivers many benefits for society and the economy. The real world extends beyond contributions to academia and cannot be assessed using academic metrics alone. Understanding the concept of real-world impact, and appreciating the difference between research outputs, outcomes and impact, is a first step in being able to articulate the real-world impact of technology-enabled initiatives. Researchers, practitioners, educators, learning designers and developers will benefit in three ways from having an improved understanding of the real-world impact of research. Firstly, resolving confusion in terminology will enable researchers to adopt and apply a common impact language. Secondly, recognizing the demonstrable ‘real world’ contributions of research will support researchers to articulate the value and benefit for society of research endeavours. Thirdly, understanding end-user benefits of research will enable researchers and institutions to prepare impact-focused reporting and funding documentation.

The increasing prominence of impact within Higher Education research assessment systems and the vision of engaged scholarship is driving an impact agenda that cannot be ignored (Greenhalgh, 2014). The challenge for today’s researchers and practitioners is to understand the dimensions of research impact and be able to apply research findings to real-world contexts.

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