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The invisible made visible: using impact evaluations to illuminate and inform the role of knowledge intermediaries

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Abstract

Expectations for impacts from research create demand for effective knowledge exchange between academic and non-academic settings. This complex process may be facilitated by "knowledge intermediaries". Learning from evaluation can advance recognition of their diverse, sometimes invisible, roles and enhance these interactive relationships connecting research, policymaking and practice. The elusive subtlety of many knowledge exchange processes, which require attitudinal and behavioural changes, add to the challenge of impact generation. We use evaluations of publicly-funded research to capture insights into the processes and good practice. Appropriately sensitive evaluation of impact generation can tap into this growing reservoir of 'tacit knowledge' among such knowledge intermediaries.

Keywords: impact; knowledge exchange; evaluation; knowledge intermediaries

Increasing demand for impacts

Like all governments that invest in university research, the UK government hopes to reap dividends, not only in terms of academic excellence, but also in the form of economic benefits and other societal "impacts" including health, culture, education, justice and well-being (RCUK 2007; ESRC, 2009a). This is particularly apparent in the UK as it embarks on the Research Excellence Framework (REF) (HEFCE, 2011) which will assess, for the first time, demonstrable economic and social impacts deriving from academic research.

Appreciation is also growing for the level of effort required to achieve this. Clearly impacts do not arise automatically even from excellent research and there is growing recognition that the processes involved are complex, non-linear and require behaviour change (RELU, 2010, Lyall et al., 2004). To deepen understanding, the Economic and Social Research Council (ESRC) commissioned a series of studies, including our own (for example, PPG, 2007; Frontier Economics, 2007; Meagher and

Lyall, 2007a; Meagher, 2008a, b; ESRC 2009a); a number of learned academies have also entered the debate (e.g. British Academy, 2008).

Within the broad arena of knowledge exchange, there are many interacting processes and roles that contribute to the generation of impacts. We have conducted several evaluations of such non-academic impacts arising from publicly-funded research schemes in the UK. This paper offers a synthesis of our learning about the elusive, subtle, diffuse and long-term nature of these impacts which, even where identifiable, can be virtually impossible to attribute to individual research projects. We discuss these evaluation challenges in terms of opportunities to deconstruct and improve understanding of those processes. By identifying what characterises these knowledge exchange processes we can help researchers and research funders to adopt them more readily in the future in ways that complement (rather than conflict with) the generation of excellent research.

While not attempting to present an explicit cross-case analysis of the findings or theory-driven sampling strategy from the contributing studies, we did frame and pursue related questions in each evaluation, allowing insights gathered to be brought together cumulatively to generate deeper reflexivity and understanding. Grounded in findings from across studies, this paper demonstrates the potential power of impact evaluation to shed light on key processes of impact generation in order to inform future undertakings by researchers, research managers, knowledge intermediaries and research funders. By drawing valuable common lessons from these evaluation exercises we identify two foci: the importance of understanding the interactive process of knowledge exchange and the identification of key actors in the form of 'knowledge intermediaries'. Finally, this paper offers a number of recommendations for policy-makers and others engaged in the generation and evaluation of non-academic research impacts.

Challenges: culture change and accountability

Basing public policy and practice upon sound research and evidence is frequently cited as a desirable social good to which research funders, researchers, policymakers and practitioners should aspire (Davies et al., 2005). Investigating these relatively intangible worlds of policy and practice represents in many respects "the hard case" of impact evaluation.

