



Factors Affecting Science Communication

DATA REPORT PREPARED FOR

*The Royal Society
Research Councils UK
The Wellcome Trust*

May 2006 05/013



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1. INTRODUCTION

People Science & Policy Ltd (PSP) project was commissioned by The Royal Society, Research Councils UK and The Wellcome Trust to undertake the *"Factors Affecting Science Communication"* project. There were six aims:

1. To establish the relative importance of science communication to UK researchers
2. To examine the amount and type of science communication activities undertaken by UK researchers
3. To explore factors that may facilitate or inhibit science communication
4. To explore the extent to which researchers may wish to undertake further science communication
5. To explore the views of funders, senior academics, social scientists and other relevant groups on factors affecting research scientists engaging in science communication activities
6. To provide evidence about how universities, other research institutions and funders can promote effective science communication.

This report sets out the findings from the quantitative survey of research scientists and engineers working in UK higher education institutions (HEIs).

1.1 Technical details

The survey was hosted on the PSP website and potential respondents were invited to take part via a personal email setting out the objectives of the survey and providing a hyperlink to the website. The survey was only accessible to those with a link to ensure that the sample is statistically representative of research scientists and engineering in UK HEIs.

The sample is designed to be representative of scientists and engineers undertaking research in UK higher education institutions and used a two stage sampling procedure. 66 HEIs were invited to take part in the project and 50 agreed to do so (a response rate of 75%). 3,000 research staff at these HEIs were invited to take part and the achieved response rate is 52%, allowing for deadwood, that is, email addresses which bounced back as not having reached the intended recipient and people who told us that they were not eligible or no longer in post.

Fieldwork took place between 5 September and 18 November 2005.

A separate technical report is available setting out how the sample and survey were constructed and details of the final response rate.



1.2 Weighting

Rim weighting was applied to the data to ensure that the demographic profile of the survey respondents matched that of the target universe. Target profiles were set for four variables: academic employment function, gender, ethnic group and grade based on data from the Higher Education Statistics Authority (HESA). The Snap SurveyPlus Rim Weighting program was then run, which automatically applied a weight to each respondent in order to achieve the target demographic profile.

The table below shows the demographic profile before and after weighting:

	<i>Unweighted</i>		<i>Weighted</i>	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
ACADEMIC EMPLOYMENT FUNCTION				
Clinical	110	7%	384	26%
Non-clinical bio	568	38%	414	28%
Other	800	54%	680	46%
Total	1478	100%	1478	100%
GENDER				
Male	1078	73%	970	66%
Female	392	27%	500	34%
Total	1470	100%	1470	100%
ETHNIC GROUP				
White	1306	91%	1079	75%
Non-white	133	9%	360	25%
Total	1439	100%	1439	100%
GRADE				
Senior	734	50%	455	31%
Junior	734	50%	1013	69%
Total	1468	100%	1468	100%

1.3 Analysis

It should be noted that this was a self-completion survey and as such respondents were able to skip questions. Only a very few questions, those which routed respondents depending on their answers, were set as 'must answer' questions. The result is that different numbers of respondents have answered each question. The overall percentages presented for each question are based on all those who answered the question. Where analysis by sub-group has been presented the percentages presented have been based on those who answered the question and also answered the question(s) on which the sub-group has been determined. So, for example, there are 1485 valid respondents but if only 1480 answered a specific question, the overall results for that question will be based on 1480. If only 1450 of those who answered this question also gave their grade, analysis for that question by grade will be presented based on the 1450 who gave valid answers to both questions.



In the tables, '-' means no respondent gave the particular response, '**' indicates that more than none but fewer than 0.5% gave the particular response.

The results presented in this report are based on a sample of the population, not on the entire population of science and engineering researchers based in UK HEIs and are therefore subject to sampling error, hence not all differences between sub-groups are statistically significant.

When looking at the percentage distribution for the whole sample it is 95% sure that the true percentage who give each answer lies within three percentage points of the percentage shown. When looking at data for a subsample, for example all males, the error will be increased because the sample size is smaller. The table below gives an indication of the sampling error for sub-samples.

ACHIEVED SAMPLE SIZE	SAMPLING ERROR*(+/-%)
1,500	2.5
1,250	2.8
1,000	3.1
750	3.6
500	4.4
250	6.2
150	8.0
100	9.8
50	13.9

**At 95% level of confidence, assuming proportion of people in the population being surveyed who are expected to answer a certain way is 50%.*

For questions where respondents are asked to answer yes or no (for example) the error will vary depending on the percentage giving each answer. The table below show approximate sampling errors for different distributions of answers.

SAMPLE SIZE	APPROXIMATE SAMPLING ERROR* APPLICABLE TO PERCENTAGES AT OR NEAR THESE LEVELS (+/-)				
	10% or 90%	20% or 80%	30% or 70%	40% or 60%	50%
1,500	1.5	2.0	2.3	2.5	2.5
1,000	1.9	2.5	2.8	3.0	3.1
500	2.6	3.5	4.0	4.3	4.4

**At 95% level of confidence.*

The data has been weighted to correct for the distortions introduced by the sampling method and for any disproportionate non-response, as shown above. This has the effect of reducing the effective sample size for some sub-groups.

In interpreting the data presented, while consideration should be given to the statistical reliability, attention should also be paid to the overall story and the trends that emerge. Sub-groups smaller than 75 should not be used to calculate percentage distributions.

The main variables, with their unweighted sample sizes, against which analysis has been conducted, are:

**Current Post (Q26)****SENIOR**

- Professor or above (Unweighted sample size 314)
- Reader/senior lecturer/researcher/fellow (Unweighted sample size 420)

JUNIOR

- Lecturer/researcher/fellow (Unweighted sample size 475)
- Junior/assistant researcher/fellow (Unweighted sample size 257)
- Technician/other support (Unweighted sample size 2)

Age group (Q35)

- Under 40 (Unweighted sample size 665)
- 40 and over (Unweighted sample size 780)

Discipline group (Q29)

- Clinical medical (Unweighted sample size 110)
- Non-clinical bioscience (Unweighted sample size 568)
- Other science and engineering (Unweighted sample size 800)

RAE score (Q31)

- 1-5 (Unweighted sample size 852)
- 5* (Unweighted sample size 419)

Gender (Q36)

- Male (Unweighted sample size 1078)
- Female (Unweighted sample size 392)

English first language (Q38)

- Yes (Unweighted sample size 1105)
- No (Unweighted sample size 366)

Research Status (28)

- Research Only (code 1) (Unweighted sample size 565)
- Research and teaching (code 2) (Unweighted sample size 852)

What training, if any, have you had in communicating science to the non-specialist public? Do not include any teaching training you may have had. (Q19)

- No training (code 1) (Unweighted sample size 1096)
- Formal training (codes 2-6) (Unweighted sample size 332)
- Experience only excluded

Are the researchers in your department generally supportive towards those who take part in activities that engage the non-specialist public in science? (Q24)

- Yes (codes 1&2) (Unweighted sample size 750)
- No (codes 3&4) (Unweighted sample size 347)



Do other members of your department take part in activities that engage the non-specialist public in science? (Q23)

- Yes (codes 1&2) (Unweighted sample size 573)
- No (code 3& 4) (Unweighted sample size 656)

Would you like to spend more time, less time or about the same amount of time as you do now engaging with the non-specialist public about science? (Q14)

- More time (code 1) (Unweighted sample size 695)
- About the same (code 2) (Unweighted sample size 627)

Only 28 people replied "less time" so this has not been used as a variable in analysis

How easy or difficult do you think it is to get involved in science engagement activities for those who want to do so? (Q17)

- Easy (codes 1&2) (Unweighted sample size 603)
- Difficult (codes 3&4) (Unweighted sample size 573)

How well equipped do you personally feel you are to engage with the non-specialist public about your research? (Q18)

- Well (codes 1&2) (Unweighted sample size 783)
- Not well (codes 3&4) (Unweighted sample size 645)

In relation to other things you have to do in your working life, how important is it to you that you find time to engage with the non-specialist public? (Q13)

- Important (codes 3&4&5) (Unweighted sample size 695)
- Not Important (codes 1&2) (Unweighted sample size 785)

Do you think your work has implications for society and/or policy-makers and regulators? (Q30)

- Yes (Unweighted sample size 1063)
- No (Unweighted sample size 227)

Thinking about public engagement with, and communication about, science, roughly how many times in the past 12 months have you done each of the following? (Q7a-Q7k)

We devised a scoring system to enable us to assess the amount of public engagement activity any individual researcher had undertaken in the last 12 months. On the basis of the scoring system we constructed three groups: those who do no activity, those who do some and those who do a great deal. This is based on responses to Q7 and only those who answered all of Q7 have been included, except that Q7b (taking part in an institutional open day) was excluded from the scoring system. Those classified as having done 'some' activity reported doing between one and nine activities in the last 12 months. Those who were 'very active' must have reported taking part in least ten activities in the last 12 months.

Don't know and no reply responses have been excluded from the cross-breaks.

The questionnaire is appended at Annex A.



1.4 The report

Section 2 begins by setting out the sample profile for the weighted and unweighted data. Section 3 takes each question in turn it sets out the responses for all those who answered the question and highlights any important differences between sub-groups. Not all of these differences are statistically significant but there are repeated tendencies in the data for certain sub-groups and these have been reported. The focus of analysis has been on exploring what would encourage researchers to become more involved in public engagement activities.



2. SAMPLE PROFILE

This section sets out the overall profile of the sample for key characteristics showing both weighted and unweighted sample sizes.

Q36 Are you-male or female?

	UNWEIGHTED	WEIGHTED
Male	1078 73%	970 65%
Female	392 26%	500 34%
No reply	15 1%	15 1%

Q35 What was your age last birthday?

	UNWEIGHTED	WEIGHTED
Under 40	665 45%	806 54%
40 and over	780 53%	646 44%
No reply	40 3%	33 2%

Q34 To the nearest year, how long have you been working in scientific research, whether in academia or elsewhere?

	UNWEIGHTED	WEIGHTED
Under 15 years	758 51%	973 66%
15 years and over	694 47%	481 32%
No reply	33 2%	31 2%

Q26 Which of these best describes your current position?

	UNWEIGHTED	WEIGHTED
Professor or above	314 21%	185 12%
Reader/senior lecturer/ researcher/fellow	420 28%	270 18%
Lecturer/ researcher/fellow	475 32%	663 45%
Junior/assistant researcher/fellow	257 17%	348 24%
Technician/ other support staff	2 *	2 *
No reply	17 1%	17 1%



Q27 Working Status

	UNWEIGHTED	WEIGHTED
Working full-time <i>(>35 hours per week)</i>	1408 95%	1384 93%
Working part-time <i>(<35 hours per week)</i>	63 4%	90 6%
No reply	14 1%	12 1%

Q28 Which best describes your main role at your institution?

	UNWEIGHTED	WEIGHTED
Research <i>(including clinical research)</i>	565 38%	744 50%
Research and teaching	852 57%	676 46%
Teaching only	14 1%	17 1%
Clinical work only	5 *	13 1%
Management/ administration	39 3%	24 2%
No reply	10 1%	11 1%

Q29 From the list below which discipline most closely describes your current area of research interest?

	UNWEIGHTED	WEIGHTED
Clinical medicine <i>(including dentistry)</i>	110 7%	384 26%
Non-clinical bioscience <i>(including medical, psychology, veterinary, agricultural)</i>	568 38%	414 28%
Engineering/ engineering sciences <i>(including IT)</i>	338 23%	307 21%
Chemical/chemical engineering	90 6%	79 5%
Physics <i>(including materials sciences)</i> and astronomy	144 10%	123 8%
Mathematics	82 6%	59 4%
Environmental sciences <i>(including earth and marine sciences)</i>	146 10%	113 8%
No reply	7 *	7 *

NB the sample size for clinical researchers is quite small. This should be borne in mind when interpreting the responses for this group.



Q31 What was the latest RAE score for your department/unit of assessment?

	UNWEIGHTED	WEIGHTED
1	1 *	1 *
2	7 *	3 *
3	67 5%	56 4%
4	252 17%	232 16%
5	525 35%	444 30%
5*	419 28%	448 30%
Don't know	201 14%	291 20%
No reply	13 1%	10 1%

Q37 What is your ethnic origin?

	UNWEIGHTED	WEIGHTED
White - UK	960 65%	789 53%
White - Europe	245 16%	202 14%
White - US	26 2%	20 1%
White - Other	75 5%	68 5%
Black - African	2 *	5 *
Black - Caribbean	1 *	3 *
Black - UK	1 *	2 *
Black - US	- -	- -
Black - Other	2 *	5 *
Chinese	66 4%	154 10%
Indian	19 1%	47 3%
Pakistani	8 1%	28 2%
Other Asian	20 1%	88 6%
Mixed race	14 1%	29 2%
No reply	46 3%	46 3%



Q38 Is English your first language?

	UNWEIGHTED	WEIGHTED
Yes	1105 75%	1022 69%
No	366 25%	449 30%
No reply	14 1%	14 1%

Q39 Do you intend to work in the UK long term?

