Factors affecting public engagement by researchers

A study on behalf of a Consortium of UK public research funders

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Executive Summary

The *Factors affecting public engagement by researchers* project suggests that the embedding of public engagement in institutional cultures is best understood as a 'work in progress'. There are positive indications in the project outputs that public engagement is increasingly part of the landscape of higher education and research institutions, and that participation in and value placed on public engagement has increased in recent years. At the same time, the research suggests that researchers and institutions remain uncertain about systems of rewards for public engagement, within the context of a profession that is driven by research (and teaching). The project suggests that public engagement is more firmly embedded in the context of the arts, humanities and social sciences than it is among researchers in science, technology, engineering and mathematics. Wide ranging research over a lengthy period shows that institutional change of this kind is highly challenging and that higher education institutions are known to be relatively slow to change. Within this context, the project indicates that, while recent and current strategies have been helpful, longer term effort – perhaps targeted in particular domains – is required.

Introduction

This Executive Summary presents the key findings from the *Factors affecting public engagement by researchers* project that was conducted in 2015. The project consisted of a number of stages: a quantitative survey of UK researchers; a quantitative survey of public engagement support professionals within UK higher education institutes (referred to as enablers); qualitative interviews with a selection from these groups; and a comprehensive literature review. The objective of the project was to provide independent insight and evidence to support future UK planning and strategy for supporting researchers to engage with the public. The research was funded by a Consortium of 15 funders of UK public research[1]. The Wellcome Trust managed the research on behalf of the Consortium, supported by a Steering Group drawn from the Consortium. Three reports have been published from this research: a main report, a technical report, and a literature review; these additional reports are available at: www.wellcome.ac.uk/PERSurvey. To a considerable extent, the 2015 research is understood as an update of the work that was led by the Royal Society ten years ago[2].

Public engagement is a contemporary term for a range of activities that focus on interaction between research and the broader public. Although definitions vary, the list of activities that count as public engagement tends to include: work at festivals, museums, galleries, science centres and other cultural

[1] The Consortium comprises: Wellcome Trust, Royal Society, British Academy, Royal Academy of Engineering, Academy of Medical Sciences, Royal Society of Chemistry, United Kingdom Research Councils, Higher Education Funding Council for England, Higher Education Funding Council for Wales, Scottish Funding Council, Department for Employment and Learning – Northern Ireland, Department of Health (NIHR), the Scottish Government, Department for Business, Innovation and Skills and the Welsh Government (National Institute for Social Care and Health Research). The research is also supported by Universities UK.

[2] https://royalsociety.org/policy/publications/2006/science-communication/

venues; involving the public in the development of research and in research itself; presenting to and writing for the public; and working with young people. Such interactions are seen to have a range of benefits for research, society and the economy. The relationships between research in science, technology, engineering and mathematics (STEM) and broader society have been the subject of institutional concern since the mid-1980s; in this context, earlier institutional efforts emphasised communication and education. In the arts, humanities and social sciences (AHSS), although institutional concern is not evident, such activity by researchers also has a rich contemporary history; here, objectives have been more oriented around participation and empowerment.

One of the most important features of the recent focus on public engagement is the desire to promote more interactive, participatory and dialogic forms of public engagement (as opposed to earlier models that emphasised communication). In recent years, many of the funders of UK public research have committed to embedding public engagement within the cultures of the higher education and research institutions that they fund. This objective has been supported by considerable investment by the funders of UK research in the development of systems to better value, recognise and support for public engagement by researchers. Cycles of investment, targeted at specific institutions or clusters, has formed a major part of this effort. Thus, public engagement is a relatively novel – yet, increasingly important – concern for UK researchers.

Within this context, the aim of the *Factors affecting public engagement by researchers* project was to provide insight and evidence to support future planning and policy in the context of public engagement. In support of this aim, the objectives of the research were:

- To establish an up to date evidence base on the extent of public engagement by researchers and factors affecting participation
- To chart changes in participation and attitudes over the past decade (since 2006) among researchers in the STEM disciplines
- To investigate levels of public engagement among researchers in the arts, humanities and social sciences (AHSS) and to establish differences between STEM and AHSS disciplines.
- To explore the role of public engagement facilitation staff in enabling researchers to undertake public engagement
- To provide a rich evidence base for use by the Consortium to inform strategy and future direction and policy

The researcher and enabler samples for the quantitative and qualitative work were sourced from 50 higher education institutes and 13 research funders or research institutes. The researcher survey sample was designed to be representative of the population of all researchers working in higher education and research institutes and clinical settings while the enabler survey was based on a more pragmatic sample given the difficulties involved in scoping and defining this population. The quantitative researcher and enabler data were derived from a web survey and yielded a total sample of 2,454 researchers (22% response rate overall, 24% within higher education institutes) and 269 public engagement enablers (a 33% response). 50 qualitative in-depth telephone interviews were conducted with researchers and enablers. The literature review was based on around eighty UK and international items dating from 1985. Although the researcher survey response rate is relatively low, it is fairly typical for staff surveys and response was also affected by time of year and competing requests for surveys. However, despite this, the institutional and staff profile closely matched population data, and weighting of results was applied to align the results to the population for key demographics.

Public engagement by researchers

The higher education and research sectors are known to be relatively slow to change and have undergone broader structural change in recent years. Within this context, the project findings – both the new research and the recent literature – paint a mixed picture of a sector in transition with respect to public

engagement, or of public engagement by researchers as a 'work in progress'. Reflecting this change and relative novelty, the contemporary research contains mixed messages, and highlights a sense of ambiguity and confusion among researchers surrounding public engagement and its place in their professional lives. Similarly, the research among public engagement enablers points to the uncertain place of public engagement within institutions and institutional structures. In summary, while the research offers a number of positive and encouraging signals, it also identifies challenges and provides guidance for future public engagement strategies.

In a number of ways, the new *Factors affecting public engagement by researchers* research suggests that public engagement is now part of the contemporary UK higher education and research landscape. For instance: public engagement is typically understood by researchers as a 'duty'; researchers with ten or more years' experience cite perceived increases in extent, support and quality of public engagement by researchers over past decade; more than half of the researchers indicate that they consider public engagement to be as important as other aspects of their job; and, more than half of the researchers indicate that they feel at least fairly well equipped to undertake public engagement activities. In addition, although not all measures are statistically significant, this research and all recent UK research on the topic indicates that the extent of participation in public engagement and communication by researchers has increased in recent years. Indeed, although this measure might be capturing minimal activity in some cases and is most likely subject to some selection bias, in the new research eight in ten researchers claimed some involvement in public engagement in the past 12 months (and more than half of the researchers expressed a desire to do more). The new research also reveals the importance of social media as a communication tool, this being the only activity undertaken by more than half of the researchers in the past year.

At the same time, the project identifies a number of challenges that might provide guidance for future public engagement strategies. Primarily, the new research suggests that public engagement often struggles to compete for time and resources within the context of a profession that is overwhelmingly driven by reward and recognition for research itself; indeed, the enablers survey indicates that many institutions have no formal structures for rewarding public engagement. There is clearly a legitimate question about how much of researchers' limited time and resources should be devoted to public engagement. Nonetheless, the significant proportion of researchers – and particularly high proportion of young researchers – who expressed a desire to do more public engagement suggests that there is further potential that could be tapped within systems of greater reward for public engagement. Considering that more than half of the researchers said that they feel well-equipped for public engagement, it is also notable that – despite its increasing availability – formal training in public engagement remains the exception and on-the-job learning the norm. This is also important since the new research highlights a link between formal training and participation in public engagement. The new research and the recent literature both suggest that further attention might be paid to systems of reward for and training in public engagement by researchers; not surprisingly, perhaps, the research with public engagement enablers also reflects this view.

The impression of higher education institutions and research institutions in transition with respect to public engagement is also reflected in the research with public engagement enablers. This novel category of support professional – the existence of which is itself a sign of cultural change within the sector – appears to be located in a variety of institutional settings: sometimes a central resource, sometimes distributed, sometimes specific to public engagement, and sometimes associated with broader responsibilities such as the broader category of research 'impact', or in marketing/PR or training/HR. The impression of public engagement as an institutional 'work in progress' is indicated in considerable enabler uncertainty relating to the presence of an institutional public engagement strategy (including evaluation) and budget. Further evidence of this transition is perhaps contained in the findings that researchers often

state that they find it difficult to find opportunities to participate in public engagement or that they do not see a public relevance to their research, while enablers often complain that it is very difficult to encourage researchers to get involved in public engagement. Finally, as mentioned earlier, an important feature of the contemporary institutional focus on public engagement is the desire to promote more interactive and dialogic forms of public engagement (as opposed to earlier communication models). Although there is evidence of greater acceptance of this definition of public engagement since 2006, fewer than half of the researchers emphasised the interactive element of public engagement; this may suggest an objective for further attention in future strategies.

Distinctions among researchers

Both the new research and the literature review consistently point towards striking distinctions between the arts, humanities and social sciences (AHSS), in which public engagement appears to be more embedded, and the STEM disciplines, in which it appears to be less so (the one exception to this pattern is STEM researchers who also do clinical work). For instance, the new research suggests that AHSS researchers (and especially arts and humanities researchers) are more likely to: participate in public engagement, indicate that public engagement is at least as important as other professional tasks, indicate that they would like to spend more time on public engagement, emphasise the more dialogic aspects of public engagement, and suggest that public engagement can improve their research. While the distinctions are not so strong, the new research also contains hints that public engagement is more embedded among more senior researchers and female researchers. For instance, senior researchers – and, in particular, senior female researchers – undertake more public engagement than other groups. In addition, female researchers are more likely to think that public engagement adds value to their research. These distinctions, especially those relating to discipline, point towards the potential for differentiation, segmentation and targeting within future public engagement strategies.

Conclusions

Research in organisational studies and associated disciplines emphasises the long-term nature of organisational change, and specialised work shows that higher education institutions are relatively slow to change. Within this context, the *Factors affecting public engagement by researchers* points to a sector in transition with respect to public engagement, or of public engagement by researchers as a 'work in progress'. To put this another way, the research findings convey positive signals that current strategies have been helpful, but also that there are challenges and more to be done. Looking to future strategies, with the objective of consolidating and building on the positive change so far, the outputs from the project suggest that further attention might be placed on: ongoing clarity of the commitment to public engagement from the UK funders of public research, further embedding institutional and broader professional systems of reward and support, development of better understanding of the structures within HEIs (for instance, centralised or distributed support for public engagement) that best support public engagement, segmentation within public engagement strategies, and further embedding of evaluation of public engagement.

1. Introduction

1.1 Background and objectives

Public engagement is increasingly recognised as a prominent part of the work of researchers in higher education. In 2015 a Consortium[3] of 16 funders of UK public research commissioned TNS BMRB in partnership with Dr. Kevin Burchell of the University of Westminster to conduct a research study to investigate the current landscape of public engagement by researchers in higher education, research institutes and clinical settings. The research will be used to help the Consortium understand the factors which affect public engagement in order to help develop the culture of public engagement by researchers in the UK and to inform future policy and practice in the sector.

The Consortium was led and managed by the Wellcome Trust working with a Steering Group drawn from the Consortium. The research programme was a multi-stage study comprising a literature review, a web survey of 2,450 researchers, a web survey of 269 staff working in role which facilitates public engagement and a qualitative study of 50 in depth telephone interviews with researchers and staff who support public engagement.

The survey was designed to build on the 2006 Royal Society *Survey of factors affecting science communication*[4] which was based on a sample of researchers in science, technology, engineering, and mathematics (the STEM disciplines). The 2015 survey had a broader set of aims and included researchers from all disciplines including those in the arts, humanities and social sciences (AHSS). However, a comparison of key measures between the two surveys has provided broad evidence of change in the sector over the previous decade in terms of participation in and attitudes towards public engagement.

The study had a number of objectives:

- To establish an up to date evidence base on the extent of public engagement by researchers and factors affecting participation
- To chart changes in participation and attitudes over the past decade (since 2006) among researchers in the STEM disciplines
- To investigate levels of public engagement among researchers in the arts, humanities and social sciences (AHSS) and to establish differences between STEM and AHSS disciplines.
- To explore the role of public engagement facilitation staff in enabling researchers to undertake public engagement
- To provide a rich evidence base for use by the Consortium to inform strategy and future direction and policy

[3] Academy of Medical Sciences, British Academy, Department for Business, Innovation and Skills, Department for Employment and Learning - Northern Ireland, Department for Health (National Institute for Health Research), HEFCE, HEFCW, Research Councils UK, Royal Academy of Engineering, Royal Society, Royal Society of Chemistry, Scottish Funding Council, Scottish Government, The National Institute for Social Care and Health Research - a department of the devolved Government of Wales, the Scottish Government, Universities UK, Wellcome Trust. The research was further supported by Universities UK.

[4] https://royalsociety.org/policy/publications/2006/science-communication/

Three reports have been published from this research:

- A main report (this one);
- A technical report;
- A literature review

All outputs can be found at: www.wellcome.ac.uk/PERSurvey

1.2 Research methodology

The research comprised several stages as outlined below.

1. A *literature review* conducted by Dr. Burchell at the University of Westminster: the aim of this stage was to set the context for the 2015 survey, including an independent review and synthesis of existing literature in this domain, and a mapping of developments over time since 1985
2. A *web survey of research staff* (n=2,454) working in HEIs and research institutes/clinical settings: the aim of this stage was to provide a robust evidence base on participation in and attitudes towards public engagement in 2015
3. *A web survey of "enablers"* (n=269) - that is staff who support and facilitate researchers in their public engagement activities: the aim here was to supplement and contextualise the researcher survey findings by providing evidence on institutional policy and views
4. *Qualitative research* with 50 researchers and enablers to explore emerging issues in greater depth

A summary of the methodology for each stage is provided in the Appendix while full details are provided in the technical report www.wellcome.ac.uk/PERSurvey

1.3 Note about interpretation of findings

All differences commented on in this report are statistically significant at the 95 per cent level.

The response rate to the survey was 22% overall. Although this level of response is not untypical for staff surveys, it is possible that the propensity to respond was associated with variables which were measured in the survey. Weighting has been used to correct for observed differences between sample characteristics and known population values (for example by age, gender, academic discipline). However, it is possible that there are additional unobserved correlates of nonresponse which may still result in biased survey estimates. For example it might be the case that those who most value the role of public engagement in research were more likely to respond and that the survey therefore over-estimates the extent of public engagement in the population of researchers. This should be borne in mind when interpreting the survey findings.

In addition, one of the objectives of the survey was to measure change since 2006 for the STEM subgroup of researchers who were the target of the 2006 Royal Society survey. A number of questions were replicated from the 2006 survey to allow time trend comparisons. However, some caution should be applied when interpreting change over this period. This is because, despite the desire to keep the question wording as comparable as possible with 2006, it was necessary to make some wording changes to account for updated conceptual definitions and an expanded target population. In addition, some of the meanings of key concepts around public engagement have changed over time. As a result changes over time are best regarded as suggestive even when the statistical evidence suggests a significant change over time.

For further details on interpretation of survey findings refer to section A.8 in the Appendix.

1.4 Structure of the report

This report covers the findings from the quantitative and qualitative components of the study. For the STEM survey subgroup, changes between 2006 and 2015 are highlighted for a limited number of measures where comparable questions were asked.

Chapter 2 provides evidence on the extent and nature of public engagement by researchers in 2015. Chapter 3 explores researchers' understanding of the concept of public engagement and their reasons for getting involved. Chapter 4 considers the confidence and skills among researchers to do public engagement. Chapter 5 focuses on the viewpoint of enablers and covers the ways in their which their role and their institution more generally supports researchers to do public engagement. Chapter 6 explores the barriers and facilitators to public engagement. Finally, the Appendix provides a summary of the research method.

1.5 Glossary of terms of acronyms used throughout this report

Throughout this report we use a number of terms and acronyms to describe different concepts related to public engagement and the work of researchers within higher education. A guide is provided here.

Table 1.1 Terms and acronyms used within this report

Term	Definition
AHSS	Arts, Humanities and social sciences
STEM	Science, Technology, Engineering and Maths
REF Panels/Units of assessment	A grouping of disciplines for the purposes of the REF (Research Excellence Framework) http://www.ref.ac.uk/panels/unitsofassessment/ This categorises research activity into four groupings: Panel A includes clinical and biological sciences; Panel B includes engineering, mathematics and the physical sciences; Panel C includes social sciences, business, law, architecture; and Panel D includes arts, humanities, languages and media
Concordat for Engaging the public with research	A set of principles defined and drawn up by the Funders of Research in the UK http://www.rcuk.ac.uk/RCUK-prod/assets/documents/scisoc/ConcordatforEngagingthePublicwithResearch.pdf
PER	A short-hand used within some tables and charts meaning "Public engagement by researchers"
HEI	Higher education institute (university)
Non-HEI	For the purposes of this project, this term encompasses researchers working in research institutes and clinical settings (funded by the National Institute for Health Research (NIHR))
Clinicians	Researchers who are on Research and Clinical contracts
Early career researcher/Senior researcher	A broad two-way distinction based on the following: *Early career*= PhD student, Research assistant, Research Associate, Research Fellow, postdoctoral researcher, Lecturer, Assistant Professor. *Senio*r=Senior Research Fellow, Principal Researcher, Associate Professor, Senior lecturer, Reader, Professor, (Executive) Dean, Department Head
High/Medium/Low public engagement activity	Measure based on number and frequency of activities participated in over the past 12 months (see section 2.4)
Contract type	*Research & teaching staff* are those whose contracts of employment state that they are employed to undertake both teaching and research. *Research only staff* are those whose contracts of employment state that the primary academic employment function is research only, even though the contract may include a limited number of hours teaching. *Research and clinical staff* – see above
Beacons/Catalysts	The Beacons for Public Engagement initiative consisted of a network of six Beacons which were university-based collaborative centres that helped support and build capacity for public engagement work. Following on from this, eight universities were further designated as Catalysts with funding to establish support for public engagement with research, drawing on the lessons learnt from the Beacons.

2. Extent and nature of public engagement in 2015

This chapter provides an overview of participation in public engagement in 2015 based on the quantitative and qualitative research findings. It provides detail on: how public engagement has been defined for the purposes of this report; participation within individual communication and public engagement activities; overall prevalence of involvement; the attributes of researchers who are most active in these types of activities; and attitudes towards the perceived value of public engagement by researchers. Throughout the chapter, where comparable measures are available, trends over time since the 2006 Royal Society Survey are highlighted.

CHAPTER SUMMARY`

- Defining "public engagement" is complex and definitions have evolved over time. In this chapter we provide data based on two separate concepts: i) activities which cover either communication about, or public engagement with, research; and ii) activities focussed on public engagement only. For the purposes of this report we define public engagement according to the RCUK's *Concordat for Engaging the public with research* which emphasises the more two-way, dialogic, characteristics of public engagement as opposed to more information-based communication such as the media.
- Social media was the most commonly used tool for communication about research, especially among younger researchers; although common this includes a range of frequencies from for example only two or three social media posts a year to regular daily posting. Focussing on activities defined by the Concordat as public engagement, the most common activity among researchers was giving a public lecture.
- AHSS researchers, and particularly those working in arts & humanities, were more active than STEM researchers on almost all measures of communication and public engagement.
- According to the Concordat definition, eight in ten researchers (82%) have done at least one form of public engagement in the past 12 months, though volume of activity is extremely variable and often infrequent.
- High levels of public engagement activity were particularly associated with arts & humanities researchers, clinical researchers, more senior/older staff, and those on research and teaching (as opposed to research only) contracts.
- Between 2006 and 2015 there has been a small rise (from 74% to 78%) in the proportion of STEM researchers undertaking public engagement or communication, on the basis of activities which were asked about in both years. STEM researchers in 2015 were also more likely than in 2006 to value public engagement as a core component of their role (from 28% to 37%) and to want to spend more time on public engagement (from 45% to 53%).
- In 2015 the appetite for increased involvement in public engagement was heightened among younger researchers aged up to 30 when compared with older researchers.

2.1 Defining "public engagement" for the purposes of this report

The creation of an overall measure of participation in public engagement is challenging, as it depends on the construction of a measure which is based on a clear and accepted definition of public engagement. However, there is no one single uniformly agreed definition. It was clear from the literature review, qualitative work and survey piloting that researchers have different understandings of the term: for example some researchers regard media as a core component of public engagement while others reject its association. In particular many researchers disassociate *communication* about research (a one-way channel of information) from *engagement* with research (a two-way dialogue/interaction).