Effective facilitation of knowledge exchange (KE) from social sciences resulting in impacts on policy and professional practice presents particular challenges (Meagher et al., 2008). Exploitation of social science research is far from a linear process; rather it involves a complex, interactive relationship between researchers and potential research users. It is unlikely that there will be a single model of best practice (Bechhofer et al., 2001) and, likewise, no single model for assessing non-academic research impact (Davies et al., 2005). At least three fundamental challenges exist:

- knowledge exchange processes can be subtle and elusive
- improvement of KE processes calls for attitudinal and behavioural changes at multiple levels
- protracted timescales can be required to achieve these changes

While the dissemination of research findings is necessary for KE, it is not sufficient. In recognition of the complexity and level of effort required, a variety of funding schemes have been developed in the UK with the aim of catalysing positive impacts upon industry and society, while also underpinning fundamental research. These schemes tend to promote interactions between researchers and non-academic stakeholders and strive to bring about change at several levels - individual,

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institutional, cultural and relationships. Examples include industry support for PhD students (e.g. CASE studentships); engaging non-academic organisations in co-funded research projects (e.g. Knowledge Transfer Partnerships); and thematic programmes which require involvement of non-academics (e.g. the cross-council PACCIT programme).

Impact evaluation across projects as formative, "meta-evaluation"

Appropriate evaluation can provide useful organisational learning about the dynamics, effective catalysis and implementation of knowledge exchange and can contribute to enhanced understanding on the part of those promoting impact-generation (including policy-makers, funders and scheme managers) and those tasked with delivering impacts (both academics and non-academics).

We adopt the terms defined by Nutley et al. (2007) to describe types of non-academic impacts*:*

- *Instrumental use* ("direct impact of research on policy and practice decisions")

- *Conceptual use* ("where research changes ways of thinking, alerting policy makers and practitioners to an issue or playing a more general 'consciousness-raising role')

- *Capacity-building* (this can refer to education, training or even development of collaborative abilities)

(There can also be the rather less well regarded "symbolic use" where research results may be used to legitimate and lend credibility to pre-determined decisions, for example, Stevens, 2011)

We have also suggested (Meagher 2008b) that there are shorter-term process-oriented impacts, such as:

- *attitudinal change* – positive changes in institutional cultures and individual attitudes toward knowledge exchange

- *enduring connectivity*, when researchers and prospective users stay in contact even after a funded project ends.

When investigating these last two process-oriented impacts, we recommend searching for *indicators of demand*, evidence that prospective users know about the research and may be approaching the knowledge producers for further advice and information.

In the past, funding agencies have not always maximised their use of evaluation work to illuminate such processes. Funders are often caught between a project with a fixed end date, with no further funding available for evaluation that could consolidate learning, and the expectation that the project will become self-sustainable. Although funders usually require an end-of-project "summative evaluation", there has been a tendency to favour this simpler measure of impact over more complex "formative" approaches and less inclination to undertake open learning. While many large-scale research projects do have in-progress evaluative milestones as part of the funding conditions, many may be no more than tick boxes. Yet, deeper evaluation has the power to capture participants' insights and lessons learned that can contribute to the design and delivery of new programmes. Outsourcing of expertise, often coinciding with organisational restructuring, can lead to a lack of institutional memory. In our evaluations we have deliberately sought to "make visible" lessons that have been learned, on the premise that tacit knowledge gained through experience by

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researchers and stakeholders from both successes - and failures - will be valuable in future endeavours.

Overview of contributing studies

In this paper, we offer a set of reflections based on findings from five evaluations that we have conducted in the UK. These studies provide insights into processes and steps toward impacts while recognising the potential limitations of this type of methodological approach and the inevitable heterogeneity that exists among researchers, research problems and users (Meagher et al., 2008). All five studies involved public funding strategies oriented toward generating both academic and non-academic impacts by encouraging new modes of behaviour, interaction and communication. Short summaries of these evaluations are given in **Table 1**.

These evaluations lead us to two key findings: the importance of understanding interactive processes and the importance of recognising and supporting key roles.