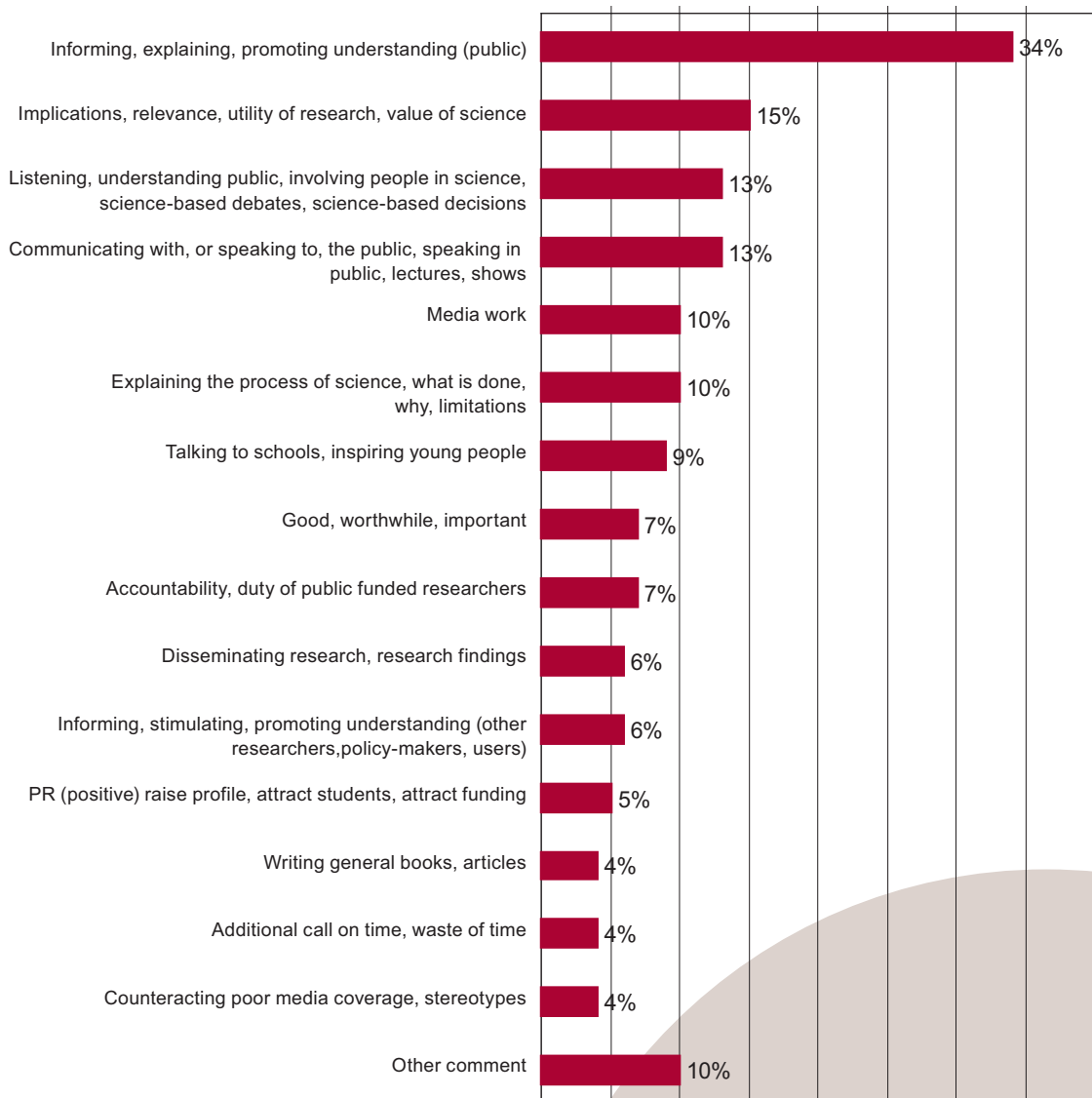
	UNWEIGHTED	WEIGHTED
Yes	1199 81%	1184 80%
No	51 3%	62 4%
Don't know	221 15%	225 15%
No reply	14 1%	14 1%



3. DATA

Q1. Scientists are being asked to engage more with the non-specialist public.

What if anything, does this mean to you?



This was a completely open ended question.

Senior researchers were more likely than junior researchers to think that engaging with the non-specialist public meant:

- Implications, relevance, utility of research, value of science (18% v 14%)
- Communicating with or speaking to the public, speaking in public, lectures, shows (17% v 11%)
- Media work (14% v 9%)



Whereas, **junior researchers and those under 40** were more likely than senior researchers or those over 40 to think that engagement with the non-specialist public meant:

- 'Informing, explaining, promoting understanding to the public' (36% v 30% - junior v senior and 38% v 28% - under 40 v over 40).

Those in departments with **RAE scores of 1-5** were more likely to say that engaging with the non-specialist public is 'Good, worthwhile, important' compared to those in departments with a RAE score of 5* (9% v 5%).

Clinical researchers were more likely than non-clinical bioscience or non-bioscience researchers to agree that engaging with the non-specialist public is about:

- Listening, understanding public, involving people in science, science-based debates, science-based decisions (22% v 10% v 10%)
- Explaining the process of science, what is done, why, limitations (18% v 9% v 6%)

Those with formal training are more likely than those with no formal training to think that engaging with the non-specialist public means:

- Implications, relevance, utility of research, value of science (20% v 13%)
- Listening, understanding public, involving people in science, science-based debates, science-based decisions (20% v 11%)

Respondents working in departments where others do not take part in public engagement were less likely to think that engaging with the non-specialist public is about media work when compared to those working in departments where others do take part (8% v 14%).

People who wanted to spend more time engaging with the non-specialist public were more likely than those who did not want to spend more time to think that it was about:

- Communicating with or speaking to the public, speaking in public, lectures, shows (16% v 11%)
- Talking to schools, inspiring young people (12% v 7%)

Those who felt that getting involved in public engagement activities was difficult were more likely to think that engagement was about 'Informing, explaining, promoting understanding to the public' compared to those who felt that getting involved was easy (36% v 31%)

The only significant difference between men and women was that **men** were more likely to see it as about the 'Implications, relevance, utility of research, value of science' (18% v 9%) respectively.

Those who felt they are not well equipped for public engagement felt that it was more likely to be about 'Listening, understanding public, involving people in science, science-based debates, science-based decisions' than those that felt that they were well equipped (16% v 11%) respectively.



Some differences were also apparent between those who only undertake research and those whose work involves both research and teaching. **Research only** staff felt that engaging with the public was about: Informing, explaining, promoting understanding (public) (37% v 30%), whereas, those who research and teach were more likely to feel it was about:

Implications, relevance, utility of research, value of science (18% v 12%)

Communicating with or speaking to the public, speaking in public, lectures, shows (16% v 10%)

Media work (13% v 8%)

Those who felt their work had implications for society were more likely than those who did not feel their work had implications to say that engaging with the public meant:

Listening, understanding public, involving people in science, science-based debates, science-based decisions (15% v 5%)

Informing, explaining, promoting understanding (public) (36%v30)

Those who felt their work did not have implications were more likely to say that it meant 'Nothing, not much, very little' (10% v 3%)

When comparing those with English as their first language to those whose first language is not English two main differences stand out. Those with English as their first language are more likely to say engaging with the public is about:

Media work (12% v 7%)

Explaining the process of science, what is done, why, limitations (12% v 6%)

Those who felt public engagement was less important than other work when compared to those that say it is as important or more important than other work are more likely to say that it is about:

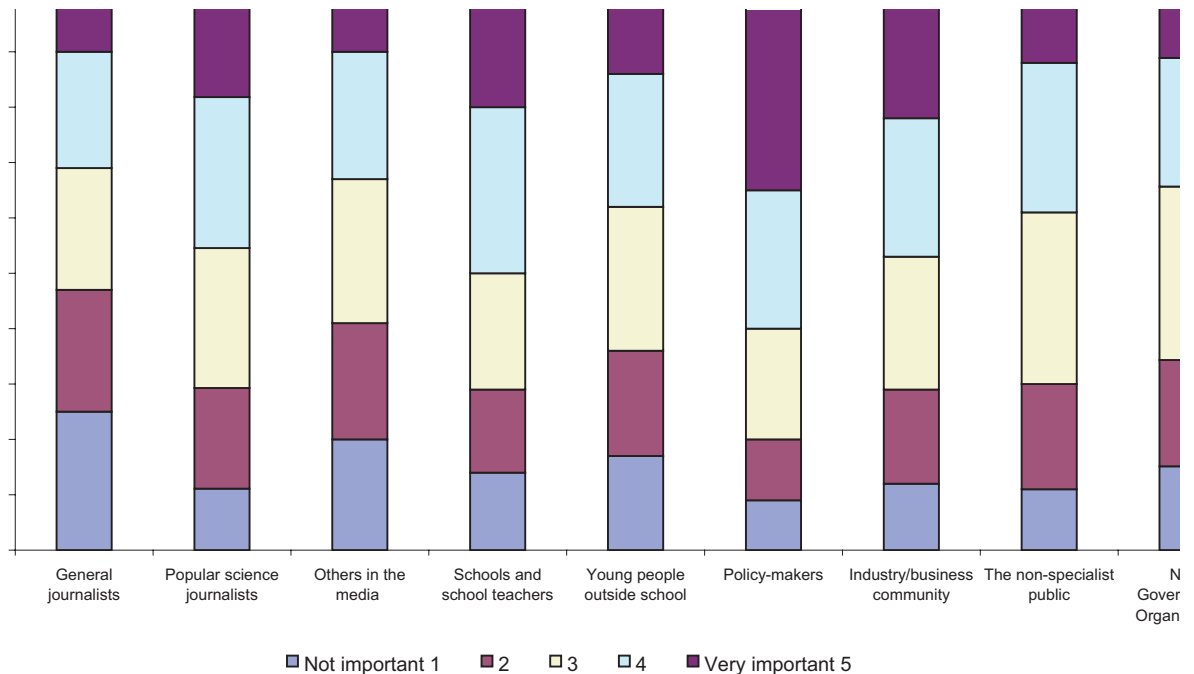
Additional call on time, waste of time (7% v 1%)

Nothing, not much, very little (6% v *)

However, the most noticeable difference between these two groups is that those who think public engagement is as important or more important than other work are much more likely to think that it is about 'Informing, explaining, promoting understanding to the public' (42% v 26%) respectively.



Q2. How important do you feel it is that you personally, in your current post, directly engage with each of the following groups about your research?



For all the groups listed in the question a similar pattern emerges. More senior and older researchers, those in departments rated 5 or below by the RAE, those who have teaching as well as research responsibilities, those who think their work has social implications and those who are active engagers, generally rate engagement with these groups as more important than their counterparts. In some cases the difference is more clearly expressed as less negativity rather than greater positivism. With respect to engaging with popular science journalists and the non-specialist public, the differences were less marked but still present. Reaching policy-makers stands out as an activity generally more positively regarded.

There are also indications that male researchers think communication is more important than do women researchers.

The seniority finding is borne out by the qualitative research which found that young researchers keen to climb the research career ladder were focused on research and publishing and/or felt that they needed more experience before they could engage with those outside their research community.

Those who had received training in communication skills also said that communicating with the majority of these groups was more important than those who had not had formal training but this may be why they had sought training. Those who feel it is easy to get involved in engagement activities also think it is more important to do so.

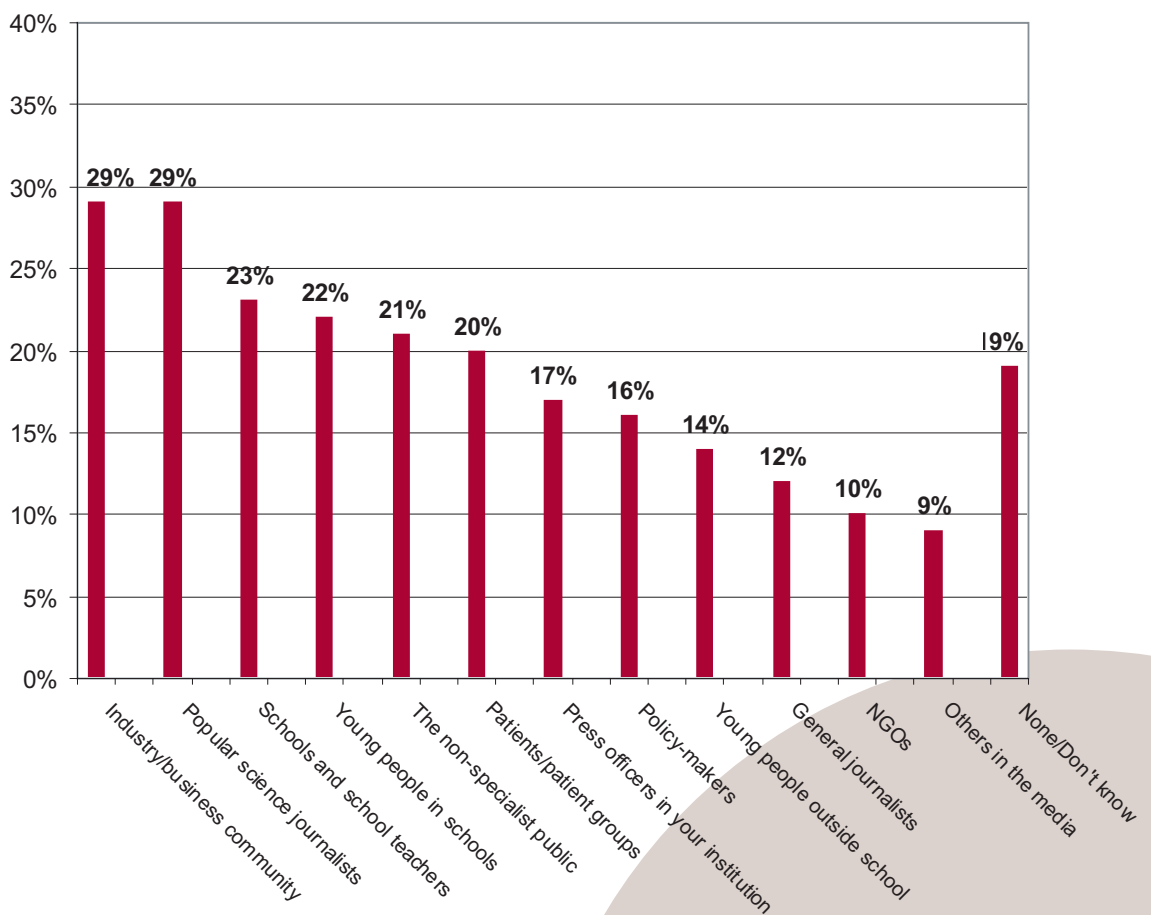
The impact of research disciplinary group varies between the groups listed with clinical researchers focusing on communicating with general journalists, policy makers and the non-specialist public and non-biological scientists focusing more on communicating with schools and industry.