This ambiguity was recognised and addressed in the survey. At the start of the questionnaire researchers were asked a number of questions which attempted to elicit generic views about public engagement. For example: *What does public engagement mean to you? Which audiences is it important to engage with? What public engagement or communication activities have you participated in?* Following this researchers were provided with a definition of public engagement and were asked to consider this definition in all further questions. This definition was drawn from the *Concordat for Engaging the public with research* (Research Councils UK 2010)[5] which broadly defines public engagement as the following activities:

- Participating in festivals
- Working with museums / galleries / science centres and other cultural venues
- Creating opportunities for the public to inform the research questions being tackled
- Researchers and public working together to inform policy
- Presenting to the public (e.g. public lectures or talks)
- Involving the public as researchers (e.g. web based experiments)
- Engaging with young people to inspire them about research (e.g. workshops in schools)
- Contributing to new media enabled discussion forums

It is worth noting that, although many researchers naturally associate these activities with public engagement[6], media work and engaging with policy-makers or politicians are not regarded as part of public engagement under this definition. It is also worth noting that this definition is different from the one used in 2006 which focussed more on communications[7]. However, when making comparisons between the 2006 and 2015 results, the same set of public engagement activities have been used for both surveys. When looking at trends over time it is worth noting that there are some challenges associated with interpreting change due to changes in conceptual definitions and the need to amend the question wording to suit an expanded audience (see section 1.3 and A.8.2 in the Appendix).

In section 2.2, we discuss the prevalence of all activities which might be considered as associated with either public engagement or communication, including a comparison of trends over time where available. However in section 2.3 and for the remainder of this chapter, the summary measures of overall participation are based on a definition of public engagement which aligns with the Concordat definition.

[5] http://www.rcuk.ac.uk/RCUK-prod/assets/documents/scisoc/ConcordatforEngagingthePublicwithResearch.pdf

[6] As evidenced within the Literature Review

[7] Where public engagement was defined as "*communication and engagement with the non-specialist public only; by this we mean adults with no specialist knowledge of, or training in, science"*

2.2 What public engagement and communication activities have researchers participated in?

Before we presented researchers with a "definition" of public engagement (see discussion above) we asked them about their level of involvement in a number of different activities which might be thought of as public engagement with, or communication about, research.

Figure 2.1 displays the overall prevalence of activities, both those included within the Concordat definition (denoted in bold text and with a †) and other activities.

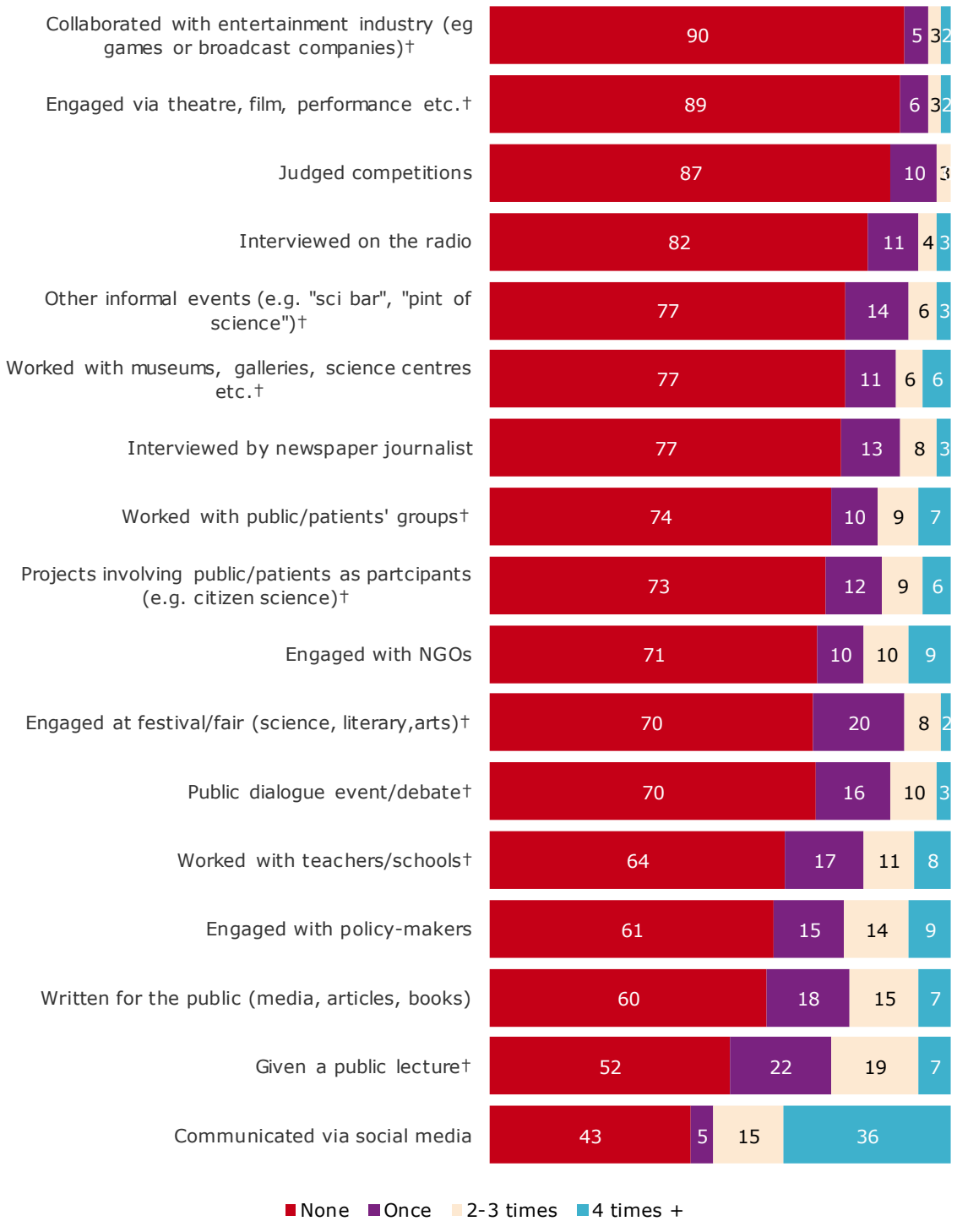
Communication via social media (including for example twitter, facebook, podcasts, youtube etc.) was the most frequently cited activity, with a little over half (57%) of all researchers having communicated in this way at least once in the past 12 months. However, it should be noted that this encapsulates a wide range of social media activity; for example it will include those who only post two or three social media entries a year as well as those who post on a regular, daily basis.

Other relatively common activities cited by researchers were public lectures, writing for the public, engaging with policy and working with schools; between 36% and 48% of researchers cited involvement in these types of activities over the past 12 months.

At the other end of the scale, the least common public engagement or communication activities were judging competitions, engaging via theatre, film etc. and collaboration with the entertainment industry, with only around 10-13% of all researchers having participated in these activities in the last 12 months.

Communicating about research via social media was more common among younger researchers, declining through the age groups from 64% of those aged up to 30 to 48% of those aged over 50.

Figure 2.1: Participation in public engagement/communication activities in the past 12 months (2015)



Base: All researchers 2015 (n=2,454)

† refers to activities included within Concordat definition

Table 2.2 displays the 2015 results for STEM (science, technology, engineering and maths) and AHSS (arts, humanities and social sciences) researchers. It also shows the 2006 results for the STEM subgroup for comparative purposes. Two clear trends are evident:

- Within the STEM subgroup, and between 2006 and 2015, there has been relatively little overall movement in participation in public engagement and communication activities that were asked about in both years. However the following statistically significant differences were observed: a rise in writing for the public (from 25% to 32%); an increase in participation in public dialogue events (from 20% to 24%); and a decrease in communication via newspaper media (from 23% to 19%).
- AHSS researchers were more likely than STEM researchers to do nearly all forms of public engagement or communication activities[8]

Table 2.2: Participation in public engagement or communication activities in the past 12 months by discipline group (2006 and 2015)

	All researchers 2015	AHSS 2015	STEM 2015	STEM 2006
	%	**%**	**%**	**%**
Communicated via social media	57	67	52	~
Given a public lecture†	**48**	**64**	**40**	**40**
Written for the public (media, articles, books)	40	56	32	25
Engaged with policy-makers	39	48	34	33
Worked with teachers/schools†	**36**	**40**	**33**	**30**
Public dialogue event/debate†	**30**	**42**	**24**	**20**
Engaged at festival/fair (science, literary, arts)†	**30**	**30**	**30**	**~**
Engaged with NGOs	29	40	23	23
Projects involving public/patients as participants (e.g. citizen science)†	**27**	**28**	**26**	**~**
Worked with public/patients' groups†	**26**	**21**	**29**	**~**
Interviewed by newspaper journalist	23	31	19	23
Worked with museums, galleries, science centres etc.†	**23**	**36**	**16**	**13**
Other informal events (e.g. "sci bar")†	**23**	**27**	**21**	**~**
Interviewed on the radio	18	25	14	12
Judged competitions	13	13	13	11
Engaged via theatre, film, performance etc.†	**11**	**20**	**7**	**~**
Collaborated with entertainment industry (eg games or broadcast companies)†	**10**	**14**	**8**	**~**
Base: All researchers 2006, 2015	*2,454*	*895*	*1,558*	*1,440*

† refers to activities included within Concordat definition

~ If no trend data are available, this means that the activity was not asked about in 2006

[8] The difference was significant in all cases aside from festivals/fairs, public patient participation, and judging competitions

To provide a more detailed investigation of the types of activities most commonly associated with different disciplines, Table 2.3 provides a breakdown of participation in each of these activities by the four main discipline groupings which correspond with the Research Excellence Framework (REF) Units of assessment[9]. Clinicians form part of Panel A but results for this subgroup have also been shown separately.

Table 2.3: Participation in public engagement and communication activities in the past 12 months by REF discipline group (2015)

	STEM		AHSS		Clinicians
	Panel A	Panel B	Panel C	Panel D	
	%	%	%	%	%
Communicated via social media	50	53	65	71	47
Given a public lecture†	**39**	**41**	**57**	**75**	**51**
Written for the public (articles, books)	34	29	54	60	45
Engaged with policy-makers	38	28	57	34	59
Worked with teachers/schools†	**31**	**37**	**39**	**43**	**37**
Public dialogue event/debate†	**24**	**24**	**40**	**45**	**42**
Engaged at festival/fair (science, literary, arts)†	**26**	**36**	**21**	**45**	**29**
Engaged with NGOs	26	17	49	26	36
Projects involving public/patients as participants (e.g. citizen science)†	**32**	**17**	**30**	**26**	**51**
Worked with public/patients' groups†	**41**	**9**	**23**	**16**	**80**
Interviewed by newspaper journalist	22	15	31	31	47
Worked with museums, galleries, science centres etc.†	**14**	**18**	**18**	**63**	**16**
Other informal events (e.g. "sci bar")†	**17**	**27**	**20**	**38**	**17**
Interviewed on the radio	14	12	23	29	33
Judged competitions	11	16	13	14	17
Engaged via theatre, film, etc.†	**7**	**7**	**9**	**37**	**15**
Collaborated with entertainment industry (eg games/broadcast cos.)†	**6**	**10**	**8**	**24**	**7**
Base: All researchers 2015	*1,037*	*517*	*589*	*305*	*115*

† refers to activities included within Concordat definition

[9] http://www.ref.ac.uk/panels/unitsofassessment/ See also section 1.5

This shows a wide variation in activities by discipline. So:

- Clinical and bioscience (Panel A) researchers were more likely than other discipline groupings to work directly with the public or patients (public/patient involvement rather than public/patient participation).
- Social science (Panel C) researchers were more likely than other discipline groups to communicate with policy makers and NGOs.
- Arts and humanities (Panel D) researchers were more likely than other discipline groups to give public lectures, work with museums/galleries, participate in other informal engagement events, engage via theatre/film and collaborate with the entertainment industry.
- Engineering and physical sciences researchers (Panel B) were no more likely than other groups to cite any specific activities although relatively high proportions (at least 50%) were involved in social media, public lectures, written materials and engagement with policy.
- Compared with Panel A researchers as a whole, clinicians were more active in several of these domains: for example they were more likely to have engaged with policy, participated in a public debate, involved the public as research participants, worked with the public/patients and communicated via newspaper and radio media.

2.3 Overall level of participation and change since 2006

The overall level of participation in public engagement can be measured in a number of ways. A range of summary measures are presented in Table 2.4. If participation in *any* of the activities covered in Table 2.2/2.3 is included then the overall rate of participation in the last 12 months among all researchers is 92%. If only those activities which correspond with the Concordat definition are included, participation in the last 12 months is 82%. Based on this Concordat measure, participation is slightly higher among female researchers (85%) compared with male researchers (80%).

In order to provide an assessment of change, a figure is also shown based on a measure which is comparable with the 2006 survey. This indicates that, on the basis of activities measured in both 2006 and 2015, the rate of participation among the STEM subgroup has risen from 74% to 78%. However, this measure is only useful in a comparative sense as it excludes several core public engagement activities which were only asked about in 2015 and includes communication activities too. It does though provide an indication of a positive upward shift, if only a relatively very small one. If a measure had been available in 2006 which also included many of the relevant activities added in 2015 it is possible that a larger shift might have been detected.

Although the indications are that levels of activity have not increased by a large degree, it is interesting to place this shift in the context of researchers' opinion on change. As detailed in Chapter 5, 70% of longer-service researchers (68% of longer-service STEM researchers) who have been working in the sector since 2006 believe that public engagement activity has increased. This suggests that there is a *perception* of culture shift even if this isn't matched by an increase in participation according to the available data.

Table 2.4: Any participation in public engagement in the last 12 months (2006 and 2015)

	All researchers 2015	AHSS 2015	STEM 2015	STEM 2006
	%	**%**	**%**	**%**
Any of the activities recorded in Table 2.2/2.3 (public engagement and communication)	92	96	90	~
Concordat-defined activities only (public engagement only)	82	88	78	~
Activities asked about in 2006 and 2015	n/a	n/a	78	74
Base: All researchers 2006, 2015	*2,454*	*895*	*1,558*	*1,440*

It should be noted that these measures place public engagement prevalence at a very high - and near universal - level and higher than other sources[10]. However, the measures capture a range of activities and are not based on self-definition as some other sources are. Therefore a researcher only needs to have done one activity on one occasion to be included as having done public engagement (for example given one talk at a school in the past year). It is also worth noting a likely degree of selection bias associated with the responding sample (see section 1.3 and section A.8). As such it more useful to consider the *variation* in levels of public engagement activity - who is doing the most and who is doing the least? This is covered in the next section.

2.4 Which researchers are most active?

In order to provide a measure of the level of activity in public engagement by researchers, a variable was constructed based on volume of activity across the activities included within the Concordat definition. In total there were 10 relevant activities and for each activity a score was allocated based on the following:

No. of times in the last 12 months	Score
None	0
Once	1
2-3 times	2
4-5 times	3
6-10 times	4
More than 10 times	5
Total possible score (range)	0-50
Total actual score (range)	0-38

The total score was then segmented into four bands as displayed in Table 2.5. The banding was derived by placing the "no activity" subgroup into one category and then dividing the remainder of the sample into three roughly equal size bands. The table also shows the breakdown by researchers working in higher education institutes (HEIs) and non-HEIs and indicates no difference between these two groups of researchers.

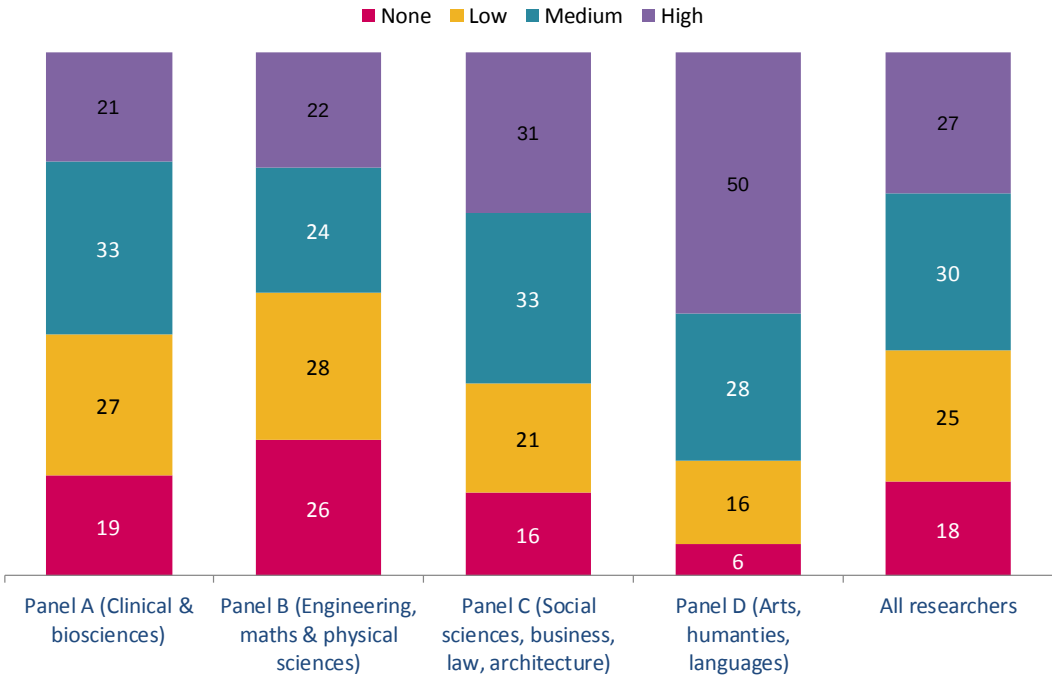
[10] The 2015 UK career Researchers Online Survey (CROS) cites a level of involvement in public engagement (ever) at 44%. However, CROS data are not comparable with this survey for two reasons: firstly in CROS the term "public engagement" was not defined which means that CROS researchers will not necessarily have included relevant activities; secondly the CROS survey only includes early career stage researchers and therefore excludes the activities of more senior researchers (who we know from this research are more likely to undertake public engagement).

Table 2.5: Any participation in public engagement in the last 12 months (2006 and 2015): Concordat definition of public engagement

	Score range	HEI	Non-HEI	All researchers 2015
		%	%	%
No activity in the past 12 months	0	18	19	18
Low activity	1-2	25	23	25
Medium activity	3-6	30	31	30
High activity	7+	27	27	27
Base: All researchers 2015		*2,153*	*266*	*2,454*

Figure 2.6 displays the overall level of activity by the four main discipline groupings which correspond with the REF. This shows a significant variation by discipline. Panel D researchers working in the Arts, Humanities and Languages were considerably more active, and Panel C researchers working in the social sciences somewhat more active, than Panel A and B researchers working in STEM. In fact half of all Panel D researchers (50%) and a third of all Panel C researchers (31%) were classified as highly active[11].

Figure 2.6: Level of activity in public engagement by discipline grouping (2015)



Base: All researchers 2015. Panel A (n=1,037) Panel B (n=517) Panel C (n=589) Panel D (n=305)

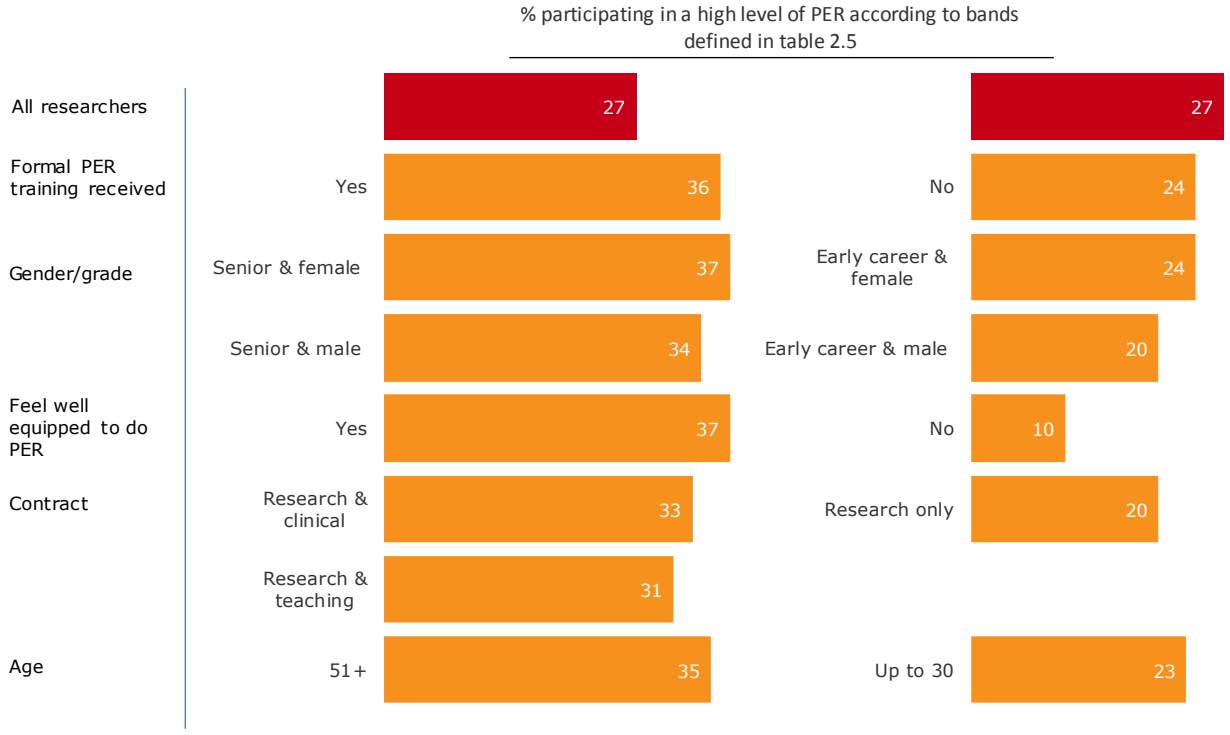
[11] These findings closely align with those with those from the 2015 Vitae CROS survey which also indicates that Panel D are the most active and Panel B are the least active in public engagement

Focussing now on demographics and other groupings associated with a high level of public engagement activity, Figure 2.7 displays the groups which are most active. Overall, the most active groups of researchers are:

- More senior staff, especially more senior female staff[12]
- Clinicians and those on research and teaching contracts
- Older staff
- Those who have received training in public engagement and those who consider themselves well equipped in public engagement skills

The least active researchers tend to be the inverse of the above: i.e. younger, early career, on research-only contracts and those who lack training and confidence in public engagement skills. It should however be noted that many of these attributes are correlated: for example age, staff grade and type of contract are all interlinked (research-only researchers tend to be younger and at an earlier stage of their career).