Table 1: Contributing studies of publicly-funded research and KE investments[1]

RDG: The Research Development Scheme of the (then) Scottish Higher Education Funding Council funded a diverse array of new centres intended to allow Scottish researchers to develop research excellence in emerging areas; often interdisciplinary and/or inter-institutional collaborations, these were encouraged to transfer knowledge (usually in natural sciences) as well as conduct excellent research. We conducted two evaluations of the scheme, covering 57 centres launched in 1997, 1998 and 1999 (MacGregor and Meagher, 2001; Meagher and Lyall, 2005).   **http://www.webarchive.org.uk/wayback/archive/20080412040746/http://www.sfc.ac.uk/information/info_circulars/sfc/2006/sfc3306/sfc_33_06.pdf**
RELU: The Rural Economy and Land Use Programme is an inherently interdisciplinary programme funded by several UK Research Councils and government departments to address societal problems through newly integrated approaches. We were asked (in 2006-2007) by the Programme to evaluate the effectiveness of its own internal seed-funding scheme in aiding the development of projects which combined disciplines and, often, academics and stakeholders (Meagher and Lyall, 2007b).   **www.relu.ac.uk/news/RELU%20FINAL%20REPORT%2012%2003%2007LMEAGHER.doc**
Psychology: We conducted both an evaluation of impacts from the ESRC's response-mode awards for psychology research (total of 134 ending in 1998, 2001, 2004) *and* a critical reflection on the various methodologies for capturing impacts of such research (Meagher and Lyall, 2007a).   **http://www.esrc.ac.uk/_images/Policy_and_Practice_Impact_Case_Study_of_ESRC_Grants_and_Fellowships_in_Psychology__Report_tcm8-3828.pdf**
Research Brokerage: The ESRC has funded a variety of individuals and activities to promote both communication and knowledge transfer related to its larger ventures. We conducted a review of this heterogeneous set, which included, for example, funded communications or KT personnel at a centre or programme, central communications staff, etc (Meagher 2008a).
PACCIT: The People at the Centre of Computers and Information Technology programme was funded by EPSRC, ESRC and then-DTI, as well as non-academic partners, to facilitate cutting-edge research in a variety of projects that involved prospective users of their findings. We were asked to evaluate non-academic impacts of this programme; we analysed examples of impacts and examined the processes and steps involved in generation of impacts over time (Meagher 2008b).   **http://www.esrc.ac.uk/_images/PACCIT_Impact_Evaluation_Report_tcm8-3821.pdf**

All websites last accessed 24/2/13

[1] These were commissioned studies which took the form of a summative evaluation or learning review rather than a more open-ended, hypothesis-driven research project. The commissioners' objectives therefore underpinned the research designs and informed the development of the frameworks of analysis. However, in each case we were also able to take the opportunity to frame research questions allowing us to investigate processes involved. The methodologies employed in these studies were primarily qualitative but supplemented with additional quantitative indicators, drawing on online surveys, document analysis, face-to-face and telephone interviews and focus groups for data gathering. The qualitative data analysis techniques relied on data reduction and pattern identification (Caudle, 2004) to explore and compare data across case studies, enabling the identification of issues relevant to the

analytical questions but, at the same time, allowing for a degree of flexibility beyond the confines of a fixed set of evaluation questions.

Understanding processes: Knowledge flows and interactions

In our Psychology Impacts evaluation (Meagher and Lyall 2007a), our underpinning conceptual framework built on previous work (e.g. Davies et al 2005; Mollas-Gallart et al 2000) and highlighted the importance of network interaction and multiple flows of knowledge, focusing on the multi-lateral relationships between knowledge producers, knowledge brokers and knowledge users. This framework emphasised the heterogeneous nature of such knowledge flows – among research subjects, institutional contexts, potential stakeholders/users, knowledge intermediaries, etc. Developing an understanding of how knowledge flows beyond the end of a particular research project is critical given the challenges inherent in identifying intangible, long-term impacts and in attributing causality.

Whenever we look for impacts we have found it necessary to focus on potential impact-generating *processes* which develop over time, in order to identify likely steps on a pathway toward impacts. It may therefore be helpful to think in terms of stages of development of impacts although, of course, this is an ideal: in reality, processes are messy and do not proceed neatly in a linear, step-wise fashion. It is useful, however, to get an indicative sense of the degree of connectivity between researchers and potential research users. During the PACCIT study (Meagher, 2008b), for example, we asked respondents to indicate which of the following stages they felt their work had reached at the time of survey (**Table 2**).