Communicating with popular science journalists seems to be generally more positively viewed as the groups who see communication as less important rate communication with this group as more important than they rate communication with the other groups listed.

Industry is the group where the overall pattern described above is weakest. Some categories of respondents who were less likely to say that communicating with any of these groups is important tended to say that communicating with industry is important, most notably younger researchers, those in RAE 5* rated departments and those without teaching responsibilities.

Q3. Which of these groups do you find it easiest to talk with about your research findings?



Policy makers easiest for:

- Senior rather than junior (25% v 12%)
- Older rather than younger (21% v 12%)
- Clinical rather than non-clinical bioscience and non-bioscience (23% v 13% v 14%)
- RAE 1 to 5 rather than 5* (20% v 12%)
- Those who think their work has implications for society (19% v 4%)



Industry/business community easiest for:

- Non-biosciences rather than clinical or non-clinical biosciences (43% v 16% v 19%)
- Men rather than women (35% v 19%)

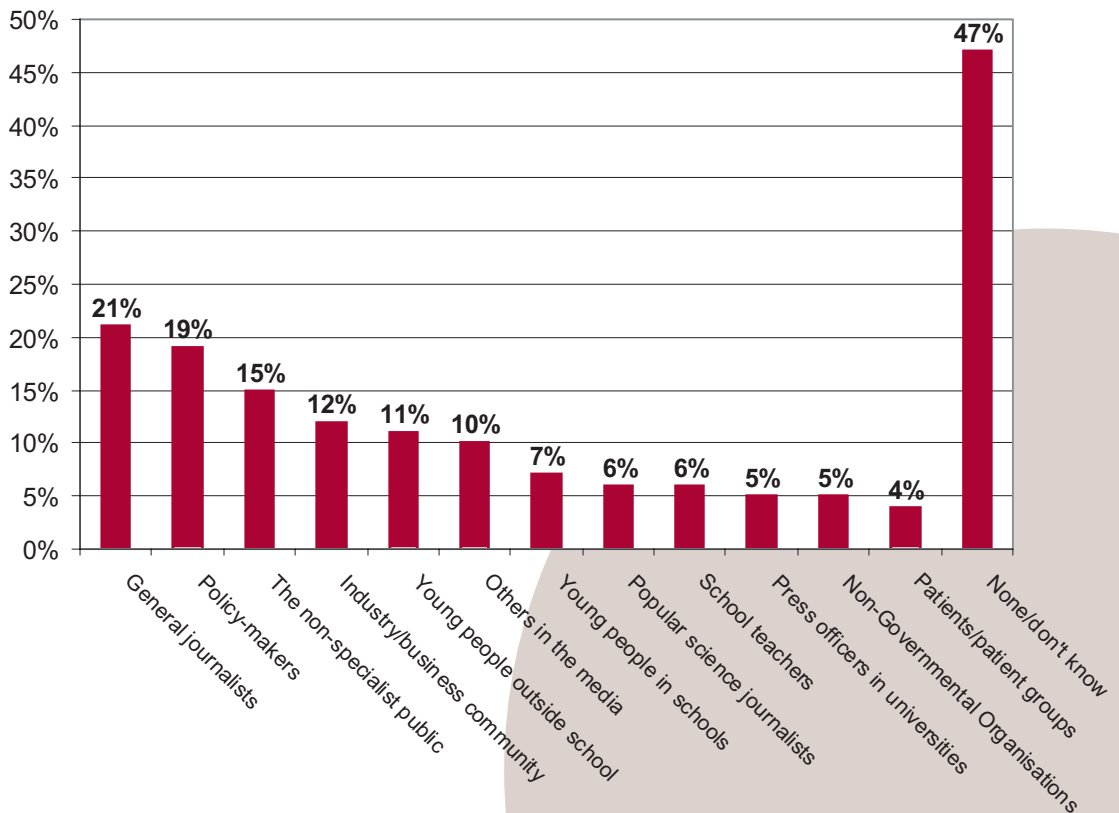
Patient groups easiest for:

- Senior rather than junior (30% v 16%)
- Clinical rather than non-clinical bioscience and non-bioscience (55% v 18% v 3%)
- Those who think their work has implications for society (24% v 5%)

Q4. Why do you say that?

The main reason respondents found a particular group easiest to deal with was because they had not dealt with any of the other groups (25%). However, 'they want to know' (24%), 'we speak the same language' (21%) and 'my work is relevant to them' (17%) were also popular reasons for groups being regarded as easy to communicate with. The option 'my work is relevant to them' was particularly cited by clinical researchers (29%). Even the most active engagement group are mainly talking to groups they feel are actively interested in their work and with whom they share a common language.

Q5. Which of these groups do you find it hardest to talk with about your research findings?



The main difference here was clinical researchers find it less difficult to talk to the non-specialist public than those working in the non-clinical biosciences and outside the biosciences (6% v 15% v 19%).



Q6. Why do you say that?

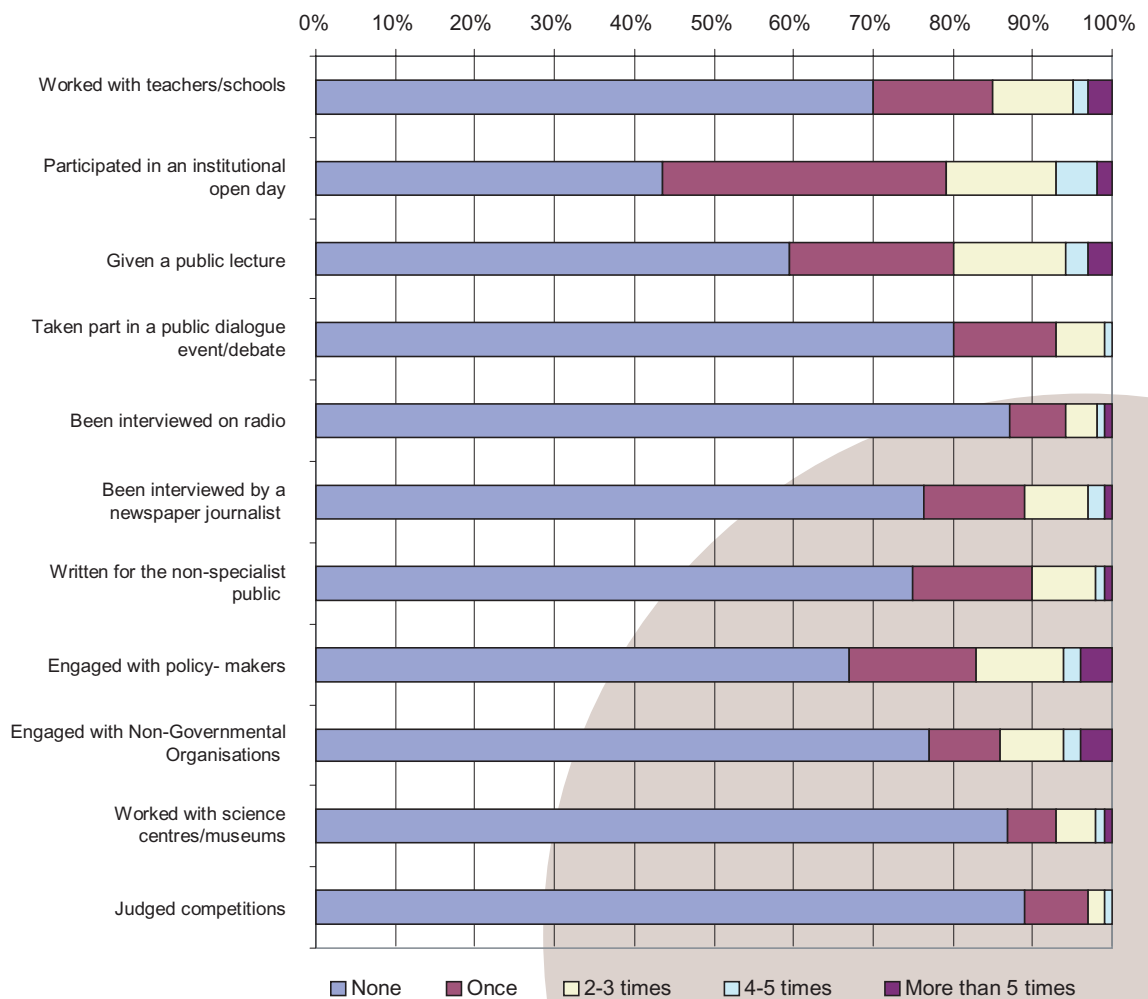
The main reason given was that the respondent had no experience of the group in question (27%). This was particularly true of junior and younger researchers (32% for both) compared to senior and older researchers (19% and 21%).

Wariness of the press and 'they don't understand me' were the second and third most cited reasons for finding particular groups difficult to communicate with (18% and 17%). A lack of interest among the public was cited by 14%.

Senior researchers (26%) and men (21% v 11% of women) were more concerned about the press 'twisting' what they had said.

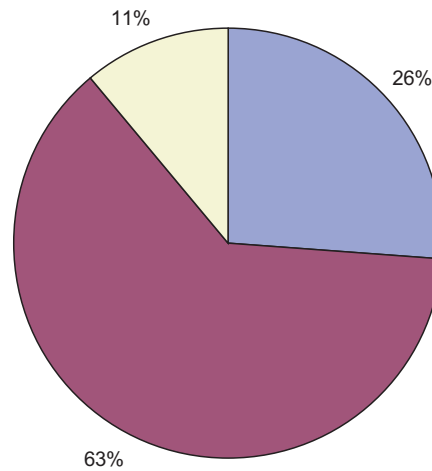
The highly active group do not like talking to those they believe want to 'twist' what they say or groups they feel do not understand them.

Q7. Thinking about public engagement with, and communication about, science, roughly how many times in the last 12 months have you done each of the following?





Amount of activity based on responses to Q7a and Q7c to Q7k



- No activity or none except institutional open day
- Some activity (between 1 and 9 activities in the previous 12 months)
- High level of activity (at least 10 activities in the previous 12 months)

LEVEL OF INVOLVEMENT WITH ACTIVITIES TO ENGAGE THE PUBLIC WITH SCIENCE				
	Total sample profile	No activity (or only open day)	Some activity	High activity
Male	66%	64%	65%	74%
Female	34%	36%	35%	26%
Senior staff	30%	14%	31%	65%
Junior staff	70%	86%	69%	35%
Aged under 40	56%	65%	58%	30%
Aged 40 and over	44%	35%	42%	70%
RAE score 1-5	62%	58%	61%	73%
RAE score 5*	38%	42%	39%	27%
Clinical	26%	19%	28%	31%
Non-clinical bioscience	28%	38%	24%	23%
Non-bioscience	46%	43%	47%	46%
Have had PE training	25%	11%	28%	46%
No PE training	75%	89%	72%	54%
In department where others take part	46%	40%	47%	53%
In department where others do not take part	54%	60%	53%	47%
Find it easy to get involved in PE activities	45%	40%	43%	63%
Find it difficult to get involved in PE activities	55%	60%	57%	37%
Feel well equipped for PE activities	52%	36%	54%	78%
Feel poorly equipped for PE activities	48%	64%	46%	22%
PE activities as important as other activities	48%	29%	52%	71%
PE activities less important than other activities	52%	71%	48%	29%
Want to do more PE activities	53%	53%	54%	48%
Want to do same amount of PE activities	47%	47%	46%	52%
Research staff	53%	70%	50%	36%
Research and teaching staff	47%	30%	50%	64%
English first language	69%	68%	67%	81%
English not first language	31%	32%	33%	19%
Expect to stay in UK	80%	78%	80%	83%
Do not expect to stay in UK	4%	5%	5%	3%
Work has implications for society	71%	57%	73%	93%
Work has no implications for society	15%	24%	13%	3%

NB numbers in the sample profile may not add to 100% because of missing answers or other codes not included in this summary. Bases are weighted bases and vary between groups.

