

## Moving beyond the seductive siren of reach: planning for the social and economic impacts emerging from school-university engagement with research

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Richard Holliman and Gareth Davies

### Abstract

In the past 25 years school-university partnerships have undergone a transition from *ad hoc* to strategic partnerships. Over the previous two-and-a-half-years we have worked in partnership with teachers and pupils from the Denbigh Teaching School Alliance in Milton Keynes, UK. Our aims have been to encourage the Open University and local schools in Milton Keynes to value, recognise and support school-university engagement with research, and to create a culture of reflective practice. Through our work we have noted a lack of suitable planning tools that work for researchers, teachers and pupils. Here we propose a flexible and adaptable metric to support stakeholders as they plan for, enact and evaluate direct and meaningful engagement between researchers, teachers and pupils. The objective of the metric is to make transparent the level of activity required of the stakeholders involved — teachers, pupils and researchers — whilst also providing a measure for institutions and funders to assess the relative depth of engagement; in effect, to move beyond the seductive siren of reach.

### Keywords

Public engagement with science and technology; Science communication: theory and models; Informal learning; Community action; Science education

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### Improving the quality of school-university engagement

In the past 25 years school-university partnerships have undergone a transition from *ad hoc* to strategic partnerships; away from the “trickle down” theory of change approach [Lieberman, 1992, p. 6], toward the development of enhanced relationships [Richie et al., 2011], based on the principle of sharing and valuing differences where the emphasis is on “*all voices being heard*” [Baumfield, 2001; Taylor, 2008 in Handscomb, Gu and Varley, 2014, emphasis in original] This has been characterised in part by a shift in purpose where partnerships are set up to serve the interests of pupils, teachers and local communities. Practically, this has resulted in moving from the convention of university-led *ad hoc* interventions, carried out intermittently for teacher education and classroom enrichment towards a strategic approach, where teacher education is school-led [Gov UK, 2014] and researchers seek out opportunities to engage schools with their research with a focus on having an impact on those these partnerships serve — the pupils, teachers and local communities.

In keeping with this wider context for change Research Councils UK [RCUK, 2012], the strategic partnership of the UK's seven Research Councils (<http://www.rcuk.ac.uk>), issued a call for research-intensive universities to work in partnership with local secondary schools (serving pupils from 11 to 19 years of age). Twelve projects were match-funded by RCUK and the respective host universities through the three-year (2013–2015) School-University Partnerships Initiative (SUPI) [RCUK, 2015b], with the aim of encouraging universities to value, recognise and support school-university engagement with research. Our project, called 'Engaging opportunities' [OU, 2015], involves staff (mainly researchers) from The Open University (OU), UK, working in a strategic and operational partnership with staff (mainly teachers) from the Denbigh Teaching School Alliance (DTSA) [DTSA 2015] in Milton Keynes. OU researchers and DTSA teachers have worked collaboratively over the previous two years to deliver shared objectives for more than 2500 children and young people in Milton Keynes.

'Engaging opportunities' is a collaborative and pupil-centred partnership; initially, teachers and researchers worked together to produce the plans for the partnership, then focussing (where relevant directly involving pupils) on the design, development and evaluation of direct and effective schools-university engagement with authentic, contemporary research (e.g. by developing and implementing strategies that promote structures and equitable mechanisms for engaging with a range of publics, stakeholders and user communities).

Through the course of our project we have identified a number of challenges in conducting effective school-university engagement. A key strategic challenge is the lack of institutional recognition for school-university engagement. Whilst many researchers clearly value the opportunities to engage directly with teachers and young people, there are ongoing challenges in providing a strategic and operational framework within which these activities are incentivised, supported and rewarded [Andrews et al., 2005; Besley and Nisbet, 2011]. In practice, we have struggled with what Watermeyer [2015, pp. 3–4] has described as "the evaluation, esteem and apathy cycle". In other words, we argue that in spite of the wider cultural shift towards partnership working, school-university engagement: 1) lacks a culture of reflective practice where researchers plan effectively with teachers (and where relevant children and young people); 2) suffers from a dearth of evidence where the relative success of these activities is assessed through systematic evaluations; 3) still wants for findings from the processes and products to be shared with relevant stakeholders (including funders) to secure the higher status that these activities deserve. How then can we begin to break what is, in effect, a vicious circle?