Table 2: "Ideal" steps towards impact development

Stage	Characterised by:
1	Dialogue/networking between academics/non-academics
2	Joint knowledge exchange activities e.g. workshops, training, reciprocal visits between academics/non-academics
3	Active ongoing collaboration e.g. follow-on research, new pilot projects
4	Utilisation of research ideas e.g. informing new policies or company research strategies
5	Utilisation of research findings e.g. impact on policy/practice, use in development of new products

With PACCIT, we were then able to drill down more rigorously and found that it is both possible and useful to capture as impacts: Attitudinal/Institutional Change and Enduring Connectivity (between academics and non-academics). A few years after the programme, these changes together represented some two thirds of the impacts that surveyed participants viewed as 'Achieved' and over half of the impacts that participants viewed as 'In Progress' (compared with Capacity building, Conceptual and Instrumental impacts) (Meagher, 2008b).

These process-embodied impacts have the advantages of occurring in the short-term, within the window of typical evaluations, and of lending themselves to attributions of

causality. We would suggest further that these two near-term impacts can be forerunners of later, more conventionally assessed, impacts; they may be able to be used as "proxy indicators" of an enhanced likelihood of more tangible impacts that may eventually manifest.

Understanding key roles: Acknowledging the importance of 'knowledge intermediaries'

One of the key points of learning from our research has been the critical role of 'knowledge intermediaries'. If knowledge is tacit (that is, experience-based and hard to formalise) it is often best applied by an intermediary (e.g. Schön, 1983). Such intermediaries may emerge through the exigencies of problem-solving and they may not necessarily be the person appointed to a formal role (Williams et al. 2005).

Funders can act as knowledge intermediaries, as can individual researchers, university units, dedicated staff hired by a research centre, advisory board members or indeed a wide range of individuals who inhabit a professional space between academics and non-academics. Variously named and defined, Knowledge Intermediaries, Research Brokers, Boundary Spanners or Policy Entrepreneurs (Lomas, 2000 quoting Coburn, 1998) act at the interface between researchers and non-academics who might utilise research understanding, facilitating productive communication, dialogue, interactions and/or relationship-building. Universities are increasingly employing such individuals but these emerging roles are not unproblematic, occupying as they do a liminal space between academics and administrators. Knight and Lightowler (2010) have pointed to the often ambiguous, hybrid and temporary nature of such university positions and the consequent personal and professional challenges faced by postholders who perform these 'blended' functions (Whitchurch, 2009).

These individuals, units or organisations can play a crucial role by bringing together academics and non-academics, helping them to find a common language, assisting them in distilling problems in ways that are meaningful to all involved, and facilitating a variety of interactive events and dialogue that, when sustained, enhance the likelihood that research findings will be utilised. When studied collectively across those evaluations that we have conducted, we see that a considerable experience and knowledge base exists as to the role of Knowledge Intermediaries. Yet this knowledge is latent and the role is not necessarily fully recognised by either funders or researchers – or indeed by the knowledge intermediaries themselves or by their employers.

In the RDG evaluation, for example, we often heard centre directors speak about the importance of liaison staff who facilitated connections among individuals, institutions, disciplines and sectors. In the PACCIT evaluation, award-holders identified many such facilitation roles including help in ongoing networking (with other academics, disciplines, and/or non-academics) and help in providing credibility (with home institution, non-academics, and/or funders). In the Psychology Impacts study, we uncovered a surprising heterogeneity among Knowledge Intermediaries. Some of these we had anticipated (e.g. those in the media or in the psychologists' professional body) but we also demonstrated the existence of a wide diversity of individuals, often independently employed, who acted as "go-betweens" distilling research information for use by particular non-academic bodies. Such well-informed, highly motivated individuals who can translate research findings in targeted ways may be an under-utilised knowledge exchange resource. A common characteristic across knowledge intermediaries, whatever form they may take, is the capacity to facilitate reciprocal understanding between users and stakeholders, whether through dialogue, events, networks, and/or appropriate summarisation/integration of findings and communication. Along with this is a distinctive level of comfort in moving back and forth between what others may perceive as intellectual, cultural or practical

boundaries between groups. Critically, effective knowledge intermediaries have the capacity to discern potential linkages; they share the ability to elicit, identify and articulate common ground between researcher questions and stakeholder problems.