**Q7. Main funding source of those who take part in different levels of public engagement activity**

Funding source	Total sample profile	LEVEL OF INVOLVEMENT WITH ACTIVITIES TO ENGAGE THE PUBLIC WITH SCIENCE		
		No activity (or only open day)	Some activity	High activity
Wholly or principally funded by a Research Council	39%	41%	39%	34%
Wholly or principally funded by a Government Department	7%	2%	8%	15%
Wholly or principally funded by a Higher Education Funding Council	5%	6%	5%	4%
Wholly or principally funded by an EU research grant	7%	10%	6%	8%
Wholly or principally funded by The Wellcome Trust	8%	12%	7%	5%
Wholly or principally funded by the Royal Society	1%	1%	1%	-
Wholly or principally funded by another charity	16%	12%	17%	18%
Wholly or principally funded by industry	11%	11%	12%	8%
Other sources of funding	5%	4%	6%	9%

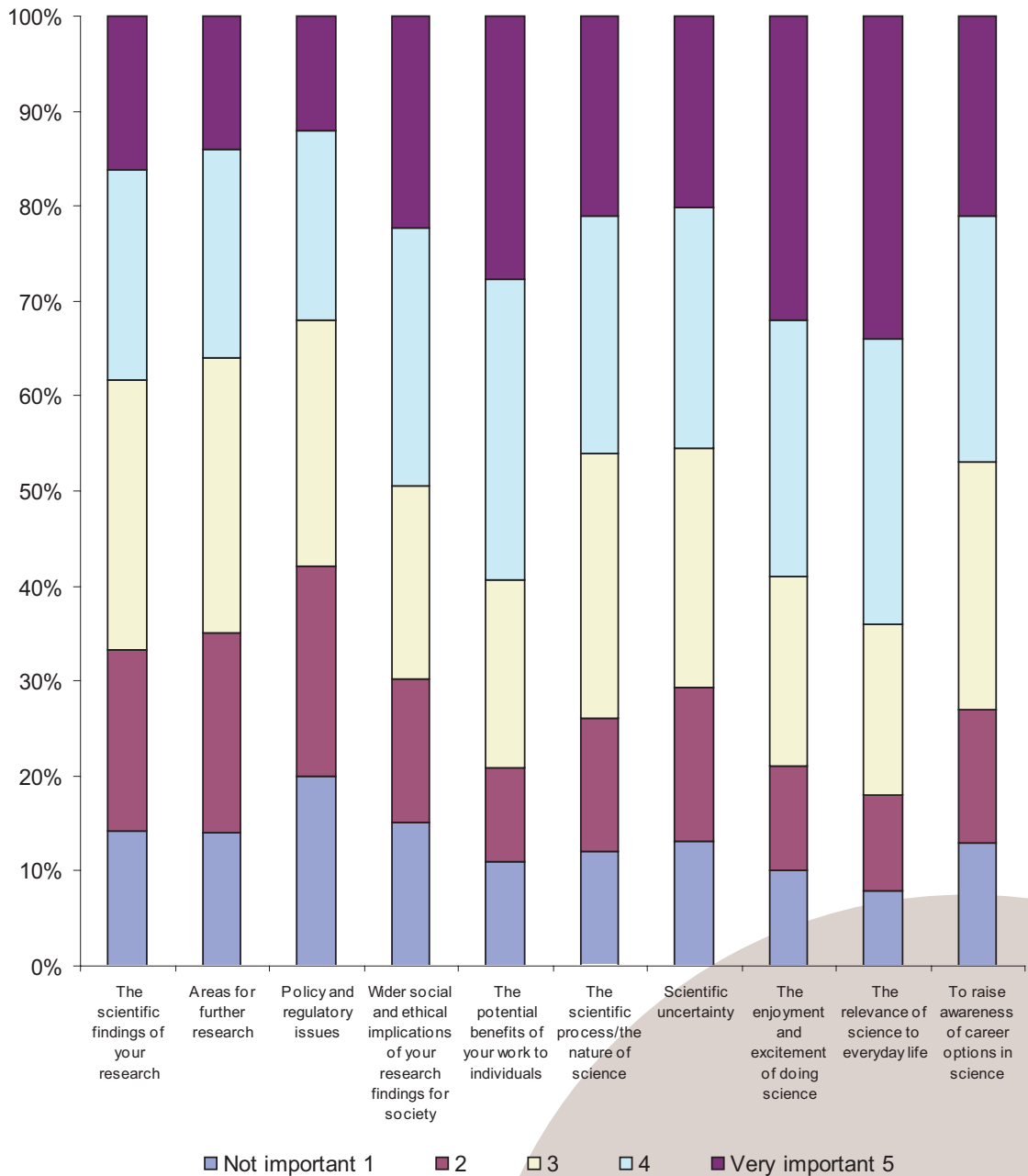
Analysis by individual Research Council in this sample is not possible because of the sample sizes.

INSTRUCTION TO RESPONDENTS IN THE QUESTIONNAIRE:

For the remainder of the questionnaire, we will be talking about communication and engagement with the non-specialist public only. By this we mean adults with no specialist knowledge of, or training in, science



Q8. How important do you think it is that you personally, in your current post, engage directly with the non-specialist adult public on each of the following?



There is a slight tendency for more senior researchers to say that it is more important to engage on all these aspects.

The main drivers of opinion for this set of attitudes are disciplinary group and whether or not the respondent thinks that their work has implications for society. With respect to disciplinary group there tends to be a trend with clinical researchers being most likely to think that engagement on most of the topics listed is important and non-bioscience researchers least likely to think public engagement on these topics is important, with non-clinical bioscience researchers falling in between.



Q8.Importance of engagement with the public for different groups

RESPONDENTS GIVING A SCORE OF 4 OR 5 TO ENGAGEMENT WITH THE PUBLIC IN EACH CATEGORY (WHERE 1 IS NOT IMPORTANT AND 5 IS VERY IMPORTANT)			
	Total giving a score of 4 or 5	Clinical researchers giving a score of 4 or 5	Those who think their work has implications for society giving a score of 4 or 5
The scientific findings of your research	563 38%	175 46%	447 43%
Areas for further research	527 36%	170 44%	403 38%
Policy and regulatory issues	463 32%	153 40%	378 37%
The wider social and ethical implications of your research findings for society	731 49%	236 62%	619 59%
The potential benefits of your work to individuals	874 60%	291 76%	696 67%
The scientific process/the nature of science	680 46%	173 45%	498 48%
Scientific uncertainty	665 45%	212 56%	503 48%
The enjoyment and excitement of doing science	861 59%	205 54%	621 59%
The relevance of science to everyday life	949 64%	246 64%	695 66%
To raise awareness of career options in science	694 47%	156 40%	492 47%

With respect to the other groups clinical researchers see public engagement on:

- scientific findings (46% scoring this 4 or 5)
- further research (44% scoring this 4 or 5)
- policy and regulation (40% scoring this 4 or 5)
- the social and ethical implications of their research (62% scoring this 4 or 5)
- the potential benefits to individuals (76% scoring this 4 or 5)
- scientific uncertainty (56% v 37% of non-bioscience respondents scoring this 4 or 5) as particularly important.

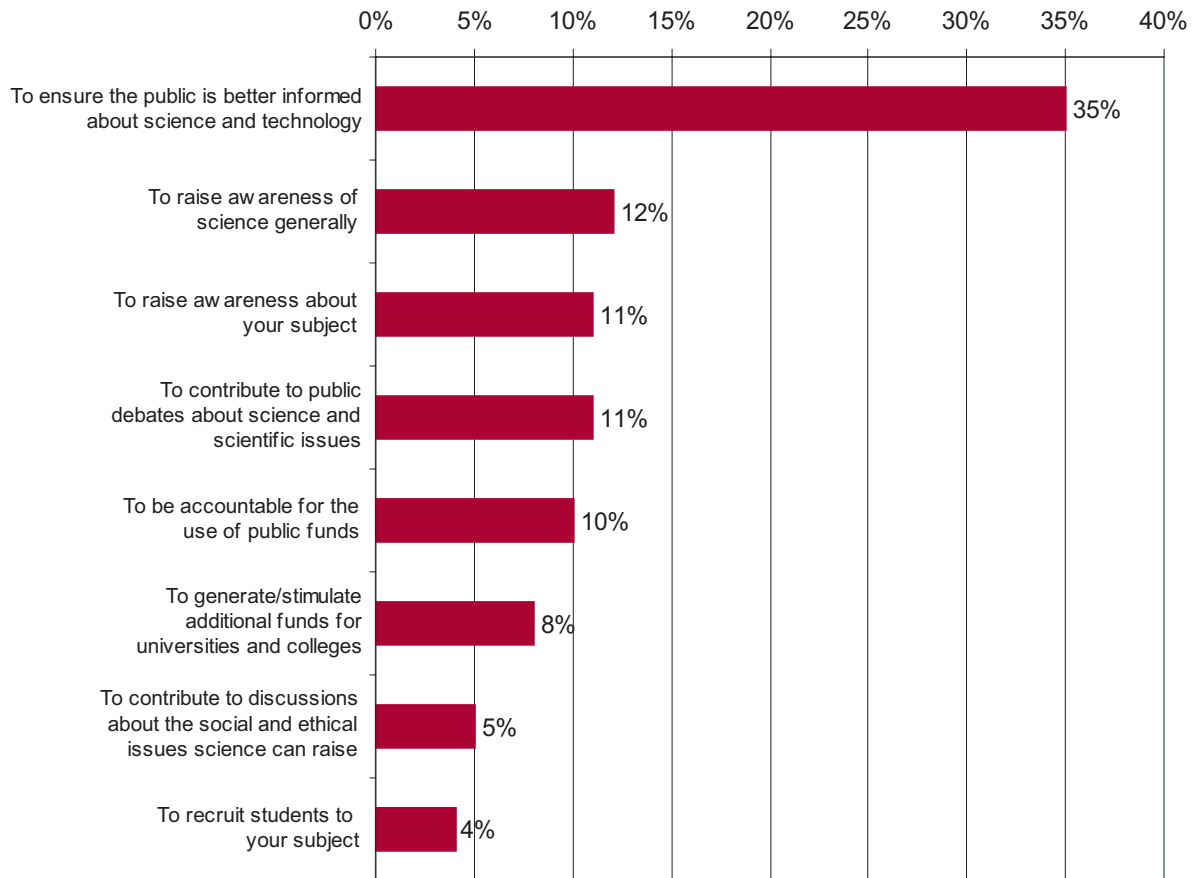
Where the non-bioscience group really stand out is on the importance they attach to:

- conveying the enjoyment and excitement of science (62% scored this 4 or 5)
- the importance of raising awareness of career opportunities (52% scored this 4 or 5).

However, non-bioscience researchers also attach some importance to engaging the public on the potential benefits to individuals (51% scoring this 4 or 5), which, while lower than the scores given by the other two disciplinary groups to this topic, is higher than the scores they give to many of the other issues listed in this question.



Q9. Looking at the list below, what do you think is the main reason for scientists and engineers to engage with the non-specialist public?



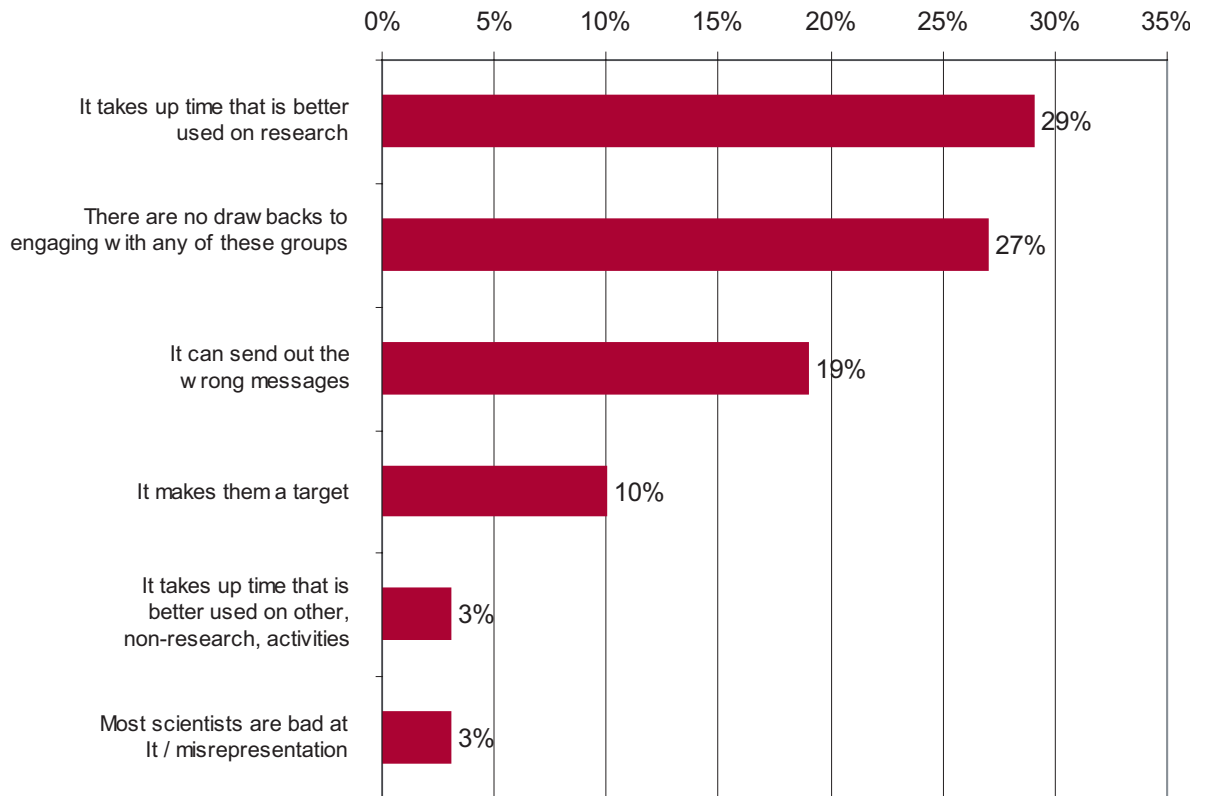
There are no differences of note between the various sub-groups.

Q10. Looking at the list below, what do you think is the second most important reason for scientists and engineers generally to engage with the non-specialist public?

Unweighted base	1413
Weighted base	1428
To ensure the public is better informed about science and technology	248 17%
To contribute to public debates about science and scientific issues	220 15%
To be accountable for the use of public funds	210 15%
To raise awareness of science generally	197 14%
To raise awareness about your subject	188 13%
To generate/stimulate additional funds for universities and colleges	133 9%
To contribute to discussions about the social and ethical issues science can raise	130 9%
To recruit students to your subject	84 6%



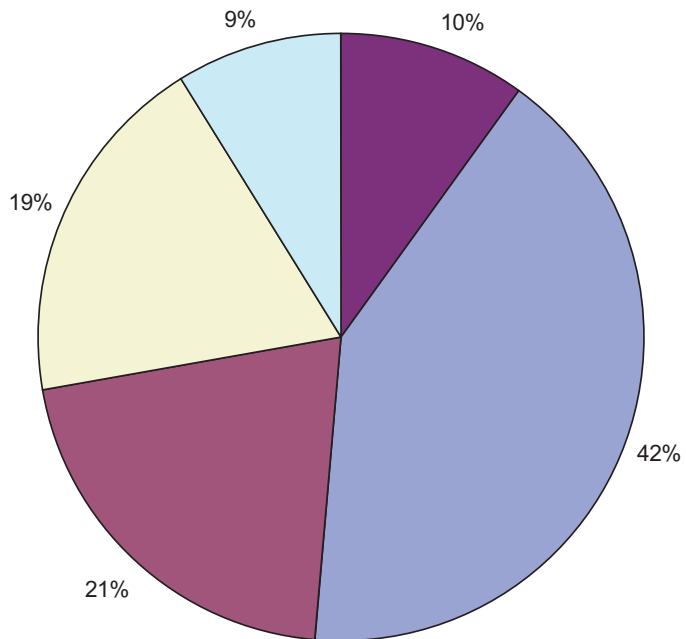
Q11. Looking at the list below, what do you think is the main drawback to scientists and engineers generally engaging with the non-specialist public?