Figure 2.7: Groups which have an increased and decreased propensity to undertake a high level of involvement in public engagement (2015)



Base: All researchers 2015. Training received: Yes (n=684) No (n=1,668); Gender/grade: Senior Male (n=609) Senior Female (n=463) Early career male (n=507) Early career Female (n=635). Whether feel equipped to do PER: Yes (n=1,574) No (n=757). Contract: R&C (n=115) R&T (n=1,443) RO (n=798). Age: Up to 30 (n=253) 51+ (n=685)

[12] This finding aligns with data from the 2015 Vitae CROS survey which also indicates a correlation between length of service and participation in public engagement. The CROS survey indicates a slightly heightened participation rate among women compared with men. In this survey, although women were slightly more likely than men to do any public engagement (see section 2.3) senior female researchers were highlighted as the subgroup most likely to be highly active according to the survey definition of this.

2.5 Perceived value of public engagement

Researchers were asked how important it was that, in relation to other things they have to do in their working life, they found time to do public engagement. Since 2006, there has been a marked rise in the percentage of STEM researchers who consider that public engagement is important relative to other aspects of their role: from 28% to 37%. However, two-fifths (42%) of STEM researchers still feel that public engagement is less important than other aspects of their working life.

Reflecting the general trend, AHSS researchers were much more likely than STEM researchers to regard public engagement as an important component of their role (52% compared with 37%).

There is a high correlation between feeling that public engagement is important and doing a high volume of public engagement. Therefore the demographic and other factors associated with this attitude tend to be the same as those reported in Figure 2.7.

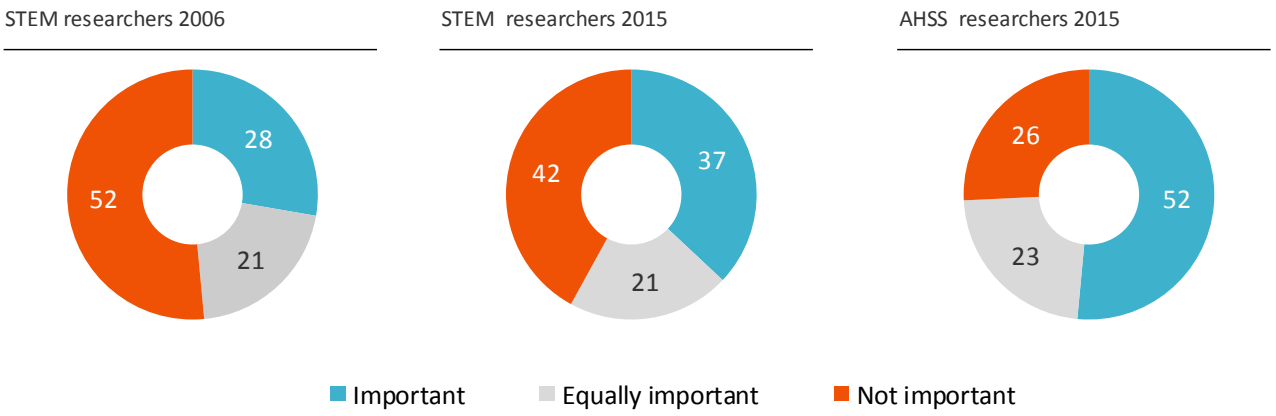
Researchers were also asked if they wanted to spend more time, less time or about the same amount of time engaging with the public. In support of the wider trend, there has been a small increase between 2006 and 2015 in the proportion of STEM researchers who would like to do more, from 45% to 53%.

When looking at attributes associated with an increased appetite for public engagement, two relevant findings emerge:

- Although younger researchers were less likely than older researchers to be doing public engagement, they were more likely than older researchers to *want* to do more (65% of those aged up to 30 wanted to do more declining with rising age to 49% of those aged 51+).
- Researchers who were already involved in public engagement were more likely to want to do more than those who had not done any public engagement in the last 12 months (57% compared with 45%). However, the amount of public engagement activity was not associated with appetite for doing more: those doing a low volume of public engagement were as likely to want to do more as those doing a high volume (55% and 53%).

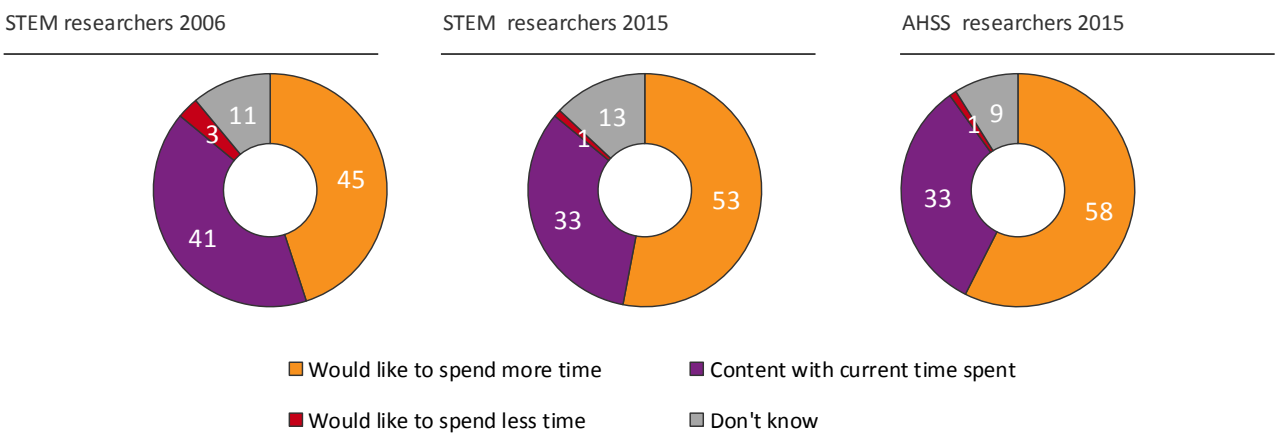
Figure 2.8: Attitudes towards the value of public engagement (20006 & 2015)

"In relation to other things in your working life, how important is it for you to find time to engage with the public?"



Base: All researchers 2006, 2015. STEM 2006 (n=1,481) STEM 2015 (n=1,556) AHSS 2015 (n=894)

"Would you like to spend more time, less time or about the same amount of time engaging with the public?"



Base: All researchers 2006, 2015. STEM 2006 (n=1,479) STEM 2015 (n=1,498) AHSS 2015 (n=867)

2.6 Qualitative findings

2.6.1 Most active researchers

Overall, there was a perception in the qualitative interviews that the level of public engagement activity varies according to career stage, subject type and personality. While the quantitative findings show that there is more activity from those later in their careers, the qualitative interviews have suggested that those at an earlier stage of their careers may be more able to devote time to public engagement.

Also relating to career stage, it seems that different types of public engagement are conducted by researchers at different stages in their careers. The qualitative work suggests that media work tends to be conducted by more senior, confident and experienced researchers. A number of respondents indicated that they felt media work to be risky, and that journalists may misrepresent what academics say (inadvertently or otherwise). A number of respondents referenced being misquoted, or not being given the chance to get their point across.

> *"What happens if you say something that's taken out of context and it makes it appear that you're dangerously off-message? What happens if what you say is controversial to the public? How far does the university go in protecting you?"* Researcher, AHSS

Meanwhile public engagement aimed at young people (mainly within an educational setting – in schools or in HEIs) was perceived to be important and worthwhile at all career stages and so was an activity conducted more universally across the sample. By contrast, community engagement was generally discussed by researchers at an earlier stage in their careers and was particularly influenced by subject (in that this applies mainly to disciplines for which there is a directly relatable and immediate benefit of sharing research among the wider community, such as public health and policy issues).

Another potential distinction is between the subjects which are seen as highly relevant to public engagement, and those that are less so. A number of AHSS respondents talked about being asked to comment on public interest stories, and a number were engaged in media activity. Others, particularly in more technical subjects have to work harder to sell their subjects, and to make their relevance clearer to the general public.

> *"A lot of my research is in the area of complicated geometry and it's pretty hard to get other mathematicians involved, never mind the general public! The cryptology side is more interesting to the public." Researcher, STEM*

> *"If you don't come up with interesting ways to link your research to zombie attacks, then it's just not good enough." Researcher, STEM*

> *"It's easier to get the public engaged in humanities subjects or something they can get involved in practically – like archaeology for example, whereas high sciences are more difficult to engage people in, because you need equipment or the public to have a high level of knowledge in order to understand it."* Enabler

In general, there was a perception among the respondents that STEM researchers seem to do public engagement throughout their careers, whereas AHSS respondents tended to be involved at a later and more senior level, particularly in terms of media. Only those engaged in social sciences, and particularly politics, talked at any length about the need to engage stakeholders and policy makers (though this was mentioned by some other respondents in their early definitions of public engagement).

> *"[Public engagement is] communicating with people outside the university. It doesn't include talking to a restricted audience, e.g. policy makers." Researcher, STEM*

"[Public engagement is about] getting simplified messages across to policy makers in the form of bullet point press releases, websites, social media." Researcher AHSS

It is also worth noting that while a number of respondents talked about the benefits of public engagement in terms of promoting STEM for further study, none mentioned the need to correct any negative perceptions about science and other STEM subjects.

Personal interest and existing networks are also key drivers on levels of involvement in public engagement. Those researchers with existing networks were particularly likely to conduct public engagement activities (several mentioned being approached directly by schools and the media). While a number mentioned moral duty as a driver for engagement, it seems that this is more about the need to justify public spending on their work and to 'sell' their subject to the wider public, rather than it is a genuine feeling that there is an obligation to engage the public. Our analysis suggests that researchers fall broadly into four overarching key groups:

- Some who are genuinely passionate about public engagement, often with a particular slant (for example, encouraging the study of a specific STEM subject, or engaging women with science);

  "There's something nice about talking to kids about the kinds of works you do … It can pique the interest of young people in order for them to want to pursue [science] as a career." Researcher, STEM

- A fairly wide group who take part because they feel it's good for them or their subject to do so; while very few admitted that benefit to their own career is motivating, it is possible that this is also a hidden driver, particularly in those institutions or subject areas where public engagement is highly regarded;

  "Undertaking public engagement gives you kudos as a researcher so you're seen as a good option for future funding." Researcher, AHSS

- Some do not enjoy carrying out public engagement, but see it as a "necessary evil";

  "I don't think it means a huge amount really...Any public forum, a newspaper article or a public meeting or focus groups…anywhere you're presenting material outside specialist literature or you're involving people who aren't specialists. It's not something I've done a huge amount of…perhaps it's a necessary evil at times." Researcher, STEM

- A small number don't like doing public engagement, and very rarely take part. Since all respondents for this part of the research had opted in to participate in a qualitative interview after completing the online survey, there is a likelihood that this group was underrepresented in the qualitative research, and may in fact be more prevalent in the wider academic community.

  " I don't particularly like doing public engagement. It's not my natural skill set so I try to avoid it where I can." Researcher, STEM

3. What is public engagement and why do it?

This chapter seeks to understand how researchers and enablers conceptualise public engagement and perceptions of the benefits of this. It provides detail on: how researchers and enablers define public engagement; the perceived importance of engaging with certain groups outside of academia; the preferred topics of engagement; the benefits of conducting public engagement for researchers; and attitudes associated with these topics. Throughout the chapter, where consistent measures are available, comparisons are made with the 2006 Royal Society survey.

Chapter Summary

- Conceptualisation of public engagement has moved on from 2006 with a higher proportion of researchers now understanding this in terms of an interactive, two-way dialogue. Enablers (not surveyed in 2006) have a particularly high propensity to define public engagement as interacting with the public rather than as a knowledge transfer.

- There was a clear sense of moral responsibility attached to public engagement with around three-quarters of researchers agreeing they had a "moral duty" to engage with the public. Informing the public, ensuring public relevance, and maintaining public support for their research were among the key benefits prioritised by researchers.

- AHSS researchers were more likely than STEM researchers to understand the benefits of public engagement in terms of learning from the public and contributing to public debates. STEM researchers on the other hand were more likely to value the maintenance of public support and accountability.

- Many researchers felt that their work was enhanced by engagement with the public: at least a half of all researchers felt that the public could either add value to or improve the quality of their research. AHSS researchers and female researchers were particularly likely to think this. Although STEM researchers were less likely than AHSS researchers to believe that they can learn from the public, clinicians were the exception: around eight in ten clinical researchers agreed that the public improves or adds value to their research.

- Around half of researchers agreed that there was enthusiasm from the public to learn more about their research, a view that was heightened among clinical researchers and female researchers.

3.1 Understanding of public engagement

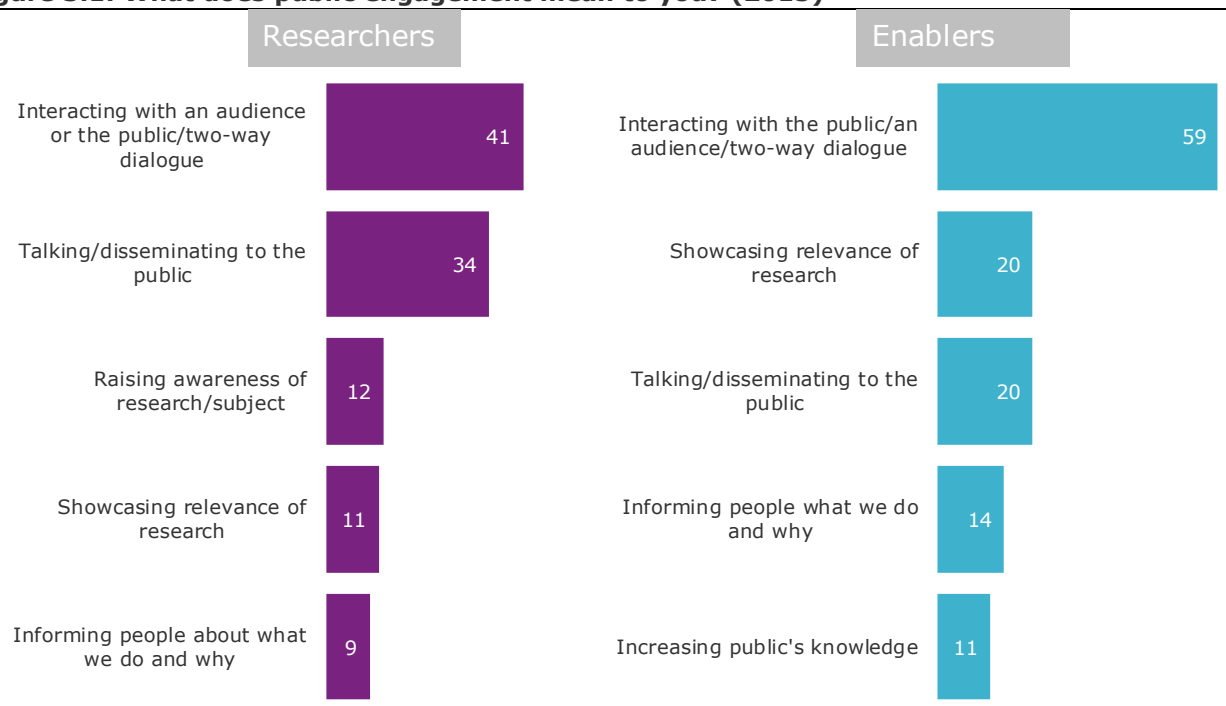
As covered in the literature review, and in section 2.1, the term 'public engagement' has evolved over the past 20 years to encompass a wide range of activities and channels. As discussed in section 2.1, researchers and enablers were presented with a survey definition of public engagement about mid-way through the questionnaire. However, at the start of the interview, before this prompt, researchers and enablers were asked to define in their own terms what public engagement meant to them. Responses were captured as open-ended responses and coded into themes.

In 2006, when a similar question was asked, it was noted that STEM researchers understood public engagement mainly as a mechanism for explaining and promoting their work, rather than as a means of debate and dialogue with the public. In this context, it is noteworthy that researchers in 2015 were much more likely to self-define public engagement as an interactive process (41% giving this answer), a definition which is more aligned with contemporary definitions of public engagement.

However, a high proportion of researchers still view public engagement as an activity of talking *to* rather than *with* the public (34%). As noted in the literature review, numerous organisations have emphasised the two way nature of public engagement; the research suggests that although there has been a shift in focus, there is a still a gap between the institutional-level and the researcher-level viewpoint.

Enablers in contrast, who will be closer to the institutional view of public engagement, were more likely than researchers to define this as a two-way dialogue. Nearly three-fifths of all enablers mentioned interacting with an audience or the public as one of their key definitions of the term.

Figure 3.1: What does public engagement mean to you? (2015)†



Base: All researchers (n=2,454); All enablers (n=269)

† Multiple responses were captured

3.2 Audiences to engage with

When asked to consider the importance of interacting with groups outside of academia, over three-quarters of researchers (77%) believed it important to engage with the general public. However, the proportion of researchers attaching importance to each of the potential audiences also underlines the value that researchers see in engaging with external groups. Enablers value engagement across all audiences, at least three quarters assigning importance to each of these groups with the exception of the subject-specific audience of patients.

Although researchers generally see the value in interacting with non-academic audiences, the prominence given to each group varies by subject discipline. Those in STEM subjects were most likely to attach importance to interacting with young people in school, industry and patients. AHSS researchers on the other hand placed more emphasis on interaction with charities and NGOs.

Table 3.2 Which groups or sectors outside academia do you think it is important for researchers in your subject area to engage with? (2015)

	All researchers 2015	STEM 2015	AHSS 2015	Enablers 2015
Policy-makers & politicians	80	78	83	86
General Public	77	78	77	87
Journalists/TV/radio	74	72	78	86
Young people in school	67	71	61	85
School teachers	62	62	62	84
Industry/business	62	65	57	81
Non-journalism media (writers, documentary makers etc.)	61	56	70	79
Popular Magazine journalists	63	65	59	75
Charities/NGOs	60	57	67	79
Prospective students	57	59	55	75
Young people outside of school	50	49	51	77
Patients/Patient groups	45	54	29	68
Base	*2,454*	*1,558*	*895*	*269*

At a more detailed level, the following differences were observed by REF panel:

- Panel A clinical/bioscience researchers were more likely than other groups (74% compared with 45% overall) to rate engagement with patients as important, a figure which rose to 97% among clinical researchers – these findings are clearly in line with expectations

- Panel B engineering and physical sciences researchers placed more importance than other groups on engaging with school students (76% compared with 67% overall) and industry (77% compared with 62% overall)

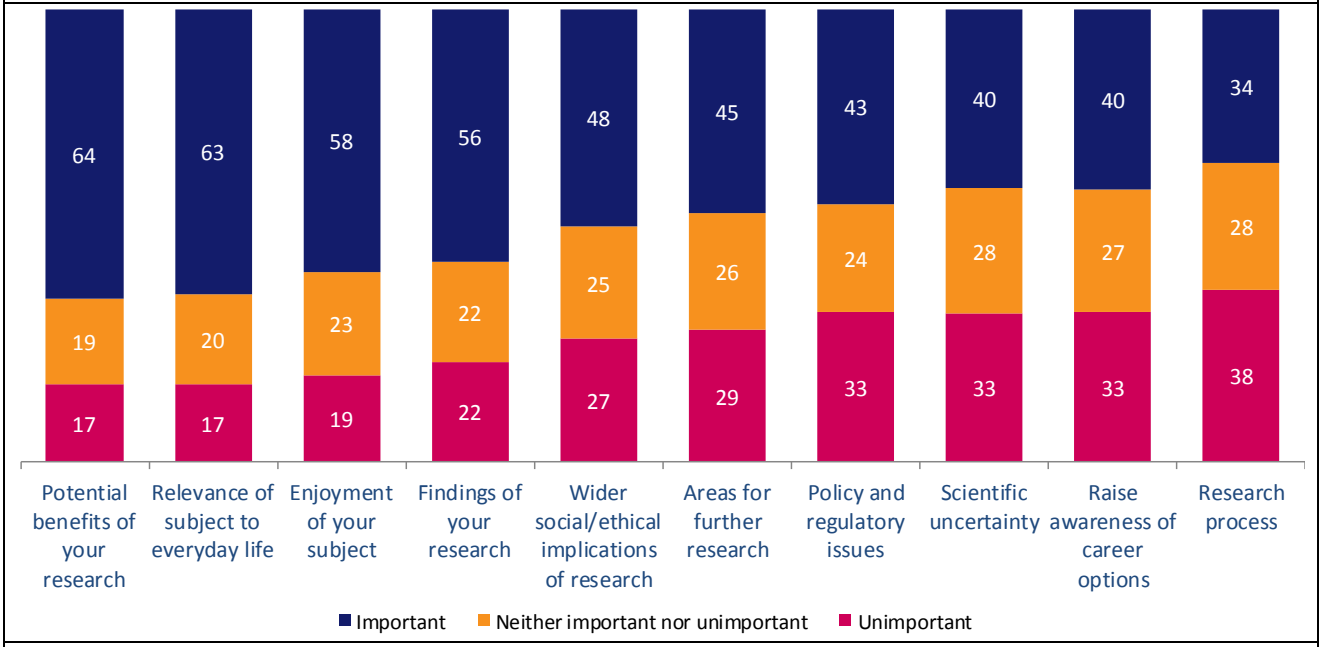
- Panel C social science researchers were more likely than average to attach importance to engagement with policy (90% compared with 80% overall) and charities (73% compared with 60% overall), a finding which mirrors their activity profile (see section 2.2)

- Panel D arts and humanities researchers were more focussed than other groups on the media (86% compared with 74% overall), non-journalism media (84% compared with 61% overall), school teachers (70% compared with 62% overall) and young people outside school (62% compared with 50% overall).

