JCOM

Between ambition and evidence

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Abstract

Measuring impact may be challenging, but does that mean we should accept a lack of ambition? Researchers in all fields are grappling with the challenge of how to measure impact (in many different contexts, which naturally leads to many different approaches), and so perhaps it is not surprising that the 'impact culture' is spreading to public engagement. But is the field rising to the challenge or should we think more broadly about how we demonstrate impact, perhaps freeing individual and smaller projects from the need to measure public impact and allowing them instead to focus on formative development? This editorial explores some of the issues in the field.

Sitting on a grant funding panel recently, I was struck by an almost uniform lack of ambition in relation to the potential impact of the projects proposed. This was particularly striking given that the funding under offer listed impact as one of the key criteria against which the proposals should be judged. This may, of course, be because measuring impact is difficult and time consuming and because these impacts are often seen only many years after a piece of research is completed, but should we let these hurdles get in the way of our ambitions to measure the impacts of public engagement?

Challenges of defining impact

The question of impact is muddied further by the variety of definitions of impact used by funders. For example, the UK Research Councils (RCUK) defines research impact as 'the demonstrable contribution that excellent research makes to society and the economy' [RCUK, n.d.(b)]. The RCUK go on to explain that these impacts might occur in areas as diverse as the economy, policy and health and wellbeing. Laudable though this may be, demonstrating impacts in these areas present significant challenges for the researcher. The European Commission specifically refers to exploitation and innovation within the Horizon 2020 programme, as well as impact, which might relate to innovation or commercial, social or environmental impact [European Commission, n.d.]. While the US National Science Foundation highlights educational impacts, as well as a host of other potential research impacts, in its definition of 'Broader Impacts':

> 'Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through

> activities that are supported by, but are complementary to the project. NSF values the advancement of scientific knowledge and activities that contribute to the achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education' [National Science Foundation, 2013].

These three examples illustrate the huge variety of ways that funders are beginning to think about how research might have impacts beyond academia. Brewer [2011] goes further to argue that a key issue with the term 'impact' is the wide variety of meanings it has in different contexts and he highlights that the author should clarify the way they are using the term. In the context of this editorial then, I am referring to impact primarily in the context of research funding and the way that funders consider the term. Much research, whether natural or social sciences, has the potential to have a range of social impacts (not all of which are necessarily beneficial), though we should also recognise that there are areas of research where it can be very difficult to identify concrete impacts at the time the research is undertaken. Nevertheless, even in fairly applied areas of research, such as public engagement with science, many researchers don't always think through the potential impacts of their research or provide a strategy for creating or demonstrating this impact. And in my experience of grant review, the same can apply to public engagement projects designed specifically to engage publics with science, even though these projects are often designed expressly with the intention of creating impact.

Conceptualising impacts

Listing the impacts is only part of the problem. It may be relatively straightforward to identify 'publics' or groups on whom research might have an impact, or even desired outcomes from research (such as policy change), but measuring that impact is far from straightforward. Instead of real measures of impact, many proposals resort to listing outputs. We are offered a number of participants to be involved in research (with the assumption that involvement equals impact), a suggestion that the project will monitor media coverage (again with the assumption that media coverage equals impact), or that they will hold a final project workshop with policymakers (which will, again, have an impact on policy). These are all achievable outputs, but they tell us little about the actual impact of the activity or research. As Brewer [2011] argues 'It is very important to the sheep-like character of impact that its evaluation is not restricted only to that which can be measured easily; counting the countable because the countable can be easily counted renders impact illegitimate [Brewer, 2011, p. 256]'.

Current best practice in measuring research impact may move beyond metrics only approaches to include, as Donovan [2011, p. 176] puts it embrace 'broader social, cultural, environmental and economic returns, and [where] a mixture of qualitative and quantitative methods has been employed to capture those outcomes'.

But for many researchers there is a trade-off between measuring impact and doing research. After all, there are only so many hours in a day; time spent measuring impact is time not spent on your research. And as Trautmann [2015] argues in this issue of *JCOM*, researchers are increasingly under pressure to demonstrate their worth through simple metrics (such as articles published and citations). Is it any wonder, then, that researchers turn to outputs as a means of recording impact?

Impact and public engagement?

As mentioned above, this focus on impact also occurs in the public engagement practice community, with funders of public engagement projects also wanting to know about the potential impacts of projects seeking funding, both those designed primarily as engagement projects and those with a more participatory orientation. And as with the research community, there are many questions about how to measure the impact of public engagement with science and technology. Questions have also been raised about how public engagement itself contributes to the impact of research and whether the focus on other types of impact might influence whether researchers are willing to participate in public engagement projects. For example, the Research Impact Network [2015] questions whether 'certain types of impact might be prioritised if they are easier to realise within short timescales' and 'whether this will also encourage researchers to focus on impacts other than public engagement' and questions how we can ensure 'that public engagement does not become side-lined in favour of other types of impact'.

Exploring the very diverse field of public engagement with science, the Wellcome Trust identifies three reasons for exploring the impact of public engagement projects: instrumental, economic and experimental [Wellcome Trust, n.d.]. Instrumental reasons included evaluating how projects work with a view to improving practice, as they say 'monitoring, evaluation and impact assessment are important professional tools that help those involved in designing and delivering PES projects to do their job' [Wellcome Trust, n.d.]. Likewise, in the case of participation oriented projects, this might be about measuring whether appropriate opportunities for participation were included and how these could be better delivered, rather than seeking to understand whether the participants influenced the research or whether the results influenced policy. However, increased calls for accountability (for example from funders), mean that there are also economic drivers for impact assessment. To secure funding, you need to be able to demonstrate that your particular project has some sort of value (leaving open the question of value to whom?). As with research, there can be a tendency for public engagement interventions to focus on measurable outcomes or outputs, often in the short term. But individuals are likely to encounter science in a wide variety of contexts; thus for the individual, public engagement with science is not about single interventions and views are likely to be influenced by many different encounters with science. This not only makes measuring impact (particularly over the long term), problematic but raises questions about how one would apply measures of 'impact' to a philosophy which is more about embedding science in culture than creating discrete science encounters.

Impacts of research and programmes, and research on impacts

I firmly believe that aspiring to have an impact is the first step on the road to actually achieving an impact and I am disheartened by grant proposals that still primarily focus on metrics, easily measured outputs from projects. Measuring what you have delivered is not measuring impact, though it may be important for accountability. Nevertheless measuring the impact of single public engagement interventions is also fraught with difficulties, and has led to a focus on aspects such as 'enjoyment' and short term attitude changes, or questions about whether participants felt enabled to contribute, as proxies for deeper or longer lasting impacts.

There are plenty of guides [see for example: RCUK, n.d.(a); University of Manchester, n.d.] on how to evaluate public engagement projects, and while these can be helpful in setting out measurable objectives or outlining what others have done to evaluate the success of a project, they struggle when it comes to suggesting approaches that actually measure impacts, rather than outputs or outcomes. And as we have seen above, there are considerable questions about how one might disentangle the impact of a single project from the many other encounters an individual might have with STEM. And any sensible attempt to measure impact is also likely to require substantial funds, something funders may not wish to provide at an individual project level. Instead, what is needed is support for research in a broader, multiproject context that could start to address some of the 'big' questions in public engagement, such as what impacts participating in research has on the research and participants or what kinds of impacts we might expect from science theatre or arts projects. This might provide a clearer picture of the way that certain types of interventions influence, for example public attitudes or behaviours and free individual projects to look more inwardly and processes and practices freeing them of the almost insurmountable suggestion that they demonstrate broad impacts.

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