Non-bioscience researchers are more likely to see the main draw back as the time it takes away from research (35%) whereas clinical researchers are equally concerned about the time it takes away from research (25%) as they are about sending out the wrong messages (25%). Only 4% of non-bioscience researchers expressed concern about becoming a target.

Q12. Looking at the list below, what do you think is the second main drawback to scientists and engineers generally engaging with the non-specialist public?

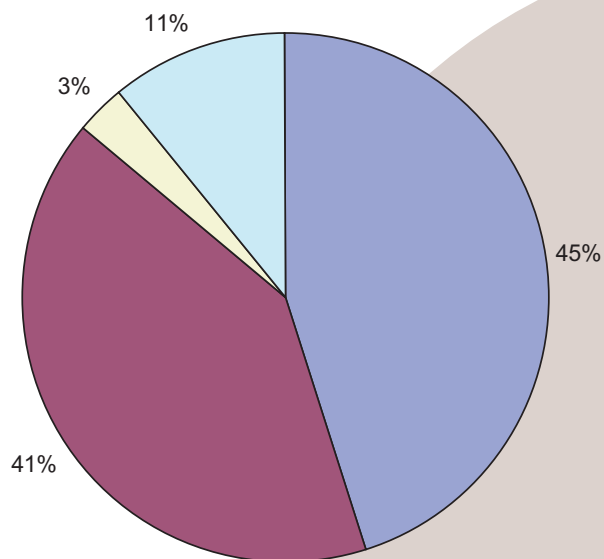
Unweighted base	893
Weighted base	938
There are no drawbacks to engaging with any of these groups	215 23%
It takes up time that is better used on research	150 16%
It can send out the wrong messages	147 16%
It takes up time that is better used on other, non-research, activities	132 14%
It makes them a target	127 14%
It diverts money from research projects	64 7%



■ Not at all important ■ Not very important ■ Equally important
□ Fairly important □ Very important

Senior and older researchers (35% and 31%) are more likely than junior and younger researchers (24% and 23%) to say that engaging with the non-specialist public is very or fairly important. Again, clinical researchers (35%) and those who think their work has implications for society (31%) are more likely to say that engaging with the non-specialist public is very or fairly important.

Q14. **Would you like to spend more time, less time, or about the same amount of time as you do now engaging with the non-specialist public about science?**



■ I would like to spend more time ■ I am content with the time I spend on this
□ I would like to spend less time □ Don't know

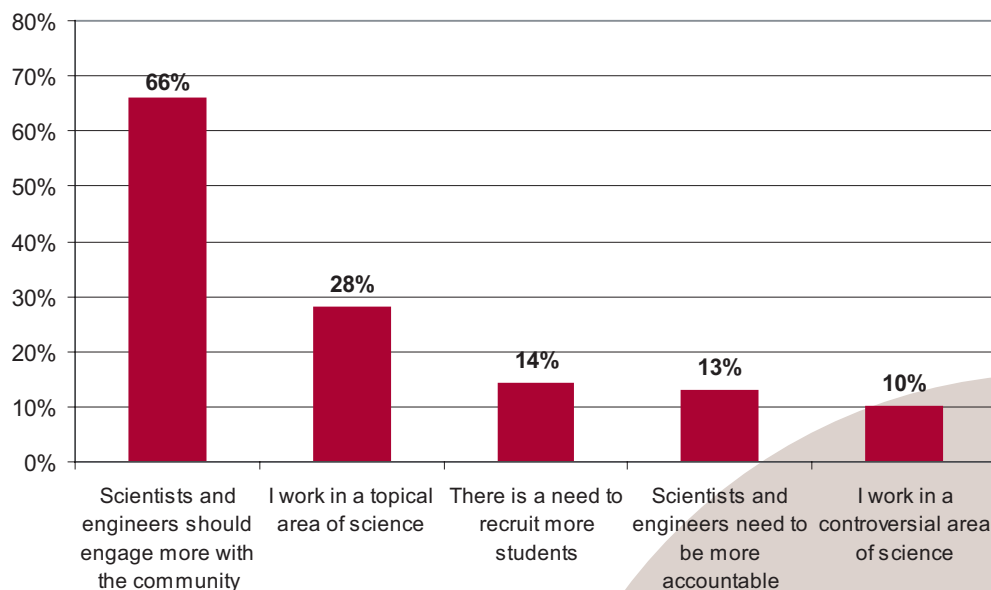


Non-clinical bioscience and non-bioscience researchers are more likely than clinical researchers to say that they would like to spend more time engaging with the non-specialist public about science (50% v 46% v 39%) but they are currently more likely to be inactive than clinical researchers (19% of clinical researchers said they had done no engagement activities in the previous 12 months (apart from possibly taking part in an open day) compared to 35% of non-clinical bioscience researchers and 24% of non-bioscience researchers).

55% of those who said they thought it was difficult to get involved in public engagement activities said that they would like to spend more time on it but those who felt ill equipped were less likely to say that they wanted to spend more time on public engagement (41%).

Language issues do not appear to be important, at least for respondents, because 40% of those who said that English is not their first language also said that they would like to spend more time on public engagement. However, those whose English is weaker may have been less likely to respond to the survey.

Q15. Why do you say that?



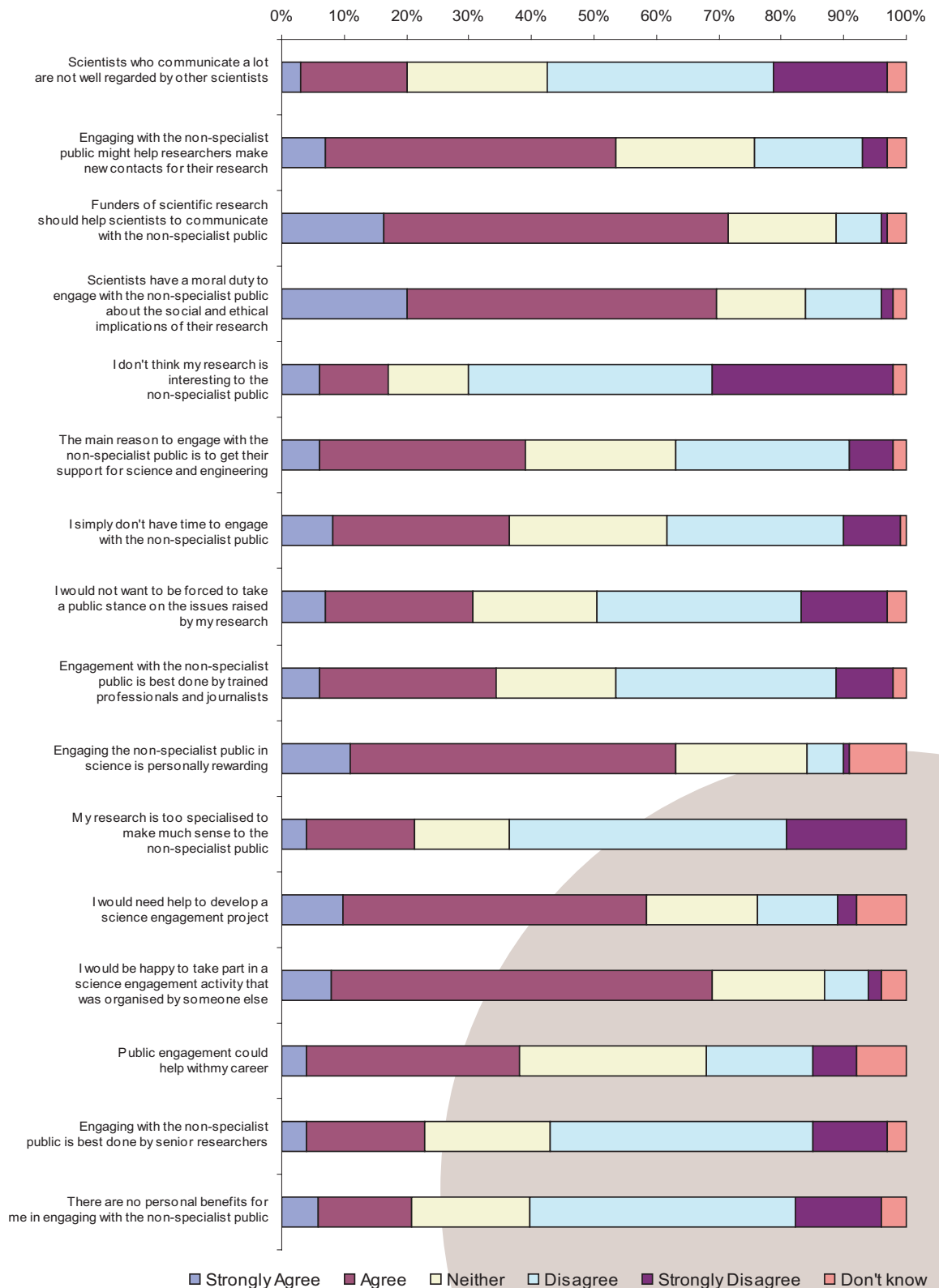
Overwhelmingly, those who want to spend more time on public engagement said that they wanted to do so because scientists and engineers should engage more with the community and no sub-group stands out from this trend.

The main points to note are:

- Clinical researchers are more likely to want to engage because they feel their work is topical or controversial (36% and 19% of clinical researchers gave these two responses respectively)
- Non-bioscience researchers were more likely to say scientists and engineers should engage more with the community compared to clinical and non-clinical bioscientists
- Those with teaching responsibilities are conscious of the need to recruit students and 18% of those with teaching responsibilities gave student recruitment as a reason for engagement compared with 11% of those without teaching responsibilities.



Q16. Below are some things that people have said about engaging with the non-specialist public about science and engineering. Please indicate whether you agree or disagree with each statement.





Points worthy of note about the statements listed above are:

Junior researchers were more likely than senior researchers to agree that:

Engaging the non-specialist public might help researchers

make new contacts for their research (57% v 44%)

My research is too specialised to make much sense to the non-specialist public (23% v 17%)

Pubic engagement could help with my career (42% v 28%)

Engaging with the non-specialist public is best done by senior researchers (26% v 18%)

And less likely to agree that:

- There are no personal benefits for me in engaging with the non-specialist public (18% v 25%)

Clinical researchers were more likely than non-clinical bioscience or non-bioscience researchers to agree that:

Engaging the non-specialist public might help researchers

make new contacts for their research (61% v 50% v 51%)

Scientists have a moral duty to engage with the public about

the social and ethical implications of their research (77% v 71% v 65%)

And less likely to agree that:

- I don't think my work is interesting to the non-specialist public (12% v 15% v 21%)
- My research is too specialised to make much sense to the non-specialist public (13% v 19% of non-clinical bioscientists and 27% of non-bioscientists)

Non-bioscience researchers stand out particularly in their lower level of agreement with the statement 'engaging with the non-specialist public is best done by senior researchers' (18% v 28% of clinical and 27% of non-clinical bioscience researchers).

Women were more likely than men to agree that:

Engaging the non-specialist public might help researchers

make new contacts for their research (59% v 51%)

Scientists have a moral duty to engage with the public about

the social and ethical implications of their research (74% v 68%)

I would not want to be forced to take a public stance on

the issues raised by my research (39% v 26%)

'Figures given as agree in the text here refer to those who said agree strongly and agree and figures given for disagree refer to those who said disagree strongly and disagree.'



Research only staff were more likely than those with teaching responsibilities to agree that:

- 'Engaging the non-specialist public might help researchers make new contacts for their research' (59% v 47%)
- 'I would not want to be forced to take a public stance on the issues raised by my research' (35% v 26%)
- 'Engaging with the non-specialist public is best done by senior researcher' (27% v 20%)

Those who thought that their research has implications for society were less likely than those who think that their work does not have implications for society to agree that:

- 'I don't think my research is interesting to the non-specialist public' (13% v 39%)
- 'My research is too specialised to make much sense to the non-specialist public' (14% v 44%)
- 'There are no personal benefits for me in engaging with the non-specialist public' (18% v 25%)

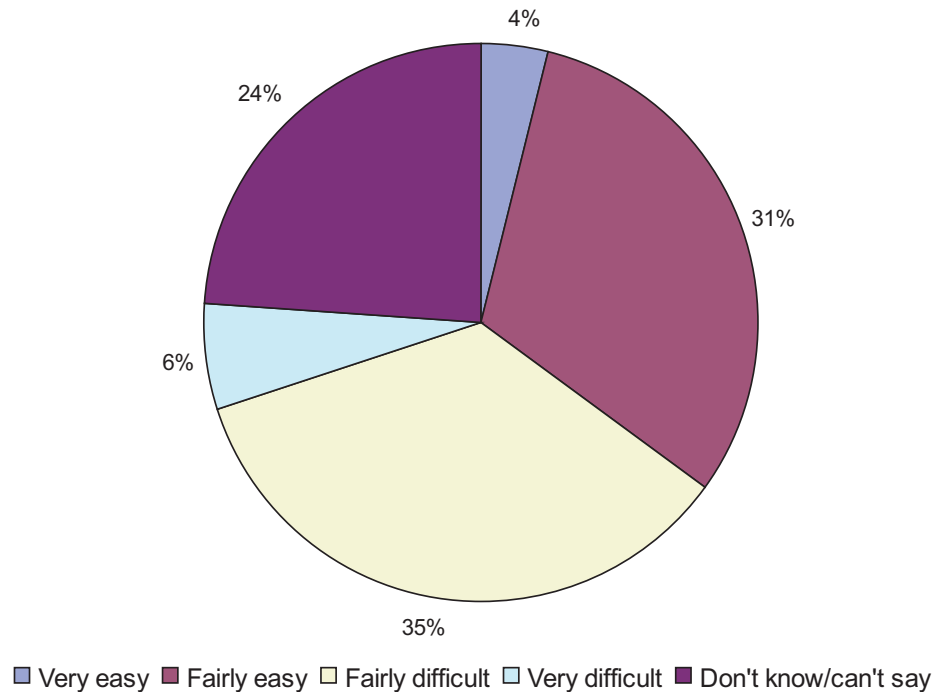
And are more likely to agree that:

- 'Engaging the non-specialist public in science is personally rewarding' (69% v 50%)
- 'I would be happy to take part in a science engagement activity that was organised by someone else' (71% v 58%)
- 'Engaging the non-specialist public in science might help researchers make new contacts for their research' (58% v 35%)
- 'Scientists have a moral duty to engage with the public about the social and ethical implications of their research' (73% v 61%)

Those who do not feel well equipped are more likely to think that engagement with the non-specialist public is best done by trained professionals (44% v 27%). This group is also more likely to say that their research is too specialised to make sense to the non-specialist public (29% v 14%), that they would need help to develop a science engagement project (66% v 53%) and that they do not want to be forced to take a public stance on the issues raised by their research (36% v 26%). By contrast, those who feel well equipped are more likely to see engagement as personally rewarding (75% v 52%).



