

## **From research to practice: making an impact?**

Marie Joubert, Geoff Wake, Julian Williams, Sue Pope and Celia Hoyles  
*University of Bristol, University of Nottingham; University of Manchester; Institute of Education*

The working group has met four times at BSRLM to explore the relationships between research, practice and policy. The particular focus is on ‘impact’ - for example, the group is interested in ways in which research might make an impact by informing practice at classroom, institutional and/or systemic level and influencing policy makers.

**Keywords: Impact, education policy, education practice**

### **Introduction**

There has been an increasing demand from the funders of social science research for evidence of ‘impact’. The Research Excellence Framework (REF) 2014 (HEFCE 2011) defines 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” (Annex C, para. 5) and requires case studies to exemplify impact. The 2011-15 Delivery Plan for the Economic and Social Research Council (ESRC) includes a commitment to “prioritise the generation of economic and societal impact” (ESRC 2010, 2) and to incorporate “impact as part of all research projects, from application (Pathways to Impact) to dissemination, monitoring and support during and after research activities, and post-award data collection and evaluation” (ibid, 18).

For social science, societal impact includes measurable (e.g. economic, or educational or other measurable outcomes, etc.) impact, but also qualitative impacts on public understanding, policy and practice. The root of this process appears to be the chain of accountability between researchers and the funding agencies, and these agencies’ accountability to government which finances research. Ultimately, then, the criteria are reducible to ‘value for money’, or what Williams (2009, 2011) has called ‘exchange value’. But in this case the exchange value is not completely disconnected from ‘use’: we have the chance to make a case for ‘usefulness’ of educational research to society and this series of working groups aims to explore the ways in which we can achieve this.

Related to this is the relationship between research, policy and practice. It is well recognised that there are barriers between the key players in the educational ‘scene’, as a recent report by the National Education Trust (Ashmore and Rowland, 2012) pointed out. They suggested that a triangular relationship between researchers, policy makers and practitioners should work but there are boundaries between the three roles.. The report provides a set of recommendations for school leadership; the Teaching Agency, training providers and professional bodies; and politicians and civil servants and researchers with one overarching recommendation that “ALL parties – practitioners, policymakers and researchers – should work together, locally, nationally and internationally, in order to make better use of robust evidence to inform and improve the quality of teaching and learning” (ibid, 6). The focus for the working group session at the most recent BSRLM day conference was on mechanisms by which researchers can reach practitioners.

We begin this paper with some theoretical framing, and go on to report on the short presentations around which the working group's discussion was centred, concluding with a summary of the discussion.

## **Theoretical framing**

### ***Teaching and Learning Research Programme (TLRP) and the 'science model', Pasteur's 'third quadrant': microbiology and pasteurisation***

In traditional terms the pure and applied nature of research has a long history. One can consider the problematic 'utility' of pure mathematics in this regard and Hardy's famous remark, as well as the conjecture that pure mathematics has always produced a phenomenal 'bang for the buck', while taking an awfully long time, on average, for the buck to go bang.

Stokes (1997) introduced the notion of pure (Bohr's model of the atom), applied (Bell – Edison telephones), and a third quadrant, 'Pasteur's quadrant', (Latour 1988) which he calls pure AND applied, or fundamental AND strategic research. This notion provided the philosophy of the TLRP, perhaps the biggest UK 'quality' educational research programme in our history. However, did they miss a trick in not funding 'pure' research, or purely 'applied' research, etc.?

### ***Social science models of impact***

The social sciences' models are fundamentally different from scientific and industrial models in significant ways. The 'object' of study in *hard* science is, in general, not conscious of the research to which it is subjected, and nature's response to the research probe is 'objective' (uncertainty principles notwithstanding). In social science, one studies humans and social systems of humanity: both are capable of becoming influenced by the research, and of 'fighting back' (Latour 1988).

Thus, the constructs and theories of social science come reflexively to be socially constituted in political and economic practices. Feminism, 'polling', and 'nudge' theory become translated into ideas that mediate policy and practice and thereby change the practices into which academics have inserted them. 'Push and pull' then suggests that educational research can have impact by addressing 'social problems' but also by proposing new ideas as well as 'acceptable solutions'.

### ***R&D and industrial models: Are Research and Design really two distinct activities/systems? What is R&D?***

Another model common in industry and elsewhere is the R&D model, where the two activities of Research and Development come together in a hybrid practice, arguably in a third space, perhaps in some 'expansive' cases. In many cases we are familiar with, the coming together of two activities that share some commonality allows for a reflection, change and even transformation of each. One can think of the classroom R&D group wherein classroom practitioners meet with university researchers with the objective of studying lessons (e.g. lesson study). Action research that engages with educational research proper meets such a criterion.

However, these two 'activities' have generally quite different structures, and when they come together into one activity, apparently to work together with a common, shared 'object', there are likely to be contradictions between the two activities or activity systems, even if they seem to lie occasionally nascent. What do

‘we’ mean by ‘study’ for instance in ‘lesson study’: do ‘we’ really share envisaged outcomes from the joint activity?