### **Why do we need a SUPI metric?**

Based across the length and breadth of the UK [NCCPE, 2015], the 12 SUPIs are part of a wider programme of work designed to deliver the vision of RCUK's 'Public Engagement with Research Strategy, which includes a commitment to "[help] to secure and sustain a supply of future researchers and enable the next generation to act as informed and involved citizens" [RCUK, 2014].<sup>1</sup> This includes the work of eight Public Engagement with Research (PER) Catalysts [RCUK, 2015a], which are based in research-intensive universities. Through the work of the OU's PER

<sup>1</sup>Previous RCUK Public Engagement with Research Strategies have included similar aims, illustrating a long-term commitment to engaging children and young people with research.

Catalyst, an 'Open Research University' [Holliman et al., 2015; Grand et al., 2015; Davies et al., 2015; Holliman, 2013], we identified a need for mechanisms to support all grades of researcher as they plan for the social and economic impacts that could be generated from 'engaged research'<sup>2</sup> (for discussion see NCCPE, 2011).

The lack of planning tools to support researchers planning for engagement, in particular those supporting structured approaches to school-university engagement, were writ large when we came to write our proposal to become a SUPI. We were faced with two major challenges. First, children and young people, and the teachers that support them, have many competing demands on their time. The National Curriculum for England [NCE, 2015], for example, places considerable constraints on teachers and pupils. It follows that teachers have limited opportunities to work with researchers unless the proposed activity can directly support the National Curriculum, which can be a challenge when dealing with authentic, contemporary research. Teachers therefore require a clear rationale for engaging, allied with a simple measurement of what degree of involvement might be called for from them and their pupils. And yet to meet the requirements for funding through RCUK (and the seven component Research Councils), as researchers we needed to demonstrate direct engagement with contemporary research, and to justify the resources we were using to engage. In addition, we were also required to work with researchers from across The Open University's diverse research portfolio, ranging from educational technology to space sciences, from social psychology to business and management, etc.

To address the diversity in the academic disciplines where Open University researchers work, and the subjects that school students are taught, we proposed a flexible and adaptable framework involving four types of activities: Open Lectures; Open Dialogues, Open Inquiry; and Open Creativity. Through these four types of activity our collective aim is to generate awareness of the nature and challenges of contemporary research, supporting those who wish to make the transition from school to university, whilst facilitating discussion about the social, economic and ethical impacts of research, developing the skills and competencies necessary to become effective citizens.

In the process of collaboratively producing this framework we were required to consider the numbers of researchers, teachers and pupils we were planning to engage with over the lifetime of the project. The numbers for those we hoped would attend the open lecture (2,400) and open dialogue (960) programmes far exceeded those we could host through the open creativity (200) and open inquiry (300) programmes. Yet the resources required for these latter programmes (creativity and inquiry) far outstripped the lectures and dialogues, not least because they required a larger commitment of time from teachers, pupils and researchers. In effect, we knew that for a relatively small commitment in terms of resources we could attract large numbers of pupils through lectures. In contrast, for a greater commitment in terms of resources we could engage smaller numbers, but over a greater amount of time, thereby increasing our chances of genuinely fulfilling the call's requirement for direct and meaningful engagement.

In the end our project was funded, but we were left with the uncomfortable feeling that, in spite of our commitment to a more progressive vision for engaged research

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<sup>2</sup>For a description of engaged research, see [Holliman and Holti, 2014].

[Holliman, Davies and Russell, 2015], we had to some degree at least been enchanted by the seductive siren of reach. How then could we move to a more transparent and comparable assessment of direct and meaningful engagement?