Q17. How easy or difficult do you think it is to get involved in science engagement activities for those who want to do so?



Those who said they thought it was easy or very easy to get involved were:

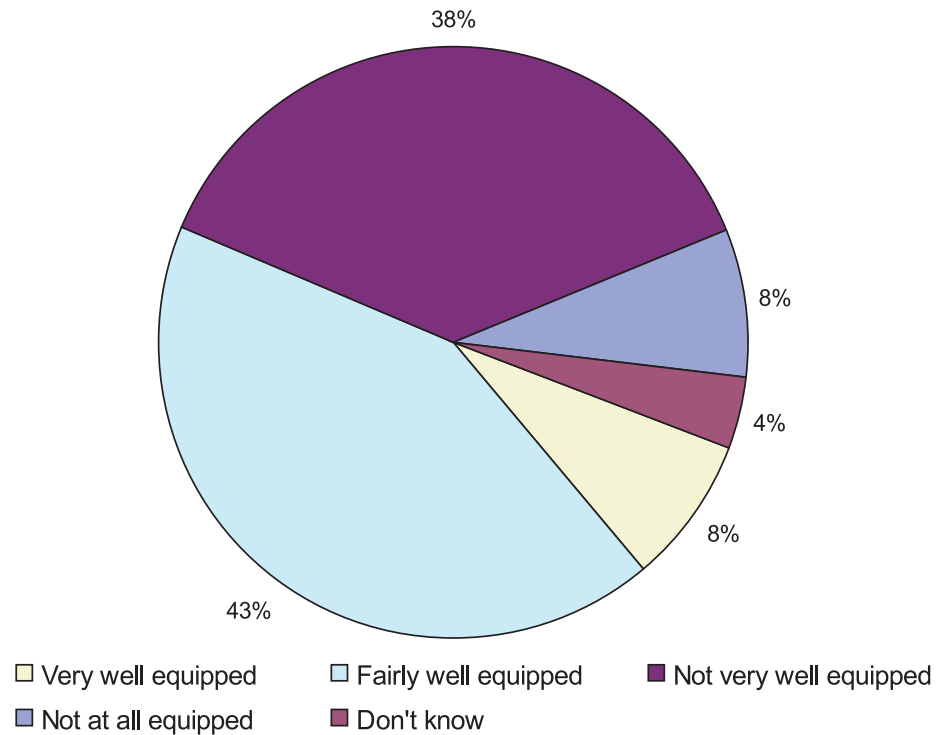
- Senior researchers rather than junior researchers (44% v 30%)
- Those who felt well equipped for communication (46% v 23%)
- Men rather than women (37% v 30%)
- Those with teaching responsibilities rather than those only doing research (37% v 31%)

On the other hand:

- Clinical researchers found it more difficult to get involved (27% said it was easy or very easy compared to 49% who said it was very or fairly difficult). However, this may be a reflection of their availability for such activities rather than their ability, taking their other answers into account.



Q18. How well equipped do you personally feel you are to engage with the non-specialist public about your research?



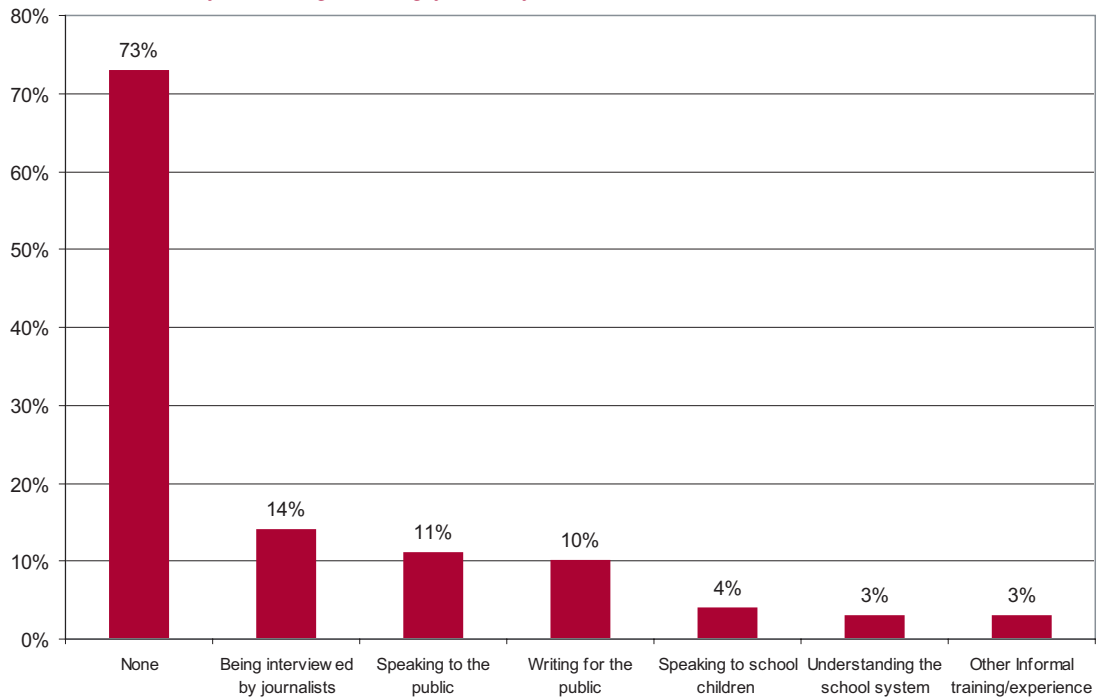
Those who felt very or fairly well equipped to engage with the public were:

- Senior rather than junior (64% v 45%)
- Clinical researchers rather than non-clinical bioscientists or non-bioscientists (64% v 48% v 45%)
- Those who have received some formal training rather than those who have not (61% v 46%)
- Those who find it easy to get involved rather than those who do not (66% v 45%)
- Those who think their work has implications for society rather than those who do not (56% v 40%)
- Those with teaching responsibilities feel perhaps less well equipped when compared to those without this responsibility than might be thought, given some of their other answers (52% v 49%)

While women are no more likely than men to say that they feel very well equipped, men are more likely to say that they feel *fairly* well equipped (45% v 39%).

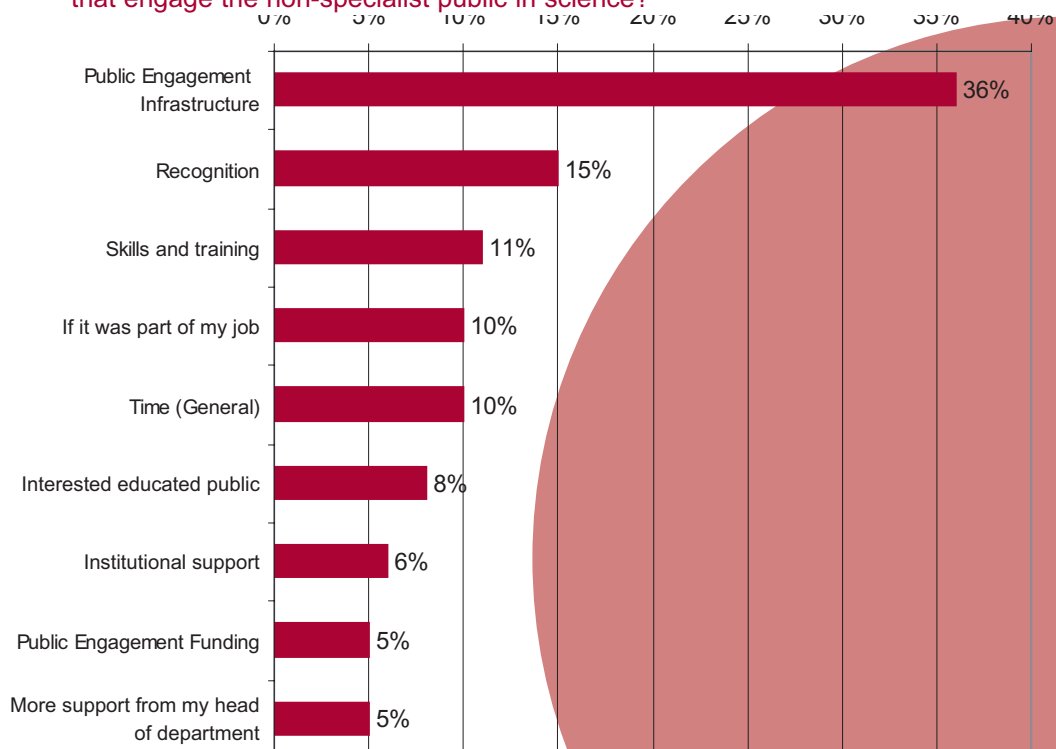


Q19. What training, if any, have you had in communicating science to the non-specialist public? Do not include any teaching training you may have had.



The only point of note here is the relatively high proportion of clinical researchers who have had media training on being interviewed by journalists 23% v 15% of non-clinical bioscientists and 8% of non-bioscience researchers. This really accounts for the difference in the percentage of each group saying they have had no training of any kind (63%, 76%, 77% respectively).

Q20. What would encourage you personally to get involved in activities that engage the non-specialist public in science?





Public engagement infrastructure includes responses coded as:

If it was easier to organise such activities/if someone else initiated it/if it was offered to me/if other people got involved too/better links to relevant groups/contacts/framework/if there was an area I felt I could contribute in/if I could see the benefit/positive feedback/a strategy or plan.

Recognition includes responses coded as:

If it was part of getting professional status/if it helped with my own career/if it was part of the RAE exercise/if it wasn't viewed as inferior to other work/if other people weren't against it/if it wasn't detrimental to my career.

Skills and training includes responses coded as:

If I had some (more) training/skills not good.

If it was part of my job include responses coded as:

If I was relieved of other work/if it brought money into the department/having a more permanent position/job security/if it was part of my job.

Time (general) is a stand alone response.

Interested educated public includes responses coded as:

If people were more interested in my work/a better educated public/recruiting more students.

Institutional support includes responses coded as:

Support (other than from head of department)/more backroom support or infrastructure/longer term funding — more free time/better funding.

Public engagement funding includes responses coded as:

If engagement grants covered staff time as well as costs/financial reward (unspecified).

More support from my head of department is a stand alone response.

Removing the RAE is not included as only 5 respondents cited this as something that would encourage them to engage.

This was presented as an open-ended question and subsequently coded. Q21 gave respondents a list of options which might motivate researchers to get involved in engagement activities and asked them to tick those they felt might encourage them to do so. Because this was a self-completion questionnaire it is possible that respondents looked at the list before answering this open ended question.

The main option which would encourage all groups to engage with the public is to develop an infrastructure for public engagement activities (36%). Within this overall picture there are a few nuances set out below and an indication that recognition is important at the margins.



Clinical Researchers

Clinical researchers are more likely to be encouraged by improved public engagement infrastructure than non-clinical bioscientists and non-bioscientists (44% v 35% v 33%).

RAE Score

Those in departments with an RAE Score of 5* compared to those in lower rated departments said they would be more likely to take part in public engagement if the public were more interested (11% v 5%). Those in departments with a RAE score of 1-5 compared to those in 5* rated departments said they would be more likely to engage if they had more time (13% v 6%) or if they felt it was part of their job (15% v 7%).

Easy to engage

In comparison with those who felt it was difficult to engage, those who felt it was easy were much more likely to say that they would be encouraged by more time (15% v 7%), in contrast to this, those that felt it was difficult to engage would be encouraged by public engagement infrastructure (46% v 31%) and by having the right skills and training (14% v 8%).

Women

A much higher proportion of women (20%) compared to men (7%) said that they would be more encouraged if they had more skills and training.