3.3 Topics to engage on

Demonstrating the enjoyment, benefits and relevance of their own research were the topics that researchers considered to be the most important to engage on. In general, the focus for researchers was on the wider implications of their research rather than on more specific areas such as regulatory issues or the research process itself.

Figure 3.3 In your current post, how important is it for you personally to engage with the public on each of the following? (2015)†



Base: All researchers 2015 (2,438)

† "Scientific uncertainty" was asked of the STEM subgroup only (n=1,547)

In general these findings reflect a similar overall pattern of results to those in 2006. However, there have been some shifts over time within the STEM subgroup, suggesting an increased focus on outputs and a decreased focus on process. Over the ten year interval there has been an increase in the proportion of STEM researchers who place importance on engagement about research findings (from 38% to 53%) and areas for future research (from 36% to 44%), while perceived importance of engagement about the research process has declined from 46% to 36%[13].

[13] In 2006, the wording used was "scientific process" and therefore these measures are only broadly comparable

3.4 Benefits of public engagement

Researchers were presented with a list of possible benefits associated with public engagement and were asked to select the three most important. Overall, researchers saw the value of public engagement in terms of the benefits it can bring to their subject as opposed to their institutional or personal profile. Increased awareness, relevance and public support for their research were cited as key advantages. A more detailed analysis of the data shows that AHSS & STEM researchers have divergent views: AHSS researchers were more likely than STEM researchers to recognise the two-way benefits of public engagement (contributing to debate, learning from the public) while STEM researchers were more focussed on informing the public and maintain public support and accountability.

Table 3.4 What are the three main benefits of researchers engaging with the public? (2015)

	All researchers 2015	STEM 2015	AHSS 2015
Inform the public/raise awareness	51	56	42
Ensure that research is relevant	44	41	50
Maintain public support for research	34	42	20
Contribute to public debates	31	18	54
Be accountable for use of funds	28	33	19
Learn from public groups	24	20	33
Improve quality of research	21	19	24
Contribute to discussions of social & ethical implications of research	16	15	17
Recruit students to your subject	13	15	11
To raise awareness/profile of institution	10	11	9
To generate additional funds for institution	8	9	5
To enhance career/develop skills	6	7	4
To provide personal enjoyment/reward	4	4	5
Base	*2,420*	*1,542*	*886*

By REF panel, the following differences are evident:

- Within the STEM subjects, REF Panel B researchers were more focused on recruiting students (25%) than Panel A researchers (8%).
- Within the AHSS subjects, Panel C researchers indicated a higher appreciation of learning from public groups (37%) than those working in panel D subjects (26%).
- Ensuring wider relevance of research was most important for Panel C (54% compared with 44% overall).

Clinicians were more likely than average to cite the benefits of learning from public groups (38% compared with 24%) and improving the quality of research (44% compared with 21%).

3.5 Attitudes towards the benefits of public engagement

Figure 3.5 displays the agreement levels attached to a number of statements which provide further evidence on attitudes towards the benefits of public engagement. The idea of public engagement as a "moral duty" was a prevalent viewpoint, around three quarters of researchers believing this to be the case. The literature review also discusses the issue of duty and suggests that the high level of researchers who believe there to be a duty (or a responsibility) can be viewed in terms of a reciprocal relationship – engagement being an agreed cost attached to receiving public funds.

In terms of the value which the public can add to research, views are broadly positive. Although results differ by discipline, the balance of opinion suggests that more researchers agree than disagree that the public can add value to their research, can improve the quality of it, and are enthusiastic to learn more about it. The findings also suggest a strengthening of positive views from the 2006 survey: for example the percentage of those in STEM subjects who agree *strongly* that the researchers have a moral duty has risen from 20% to 36%.

Further differentiation is seen as follows:

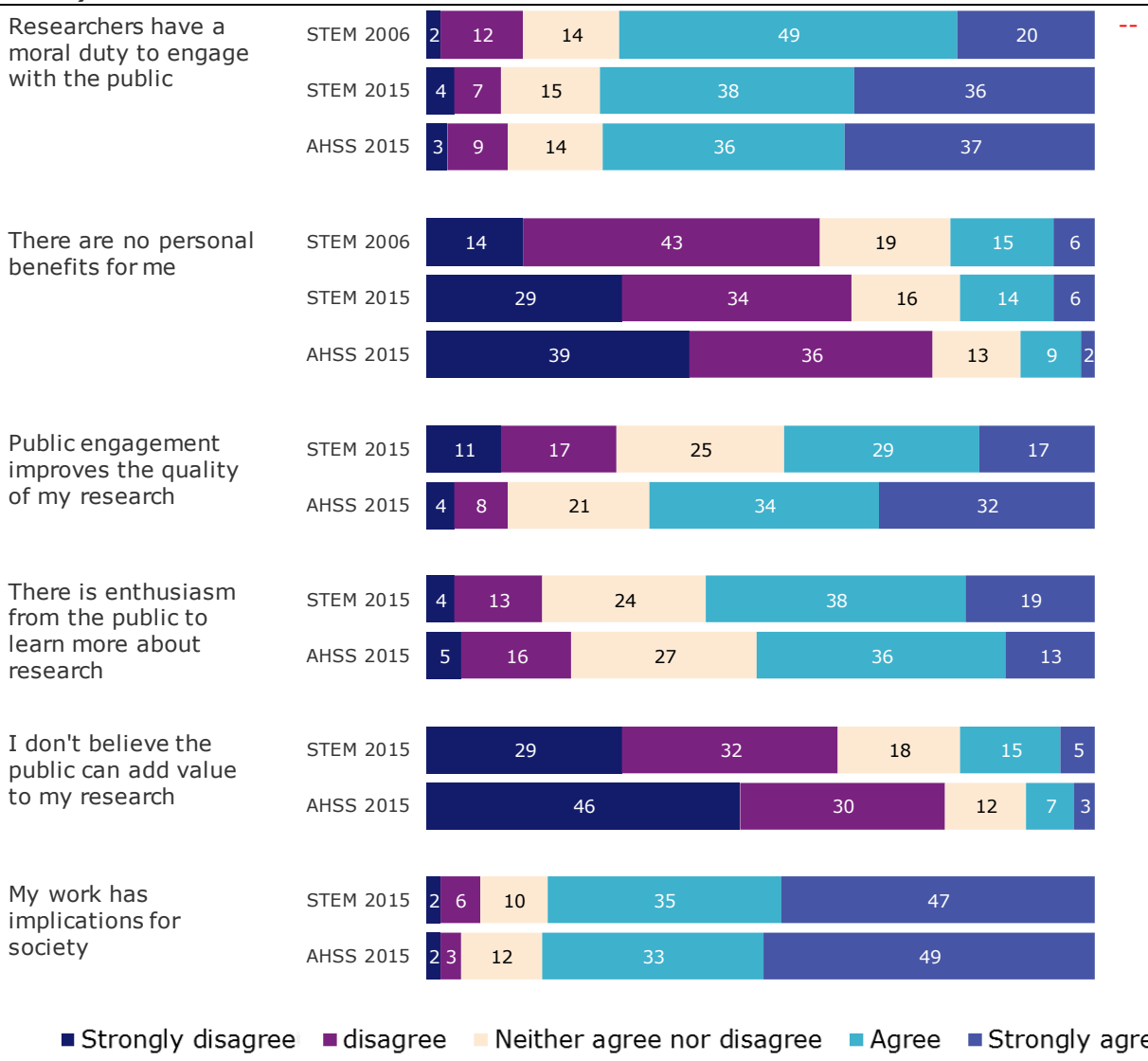
- For the majority of statements, AHSS researchers are more positive towards public engagement than their STEM colleagues. This finding is consistent with other findings presented in this report as well as other research as noted in the literature review.

- Females are more positive in their attitudes to public engagement than males. For example women are more likely than men to think that public engagement improves the quality of research (63% compared with 47%), can add value to their research (76% compared with 61%[14]) and that the public are enthusiastic to learn more (62% compared with 54%).

- Clinical researchers are also more likely than other groups to align themselves with these attitudes: 77% agree that engagement can improve quality of research, 86% believe that it can add value and 81% agree that the public are enthusiastic to learn more.

[14] This is the proportion who disagree to the statement "I don't believe the public can add value to my research"

Figure 3.5 Agreement levels to statement about the benefits of public engagement (2006 & 2015)*



Base: All researchers. STEM 2015 (1,521) AHSS (872) STEM 2006 (1473)

* Don't know responses which account for between 0% and 4% of responses are included in the base but not shown

3.6 Qualitative findings

3.6.1 Understanding of public engagement

All participants were asked to define public engagement in the qualitative interviews, and almost all had a definition ready to hand (some of which may be repetition of institutional policy or wider rhetoric around public engagement which they have heard – including allusions made from completing the online survey from which they were recruited). Broadly, this was characterised as disseminating research findings beyond academia.

> *"Dissemination of research findings to people not in academia."* Researcher, STEM

> *"It's reducing the gap between what higher education does and produces and what as a society we need them to be doing and producing."* Researcher, STEM

> *"Explaining to people outside of the normal academic sphere what it is that I do, why I do it, and how it can impact either them personally or aspects of their lives that perhaps they might not realise, or upon the society that they are in."* Researcher, STEM

> *"We [as a university] should listen and collaborate and share – it's part of our mission in the world."* Enabler

Varied audiences were mentioned within researchers' definitions of public engagement, with children and young people particularly prevalent.

> *"It means attempting to impart the information that you have obtained through your research to lay people – school children, members of the public attending talks, meetings."* Researcher, STEM

> *"Talking to people… school children or the general public, companies or policy makers; [to] try to convey the excitement in and importance of the research [we] do."* Researcher, STEM

> *"Engaging with everyone from school children, parents, other disciplines in academia and policy makers in government."* Researcher, STEM

Many respondents made the point that public engagement should be about two-way communications. This may, though, be applied more in theory than in practice, and most definitions centred on communicating findings rather than gathering feedback.

> *"Communicating the research that academics are doing, in whatever form, including everyone (the public). Communication should not just be one way, people should be involved in however they can so it's a two-way process."* Researcher, AHSS

> *"Engagement isn't just about telling people, it's about a proper dialogue where public have the opportunity to feed back."* Researcher, STEM

> *"[Public engagement is a] process which is taken seriously is two way communication between the interests of the academic and the interests of the public"* Researcher, STEM

> *"Speaking directly to the public rather than around them or past them"* Researcher, AHSS

Public engagement enablers are even more likely than researchers to characterise public engagement as a two-way process, with some going as far as saying that any activity which is too passive, not genuinely creating a dialogue, cannot be truly classed as public engagement.

While many respondents talked about listening to the public, very few gave examples of acting on what they had heard: while there are a few examples of this, these were mainly in health research, where public influence is expected and often necessary to the overall research programme.

> *"The public is less engaged with hard science and more interested in how health and health services are delivered."* Researcher, STEM

Almost all researchers talked about the importance of engaging with young people in schools and most appeared to be confident to do it. However, there does seem to be some distinction between 'outreach' – engaging young people in order to encourage them to study a particular subject – and public engagement in its purest sense - two-way engagement, conducted with the purpose of sharing knowledge and prompting feedback. While some researchers include activities which fall under the above description of outreach in their definition of public engagement, others do not. This means, it is unclear that this is a genuinely two-way interaction, and may be at least partly motivated by a desire to recruit young people to study a specific subject or to consider a particular institution.

More wide-ranging public engagement is seen to be conducted via mass media and social media activities. While there is some debate as to whether media activity strictly constitutes public engagement, it is seen by many as particularly important in changing public perceptions.

> *"The media has helped change the view of scientists as wearing a white coat. The public are now seeing that if the concept is explained in the right way they will and can understand it."* Researcher, STEM

Similarly, most respondents saw social media as a key future pillar of public engagement, but a number questioned the extent to which it is currently being done in an effective and interactive way. There may be a divide in the perception of the effectiveness of social media between those who use it confidently and frequently, for whom interactivity is a key part of social media, and those whose social media use is still quite limited.

> *"Social media will become increasingly important in the future as a way of engaging a wider audience. We need to find ways to being more interactive - not just having a Twitter account.""* Researcher, AHSS

A few respondents talked about public engagement in terms of business to business activity and community engagement, but this tended to be limited and linked to particular subjects.

> *"I get the impression that the government want people to engage with businesses more, and that they're trying to support research that has a more business-facing aspect to it. But it feels like that forces the science in one direction."* Researcher, STEM

One respondent, who worked in the field of drugs and alcohol, had fairly extensive community engagement activities underway, but this was not typical.

3.6.2 Benefits of public engagement

The benefits of public engagement fall into five key groups, according to the qualitative research. These are:

- **Skills benefits**: many researchers said that public engagement can make you a better researcher. The (primarily communication) skills used for public engagement are directly applicable to an academic setting, so can build confidence in areas such as teaching and writing concise funding applications.
- **Personal satisfaction**: a number of respondents appeared to genuinely enjoy interacting with others and seeing the value of research in a non-academic setting.
- **Reputational benefits**: some respondents also thought that public engagement can build personal profile and potentially enhance career development. This was particularly relevant to media engagement.
- **Research project benefits**: public engagement can force you to think about how to make your topic and subject as valuable as possible. The act of distilling academic research for a lay audience can help researchers see their work from a different perspective, which can clarify their own thinking.
- **Institutional benefits**: in terms of REF, and perhaps gaining funding for specific programmes or students; however, this was not as stated by all.

> *"It's an area of looking at things that's not particularly widespread…But a wider exposure of researchers' interests and subject areas can only help to think of things in a different way, perhaps think of things you haven't thought of, perhaps identify holes in what you're doing, so that wider engagement is very healthy in many respects."* Researcher, AHSS

"[There is a] pragmatic purpose which is in the context of austerity; higher education has a responsibility to make the case for what they do and why they do it, it is about being accountable for public funds." Researcher, AHSS

"Funding bodies are keen for us to do more and more public engagement which is a good thing because in terms of your professional development it helps you think about ways in which you can describe your research to people who are non-specialist and that also gets you thinking about why you're doing things a lot more." Researcher, STEM

While these findings do not align very closely with the quantitative findings in Table 3.4, it should be noted that Table 3.4 is based on a ranking (prioritisation) of perceived benefits.

Other benefits to public engagement at a wider level are covered in the section on perceived value of public engagement in chapter six.

3.6.3 Attitudes to public engagement

According to the qualitative research, attitudes to public engagement vary widely across institutions and may be influenced by the views of heads of department and other thought leaders within organisations. Although within the quantitative research, most researchers found their institutions and departments supportive towards public engagement, a number of respondents in the qualitative study felt that public engagement can be looked down on by colleagues, particularly by those at a later stage of their careers. This may be in part because the need to simplify research for public consumption prevents it from being seen as proper research.

"I think there's a tension for some people and for me, between being expected to take up an advocacy role, and being a researcher. They always try to push you into taking a particular position, and all the sophisticated discussion around it gets lost." Researcher, AHSS

A number of respondents mentioned the media scientist Brian Cox, and while not derogatory about him themselves, they felt that their colleagues would disapprove of any such largescale media activity. Media activity is seen as particularly dangerous, and there are significant concerns about the media asking the wrong questions, or misrepresenting findings. These views were driven in a couple of instances by negative experiences.

"[Public engagement for personal benefit] would be futile unless you're Brian Cox." Researcher, STEM

For those who are most passionate about public engagement, this is particularly driven by the need to engage particular audiences with a subject or topic area. This might be seen as especially important in addressing inequalities of access to higher education, and a few respondents talked about the need for outreach to engage women in science more generally, and specifically physics.

"You get a kick out of seeing people understanding. I find that a big motivator." Researcher, STEM

4. How well equipped are researchers in public engagement?

This chapter investigates how confident and equipped researchers feel they are to undertake public engagement activities. In sum it provides detail on: which groups feel most and least equipped to participate in public engagement; the level of access to relevant training and skills development; and awareness of wider UK public engagement initiatives by researchers and enablers. Where comparable measures are available, comparisons are drawn against the 2006 Royal Society survey.

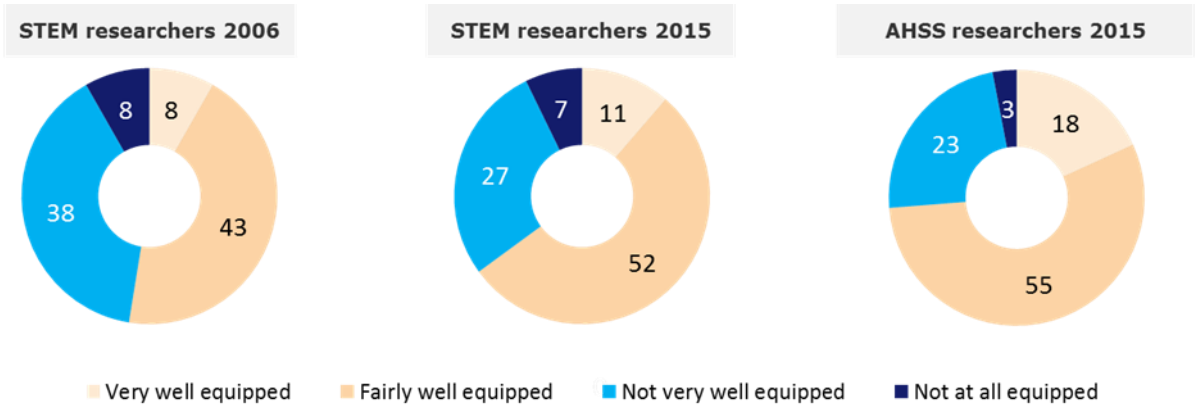
CHAPTER SUMMARY

- About three in ten researchers (28%) had received formal training in either communications or public engagement in the previous five years. When received, training was largely focussed on media, public speaking and social media. Informal learning, for example learning by experience or with the help of peer support, was a much more common mode of skills development.
- Researchers in 2015 feel better equipped to do public engagement than in 2006 (the proportion has increased from 51% to 63% among STEM researchers) although still only 13% of all researchers say that they feel "very" well equipped. Panel D arts and humanities researchers were considerably more likely than researchers in other disciplines to feel well equipped (80%). Confidence in skills was also linked to receipt of formal training (79%), informal learning/previous experience (77%) and a perception of departmental support (73%).
- While most researchers had some level of awareness of UK initiatives which support the REF "impact" agenda, knowledge of initiatives more specifically linked to public engagement (such as the National Co-ordinating Centre for Public Engagement) was very limited.

4.1 Confidence and skills

When asked how well equipped researchers felt to engage with the public, overall 66% said that they felt well equipped (13% "very" well equipped and 53% "fairly" well equipped). Within the STEM subgroup the proportion of researchers feeling equipped to engage with the public has increased from 51% in 2006 to 63% in 2015. Consistent with a more general theme throughout this report, AHSS researchers were characterised by their more positive response with 73% of this group indicating that they felt well equipped.

Figure 4.1 How well equipped do you feel to engage with the public on your research or subject? (2006 & 2015)*



Base: All researchers STEM 2015 (1,521) AHSS 2015 (871) STEM 2006 (1,480)

* Don't know responses which account for between 2% and 4% of responses are included in the base but not shown

At a more detailed level differences appear across sub-groups. In the 2015 survey, those in more senior positions, older researchers, those working in a REF Panel C or D subject, those working in a research & teaching or research & clinical post and those who have had formal training all displayed a higher than average propensity to feel equipped to undertake public engagement. At a more structural level, the results indicate that working in a department that is supportive of public engagement is associated with greater confidence to take part in relevant activities. These attributes generally mirror those associated with higher levels of public engagement activity (see section 2.4).