### A metric for planning for school-university engagement

In trying to address the challenges researchers and reviewers were facing as they considered the relative quality of engaged research, Holliman [2013] introduced a framework based on six dimensions that researchers should be integrating into their planning for engaged research (people, purposes, processes, participation, performance, and politics). This framework has been used widely in training [Holliman et al., 2015]. It is presented as a checklist to help researchers and reviewers consider whether relevant publics, impacts, activities, participants, performance indicators, and contextual issues, respectively, have been considered and whether stakeholders have been consulted. Building on this idea of providing a means of measuring the quality of engaged research, we wanted to develop a SUPI metric that went beyond simply counting the number of pupils engaged.

Our aim was to work collaboratively across the SUPI network to develop and test the metric. Prior to an National Co-ordinating Centre for Public Engagement (NCCPE) organised SUPI meeting, we worked with NCCPE's project officer for SUPI (Claire Wood) to invite the other 11 SUPIs to send three examples of their activities, with information about the number of pupils, researchers and teachers involved and the number of hours each activity lasted. During the subsequent meeting the data were presented in a variety of ways to prompt discussion about the value of considering pupil numbers and duration of activity as a planning tool [Holliman and Davies, 2015].

During the group discussion merit was found in our proposed approach as a tool for planning (as opposed to measuring subsequent impact). It was also suggested that the metric should be able to reflect the relative time that pupils, teachers and researchers invested in planning for and participating in each activity.

To address this, Figure 1 represents a revised version, where the number of pupils, teachers and researchers participating is multiplied by the number of hours each stakeholder invests. These three values —  $x$ ,  $y$  and  $z$  — are then added together to generate a combined value for an activity; representing the planned reach and potential depth of any given SUPI activity (where 'depth' is assumed to be related to the number of hours participants are engaged in the activity).<sup>3</sup>

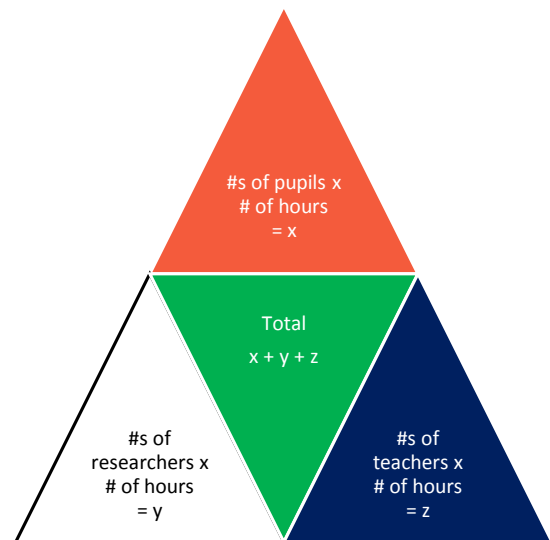


Figure 1. The formula for the SUPI metric.

<sup>3</sup>Our calculations do not include time spent on associated activities, such as writing blog posts [e.g. Mundy, 2014].

To demonstrate the approach we will consider the contrast between a programme of Christmas lectures [Holliman, Davies and Russell, 2015] and a Nuffield Research Placement [Mundy, 2014].<sup>4</sup> These activities were selected to represent the two ends of ‘the scale’ of reach for school-university activities in our project, where ‘the scale’ is measured by the number of pupils involved.

The values in the orange, white and blue triangles of Figures 2 and 3, respectively, represent the total number of pupils, teachers and researchers that took part multiplied by the average number of hours each stakeholder invested. The values presented within the green triangle represent the sum of the calculations in the orange, white and blue triangles.

The 2013 Christmas lecture programme lasted for one hour and involved six researchers (four delivering short talks and two introducing the speakers and facilitating a Q&A session at the end of the talks). The lecture was attended by 237 pupils and 7 teachers (from four schools).