Work has implications for society

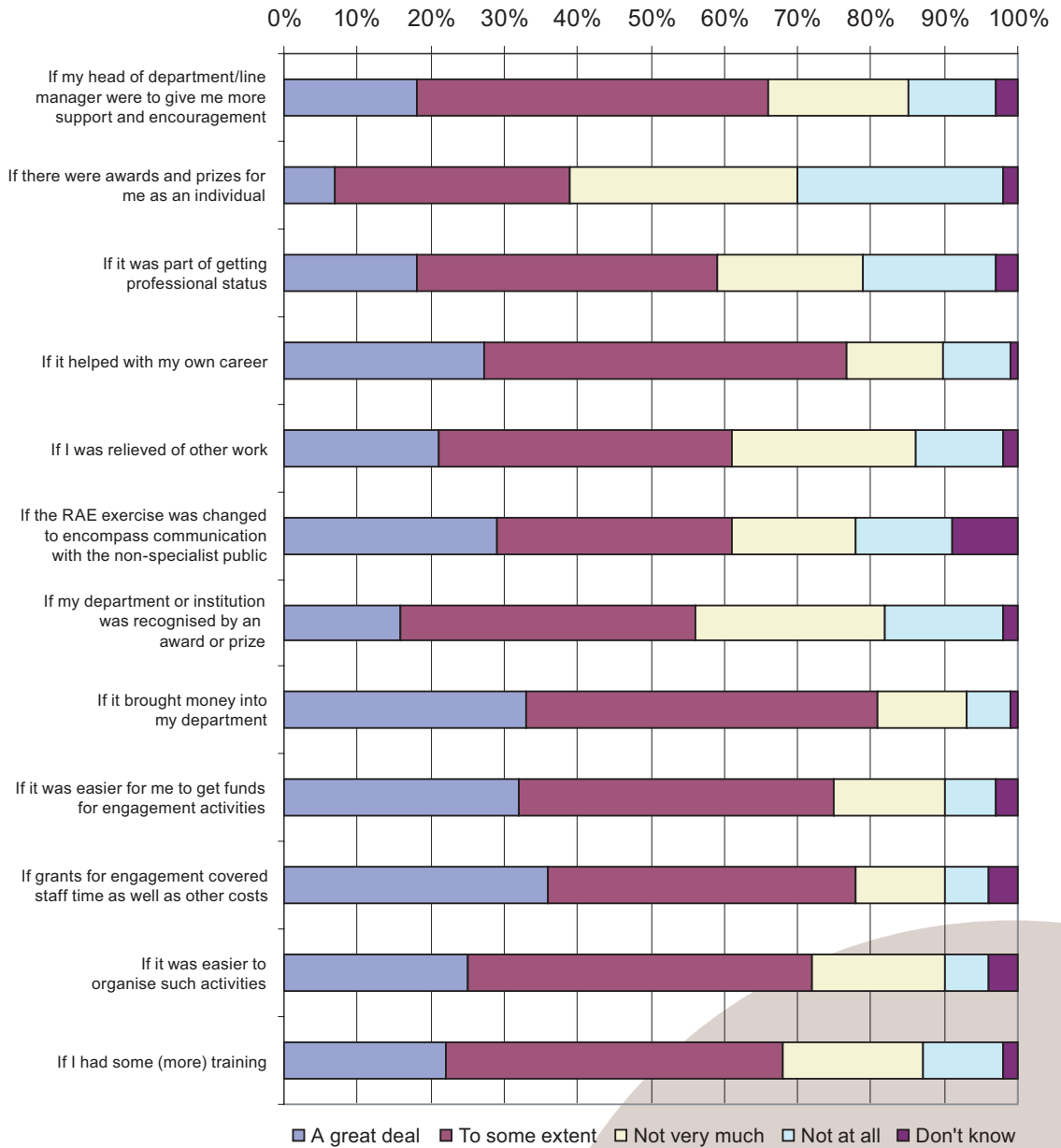
Those who felt that their work has no implications for society were more likely to say that nothing would encourage them to get involved (8% compared to 1%).

Research and teaching

Those involved in teaching were more likely than those only doing research to believe that time (14% v 5%) would encourage them to engage. Those in research only posts were more encouraged by skills and training (14% v 9%) and public engagement infrastructure (40% v 32%).



Q21.To what extent would you personally be encouraged to get more involved in activities to engage the non-specialist public in science and engineering by each of the following?



Support from head of department is more important for junior staff (73% said 'a great deal' or 'to some extent') but relatively unimportant for those who do not think their work has implications for society (19% of this group said this would not encourage them at all).

Making public engagement count towards professional status is more influential for junior rather than senior researchers (64% v 48%) and younger rather than older staff (65% v 52% said this would influence them a great deal or to some extent). This idea is less influential in the non-biosciences (54% said this would influence them a great deal or to some extent) and marginally less important to those in RAE 5* rated departments (55%). It has less impact on those who do not think their work has social implications, only 11% said it would influence them a great deal, and on those with teaching responsibilities (only 12% said it would influence them a great deal).



Those who would be more likely to be encouraged if **it helped their career** are:

- Junior rather than senior researchers
(83% v 64% said this would influence them a great deal or to some extent)
- Younger rather than older researchers
(86% v 66% said this would influence them a great deal or to some extent)
- Women rather than men
(81% v 74% said this would influence them a great deal or to some extent)

Being relieved of other work seems to influence:

- Men more than women
(64% v 58% said this would influence them a great deal or to some extent)
- Those with teaching responsibilities more than those without
(71% v 52% said this would influence them a great deal or to some extent)

Changing the RAE to encompass communication with the non-specialist public would influence:

- Senior staff more than junior
(71% v 58% said this would influence them a great deal or to some extent)
- Those in departments rated 5 or below by the RAE more than those in 5* rated departments
(70% v 59% said this would influence them a great deal or to some extent)
- Those who think their work has implications for society more than those who do not (65% v 53% said this would influence them a great deal or to some extent)
- Women more than men
(66% v 59% said this would influence them a great deal or to some extent)
- Those with teaching responsibilities more than those without (70% v 54% said this would influence them a great deal or to some extent)

Recognising the researcher's department with an award would influence:

- Clinical researchers more than others
(62% said this would influence them a great deal or to some extent)
- Those in departments rated 5 or below by the RAE rather than those in 5* rated departments
(59% v 52%) said this would influence them a great deal or to some extent
- Women (61% v 55% of men) said this would influence them a great deal or to some extent

But those who do not believe their research has implications for society would be very unmoved by this option, with 24% of them saying this would not influence them at all.

Bringing money into their department is particularly important for:

- Clinical researchers, 47% say this would influence them a great deal
- Those who have had formal training, 41% say it would influence them a great deal



Again, those who do not think their research has implications for society are hardest to influence, 30% saying that they would not be influenced very much or at all.

If it was easier to get funds for engagement activities is a potentially strong motivator for all groups. However, those who do not think their research has implications for society would not be influenced very much or at all by this idea, 39% v 19% of those who think their research has implications for society.

If grants covered staff time as well as other costs is also a potentially strong motivator for all groups. But again, those who do not think their research has implications for society are hardest to influence, 30% saying that they would not be influenced very much or at all by this proposition.

Training would influence:

- Junior staff rather than senior staff (25% v 16% a great deal)
- Æ • Younger researchers rather than senior researchers (25% v 19% a great deal)
- Non-bioscience researchers least (18% a great deal)
- Æ • Women rather than men (33% v 17% a great deal)
- Those without teaching responsibilities rather than those with (74% v 62% a great deal or to some extent)
- Those who find it difficult to get involved in public engagement activities rather than those who find it easy (27% v 13% a great deal)
- Those who do not feel well equipped for public engagement to a greater extent than those who feel equipped (28% v 17% a great deal)

If it was easier to organise such activities would help

- Those who find it difficult to get involved (32% a great deal)

But would still not have much impact on those who do not think their work has implications for society (19% of this group said a great deal)

Analysis by level of activity reveals that neither those who are not currently active in public engagement, nor those who currently do some engagement nor those who are currently highly active would be motivated to do more by the instigation of personal awards. Only 36%, 41% and 35% respectively would be motivated a great deal or to some extent by such awards. Departmental awards are slightly more popular but are nowhere near the most effective motivators (52%, 59% and 62% respectively).

The inactive and less active groups would be strongly motivated by things that helped their career (78% of both groups would be greatly or to some extent encouraged). The most active group is less motivated by this (70% would be greatly or to some extent encouraged), although it is still quite a strong motivating factor.

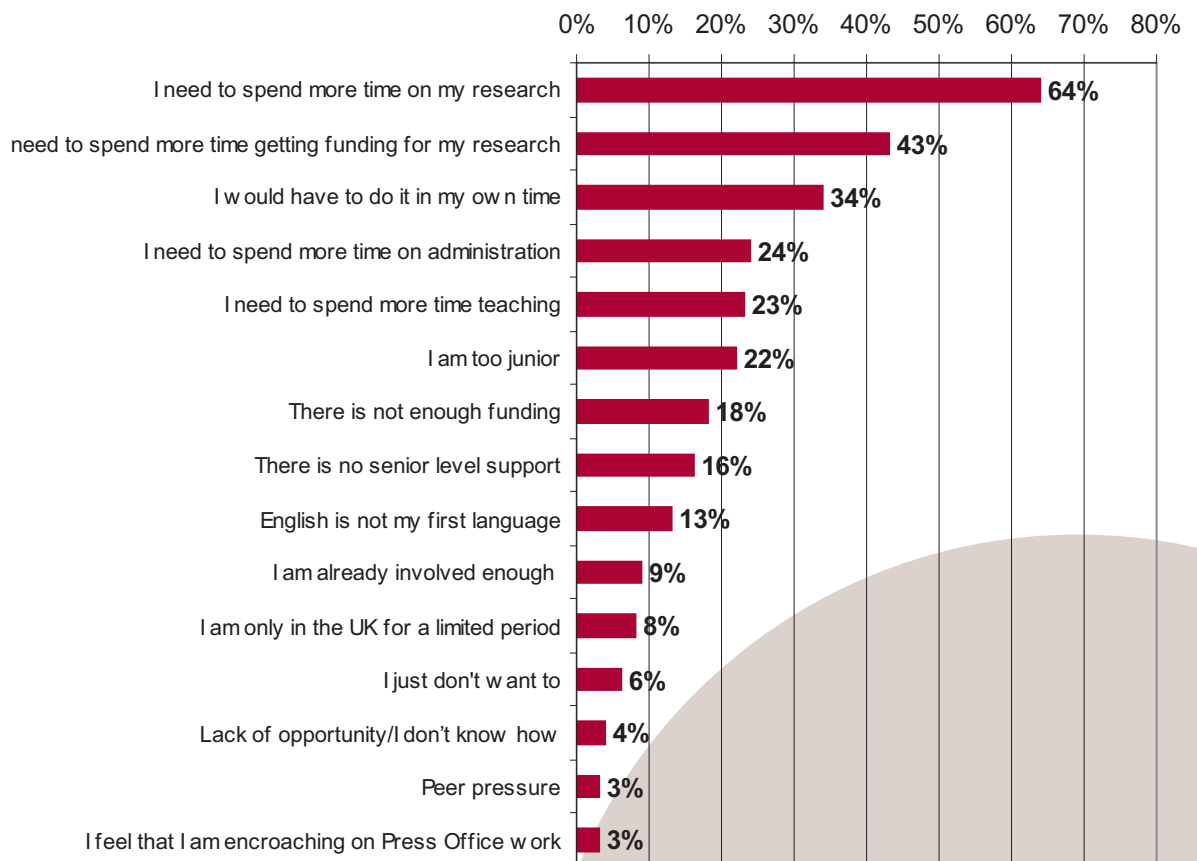


All three groups are motivated by bringing money in to their department - 75% of the inactive group, 83% of the less active group and 86% of the highly active group would be motivated a great deal or to some extent by this.

Training would help the inactive and the less active groups (68% and 72% respectively would be encouraged a great deal or to some extent).

Both those who do some activities and those who are highly active would be encouraged to do more if grants covered staff time (82% and 92% respectively), it was easier to get funds (77% and 85% respectively) and if it was easier to organise such activities (77% and 78% respectively).

Q22. What is stopping you from getting (more) involved in activities that engage the non-specialist public in science?



Funding pressures are keenest for men rather than women (46% v 37% said they needed to spend more time finding funding for their research) and for those in departments rated 5 or below by the RAE (52% v 44% said they needed to spend more time finding funding for their research).

Time spent teaching was a particular barrier for those in departments rated 5 or below (31% v 21% of those in 5* rated departments gave this as a reason for not getting (more) involved). This group was also slightly more concerned about administration (29% v 24%).



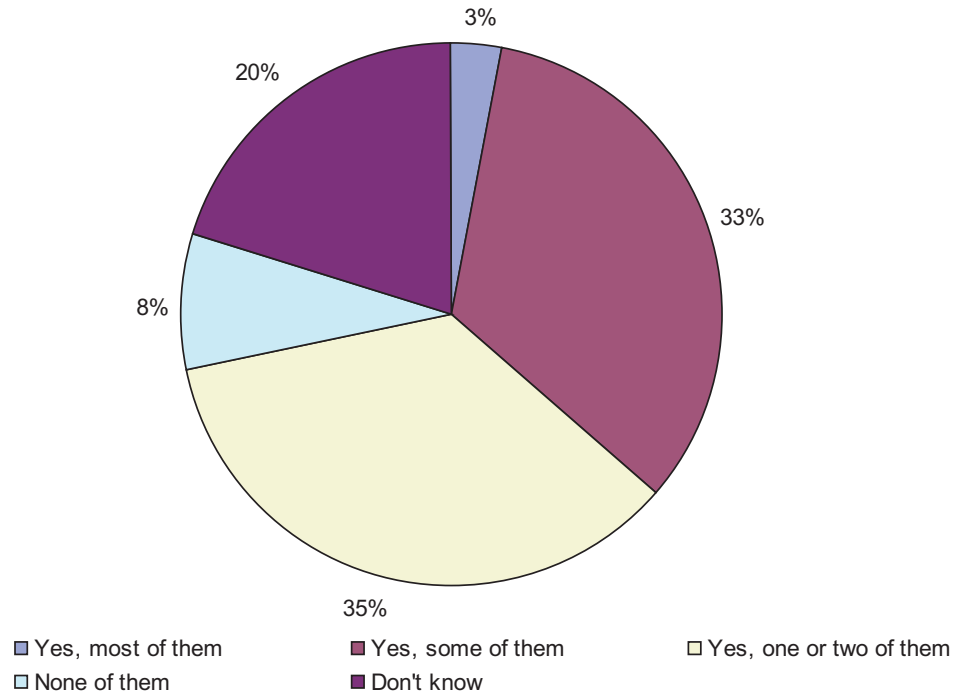
Q22. Barriers to engagement, analysed by current level of involvement in activities to engage the non-specialist public with science

	CURRENT LEVEL OF INVOLVEMENT IN ACTIVITIES THAT ENGAGE THE NON-SPECIALIST PUBLIC WITH SCIENCE			
	Total	No activity (or only open day)	Some activity	High level of activity
Unweighted	1382	317	865	200
Weighted	1387	360	871	1
I need to spend more time on my research funding for my research	901 64%	239 66%	572 66%	90 58%
I need to spend more time getting	603 43%	123 34%	415 48%	65 41%
I would have to do it in my own time	467 34%	105 29%	313 36%	48 31%
I need to spend more time on administration	331 24%	69 19%	222 25%	40 26%
I need to spend more time teaching	325 23%	59 16%	235 27%	32 20%
I am too junior	301 22%	106 30%	190 22%	5 3%
There is not enough funding	238 18%	41 11%	155 18%	42 27%
There is no senior level support	228 16%	59 16%	143 16%	26 17%
English is not my first language	190 13%	60 17%	121 14%	9 6%
I am already involved enough	127 9%	7 2%	68 8%	52 33%
I am only in the UK for a limited period	116 8%	26 7%	83 10%	7 5%
I just don't want to	80 6%	35 10%	45 5%	-
Lack of opportunity/I don't know how	61 4%	21 6%	36 4%	6 3%
Other	53 4%	13 4%	37 4%	3 2%
Peer pressure	41 3%	5 1%	33 4%	4 3%
I feel I am encroaching on Press Office work	37 3%	13 4%	24 3%	-

The table above highlights that the main pressures against doing more public engagement work come from research activities and that the same pressures affect those who are involved and those who are not. We can also see reflected the concern from some respondents that they are too junior to spend more time on activities to engage the public. Peer pressure against getting involved is only cited by very few respondents.