Table 4.2 How well equipped do you feel to engage with the public? (2015)

	Equipped (net)	***Base***
REF Panel A (Clinical & biosciences)	62	*1,015*
REF Panel B (Engineering & physical sciences)	63	*502*
REF Panel C (Social sciences)	69	*572*
REF Panel D (Arts & humanities)	80	*298*
Any training received	79	*684*
No training	61	*1,668*
Informal skills development/ experience	77	*1,822*
None	33	*554*
Male	69	*1,137*
Female	64	*1,139*
Senior	74	*1,124*
Early-career	59	*1,204*
Research & teaching	71	*1,403*
Research only	58	*770*
Teaching only	60	*80*
Research & clinical	79	*112*
Up to 40 years	62	*988*
40 years +	71	*1,335*
Department supportive of PE	73	*1,529*
Department not supportive of PE	64	*389*

In terms of why researchers feel equipped to participate in public engagement, possessing prior experience was the most cited reason, followed by training and good communication skills. Lack of experience and training were the most common reasons behind a lack of confidence in public engagement.

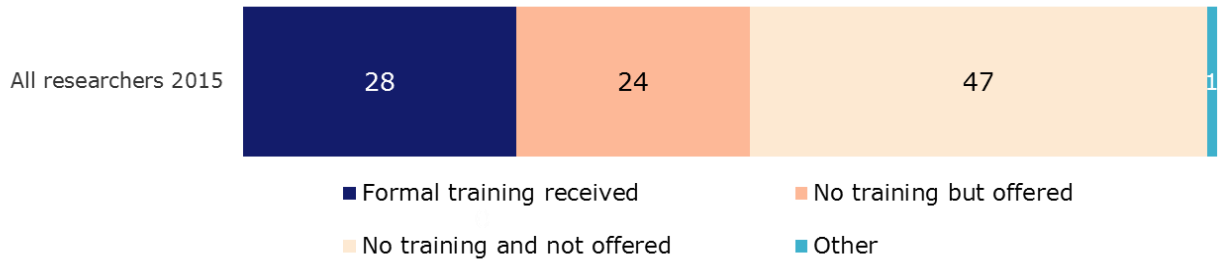
Table 4.3 Reasons for feeling equipped or not equipped

Equipped	%	Not equipped	%
I have developed experience of PE	50	Lack of training	30
I have had good training	11	Lack of experience	30
I can explain things in simple language	11	Lack of time	12
I am a good communicator	11	Not confident	11
I enjoy it and have had good feedback	10	I don't have the necessary skills	9
I have past experience of communication (general)	10	I don't know the best way to get involved	8
I am confident in public speaking	10		
I am knowledgeable about my subject	9		
I can talk to a un-skilled audience	8		
Base: All researchers who feel well equipped	*1,571*	*Base: All researchers who do not feel equipped*	*750*

4.2 Training in public engagement

The proportion of researchers who have attended formal training on public engagement or communications in the last five years is just over a quarter (28%). This finding broadly matches the figures found in previous studies[15]. Around a quarter of researchers say though that they have been offered training which they haven't taken up.

Figure 4.4 In the last 5 years have you received any formal training? (2015)



Base: All researchers (2,379)

Breaking down the nature of formal training: 13% of researchers had received in-house training provided by HR/professional development; 9% had received in-house training provided by public engagement specialists; 5% had received training provided by a funder; and 11% had received external training.

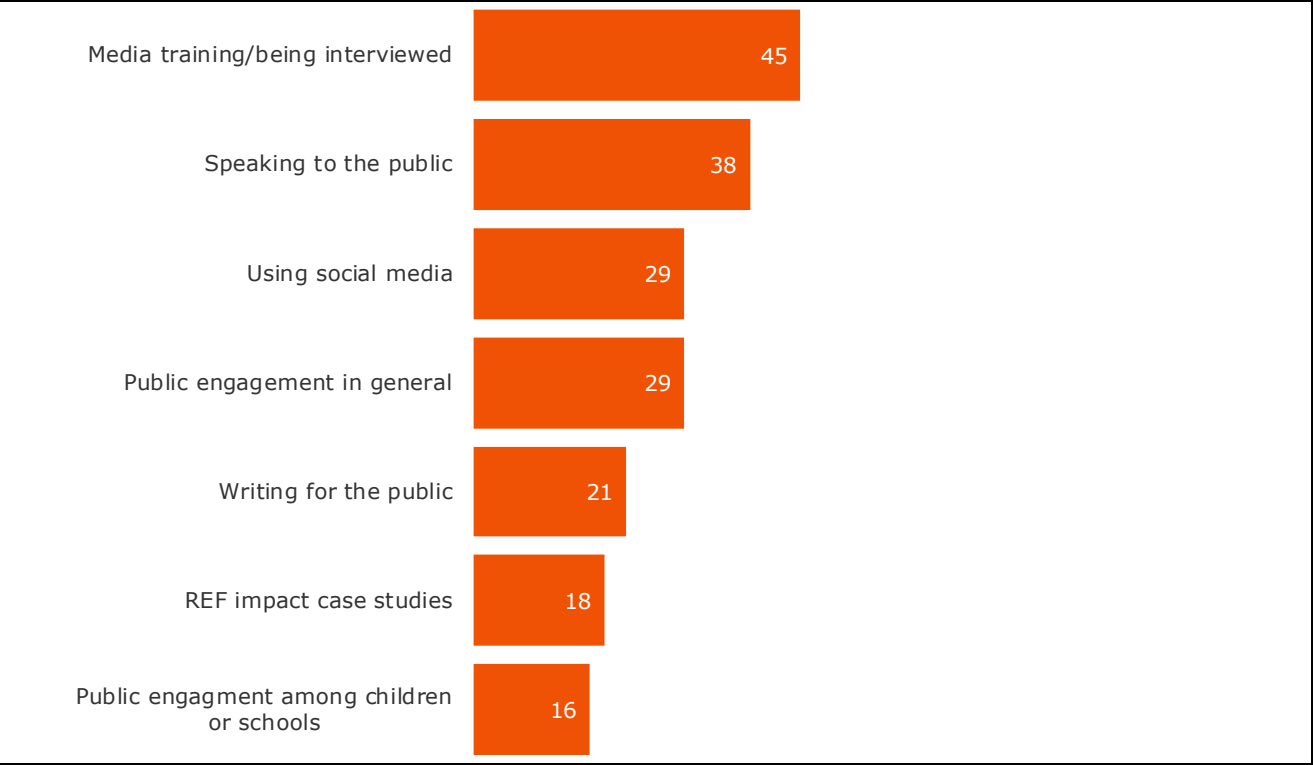
[15] Ruth et al (2005) suggests 34% for media training; Vitae CROS survey (2015) cites 22% of early career researchers having undertaken training : Ruth, A., Lundy, L., Telg, R., & Irani, T. (2005). Trying to Relate Media Relations Training Needs of Agricultural Scientists. *Science Communication*, 27(1), 127-145

A more detailed analysis of the data shows some variation in the uptake of formal training:

- Those working in non-HEI settings (42%) were more likely to have received formal training than those working in higher education institutes (27%).
- Clinical researchers were also more likely than average to have received formal training (40% compared with 28%).
- The rate of formal training uptake does not differ between Beacon or Catalyst institutes and non-Beacon or Catalyst universities. There is, however, a difference in the rate of researchers who have been offered training: 60% of researchers at Beacon or Catalyst universities have been offered training (this includes those who have attended training and those who have been offered training but not attended it) compared with 50% of researchers in other universities.

Figure 4.5 displays the nature of training received among those who have received training in the previous five years. Media, public speaking, social media and general public engagement were the most common skills covered by training courses. Among those who had received training, general public engagement training was more common among non-HEI (49%) compared with HEI researchers (27%) while REF impact studies training was more common among HEI (19%) compared with non-HEI researchers (7%).

Figure 4.5 Nature of formal communications or public engagement training (2015)



Base: All researchers 2015 who have attended formal training (714)

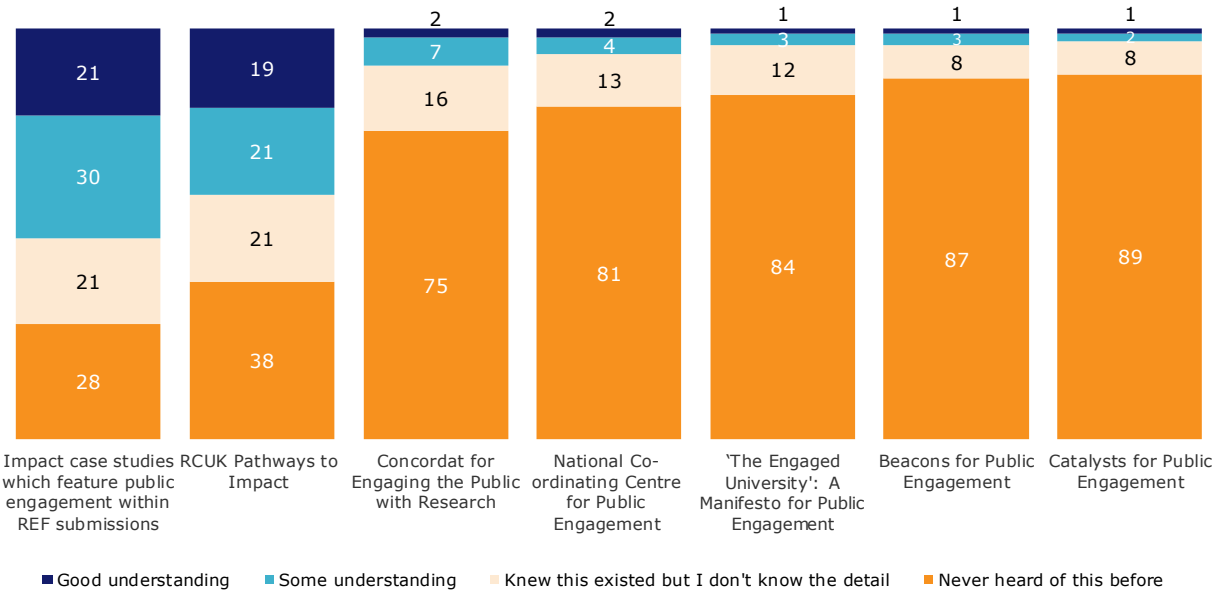
Overall, 68% of enablers said that they thought their institution offered training in these areas. The remaining proportion either thought that no training was offered (7%) or they didn't know (25%). Although the enabler findings are only indicative, this does suggest that more training is available than is being taken up, an indication which is further reinforced by the finding in the researcher survey that a quarter have not taken up training which has been offered to them.

4.3 Awareness of UK public engagement initiatives

Although there are a number of UK wide initiatives which address public engagement, awareness of UK public engagement initiatives among researchers is generally low. Impact case studies and Pathways to Impact are the only initiatives that a sizeable proportion of researchers have at least some understanding of.

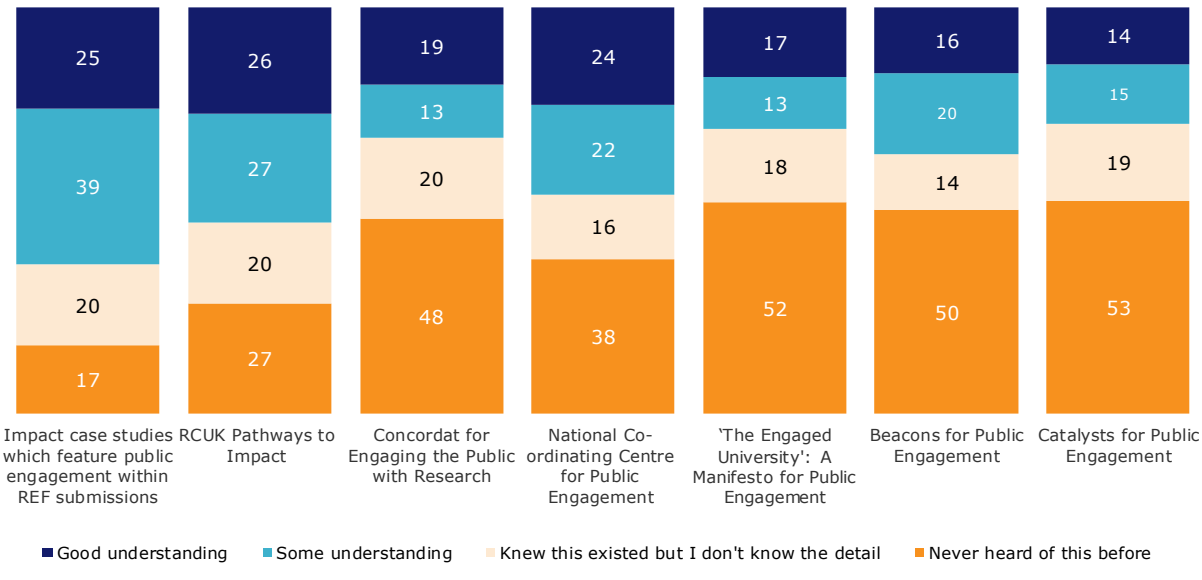
In contrast, and in line with expectations, enablers are much more aware of each of these relevant initiatives.

Figure 4.6 How would you rate your understanding of the following? (Researchers 2015)



Base: All researchers 2015 (2,361)

Figure 4.7 How would you rate your understanding of the following? (Enablers 2015)



Base: All enablers 2015 (266)

Researchers at Beacon or Catalyst-affiliated institutes were no more likely than other researchers to show awareness of either the Beacon or Catalyst initiatives. Breaking the figures down further by institution type also shows that researchers working at higher education institutes were more aware of Pathways to Impact (41%) and impact case studies (53%) than those at RIs (24% & 29% respectively). Senior staff were also more likely than junior staff to be aware of Impact case studies (85% vs 62%) and Pathways to Impact (70% vs 55%). A similar difference was found between research and teaching staff and research only staff with the former group more likely than the latter group to be aware of Pathways to Impact (69% vs 55%) and impact case studies (84% vs 54%).

4.4 Qualitative findings

4.4.1 Confidence and skills

Confidence is a key factor in the extent to which researchers take part in public engagement, according to the qualitative interviews. This can act as a virtuous circle, as confidence is built by conducting public engagement, and develops as researchers do it.

> *"I have no doubt the experience of talking to different audiences will have helped me develop my skills and abilities as someone who explains research in conceptual terms to different audiences. I would hope I'm a better public speaker having done this."* Researcher, AHSS

One counter example is around media activity, where a number of respondents mentioned that negative experiences had left them less rather than more likely to take part in future.

> *"People can take you out of context. I'm more wary of media engagement because it's more of a soundbite. It's easier if you're talking to smaller groups or one-to-one because you can judge how people receive it."* Researcher, STEM

> *"Ultimately I'm terrified of looking like an idiot"* Researcher, AHSS

Another participant also mentioned the negative effects of engaging with the public on sensitive issues, when he received criticism following a talk on climate change.

> *"When I did something on climate change I received some negative comments from people sending emails, which was a little bit strange… that would put me off doing public engagement on climate change in the future. If I feel that people tend to complain about what I say then perhaps it's better not to say anything."* Researcher, STEM

There was some disagreement around the extent to which natural aptitude should shape levels of participation. Almost all respondents who mentioned it felt that not everyone finds public engagement easy, and that those who do not should not be forced to do it. A number of respondents felt that public engagement should not be necessary for career progression, as there are some people for whom their natural aptitudes would make this impossible.

> *"People shouldn't feel like they're being pressured into public engagement, but that's what's happening now."* Researcher, STEM

However, other researchers feel that it is important to find a method that fits with personal skills, and that all academics can find a way of carrying out public engagement to suit their skillset. A couple of respondents talked about being able to brief colleagues or public engagement specialists to conduct public engagement on their behalf.

> *"Researchers should be given media training. For those who don't have the personality for it, would be good to have someone in the university to do public engagement for you, after being briefed by the researchers."* Researcher, AHSS

It seems likely that some researchers find public engagement exposing, and potentially quite frightening. This may be linked to fear of public exposure, and a concern about announcing findings before they are really ready to do so. Listening to the respondents' views, however, personality type appears to be the key driver. These and other barriers are discussed in more detail in chapter six.

4.4.2 Training

Respondents to the qualitative research were asked about training, whether or not they had been given it, and its perceived usefulness. While some respondents talked about having had training in public engagement, few had found it useful, and it isn't generally sought out (one exception to this is media training, which several respondents talked positively about). However, some respondents did feel that more focused support would be useful, so it may be a question of communicating the availability of training more explicitly.

> *"My main feeling about this is…it's something I've done in an unformed fashion…It all seems rather vague and unfocused and like I don't really know what to do…it's not something I feel experienced with."* Researcher, STEM

The most effective training is seen to be 'on the job', and this is also important in terms of building the confidence and skills that grow with experience.

> *"I need my hand held more, and if my hand was held for a bit, I'd probably be better at it"* Researcher, AHS

5. Institutional support and policy

This chapter considers the extent to which UK universities are perceived as having a strategic commitment to public engagement and the profile of public engagement enablers currently working in UK universities. By enablers we refer to staff working in roles which support or facilitate researchers to get involved in public engagement whether in a dedicated role or a role where this is part of a wider remit. Roles included for example: communications, events, outreach, PR, training, impact and knowledge exchange. The chapter explores: key descriptive attributes related to the profile of enablers; the extent to which UK institutions currently have formal public engagement strategies and related procedures; and perceptions from both researchers and enablers on the level of institutional support and how this has changed over time.

This is the first UK study to consider the views of this specific group in any depth. However, as discussed more fully in the Appendix (section A.3), logistical difficulties associated with the sampling of these job roles means that it is difficult to generalise these results to the wider population of enablers. Instead the results should be regarded as indicative of the views and policies of staff working in these job functions.

CHAPTER SUMMARY

- The profile of public engagement enablers suggests that most were spending only a part of their time on public engagement activities and that many were combining the role with other functions such as media, communications and PR. About four in ten enablers were working in a faculty-based setting.

- The survey results suggests that the introduction of formal institutional policy remains a work in progress across the sector with less than half of enablers confirming that their institution has a written public engagement strategy. There was evidence of institutional policy on evaluation and budget although many enablers did not have any knowledge about higher-level strategies connected with public engagement.

- The results indicate a perception of culture change over the past decade: there has been a small increase in the proportion of STEM researchers who consider that their institution and department is supportive. In addition both researchers and enablers perceive an increase in public engagement volume, quality and support over the longer-term.

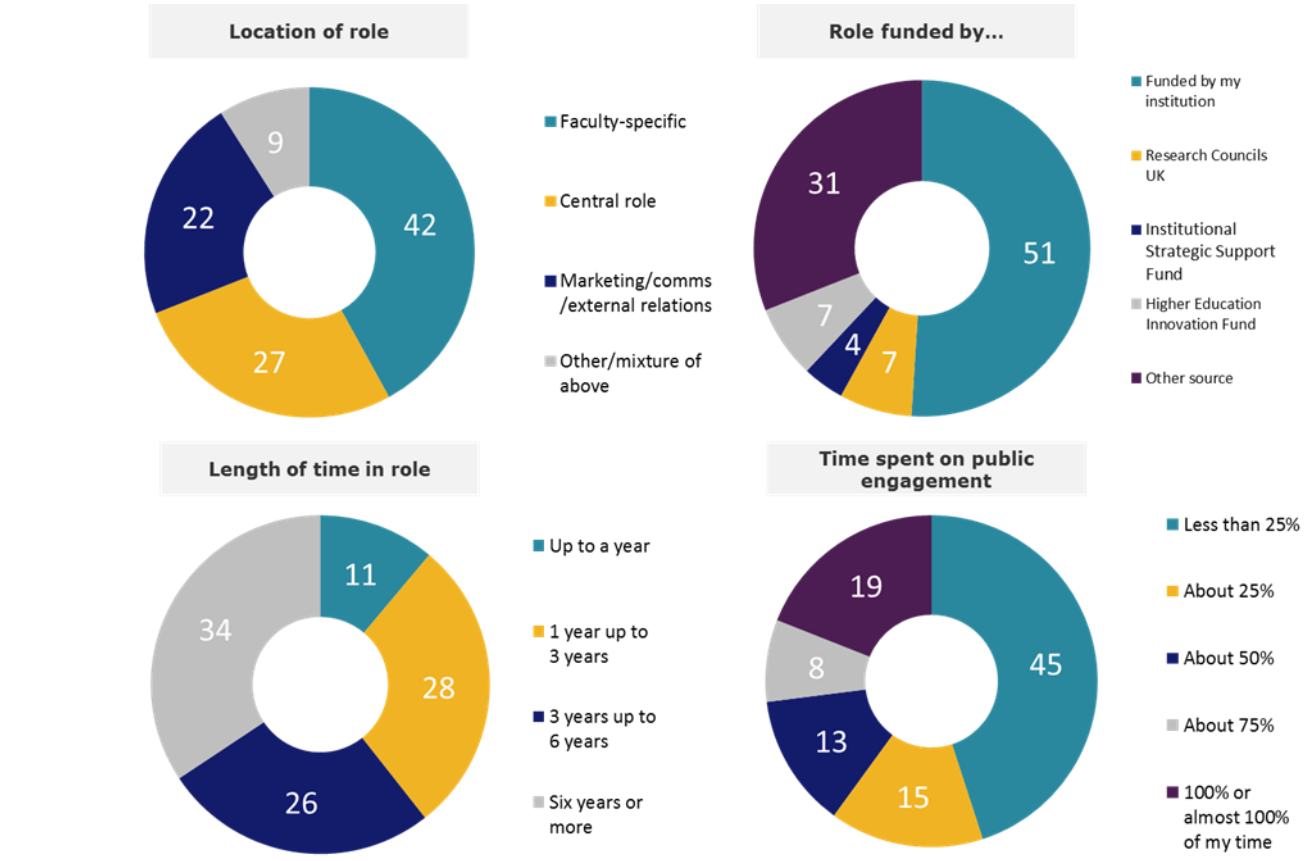
5.1 Profile of public engagement enablers

In order to understand fully the institutional support available to researchers, it is first important to profile the enablers in terms of their job role and function.