Throughout our studies, we found that non-academic impacts were more likely when genuine connectivity existed between researchers and stakeholders with some degree of proximity throughout the research. This required time, effort and resources to build long-term relationships. Likely indicators of success include investment 'at the coalface' which allowed for flexibility and individuality and recognition of research brokerage as a specialised role, as well as specialist training (such as media training) and pro-actively facilitating the sharing of good practice among other knowledge intermediaries.

Specialist support from professional boundary spanners in communicating research to policy makers and practitioners is clearly a valuable resource for researchers (Locock and Boaz, 2004) but these intermediaries often arise serendipitously (and may not be the person formally charged with this role). One key question then becomes, under what circumstances does the system provide sufficient incentives for intermediaries to continue their role as boundary spanners? Often they (and their networks) can be lost at the end of a funding programme. While ESRC recognises (2009a, p.23) sustained contacts with users as the most important determinant of policy impact and the exchange of people between sectors as one of the most effective mechanisms for KE, the challenge still remains that identified by Bechhofer et al. (2001) nearly 12 years ago: "to find ways to institutionalise relationships without setting them in concrete. In meeting this challenge, government, funding bodies, and research active institutions must not underestimate the importance of supporting sustained effort in relationship building".

Conclusions

We have found that rigorous evaluation of non-academic impacts of research can deepen understanding of knowledge exchange processes and can be used to capture and share good practice. We recommend using some form of conceptual framework to elaborate the different types of knowledge flows and network interactions involved in generating non-academic impacts from research (Meagher et al., 2008). We urge research funders to use evaluations to shed light on critical components of knowledge exchange, to identify the nature of knowledge flows, the types of effective processes and the key roles involved when research does lead toward impacts on the economy and society.

The role of the knowledge intermediary is one example of a critical component common to many successful knowledge exchange situations. To increase effectiveness of impact generation, therefore, recommendations to research funders as, effectively, policymakers (and to research managers) are to: 1) recognise the essence of this role and the many forms it can take; 2) provide incentives for involvement of knowledge intermediaries; and 3) make explicit (and share widely) tacit understanding of how best to use them. In turn, Knowledge Intermediaries themselves can benefit from increased (self-) recognition of their role, and the many forms it can take; opportunities for reflection and sharing of insights with their counterparts can consolidate and deepen learning.

Facilitating the generation of impacts from research requires a change in attitudes. Thus, additional recommendations for research funders and managers are to: encourage institutional support and provide incentives and financial support for activities that serve to connect academics and prospective users of research findings even after the formal end of a project. When attempting to evaluate non-academic impacts from research, we would recommend that 'Attitudinal and Institutional Change' and 'Enduring Connectivity' both be included as impacts in their own right

and as 'proxy indicators' of enhanced likelihood of future impacts. Evidence of increasing demand from users (or potential users) of research outputs should be sought as a valuable indicator of "demand pull".

In conclusion, we recommend that policy-makers, research funders and those responsible for schemes promoting knowledge exchange learn through appropriate evaluations that make explicit and visible an emerging body of tacit understanding of key knowledge flows, processes and roles. Learning from evaluation can accelerate and deepen the interactive relationships between academics and private sector or other non-academics that can contribute to society and the Knowledge Economy. We also recommend that implementers who participate in knowledge exchange – academics, non-academics and those who occupy a middle ground – are enabled to share and benefit from this learning.

Acknowledgements

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