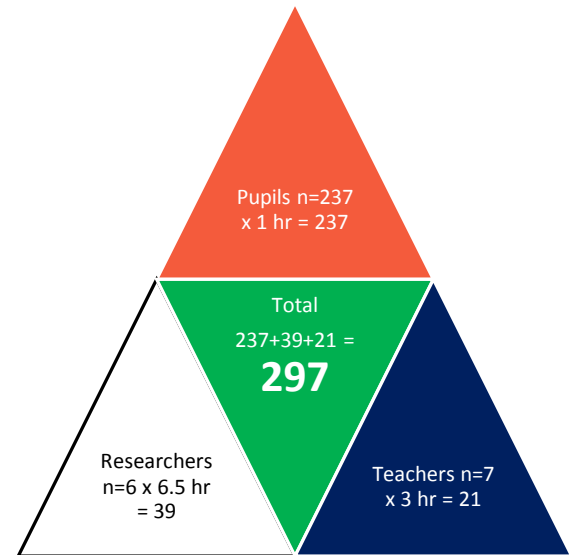


Figure 2. Christmas Lecture Programme.

The activity didn’t require pupils to prepare for the activity but the teachers spent approximately two hours each, e.g. recruiting students, gaining permissions and organising transportation. We also invited a teacher to attend one of the dress rehearsals to offer feedback, which lasted approximately one hour. On average, each researcher invested six-an-a-half hours prior to the lectures (two hours in planning meetings and dress rehearsals, three-and-a-half hours preparing their talks, and one hour for the actual activity). The total figure for this activity is 297 ‘SUPI hours’.

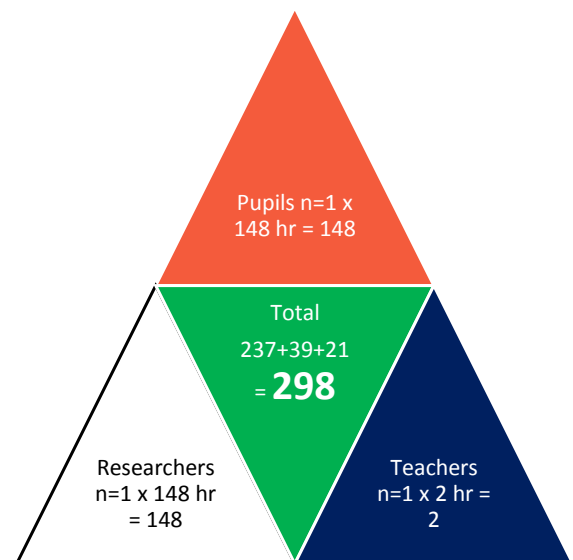


Figure 3. Nuffield Research Placement.

<sup>4</sup>Nuffield Research Placement, <http://www.nuffieldfoundation.org/nuffield-research-placements>; accessed on 7<sup>th</sup> August 2015.

The Nuffield placement, on the other hand, involved one pupil engaging with one researcher for 147 hours (37 hours per week for four weeks). One teacher spent approximately two hours to recruit the student, prepare relevant paperwork, etc. The total figure for this activity is 298 'SUPI hours'.

The intention was that the figures would go beyond simply reporting the number of students engaged to provide a more transparent perspective of number of stakeholders involved; the average time investment required; and the relative contribution/investment made by the pupils, teachers and researchers.

Comparing the two case studies the total number of SUPI hours is nearly identical (297 to 298) and yet the number of pupils engaged is very different (237 to 1). It follows that the figures reveal a depth of engagement on the part of pupils and researchers in the Nuffield Research Placement that could be lost in a grant proposal when compared to the number of students attending a lecture. This is not to say that lectures have no place in school-university engagement. In our experience they are valued by all stakeholders; pupils, teachers and researchers. But they are not the only option on offer and they should not be judged as effective merely in terms of numbers reached. Hence, the tool is designed to provide a more transparent assessment of the likely depth of engagement by the three main stakeholders who are involved, to illustrate to all stakeholders, including universities and funders, that direct and meaningful engagement involving smaller numbers of pupils has at least equivalent value to the seductive siren of reach.