Figure 5.1 indicates that enablers were more likely to work within a faculty-specific setting (42%) than a central setting (27%), around half were core funded as opposed to externally funded, and most had been in post for less than six years. One in five enablers (19%) worked in a role which was exclusively

focussed on public engagement; around half spent less than 25% of their time supporting researchers to do public engagement.

Figure 5.1 Profile of enablers by location, funding, length in role and time spent on public engagement (2015)



Base: All enablers 2015 (269)

Many enablers had brought skills from previous employment into their role. For example 59% had previously worked in events, 57% in public engagement (including within different sectors), 46% had worked with young people and 42% with local communities. Just over one-third (36%) of enablers had a background as a researcher or academic.

Figure 5.2 displays the main functions of enablers' job roles. It should be noted that enablers were presented with a list of potential job functions and these functions tended to be focussed on aspects of their role which related to public engagement; roles may also have covered over functions which were not included within this list. Roles had a varied range of responsibilities though most enablers (more than half) spent at least some of their time supporting researchers to develop public engagement, building external contacts and organising engagement activities. Some job functions also covered communications/PR, delivery of public engagement, creation of public engagement opportunities, community engagement and schools outreach work.

Figure 5.2 Which of the following functions are covered by your role?

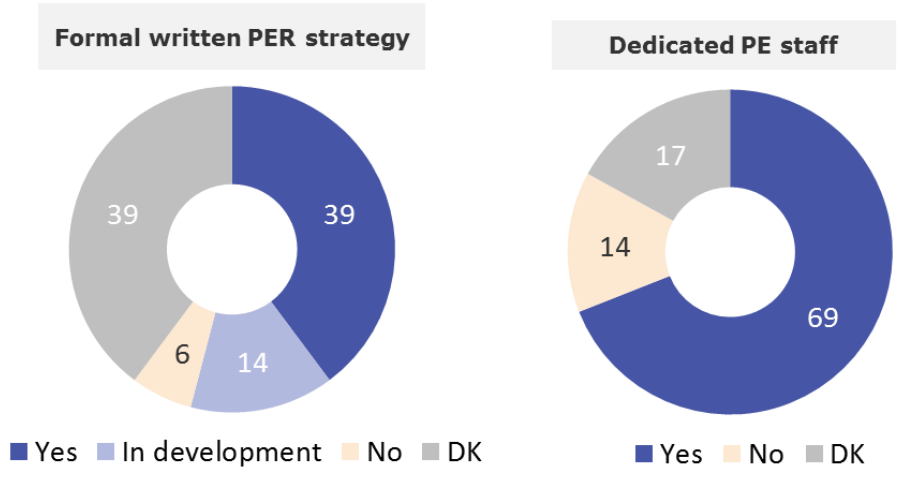
Base: All enablers 2015 (269)

5.2 Institutional policy

Enablers were asked a number of questions about institutional policy and strategy. Overall, a large proportion of enablers did not know about institutional policy in terms of public engagement, which is perhaps not unsurprising given the small proportion who worked in a dedicated public engagement role (Figure 5.1).

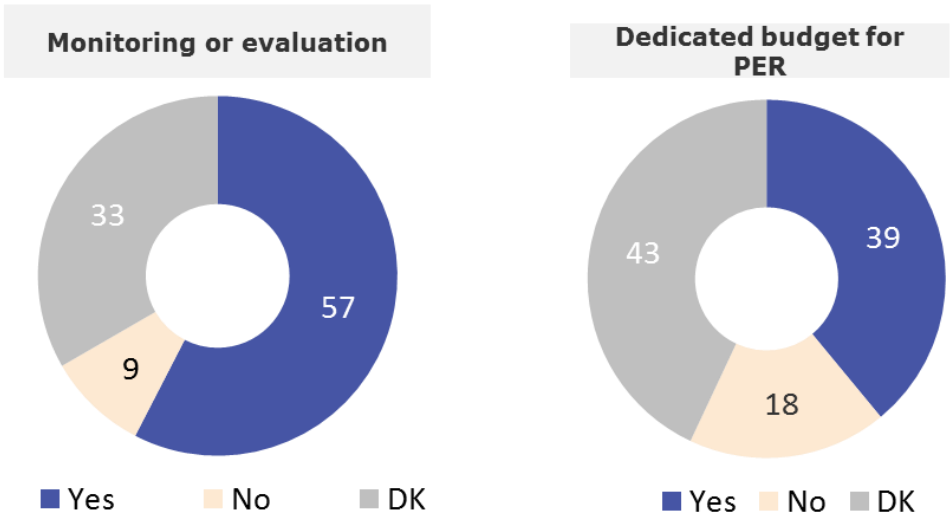
The absolute percentages are difficult to state with accuracy given the large proportion who lack knowledge of these policies; however, the results suggest that most institutions have a formal public engagement policy either in place or in development, most have staff dedicated to public engagement support, and most undertake some form of monitoring or evaluation.

Figure 5.3 Institutional policy and dedicated public engagement staff (2015)



Base: All enablers (265)

Figure 5.4 Evaluation of public engagement activities and provision of a dedicated budget (2015)



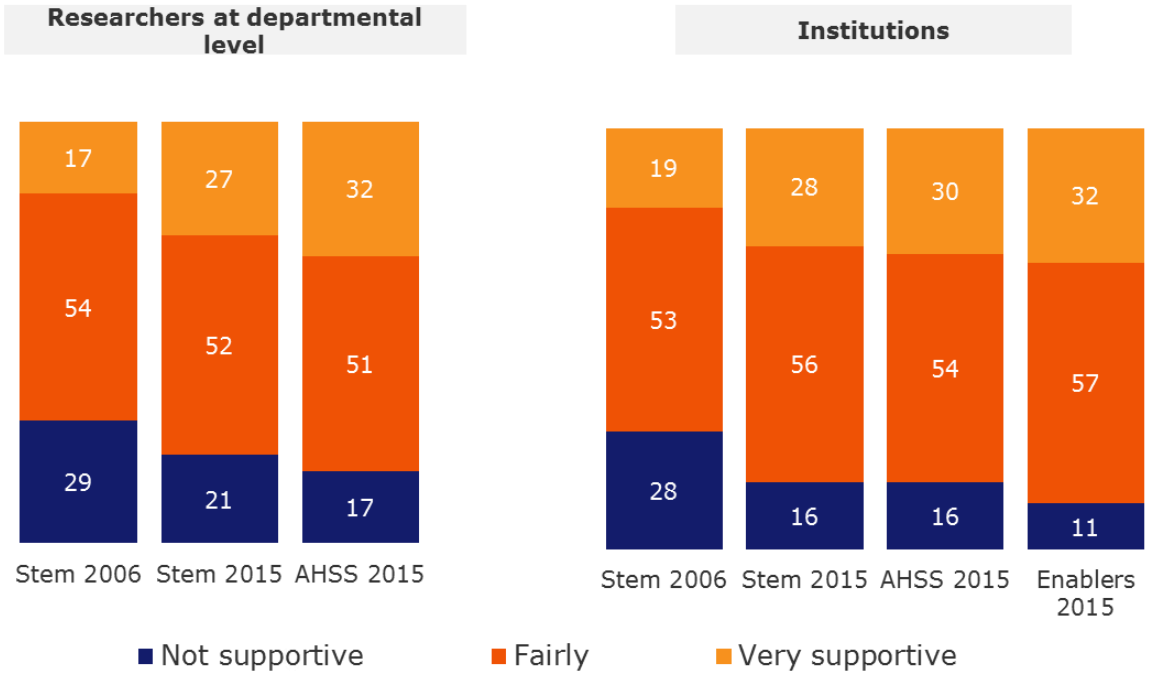
Base: All enablers (265)

5.3 Perceived level of departmental and institutional support

Researchers were asked about whether they felt their institution was supportive towards public engagement, and whether they felt researchers within their department were supportive. Enablers were asked the same in relation to institutional support only.

In comparison with 2006, a higher percentage of STEM researchers in 2015 considered that their department provided a supportive environment for public engagement (from 71% to 79% overall). A similar but more marked shift is seen in respect of support by institutions (from 72% to 84%). Enabler and researcher views on institutional support are very similar.

Figure 5.5 Are your institution and department generally supportive towards public engagement? (2006 & 2015)†[16]



Base: Departments: STEM 2015 (1,201) AHSS 2015 (716) STEM 2006 (1,029)
Base: Institutions: STEM 2015 (1,170) AHSS 2015 (694) STEM 2006 (981) Enablers 2015 (223)

† A large proportion of researchers said "don't know" or (in the case of institutions) "it varies" (around 30% in 2006 and between 18% and 24% across the different groups/questions in 2015). In order to provide a comparison on a comparable base, respondents giving a don't know or "it varies" response have been removed from the base in these figures.

5.4 Perceptions of change in public engagement over the past 10 years

For reasons discussed further in section 2.3 measuring change in levels of public engagement between 2006 and 2015 is challenging. In addition the higher education sector as a whole has undergone significant change since 2006 with changes to student fees and the REF for example. It is for this reason that, as well as changes to PE itself, researchers were asked about their own perceptions of change. Researchers who had been working in research for at least 10 years were asked about their views on changes within the sector, in terms of amount of public engagement and support from institutions and funders. Enablers were asked their general views, even if they had not been working in the sector for this length of time.

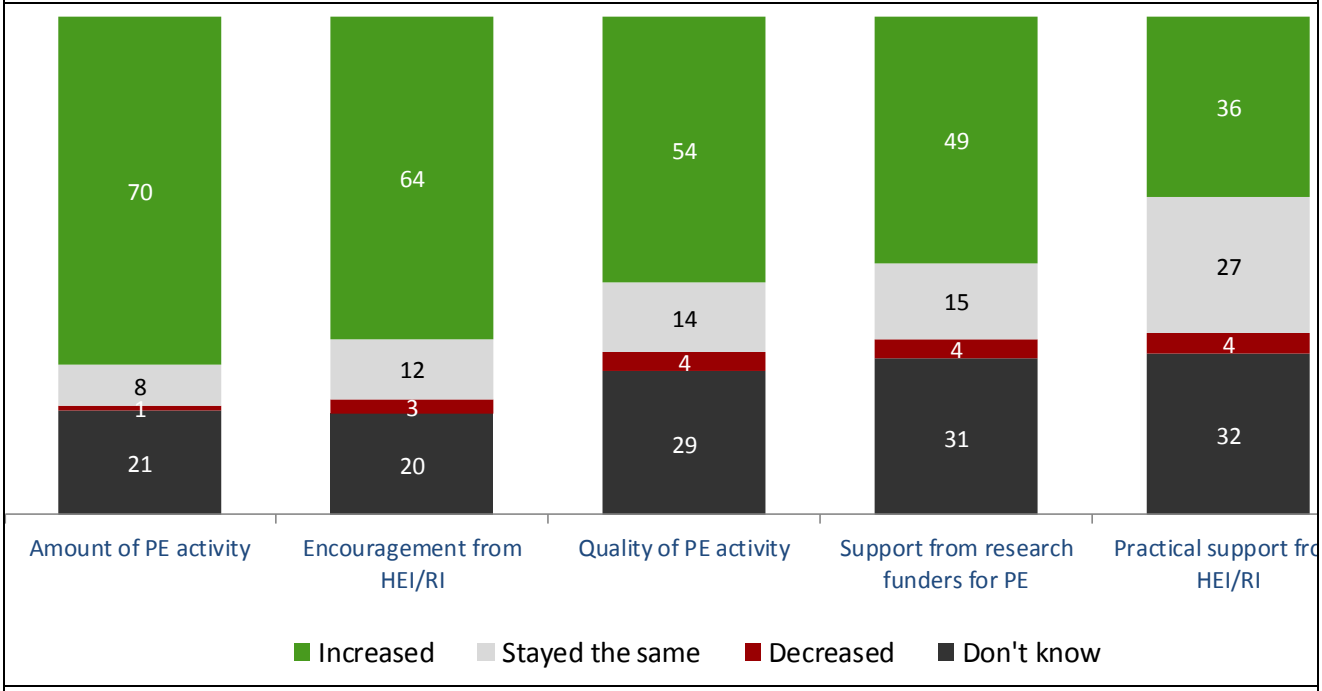
Overall, most longer-service researchers thought that the volume of public engagement activity, and the level of institutional encouragement, had increased over the past decade. In terms of quality of public engagement and practical support from institutions, the balance of opinion amongst those who had an opinion was that there had been improvements over the past 10 years. Researchers were more equivocal about whether support from funders had increased.

Enablers generally hold a more positive view, with between 80% and 90% believing there has been an increase in each of these.

[16] Please note – this question has been re-based to remove 'don't know' and 'it varies between departments'

Clearly these findings are highly subjective. However, they do point towards a perception of culture change within institutions.

Figure 5.6 Perception of change in public engagement activity and support in the past decade (2015)



Base: All researchers (1,360)

5.5 Qualitative findings

5.5.1 The role of enablers

The enablers interviewed as part of the qualitative research came from varying professional backgrounds, though many had previously been involved in education and academia.

Enablers primarily characterise their role as managing the relationships and administrative processes which help which facilitate researchers' public engagement activities. One enabler described her role as a *"project manager"*, helping to reduce the time commitment required of researchers to successfully conduct public engagement by relieving them of some of the peripheral associated tasks. This wide variety of activities differs from enabler to enabler but often entails sourcing, promoting or creating opportunities for public engagement, and supporting researchers with the formulation of content and the organisation of equipment and venues.

> *"I give advice guidance and support to academics on how they can do public engagement … and I help them to set things up, like exhibitions."* Enabler

> *"We try to help researchers to be relevant to the society around them."* Enabler

Co-ordinating public engagement training opportunities for researchers is another commonly cited function of enablers. This can include informal sessions conducted by enablers themselves (for example, helping researchers to frame their work in public-friendly language) as well as arranging more formalised sessions with external experts (such as media training).

Interestingly, from a researcher perspective, the role of public engagement officers doesn't yet seem to be integrated within institutions. Even those researchers who know that their institutions have a public engagement function don't seem to have much contact with enablers, or to understand how these

enablers might facilitate their own work. When asked about the kind of support they would like to see, researchers talked about the usefulness of practical, logistical support, for example in terms of booking venues or paying bills.

> *"If the university wanted to support more, there could be far better infrastructure - e.g. processing payments for venue hire, helping to book facilities on campus, general events management support. Lack of admin support to make payments etc. makes you think carefully about how often you'll put yourself in that position where people are chasing you for money."* Researcher, AHSS

> *"There is a public engagement office who I have found to be useless… they seem to operate at a higher level… they are recording and documenting rather than helping us do it."* Researcher, STEM

Several enablers also identified more strategic areas of their role, going beyond the day-to-day delivery of public engagement initiatives, including incorporating principles of best practice such as co-production, or by evaluating public engagement in order to identify areas for improvement.

> *"Getting to best practice means you have to evaluate that what you are doing is high engagement and impact – so measuring what you're doing as well."* Enabler

Notably, many of the enablers interviewed as part of this research were in roles or teams which had been recently created (from a few months to six years previously). Many enablers cite the creation and existence of their role as a key embodiment of the wider institutional prioritisation of public engagement which has occurred over recent years.

Despite this, several felt there is still more which can be done to embed public engagement within their institution from a personnel perspective. Some point to creating additional resource at an enabler level or establishing a senior role which clearly and visibly has responsibility for public engagement.

5.5.2 Institutional policy

Some suggestions arose from the researcher and enabler qualitative interviews around what an institutional policy might address. Responses included greater provision for ring-fenced funding from funders and budgeting for public engagement support as an institution; formal recognition for public engagement as part of the appraisal and promotion process; and time allocation for researchers to engage in public engagement. Current barriers and incentives for public engagement are discussed in Chapter 6.

> *"If the national research councils require it as one of the criteria for making awards for research, then in a sense they are supporting it. But if there were a national fund that provided money for innovative forms of engagement then that would be welcomed."* Researcher, AHSS

It should be noted that despite clear shortcomings in the level and nature of institutional support for public engagement at present, there is also relatively broad recognition that the current situation is an improvement on previous years. Public engagement is seen to have risen up the institutional (and departmental) agenda, with researchers noticing more rhetoric around public engagement, for example in internal communications. The next challenge is to formalise and cascade this communication, accompanied by adequate practical measures for implementation.

> *"When I joined this university 8 years ago, public engagement wasn't a term you heard much whereas now, it's everywhere."* Enabler

"Over the past six years research councils, REFs and the Wellcome Trust have published their statements about expectations about public engagement, so REFs started talking about it more." Enabler

"It feels like there is more pressure on dissemination of findings, project funding and what initially gets researched than there was five or ten years ago." Enabler

5.5.3 Perception of change

Respondents to the qualitative research were asked to comment on any perceived changes in the nature of public engagement in the previous ten years. Qualitative findings differed from quantitative findings in this respect: not all felt able to comment on this while others felt that public engagement had stayed fairly constant. For many who felt unable to comment this was because they were at an early stage in their careers, and so they didn't feel they had a long enough frame of reference from which to draw conclusions about change. For others, their view of public engagement is somewhat static, and some respondents talked about conducting the same practices over a long period.

"Over 30 years [I've] seen peaks and troughs in the importance attributed to public engagement, but over the long term trend not much has changed and [I don't think] much is set to change." Researcher, STEM

In terms of visibility within institutions, a number of respondents did mention that public engagement has been increasingly talked about in recent years. The REF (Research Excellence Framework) agenda is seen to have had a significant impact, and a number of respondents talked about the change that REF has made to the way in which they, and their departments, prioritise activities.

"PE is coming up the agenda because of REF, so academics can no longer sit in ivory towers and work - we have to be accountable. But there needs to be more recognition for it. More and more funders are asking for evidence that there has been a policy change or somebody was influenced." Researcher, AHSS

While REF's focus on impact is sometimes thought to have been useful, the perceived lack of a specific definition as to what constitutes that impact can make it hard to make the case for spending significant amounts of time on public engagement.

"Every hour I spend on public engagement is an hour away from writing and my performance and pay is directly related to academic output. I've got to have a minimum of 4 REF-able pieces before the next REF." Researcher, AHSS

"REF has encouraged researchers to think more creatively about how they can demonstrate impact beyond publications and conferences." Researcher, STEM

6. Barriers and incentives for public engagement

This chapter explores the factors that act as barriers and facilitators to participation in public engagement. Broadly speaking, barriers have been classified into three types: *job-related barriers* (such time, money, training); *attitudinal barriers* (for example researchers feeling that their research is too specialised); and *structural barriers* which refer to institution-level factors affecting participation. The chapter concludes by considering the factors which would encourage greater participation including reward and recognition within institutions.

CHAPTER SUMMARY

- Competing pressures on time emerged as the most prominent barrier for researchers undertaking public engagement, replicating similar findings in 2006. Further barriers cited by researchers included difficulty accessing relevant opportunities and insufficient funding for public engagement.
- Enablers on the other hand cited challenges related to persuading researchers to participate. As lack of access to opportunities is cited as a key barrier by researchers, this indicates that researchers are not always aware of the opportunities on offer.
- A disinclination to do public engagement (as measured by low rate of involvement and a reluctance to get more involved) was associated with viewpoints which imply a range of attitudinal barriers. For example, researchers who consider that their research is highly specialised, who do not feel that their work has wider implications for society and who are unwilling to take a public stance on their research are more likely than researchers holding counter views to be disinclined towards public engagement.
- About half of all enablers (48%) cited some form of reward or recognition for public engagement within their institution, such as awards, prizes or incentives linked to career development. However, only 19% of researchers consider that furthering their career would encourage them to get more involved. Thus, in order for career development to become a motivating factor, it may be that public engagement needs to be better incentivised within career structures than it is now.