Most research done under the name of C-HAT or Activity Theory is pursued as a joint activity with practice, whether one’s own practice or in tandem with other practitioners that presume to share a common object (better learning say). Arguably the ‘outsiders’ can help the insider detach from their consciousness in-the-flow and help question immediate, intuitive, assumed knowledge (Bourdieu’s reflexive sociology leads in this direction). Yet outsider ‘science’ without engagement with the practitioners’ subjectivity is likely to remain inert, and purely academic.

In addition to the R&D model and ‘boundary objects’ and crossers (persons who cross boundaries) favoured by C-HAT, Wenger (1998) and others introduce the idea of ‘brokering’. After Lave & Wenger (1991) Wenger has developed the notion of identity of those who engage in multiple communities of practice, whose identity is formed by modulating their sense of accountability to the constellation of practitioners and communities with whom they identify and work. A broker is one who actively seeks to export/import, or in fact ‘broker’ the practices of one community into another: this can be a risky business but at other times is uncontroversial. So for instance, a researcher who wants to broker their research practices in teaching may have more chance if they are truly (and not only peripherally) participants in the teaching practices they seek to influence/change.

Other conceptions that may be important to the research and practice dialogue might be ‘hybridity’ of practices and languages, and ‘third spaces’ where space may open up from which cultural practices can be seen with some sense of distance (Akkerman and Bakker 2011). Clearly this perspective prompts questions: “what boundary objects do we need?”, “who are our brokers?” and can we find or make third spaces from which to enhance brokering between research and practice?

### ***Dialogism***

In all this work some in the C-HAT tradition also call for a ‘dialogical’ perspective: in this view (after Bakhtin 1981) we - researchers or practitioners one and all - are always ‘answering’ others, and we in turn expect to be ‘understood’ by virtue of the answer to us by others. Indeed understanding is a ‘dialogical’ process.

It has been pointed out that the language of ‘impact of research on practice’ privileges the power/knowledge of research over practice: this monological view of the discourse reduces to ‘dissemination’ and might not be a healthy or ethical formulation of impact, which might better be conceptualised as dialogical, at least two-way.

### **Agenda for the workshop**

This discussion raised two points that were important to the workshop. The first was to return to thinking about what is meant by ‘impact’ in educational research, and, by extension, what could count as evidence of impact. The second is that it is difficult for research to influence practice and policy. This led to the focus for the workshop; opportunities and initiatives that might bring together researchers and teachers:

- The National Centre for Excellence in Teaching Mathematics (NCETM) as a broker;
- Workshops at the forthcoming British Congress for Mathematics Education (BCME);
- ‘Other’.

### **Short presentation 1: NCETM**

The NCETM was launched in 2006, with the broad aim of enhancing mathematics teaching and learning, in schools, colleges, universities and other organisations through high-quality continuing professional development. In particular, it aims to raise the professional status of all those engaged in the teaching of mathematics so that the mathematical potential of students will be fully realised. All teachers and lecturers of mathematics, together with national and international organisations concerned with mathematics education, are considered stakeholders in the NCETM.

The NCETM has two key ways in which it aims to make research accessible and relevant to teachers; firstly by encouraging them to see themselves as enquirers or researchers through engaging in collaborative teacher enquiry and secondly by improving ease of access to relevant research.

The NCETM's work promoted enquiry by teachers in a number of ways. It provided funding to enable them to undertake small research projects, usually within their own schools. The reports for these projects are available on the NCETM's website, and the NCETM has also produced 'Teacher Enquiry Bulletins' which summarise a selection of the reports for a wide audience. It also funded networks which provided contexts in which teachers of mathematics could work as a professional learning community.

As the NCETM states, 'there is a vast literature "out there" that is not always easily accessible to practitioners'. It aims to address this problem through a 'Research Gateway' which provides access to reports, articles & research papers from the British Education Index, specifically selected for the NCETM. At the time of writing (June 2012) this searchable Gateway included almost 1100 freely available articles, currently over 4600 articles.

In another initiative, the NCETM has provided a set of 'study modules' which provide starting points to engage teachers with some research individually or in groups. Each study module is based on a particular research paper and is written to support teachers in thinking about the ideas and findings it contains, and encouraging them to reflect on their own views and practice and consider implications for their developing practice.

Whereas the focus of the NCETM is on teachers, and helping them to do and read research, the focus of the following presentation was more on researchers.

### **Short presentation 2: Opportunities at BCME**

The British Community for Mathematics Education (BCME) conference takes place every four years. It aims to bring together all professionals in mathematics education and in particular, in the context of this workshop, teachers and researchers. The next conference will take place from 13-17 April 2014, in Nottingham. The overarching theme of the conference is 'Building bridges – making connections', and within this presentation the suggestion was that this theme could be seen as encouraging researchers to build bridges over the research/practice divide identified above.

There are two key ways in which researchers might achieve this. The first is through refereed research papers which will be published in the conference proceedings and will therefore be available for all delegates to read. The papers will be presented at the conference and teachers will be able to attend the presentations and hence engage with the research.

Researchers will also be encouraged to submit proposals for workshops at the conference. Broadly these should aim to make research more accessible to the teachers who attend them; the challenge for researchers is to ‘market’ their workshop in such a way that teachers choose to attend them.