## Conclusion

What we have proposed in this short paper is a planning tool: a flexible and adaptable metric designed first and foremost to support a change in practice in how researchers, teachers (and where relevant pupils) plan for school-university engagement. Researchers are working in an ever more competitive environment for research funding. In our experience, this can make them (and us) risk averse. If the metric works it should require that researchers work in partnership with schools, e.g. by gaining School Senior Leadership Team approval for their planned school-university engagement activities *before* they submit their grant proposal. Furthermore, the metric is designed to demonstrate that an intensive, ongoing partnership with a small number of pupils is equivalent in terms of the reach: depth ratio to a lecture theatre full to the rafters for an hour.<sup>5</sup> Hence, at the operational level we hope the tool will be used to support a bold and progressive vision for school-university engagement, ultimately improving the quality of planning for school-university engagement, and making the negotiations between researchers, teachers, and ultimately research funders, more transparent.

A secondary, but equally important aim, has been to produce a comparable metric to assess the justification of resources for school-university engagement, both for universities and funders, but this does also introduce a corresponding need for greater transparency from research funders about how they are using these measures. Hence, at the strategic level we are trying to influence the existing

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<sup>5</sup>However, the tool is not provide an indication of the quality of either interaction, or its impact. As such, we argue that the SUPI metric should be used in combination with other planning tools, e.g. exploring the dimensions of engaged research [Holliman, 2013].

culture of school-university engagement, to break “the evaluation, esteem apathy cycle” [Watermeyer, 2015], by providing evidence to support a rationale for a progressive vision where direct and meaningful activities are valued. Of course, we are also part of a wider context where there has been a rise in the number of metrics in response to greater pressure from Government to account for public spending on research.

“The metric tide is certainly rising. Unlike King Canute, we have the agency and opportunity [. . .] to influence how it washes through higher education and research.” [Wilsdon, 2015, p. iii]

We acknowledge the dangers that introducing another metric could be counterproductive resulting in universities and researchers changing their behaviours for the wrong reasons and sometimes in the wrong direction. To that end, we discussed an earlier version of this metric with representatives from the other SUPIs and the NCCPE [Holliman and Davies, 2015], surveyed their views and revised the formula accordingly, and we will continue these discussions going forwards. It follows that ultimately, if used appropriately, we argue that quantitative metrics can enrich planning for and assessments of school-university engagement, but we also recognise and value the sophistication of, and continued need for, nuanced, expert judgements and qualitative evidence.

## Acknowledgments

Part of the inspiration for the SUPI metric discussed in this paper was taken from work being conducted by the NCCPE to create a tool to assess a given university’s strategic and operational support and reward mechanisms for school-university engagement in relation to local schools and pupils. In effect, if successful, such a tool would mirror the work undertaken by the NCCPE [2010] to assess and drive organisational change in universities in terms of their support for public engagement. To this end, we are grateful to Claire Wood and Sophie Duncan who have provided support and guidance throughout the development of the metric discussed in this paper, whilst providing mechanisms to work collaboratively across the SUPI network.

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## Authors

Richard Holliman is Professor of Engaged Research in the Faculty of Science at the Open University (OU), UK. He recently led the OU's Public Engagement with Research Catalyst, 'An Open Research University'. He is currently leading the 'Engaging Opportunities' Project, a School-University Partnership with the Denbigh Teaching School Alliance. E-mail: [Richard.Holliman@open.ac.uk](mailto:Richard.Holliman@open.ac.uk).

Gareth Davies is a Research Associate in the Faculty of Science at the Open University (OU), UK. He is currently working on the 'Engaging Opportunities' Project, designing, collecting, and analysing data for the evaluation of impact, and supporting researchers through continuing professional development. E-mail: [Gareth.Davies@open.ac.uk](mailto:Gareth.Davies@open.ac.uk).

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