6.1 Barriers to public engagement among researchers

6.1.1 Job-related barriers

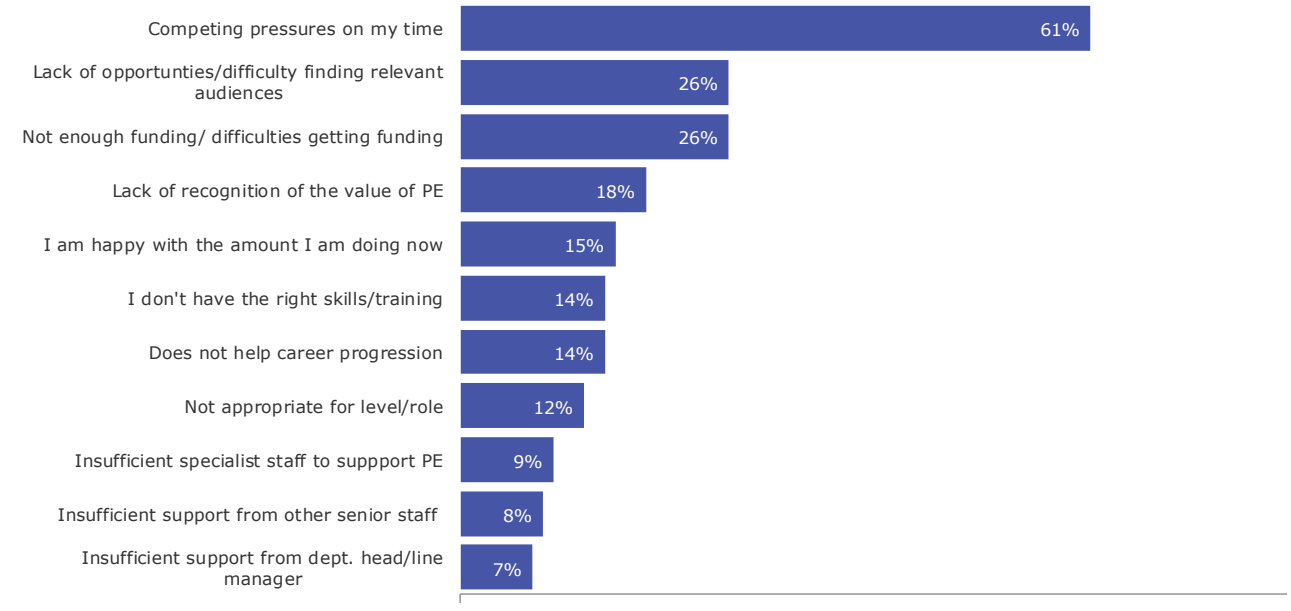
Researchers were presented with a list of potential factors related to their job role that might prevent them from getting more involved in public engagement and were asked to prioritise the top three. This provided an indication of the *relative* importance of different factors.

Although a range of factors were cited as barriers, it was clear that time – or more specifically competing pressures on time - was the most significant obstacle to increased involvement in public engagement. As discussed in the qualitative findings (see section 6.4.1) lack of time is in reality a question of prioritisation

and this has been a consistent theme within the public engagement sector, identified also as the key barrier in the 2006 survey as well a prominent theme within the literature review.

Further barriers cited by at least a quarter of researchers in their top three were difficulty finding opportunities or audiences for public engagement and lack of funding.

Figure 6.1: What are the three main factors stopping you personally from getting more involved in public engagement? (2015)



Base: All researchers 2015 (n=2,426)

Some issues were more of a barrier for specific groups:

- Younger /early career staff were more likely than senior-level staff to cite lack of opportunities and lack of suitability for their career stage as barriers. For example, lack of opportunities was cited by 34% of those aged up to 30 and 22% of those aged 51+; and lack of suitability by 24% and 6% of these groups respectively. Early career male researchers were particularly likely to cite a lack of career development opportunities (21% compared with 14% overall).

- Senior staff on the other hand were more likely than junior staff to site time as a barrier (67% compared with 56%).

- Time was also linked to a researcher's inclination towards public engagement. It is interesting that those who are keen to more public engagement are particularly likely to cite time as a barrier (71%), while those who are either content with their current involvement or who would like to do less were much less likely to cite time as a barrier (49%).

- Those on research and teaching contracts were more likely than those on research only contracts to cite time (69% vs 50%) and funding (32% vs 17%) as barriers.

- Funding was also more of barrier for researchers who were wholly institution funded (32%) as opposed partly or wholly funded externally (22%); it was also a more significant barrier for AHSS (34%) as opposed to STEM researchers (22%); and for HEI staff (27%) as opposed to non-HEI staff (18%).

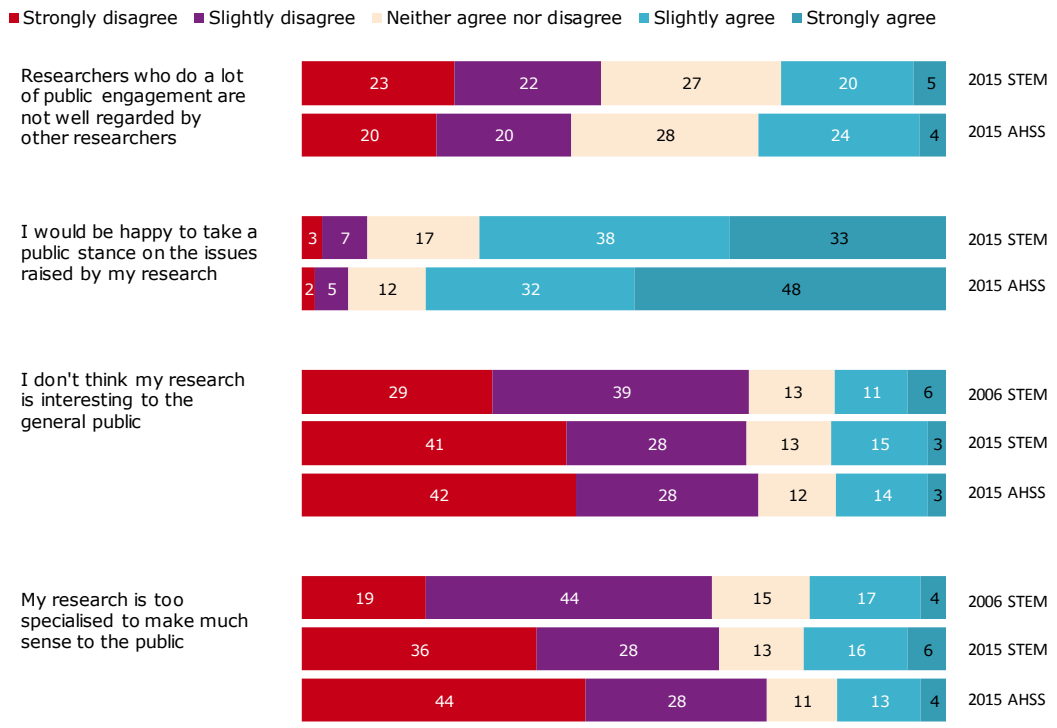
6.1.2 Attitudinal barriers

Figure 6.2 displays the agreement and disagreement levels towards a selection of statements presented to researchers in the 2015 survey (results are also shown for 2006 where trend data are available).

These indicate attitudinal barriers to public engagement as follows:

- Around a quarter of researchers agree (either strongly or slightly) that public engagement can be viewed negatively by their peer group. This opinion was particularly prevalent among Panel D arts/humanities researchers (38%) and those who are highly active in public engagement (34%)
- A small proportion (up to 10%) would be unwilling to take a public stance on the issues raised by their research.
- Around a fifth consider that their research is either uninteresting to the public or too specialised to make much sense to the public. However the proportion of STEM researchers who *disagree strongly* with these statements has increased over time suggesting that inaccessibility is less of a concern for this group in 2015.

Figure 6.2: Attitudes towards public engagement (2006 and 2015)*



Base: STEM researchers 2006 (n=1,477): All researchers 2015: STEM (n=1,521) AHSS (n=871)

* Don't know responses which account for between 0% and 4% of responses are included in the base but not shown

As cited in section 2.3, the large majority of researchers have done public engagement on at least some level in the previous 12 months. However, this high figure masks a proportion of researchers who either do very little and/or who are resistant to doing more. In order to investigate further some of the attitudinal barriers associated with public engagement, a subsample of researchers - labelled here as the "disinclined" subgroup - was identified according to the following attributes:

"Disinclined": Researchers who have done either no public engagement or a low level of public engagement AND do not cite a desire to do more public engagement[17]

Overall, 11% of researchers were classified as disinclined according to this definition. In general, there were relatively few demographic variables associated with a higher propensity to be disinclined, although STEM researchers were more likely than AHSS researchers to be disinclined. The proportion of researchers classified as disinclined varied from 14% of Panel B researchers (engineering, maths and the physical sciences) and 12% of Panel A researchers (clinical and biosciences) to 7% of Panel C researchers (social sciences) and 3% of panel D (arts and humanities).

There was however a strong correlation between disinclination to do public engagement and attitudes (Table 6.3). For example, 22% of those who disagree that they *would be happy to take a public stance on the issues raised by my research w*ere disinclined to do public engagement compared with 7% of those who agreed with this.

Table 6.3: Percent who are "disinclined" to do public engagement by attitudes towards public engagement and research topic (2015)†

	Researchers who agree with statement	Researchers who disagree with statement	*Base: Agree*	*Base: Disagree*
	% who are disinclined to do public engagement			
I don't think my research is interesting to the general public	16	8	*409*	*1,675*
I would be happy to take a public stance on the issues raised by my research	7	22	*1,765*	*225*
Researchers have a moral duty to engage with the public about the social and ethical implications of their research	8	17	*1,745*	*288*
My research is too specialised to make much sense to the public	17	8	*472*	*1,619*
I feel confident in my public engagement skills	8	17	*1,360*	*605*
I don't believe the public can add value to my research	19	8	*392*	*1,578*
There are no personal benefits for me in public engagement	16	8	*412*	*1,591*
Public engagement improves the quality of my research	7	18	*1,276*	*528*
My work has implications for society	9	23	*1,961*	*161*

† Full breakdowns of the proportion of the whole sample that agreed or disagreed with these statements can be found in Figure 3.5 and Figure 6.2

Broadly speaking the findings set out in Table 6.3 indicate a number of attitudes associated with reluctance to do public engagement:

- Lack of confidence in ability to do public engagement
- A belief by researchers that their research is not sufficiently accessible to the public or that the public cannot add any value

[17] Based on the activity categorisation described at section 2.4 and Q28 *"Would you like to spend more time, less time or about the same amount of time engaging with the public?"*

- Lack of belief that their research has a wider application to society
- An unwillingness to take a public stance about their research
- A disagreement that researchers have a moral duty to engage with the public

6.1.3 Structural barriers

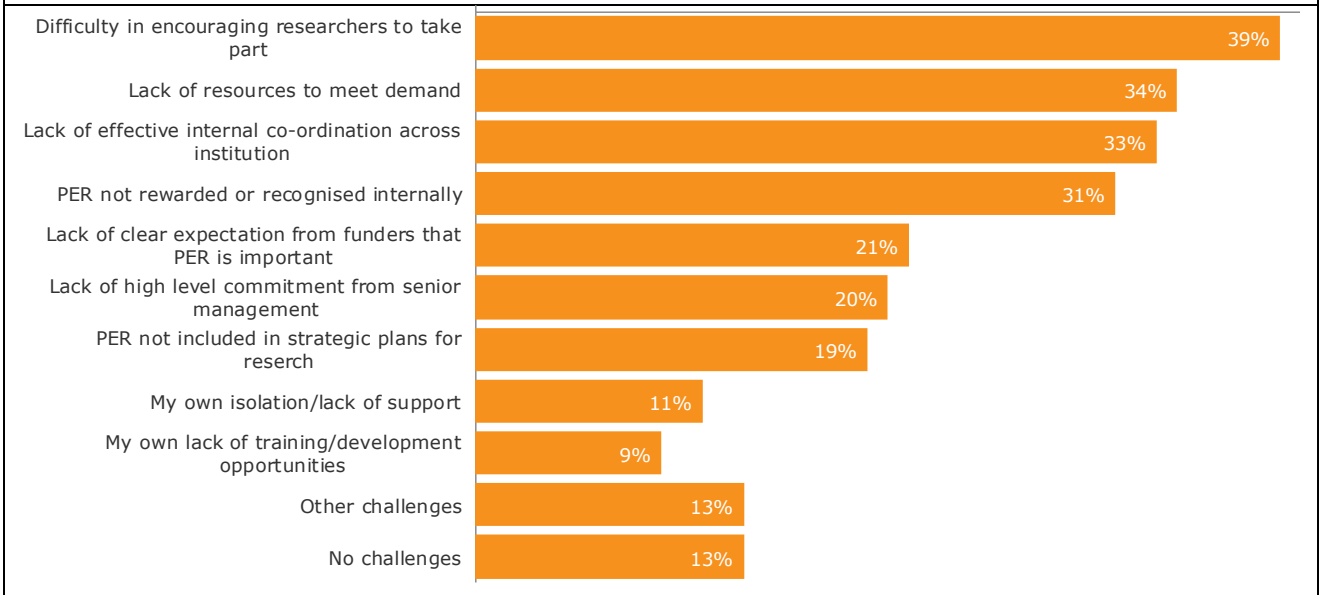
Enablers were also able to provide some evidence about barriers to public engagement from the institutional perspective.

Comparing the results against the data in Figure 6.1, enablers agreed with researchers that workload was the most significant obstacle for researchers: 67% citing this as a top three barrier. Compared with researchers however enablers were more likely to consider lack of recognition (53%) and lack of career progression (29%) as obstacles to researcher involvement in public engagement and less likely to consider lack of opportunities (11%) as a barrier.

In fact, when asked to select from a list of potential challenges affecting their role as facilitators for public engagement, the key barrier cited (see Figure 6.4) was difficulty encouraging of researchers to get involved. This would suggest that opportunities are often available but that researchers do not always know how to access them. This disparity between researchers and enablers also highlights the tendency, discussed in more detail within the qualitative findings (section 6.4.1), that researchers tend to be more reactive than proactive in finding opportunities.

Other key challenges referred to by enablers included lack of resources (34%), lack of effective internal co-ordination across the institution (33%) and lack of internal rewards and recognition for public engagement (31%). These themes are expanded upon in relation to the qualitative output in section 6.4, while existing reward and recognition structures are covered in section 6.3 below.

Figure 6.4: Key challenges affecting the role of public engagement enablers (2015)



Base: All enablers 2015 (n=267)

6.2 Incentives for public engagement

Researchers were also asked what might encourage them to get more involved in public engagement activities. On the whole incentives mirrored the barriers with researchers citing allocation of time (48%), opportunities (38%) and grants (23%) to stimulate further involvement. Factors such as career advancement and personal profile were much less important motivators. This latter finding could indicate one of two situations: either people feel that public engagement is the "right" thing to do regardless of career profile; and/or they feel that public engagement is not currently recognised in career promotion criteria and therefore there is little point doing engagement for this purpose. Certainly enablers regard career development as a key barrier for researchers (see 6.1.3 above) suggesting that if this structural obstacle is addressed researchers may find this a further incentive to participate.

Figure 6.5: What are the three main factors that would encourage you to get more involved in public engagement? (2015)

Base: All researchers 2015 (n=2,367)

6.3 Reward and recognition for public engagement

One in five researchers (Figure 6.5) believed that better recognition for public engagement was one of the main incentives for doing more. Enablers were asked what recognition and reward structures were in place within their institution. Nearly half (44%) said that there were no such structures in place at their institution. A third cited awards or prizes for public engagement while a quarter said that this was included within career development plans.

Table 6.6: Reward and recognition structures in place: all enablers (2015)

	%
	%
Awards or prizes for PER	33
Included within performance reviews/promotion criteria	25
Other	3
None aside from informal recognition/praise	44
Don't know	8

48%

Base: All enablers 2015 (n=264)

6.4 Qualitative findings

6.4.1 Personal barriers

As touched upon in previous sections of the report, there are a host of personal barriers to undertaking public engagement.

Time is cited as the key barrier, and this manifests itself in a number of ways. The majority of researchers feel pulled in multiple directions as they need to dedicate time to teaching, research, administration and public engagement – while, generally, only the first three of these is recognised in a researcher's work plan. Time spent undertaking public engagement is seen as time that could be spent conducting research - which respondents said they also struggle to find time for.

> *"We spend our time doing the day job as it were. It's a question of time if anything. Unless it's actually built into the research you don't say – 'I think what I'll do today is engage the public'".* Researcher, STEM

While time is a barrier, in reality it is a question of prioritisation. Research, teaching and writing publications are considered the 'core' areas of focus – they are what attracted respondents to academia and are the areas that have the greatest impact on reward and recognition from a career development perspective.

Finally, lack of time has an impact on the types of public engagement activities that researchers undertake. They tend to opt for tried and tested, familiar methods, rather than spend time considering whether there are any new ways of conducting public engagement that may be appropriate to use.

> *"You have so many plates spinning in the air that actually you just reach for something that you know is tried and tested, that you can do, that works quickly and that's effective, and you do it, rather than thinking more creatively and widely about how you could do something."* Researcher, STEM

Linked to this, respondents said they are very reactive in their approach to public engagement, taking advantage of the opportunities that present themselves to them personally rather than proactively planning their public engagement activities.

> *"It's not very well advertised or its not there… The opportunities have to be there in order to take them and [I'm] not aware of them being there."* Researcher, STEM

Some researchers believe that there is a lack of readily available public engagement activities; however this is in contrast to the views of enablers who said that they find it hard to get people in their institutions to take up the public engagement activities on offer.

Lack of opportunity to conduct meaningful public engagement is seen as a particular barrier by researchers who specialise in 'niche' subject matters that are less topical and therefore harder to engage the public in. These researchers say that other colleagues whose research is perceived as more relevant, and already on the public agenda, have an easier task in conducting meaningful public engagement.

> *"If you work in something like cancer research then you're always going to be relevant. It's different for me, not that many people want to talk about my niche area of farming research: it is just not high on the public agenda."* Researcher, STEM

Personal confidence (as covered in Chapter 4) is a further barrier for some researchers who don't believe that the skills required to conduct public engagement and those of an academic researcher are always aligned. For some, this results in an unwillingness to conduct any public engagement; for others this limits the types of public engagement activities they feel confident undertaking.

"I wouldn't feel comfortable going out and speaking in schools. I'm ok with writing articles and blogs, or even a bit of media engagement but I don't like being face to face with large numbers of people. It's not something I've been trained to do or that fits with my skill set." Researcher, STEM

Fear of damaging your own personal reputation is a further barrier for some respondents, particularly those who engage via the media, or those who are relatively inexperienced. Some respondents believe that journalists try to trip up academics in an interview situation; others think that the media try to overly simplify sophisticated arguments which can damage credibility in the academic world; others are wary of the risk of being misrepresented or misquoted and believe that this requires careful management.

"I've been in a couple of situations where I've been misquoted by a journalist and it has needed some tough conversations to protect my own reputation with other academics. The general public wouldn't know or care but peers do." Researcher, STEM

"Journalists can be in places you don't expect them, so researchers feel they have to be very careful and confident about what they say in public. Recently a colleague was giving a talk and he thought he was speaking privately, but it did hit the media and had an impact on his reputation." Enabler

For some researchers, the requirement for regular public engagement jars with their preference not to talk about research before it is complete. This links to the above point around fear of damaging your own personal academic reputation, but also for some (particularly those who specialise in health-related research) concern that discussing early findings with an engaged public will raise their expectations unfairly. As a result some researchers say they are naturally less responsive to public engagement opportunities at certain times in their own academic cycle.

"It can feel counter-productive to talk about findings before you've finished. It makes me nervous that you'll either get misrepresented or that you'll get people's hopes up with something that doesn't come to fruition." Researcher, STEM

6.4.2 Structural barriers

As mentioned above, respondents said that finding time to undertake public engagement activities in addition to the required proportion of research, teaching and administrative time is challenging. As public engagement time is not ring-fenced it typically falls down the agenda and is the first thing to give. This lack of ring-fencing, or being linked explicitly to criteria for reviews and promotions, is seen by some respondents as indicative of the level of priority that it is given at an institutional level.

"There needs to be more recognition of public engagement by universities, e.g. when you're going for promotion or deciding how to apportion your workload." Researcher, STEM

The personal attitudes of senior staff within departments can also act as a barrier (or incentive) to conducting public engagement. Respondents with supportive senior teams said that they felt positive pressure to undertake public engagement in order to earn 'brownie points' and be viewed favourably. Conversely those with less supportive senior teams felt that their efforts in terms of public engagement were not valued and this removed an important incentive to put in more time and effort.

"I think there is an enormous lack of recognition for the amount of effort people put in to this. I have a colleague at this institution who does an enormous amount of public engagement work

but nobody seems to recognise it because it doesn't fit in to this particular box of demonstrating impact." Researcher, AHSS

The lack of an institution-wide policy towards public engagement is a further structural barrier as some respondents are unclear what is expected of them by their institution, or which methods of public engagement will be deemed most appropriate. However, respondents recognise that it is challenging to have an institution-wide policy when the nature of public engagement varies department to department and subject to subject.

Some respondents also said that the lack of infrastructure within their institution to support public engagement activities acts as a barrier (as outlined in Chapter 5). Respondents said that lack of practical support from institutions means that they either don't undertake public engagement activities or that they default to events that are already organised rather than trying to set up something on their own.

Finally, lack of funding for public engagement was mentioned by some respondents as a barrier – both in terms of covering direct costs and time spent .