### **Short presentation 3: ‘Other’**

A third presentation considered other options related to ways in which researchers can reach a teacher audience. For example, it was suggested that they could produce articles in teachers’ journals (eg Mathematics Teaching, Mathematics in Schools, Primary Mathematics), they might consider authoring study modules for teachers (if the NCETM continues with this initiative) or they could write books for a teacher audience. Researchers can attend the conferences of, for example, the professional associations and could run workshops at these. Other ideas included exploring old and new media for disseminating research findings (e.g. twitter and blogs.)

### **Key Points from Discussion**

The point was raised that in all the short presentations, it seemed that it was taken-as-read that research should have an impact on practice. The presentations did not, however, discuss HOW research might have an impact on practice – or in which ways research should impact on practice. It was suggested that, without a clear vision, it would be difficult to change the status quo.

One group noted that the RECME project (NCETM 2009) found the most effective CPD has an external catalyst. Related to this, they suggested, might be the point that if CPD for teachers is focused on research, then an external researcher might catalyse the process.

There was some discussion about academic writing and the importance for academics of publishing in scholarly journals. However, the academic language and conventions for publishing sometimes (frequently) make the article difficult to engage with, and it takes time and energy to read articles in the academic register. Teachers are notoriously short of time and might prefer articles that are written in a more accessible way. The point was made, however, that while this is perhaps a well-recognised approach, writing for different audiences takes time and energy and is considered not sufficiently well rewarded when only writing for fellow academics ‘counts’.

Some discussion centred on the question of how research is reported in the media and to politicians. Many researchers would like their research to be taken up by the media and noticed and used by politicians, but there is the danger that, in the reporting, the messages of the research can often be distorted or watered down.

Other topics discussed included: examinations and exam boards (are they ‘friends’ of research or ‘foes’?) and the relationship between teachers and teacher educators (and the objects or materials that are chosen as the focus of study).

Finally, the point was made that, while the discussion had focused mainly on the potential impact of research on teachers and on the practice of teachers, perhaps the impact of research on the students should be considered as well.

### **Conclusion**

This meeting of the working group focused on the impact of research on the work of teachers. Two main (related) perspectives were offered. The first explored how

research could be made more accessible to teachers; how it should and could be presented to teachers. The second explored what researchers could do to reach teachers. The discussion provided opportunities for those attending to further discuss some of the points made in the presentations and to bring up related points.

The question for the group is how future meetings might carry this work forward and avoid re-visiting old ground. One suggestion we have comes from the first discussion point discussed above; to consider the vision for the impact of mathematics education research. On whom do we want to make an impact? What would the impact look like? Do researchers share the same vision? A second suggestion comes from a number of small comments made, which we have not reported above as the comments were more in the nature of 'throw-away' remarks than discussion. These comments related to developing a good understanding of what research does seem to have had an impact, and what that impact looks like.

## References

- Akkerman, S.F., and A. Bakker. 2011. Boundary Crossing and Boundary Objects. *Review of Educational Research* 81 (2): 132-169.
- Ashmore, T. and M. Rowland. 2012. *Research, Policy & Practice: Interdependent relationships for an interdependent education system*. London. Publisher?
- Bakhtin, M. 1981. *Discourse in the novel*. In M. Holquist (Ed.), *The dialogic imagination*, 259-422. Austin: University of Texas Press.
- ESRC, 2010. Economic and Social Research Council Delivery Plan 2011-2015 [http://www.esrc.ac.uk/\\_images/ESRC%20Delivery%20Plan%202011-15\\_tcm8-13455.pdf](http://www.esrc.ac.uk/_images/ESRC%20Delivery%20Plan%202011-15_tcm8-13455.pdf) (accessed 10/4/2012).
- Hefce, 2011. Assessment framework and guidance on submissions (accessed 10/4/2012). [http://www.hefce.ac.uk/research/ref/pubs/2011/02\\_11/02\\_11.pdf](http://www.hefce.ac.uk/research/ref/pubs/2011/02_11/02_11.pdf).
- Latour, B. 1988. *The Pasteurisation of France*. Harvard: Harvard University Press.
- Lave, J. and E. Wenger. 1991. *Situated learning: Legitimate peripheral participation*. New York: Cambridge University Press.
- NCETM, 2009. *Researching Effective CPD in Mathematics Education - Final Report* <https://www.ncetm.org.uk/public/files/387088/NCETM+RECME+Final+Report.pdf> (accessed 14/06/2012).
- Stokes, D. 1997. *Pasteur's Quadrant: Basic Science and Technological Innovation*. Brookings Institution Press: Washington, DC.
- TLRP <http://www.tlrp.org/> (accessed 14/06/2012).
- Wenger, E. 1998. *Communities of Practice: learning, meaning, and identity*. Cambridge: Cambridge University Press
- Williams, J.S. 2009. Embodied multi-modal communication from the perspective of activity theory. *Educational Studies in Mathematics* 70 (2): 201-210.
- 2011. Use and exchange value in mathematics education: contemporary cultural-historical activity theory meets Bourdieu's sociology. *Educational Studies in Mathematics* iFirst: 1-16.