"There's not always adequate funding for public engagement, for example, you're supposed to make all publications open, but that costs a lot of money." Researcher, AHSS

"It's really about have I got the time to do this and is there the money to do it? It's something that I do out of good will, there's no incentive career wise, no financial incentive, no professional incentive." Researcher, AHSS

6.4.3 Reward and recognition

For the most of the researchers interviewed, institutional support for public engagement is felt to be implicit and passive. Almost without exception researchers said that public engagement is, on the whole, well thought of by at least some members of the senior management at their institution, but that this is not reinforced with concrete mechanisms for encouraging or rewarding public engagement.

"Senior managers do value public engagement, but it's verbal support more than anything else - a 'thank you' for what you've done." Researcher, STEM

"You will be praised for doing public engagement and you get informal brownie points." Researcher, STEM

"My advice to a young academic would be… great if you want to but don't feel it will benefit you in the short term." Researcher, STEM

"The support offered [by my institution for public engagement] is very lip service tokenistic – it's just a pat on the back." Researcher, AHSS

Enablers are more likely than researchers to consider their institution to be supportive of public engagement – which is unsurprising given that their institutions have allocated funding for their positions/teams.

Among researchers there is very little awareness of institution-wide policies for public engagement which suggests that implementation of such policies remains relatively rare (see section 5.2 for quantitative data covering this theme). Rather, levels of support and priority by researchers seem to be dependent on whether individuals in senior management positions (primarily at a departmental level) show a personal interest or specialism in public engagement, and subsequently act as a champion. While this is

recognised by most as a positive influence where it exists, it remains largely symbolic and does not necessarily equate to more drive and commitment to public engagement at a grass roots level.

Some researchers express concern that genuine recognition and reward for public engagement is currently only present where institutions expect it ultimately to translate into financial gain. This means that while public engagement efforts which contribute to wider reputational and marketing metrics, such as REF performance or raising the profile of the institution among prospective students, are valued, activities with a less specific application to broader institutional goals can go unnoticed. There is a danger that public engagement can be seen as a 'box ticking' exercise, rather than a genuine pursuit of quality engagement with the wider public.

> *"There is plenty of support for people who can bring in more money, but if it costs money there is perhaps less support."* Researcher, AHSS

> *"Senior management in universities always say PE is important but the reality is that it's all about journal papers, everything else is froth and box-ticking."* Researcher, STEM

6.4.4 Incentives, the perceived value of PE and the future

As part of the qualitative research, respondents were asked what, if anything, would encourage them to get more involved in public engagement. A number of suggestions emerged:

- **Ring-fencing time for public engagement:** time is the primary barrier to public engagement, and respondents felt that changing the way academic time is allocated, to separate out and ring-fence time for public engagement activity, would encourage and support them to increase the amount of public engagement they undertake.
- **Ring-fencing funding for public engagement:** some respondents suggested that ensuring that an allocation of funding is ring-fenced at the point of award would stop the practice of using money ear-marked for public engagement for other activities. Some respondents also suggested that minimum amounts of public engagement could be stipulated in contracts.
- **Explicitly linking public engagement to promotion/career development:** researchers commented that changing the criteria for performance reviews and promotions to explicitly include performance in terms of public engagement would act as an incentive for researchers to undertake more, and more meaningful public engagement. This would overcome the barrier that public engagement is a 'nice thing to do' but not something that directly advances your career.
- **Focusing on 'volume' not 'regularity':** some respondents said they would be more comfortable with a volume requirement for public engagement, rather than a focus on regularity of engagement, so that they could conduct more engagement at relevant times in their own academic cycle linked to key milestones in their research.
- **Tighter definition of REF criteria:** some respondents believed that tightening the criteria within the REF agenda in terms of what constitutes impact would facilitate an increase in meaningful public engagement activity among researchers.
- **More visible opportunities and availability of organised events:** researchers are commonly reactive in their approach to public engagement; increased visibility of available opportunities was mentioned by respondents as a way to increase the amount of public engagement that they undertake. This is particularly the case for those involved in community and school engagement activities, as organising this type of public engagement is seen as time and resource intensive. The increased availability of larger-scale organised events that you can 'pitch up to' would be welcomed by many researchers.
- **Ensuring infrastructures support public engagement:** linked to the above point around increased visibility of available opportunities within institutions, many researchers believe their institution could do more to practically support researchers in conducting community and school based engagement. Setting up systems to help with event management – from an organisational and financial perspective - would remove some of the practical barriers to undertaking this type of public engagement.

Respondents were also asked how they see public engagement evolving in the future. While some were able to comment on this, most weren't - particularly researchers who had only recently begun to conduct

public engagement activities and who therefore lacked historic knowledge of how public engagement has evolved as a discipline to date. Others felt that the future of public engagement is so closely linked with how the REF develops that they couldn't comment on the likely future direction themselves.

> *"I expect that through REF, there will be more emphasis on impact moving forwards – but I don't know the practical implications of that yet though."* Researcher, AHSS

Those researchers who were able to comment on how they see public engagement evolving in the future believe that there will be a change in methods moving forwards as social media becomes more important as a channel for public engagement and technological advances impact the methods used.

> *"Social media is getting bigger and bigger; we will see more conferences with live streams and less face to face engagement in some disciplines."* Researcher, AHSS

> *"I'm sure that [as] social media develops, the various ways we can engage with the public will proliferate."* Researcher, AHSS

Finally, some researchers believe that there will be an increased public interest in engaging with academic research and influencing content, in line with increased public interest in science over recent years and given the desire for transparency over how increased tuition fees are being used.

> *"Public engagement will become more important as the need for public accountability grows with growing tuition fees. Slowly but surely the public are becoming more engaged – through outrage at the fee hikes."* Researcher, STEM

> *"We should move more towards allowing the public a voice in research - it is important to get their input from a legitimacy of funding perspective."* Researcher, STEM

> *"If there is more pressure on university resourcing, as there is already, universities might see it as a strategy for underpinning themselves financially and professionally." Researcher, AHSS*

APPENDIX: RESEARCH METHODOLOGY

The research comprised several stages as outlined below.

1. A *literature review* conducted by Dr. Burchell at the University of Westminster: the aim of this stage was to set the context for the 2015 survey, including an independent review and synthesis of existing literature in this domain, and a mapping of developments over time since 1985.
2. A *web survey of research staff* (n=2,454) working in HEIs and research institutes/clinical settings: the aim of this stage was to provide a robust evidence base on participation in and attitudes towards public engagement in 2015.
3. *A web survey of "enablers"* (n=269) - that is staff who support and facilitate researchers in their public engagement activities: the aim here was to supplement and contextualise the researcher survey findings by providing evidence on institutional policy and views.
4. *Qualitative research* with 50 researchers and enablers to explore emerging issues in greater depth.

A summary of the methodology for each stage is summarised below while full details are provided in the technical report www.wellcome.ac.uk/PERSurvey

A.1 Literature review

The relevant literature was identified via the following methods:

- Liaison with actors in the public engagement domain.
- Purposive searches of the websites of the funding Consortium and other relevant institutions (e.g. the National Coordinating Centre for Public Engagement and the ex-Beacons for Public Engagement).
- Purposive searches of key academic journals (e.g. Public Understanding of Science, Science Communication, and Science and Public Policy).
- Searches in databases and search engines.

The materials were analysed with the support of a qualitative analysis software package, Atlas.ti. The findings from the literature review are published separately (www.wellcome.ac.uk/PERSurvey) although evidence from the review, which helps to contextualise the findings from the quantitative and qualitative work, has been included in the key findings.

A.2 Researcher web survey

The sample of researchers was designed to be representative of all researchers working in UK higher education institutes (HEIs) and research institutes/clinical settings (non-HEIs). The research methodology broadly followed the design adopted in the 2006 Royal Society survey in order to strengthen our ability to measure change over time, although see section A.8.2 for further discussion on comparison between the surveys.

The sampling of researchers at HEIs and RIs was conducted separately.

- **Sample of HEI researchers**

Based on analysis of a bespoke data extract from the Higher Education Statistics Authority (HESA), a two-stage sampling method was adopted:

- Firstly, a sample of HEIs was drawn as the primary sampling units (PSUs). For efficiency purposes HEIs which employed less than 80 researchers[18] were excluded from the sampling frame. A total sample of 70 HEIs was selected using a systematic probability proportionate to size (pps) design whereby the probability of an institution being selected is proportional to the number of research staff it employs. Before selection the sampling frame of HEIs was stratified by key variables including region; the proportion of research staff involved in teaching; the proportion of research staff working in a STEM discipline; and the proportion of research staff in full-time employment. The sorting of the frame ensured that all key HEI strata in the sample frame were proportionately represented in the selection of PSUs.
- Secondly, from those HEIs which agreed to participate a sample of 200 researchers[19] was selected from within each institution after stratification by discipline and research grade.

After the first stage, a letter and follow-up email were sent to all selected institutions and further liaison was conducted by email and telephone to discuss practicalities for sourcing the samples of researchers (as well as enablers - see section A.3 below).

Out of the 70 institutions which were invited to take part, a total of 50 agreed to participate, an institutional response rate of 71%. Of the 50 HEIs, 32 were able to supply listings of researchers directly[20]; at these universities all sampling and mailing was handled directly by TNS BMRB. For the remainder, mailings were handled by the HEIs in-house.

A total sample of 9,757 researchers was selected across these 50 institutions. In total, 2,153 researchers completed the survey, giving a response rate of 24% after allowing for ineligible contacts.[21]

- **Sample of non-HEI researchers**

In order to ensure the inclusion of researchers working within non-HEI settings 13 listings of researchers working in research institutes and clinical settings were sourced. These included the following: Science & Technologies Facilities Council (STFC), Medical Research Council (MRC), Sanger Institute/EBI, Francis Crick Institute, Royal Botanic Garden Edinburgh, Scottish Rural University College, National Centre for Atmospheric Sciences, Rothamstead Institute, National Institute for Health Research (NIHR), Biotechnology and Biological Sciences Research Council (BBSRC) which includes Babraham Institute, John Innes Centre, Institute of Food Research, Pirbright Centre.

Listings of researchers were sourced directly from the funder or the institute. Samples were then collated into a single listing and a sample was drawn after sorting by name within job title. Before sub-sampling, lists were compared with researchers sampled from HEIs to minimise the possibility of any duplication of contact details. A sample of n=1,800 researchers was then drawn on a 1 in n basis reflecting the distribution of researchers across all the institutes.

As with the HEIs, for most institutes TNS BMRB handled all the mailings, while some institutes preferred to handle all mailing in-house.

[18] Researchers working at these smaller institutions accounted for less than 1% of the total HEI researcher population
[19] Two of the selected universities provided smaller samples as they employed less than 200 research staff
[20] Secure transfer was used to pass information between HEIs and TNS BMRB
[21] A total of 4% were counted as ineligible: for example mail undeliverable, researcher no longer in post or on extended maternity or study leave

Of the 1,800 researchers selected, a total of 301 researchers completed the survey, giving a response rate of 17% after allowing for ineligible contacts.

A.3 Web survey of enablers

Alongside the main researcher survey a smaller survey of public engagement "enablers" was conducted in order to capture the institutional viewpoint. "Enablers" in this context refers to staff members working at HEIs who support and facilitate researchers in their public engagement activities. Samples of enabler staff were drawn from each of the 50 HEIs participating in the research.

Thus, at the same time as requesting listings of all researchers, HEIs were also asked to supply listings of all professional/ administration staff who support public engagement in roles such as public engagement specifically, but also community engagement, communications, impact, outreach, knowledge exchange/transfer, events, PR, training and so on. As each HEI has a different institutional structure in place for such staff (for example some employ relevant staff in central research services departments, some in faculty-specific roles, and others in a mixture of both) it is difficult to define the total "population" of such staff. As such the enabler sample should be regarded as a pragmatic sample. In particular it was not possible to apply weighting to the data as no wider population data for this specific this group was available. Therefore caution should be applied when interpreting the results; the results should be regarded as indicative and not necessarily generalizable to this staff group as a whole.

Based on the desired achieved sample, a sample of up to 20 enablers was drawn from each HEI[22]. The web survey was mailed to 840 staff and 269 staff responded, a response rate of 33%[23].

A.4 Survey fieldwork

Fieldwork was conducted between 27 May[24] and 10 July. Anecdotal feedback suggested that the response rate was affected by time of year (June is exam marking season) as well as other factors such as survey fatigue (there were several other national surveys running concurrently to the Consortium survey, as well as a number of university-led internal surveys). As such it was important to optimise response as far as possible. To maximise response researchers received up to five reminders after the initial mailing.

A.5 Questionnaire development

The questionnaires for the researcher and enabler surveys were developed by TNS BMRB in consultation with Dr. Burchell and the Steering Group. The questionnaire was also informed by a cognitive testing stage[25]: 15 cognitive interviews with researchers and 8 cognitive interviews with enablers were conducted by researchers at three different institutions.

[22] 18 of the 50 HEIs selected had smaller samples as they employed less than 20 enablers; in these HEIs all staff listed as enablers were included in the survey

[23] The response rate for the enablers survey is more difficult to calculate with accuracy. As it was difficult to specify the correct population for this group some staff who were emailed the survey may have excluded themselves as they didn't feel the survey was relevant to them. As such it is likely that the "true" response rate was higher than this.

[24] Three universities launched earlier than this as part of a "soft launch" to trial the procedures before the full launch

[25] Cognitive testing is a form of piloting which aims to understand the thought processes that a respondent uses in trying to answer a survey question. The aim is to see whether respondents uniformly interpret the questions, to test understanding of any key words and phrases and to investigate the decision processes used by respondents in coming to an answer.

A.6 Weighting

The researcher survey data were weighted to align the demographic profile of the sample with relevant population statistics (for reasons explained in section A.3 no weighting was applied to the enabler survey data).

Two stages of weighting were adopted: 1) to compensate for unequal selection probabilities and 2) to compensate for differential non-response.

- **Design weights**

This weighting was applied to correct for variable chances of selection within HEIs and RIs.

- **Post-stratification weights**

This stage involved aligning the responding sample to match the population of HEI and non-HEI researchers according to key attributes. The sample was first weighted to adjust for the balance of non-HEI and HEI researchers in the population. Secondly weighting was applied to align the results by gender, age, ethnicity, STEM vs. AHSS, full-time vs. part-time, research only vs. research and teaching, and country.

Details of the sample profile both before and after weighting are provided in section A.9.

A.7 Qualitative study

The qualitative research consisted of a total of 50 in depth interviews:

- 40 interviews with academic research staff
- 10 interviews with public engagement enablers

Interviews were conducted by TNS BMRB qualitative researchers. All interviews were completed based on one of two discussion guides and were recorded for note taking purposes. Pro forma summaries were completed by all researchers. Interviews lasted for 30-45 minutes and were conducted over the telephone between 10th June and 17th July 2015.

All qualitative interviews were sourced from respondents to the quantitative online survey who had given permission to be re-contacted for subsequent research. All researchers were screened to ensure a good spread of each of the following:

- Discipline and research area;
- Career stage;
- Attitudes towards and experience of public engagement;
- Geographical spread;
- Institution type.

A.8 Interpretation of findings

A.8.1 Confidence intervals and significance

As with all sample surveys, the estimates given in this report are subject to sampling error. All differences commented on in this report are statistically significant at the 95 per cent level. This can be interpreted as meaning that there is only a 5 per cent chance that the observed difference in the sample has arisen due to sampling variability, when the true difference in the population of researchers is zero.[26]

The response rate to the survey was 22% overall (among both HEIs and RIs). Although this level of response is not untypical for staff surveys, it is possible that the propensity to respond is associated with variables which are measured in the survey. If this is the case, some survey estimates will be systematically different from the true population value. Weighting has been used to correct for observed differences between sample characteristics and known population values (for example by age, gender, academic discipline). However, it is possible that there are additional unobserved correlates of nonresponse which may still result in biased survey estimates. For example it might be the case that those who most value the role of public engagement in research were more likely to respond and that the survey therefore over-estimates the extent of public engagement in the population of researchers. This should be borne in mind when interpreting the survey findings.

However, while consideration should be given to the caveats noted above, attention should also be paid to the overall trends. Where possible the survey evidence has been compared with other data sources to place the results in the wider context and to indicate convergence or otherwise with other sources.

A.8.2 Interpreting change over time

One of the objectives of the survey was to measure change since 2006 for the STEM subgroup of researchers who were the target of the 2006 Royal Society survey. A number of questions were replicated from the 2006 survey to allow time trend comparisons including participation in a wide range of activities such as communications, not just public engagement.

However, some caution should be applied when interpreting change over this period. This is because, despite the desire to keep the question wording as comparable as possible with 2006, it was necessary to make some wording changes to account for updated conceptual definitions and an expanded target population. In addition, some of the meanings of key concepts around public engagement have changed over time.

For example the concept and definition of "public engagement" has changed over time. In 2006 the focus was on both communications and public engagement by researchers and a relatively limited range of activities were understood to represent communications and public engagement by researchers (e.g. public lectures, media work, working with schools). In 2015 we asked about participation in a wider range of activities including use of tools widely used by researchers in 2015 to communicate to or engage with the public. These included activities such as social media or festivals which were either not in existence or less common in 2006. This makes comparison of participation over time difficult; this is discussed more fully at section 2.1.

Secondly, as the 2015 survey was targeted at all disciplines whereas the 2006 survey was targeted at STEM researchers only, it was necessary to change the wording to suit the revised audience. Thus for example a 2006 question which referred to engagement about "science" has changed in 2015 to engagement about "your research or subject area".

[26] Strictly, we can say that if the sample design were to be repeated in exactly the same way a very large number of times, we would only expect the true value in the population to be outside the estimated confidence interval of the difference between groups in 5% of the repeated samples.

As a result changes over time are best regarded as indicative and suggestive even when the statistical evidence suggests a significant change over time.

A.8.3 Sub-sample sizes

In self-completion surveys there can be a varying degree of missing answers at each question, arising from respondents who either say "don't know", "refused" or who have not answered the question as they dropped out before the end of the survey. In general, percentages are based on all who gave a valid answer to the question, excluding all those in these categories. However where for example a "don't know" response accounted for a significant proportion of answers and was therefore a valid response in itself, figures are included in the analysis and shown as part of the results. Given the variable degree of missing answers by question, base sizes vary throughout the report. In addition, subgroup sizes do not always sum to the total due to missing answers within subgroups.

A.8.4 Interpretation of the enablers survey findings

As discussed in section A.3, the findings from the survey of enablers should be regarded as indicative rather than statistically precise given the difficulties defining the relevant population. As such any differences between the researcher and enabler survey should also be regarded as suggestive.

A.8.5 Denotations

In tables the following denotations are used:

* * indicates a percentage of less than 0.5%
* 0 denotes zero cases in a table cell

Percentages may add to 99% or 101% due to the effects of rounding

Where multiple responses were allowed at a question, percentages will sum to more than 100%.

A.9 Sample profile

Table A.1 displays the demographic profile both before and after weighting. The population data are based on HESA 2013-14 data although the non-HEI sub-sample has been treated as a separate sub-group.

Non-HEI researchers were over-sampled in relation to the overall distribution of non-HEI researchers in the population and therefore this was corrected for in the weighted sample. Based on the sample of HEI researchers only, the unweighted distribution closely matched the weighted distribution on most demographic characteristics, although the proportion of female researchers and full-time staff were slightly over-represented in the unweighted sample.

Table A.1 Sample profile vs population

	Population	Survey	Survey
	HESA 2013-14	Unweighted %	Weighted %
	%	%	%
Sex			
Male	54.5%	44.7%	53.8%
Female	39.0%	43.1%	39.6%
Non-HEI researchers	6.5%	12.3%	6.7%
Age			
25 or under	1.5%	0.9%	1.4%
26-30	9.9%	8.0%	10.2%
31-35	15.7%	14.2%	15.5%
36-40	13.5%	13.4%	13.6%
41-45	13.2%	12.6%	12.9%
46-50	13.1%	12.4%	13.1%
51-55	11.2%	11.4%	11.1%
56-60	8.6%	8.3%	8.6%
61-65	5.0%	5.0%	4.9%
66 and over	2.0%	1.5%	1.9%
Non-HEI researchers	6.5%	12.3%	6.7%
Ethnicity			
White	74.1%	69.9%	73.6%
Other (inc. unknown)	19.4%	17.8%	19.7%
Non-HEI researchers	6.5%	12.3%	6.7%
Discipline			
STEM	55.3%	51.4%	56.6%
Non-STEM (AHSS)	38.2%	36.3%	36.7%
Non-HEI researchers	6.5%	12.3%	6.7%
Mode of employment			
Full-time	76.5%	76.5%	77.1%
Part-time	17.0%	11.2%	16.2%
Non-HEI researchers	6.5%	12.3%	6.7%
Academic employment function			
Research only	30.4%	25.6%	30.9%
Teaching and research	63.1%	62.2%	62.4%
Non-HEI researchers	6.5%	12.3%	6.7%
Country			
England	77.7%	75.0%	77.0%
Scotland	10.2%	8.4%	10.6%
Wales	4.1%	2.6%	4.2%
NI	1.5%	1.6%	1.5%
Non-HEI researchers	6.5%	12.3%	6.7%
Base	*149,765*	*2,454*	*2,454*