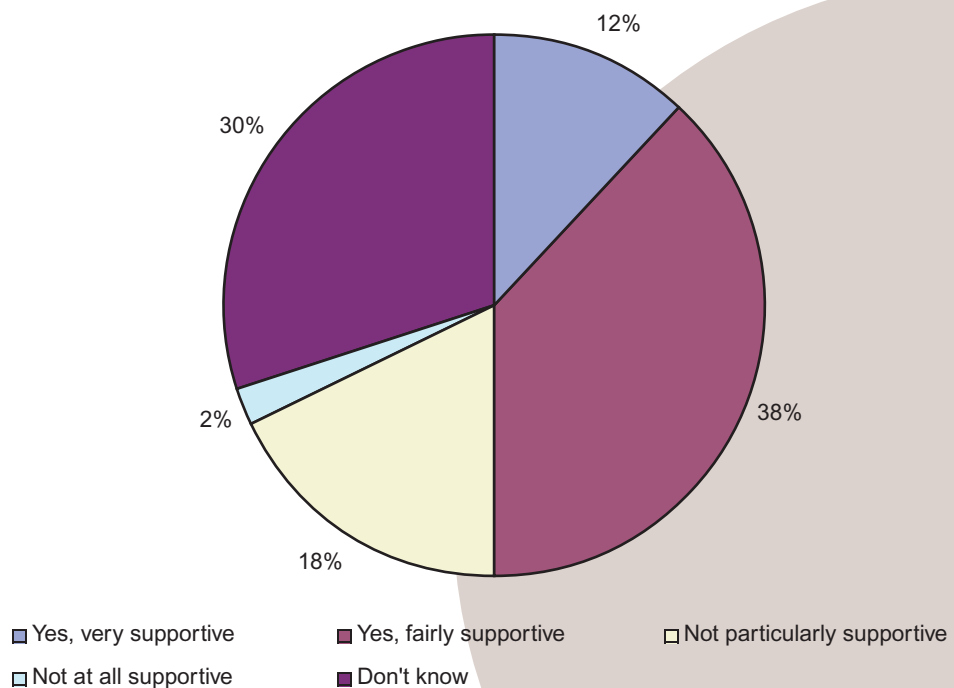


Q23. Do other members of your department take part in activities that engage the non-specialist public in science?



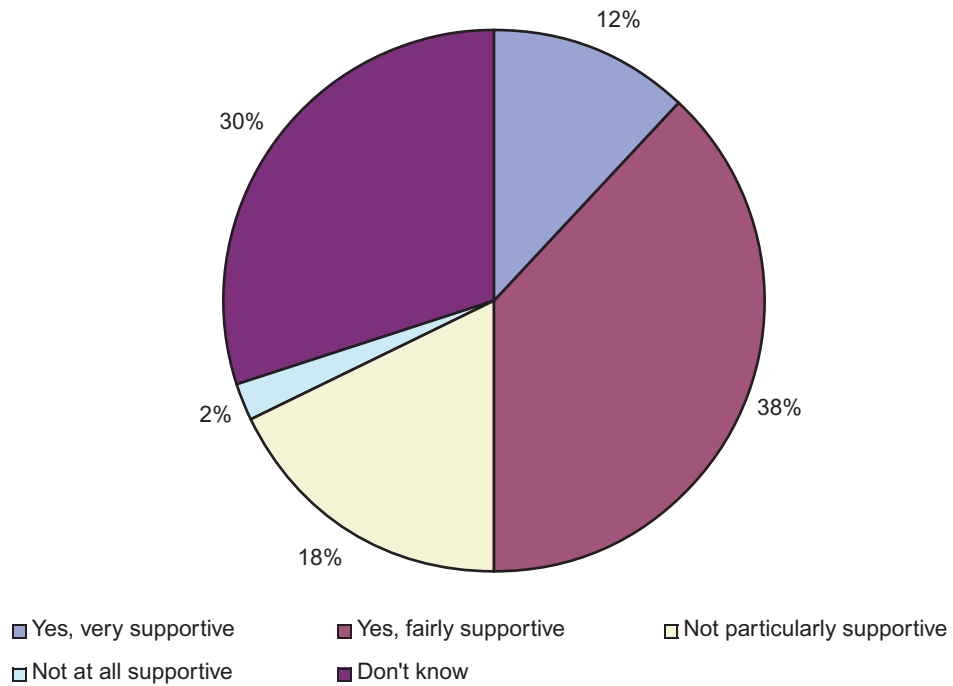
The most striking points about this question are that clinical researchers have the most active and the least active departments and those who say that getting involved is easy are more likely to work in departments where others are active in engagement activities.

Q24. Are the researchers in your department generally supportive towards those who take part in activities to engage the non-specialist public in science?



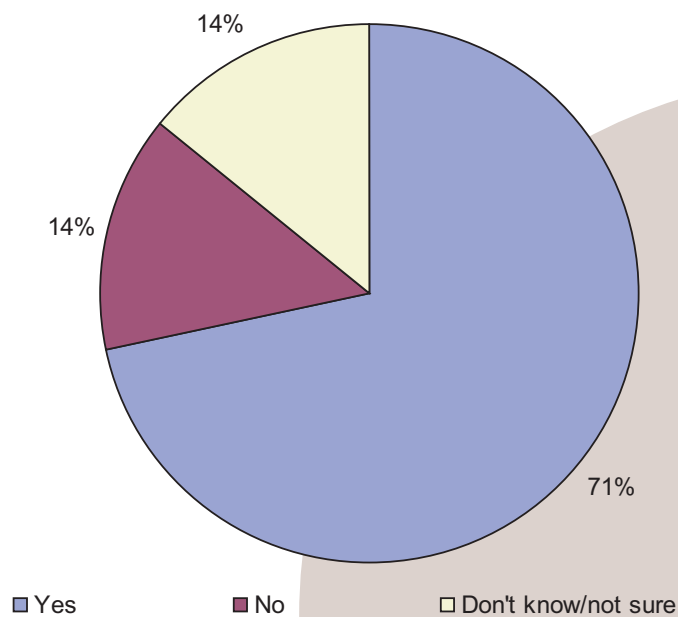


Q25. Is your institution generally supportive towards researchers who take part in activities to engage the non-specialist public in science?



Clinical researchers rated their institution as more supportive than the other two disciplinary groups rated their institutions. Importantly, few respondents said that it varied between departments.

Q30. Do you think your work has implications for society and/or policy-makers and regulators?



Clinical researchers were more likely than non-clinical bioscience researchers who were more likely than non-bioscientists to think that their work has implications for society (79% v 71% v 67%)

Q26 to Q29 are not included within this section, they were questions surrounding, current position, working status, main role and current area of research.



4. CLUSTER ANALYSIS

Using Q16 we ran a factor and cluster analysis to see whether there are distinct attitudinal groups within the overall sample. The cluster analysis identified two groups, the main difference being the extent to which respondents felt that their research was interesting to the non-specialist public and the extent to which they felt that their research is too specialized to make much sense to the non-specialist public. However, the distinction was small and it was decided that dividing the sample into these two groups for further analysis was not worthwhile.

The sample is likely to be fairly homogeneous - these are all research scientists and engineers based in UK HEIs. The total size of the group is only some 60,000 individuals.



ANNEX A QUESTIONNAIRE

Factors affecting science communication: a survey of scientists and engineers

There are increasing calls for scientists and engineers to engage with the public and to discuss their research with those outside their field. The Royal Society, the Wellcome Trust and the Research Councils want to know what you think about this. Is this a good use of your time? If so, how can you be supported? If not, it is still important that your views are heard because they will impact on policy decisions.

Towards the end of the questionnaire you will be asked some questions about yourself so that we can compare the results for different groups.

You have been selected using robust sampling procedures and it is important that you personally reply. Your replies will be treated in the strictest confidence. Nothing any individual says will be attributed in the final report or passed on to the funders or anyone else. People Science & Policy Ltd has been appointed to undertake this survey by the funders.



Q1 Scientists are being asked to engage more with the non-specialist public. What, if anything, does this mean to you? PLEASE WRITE IN

Q2 How important do you feel it is that you personally, in your current post, directly engage with each of the following groups about your research?

Please rate importance on a scale of 1 to 5, where 1 is not important and 5 is very important

	Not important			Very important	
	1	2	3	4	5
a) General journalists (i.e. in press, TV and radio)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Popular science journalists (e.g. on New Scientist)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Others in the media such as writers, documentary and other programme makers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Schools and school teachers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Young people outside school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Policy-makers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Industry/business community (other than where directly concerned with funding your research)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) The non-specialist public	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) Non-Governmental organisations (NGOs)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q3 Which of these groups do you find it easiest to talk with about your research findings?

- | | |
|--|--|
| <input type="checkbox"/> Policy-makers | <input type="checkbox"/> NGOs (non-Governmental organisations) |
| <input type="checkbox"/> Young people in schools | <input type="checkbox"/> Others in the media such as writers, documentary and other programme makers |
| <input type="checkbox"/> Industry/business community | <input type="checkbox"/> Patients/patient groups |
| <input type="checkbox"/> Young people outside school | <input type="checkbox"/> Press officers in your institution |
| <input type="checkbox"/> Popular science journalists (e.g. on New Scientist) | <input type="checkbox"/> None/Don't know |
| <input type="checkbox"/> The non-specialist public | <input type="checkbox"/> Schools and school teachers |
| <input type="checkbox"/> General journalists (i.e. in press, TV and radio) | |

Q4 Why do you say that? WRITE IN

Q5 Which of these groups do you find it hardest to talk with about your research findings?

- | | |
|--|--|
| <input type="checkbox"/> Policy-makers | <input type="checkbox"/> School teachers |
| <input type="checkbox"/> Industry/business community | <input type="checkbox"/> Young people in schools |
| <input type="checkbox"/> Popular science journalists (e.g. on New Scientist) | <input type="checkbox"/> Young people outside school |
| <input type="checkbox"/> General journalists (i.e. in press, TV and radio) | <input type="checkbox"/> The non-specialist public |
| <input type="checkbox"/> Others in the media such as writers, documentary and other programme makers | <input type="checkbox"/> (NGOs) Non-Governmental organisations |
| <input type="checkbox"/> Press officers in universities | <input type="checkbox"/> Patients/patient groups |
| | <input type="checkbox"/> None/don't know |

Q6 Why do you say that? WRITE IN



Q7 Thinking about public engagement with, and communication about, science, roughly how many times in the past 12 months have you done each of the following?

	None	Once	2-3 times	4-5 times	More than 5 times
a) Worked with teachers/schools (including writing educational materials)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Participated in an institutional open day	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Given a public lecture, including being part of a panel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Taken part in a public dialogue event/debate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Been interviewed on radio	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Been interviewed by a newspaper journalist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Written for the non-specialist public (including for the media, articles and books)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Engaged with policy-makers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) Engaged with non-Governmental organisations (NGOs)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) Worked with science centres/museums	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k) Judged competitions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

For the remainder of the questionnaire, we will be talking about communication and engagement with the non-specialist public only. By this we mean adults with no specialist knowledge of, or training in, science.

Q8 How important do you think it is that you personally, in your current post, engage directly with the non-specialist adult public on each of the following? Please rate importance on a scale of 1 to 5, where 1 is not important and 5 is very important

	Not important 1	2	3	4	Very important 5
a) The scientific findings of your research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Areas for further research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Policy and regulatory issues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) The wider social and ethical implications of your research findings for society	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) The potential benefits of your work to individuals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) The scientific process/the nature of science	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Scientific uncertainty	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) The enjoyment and excitement of doing science	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) The relevance of science to everyday life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) To raise awareness of career options in science	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Q9 Looking at the list below, what do you think is the main reason for scientists and engineers generally to engage with the non-specialist public?

- To be accountable for the use of public funds
- To contribute to public debates about science and scientific issues
- To contribute to discussions about the social and ethical issues science can raise
- To generate/stimulate additional funds for universities and colleges
- To recruit students to your subject
- To ensure the public is better informed about science and technology
- To raise awareness about your subject
- To raise awareness of science generally
- There are no reasons to engage with this group (GO TO QUESTION 11)
- Other, PLEASE SPECIFY

Q10 Looking at the list below, what do you think is the second most important reason for scientists and engineers generally to engage with the non-specialist public?

- To be accountable for the use of public funds
- To contribute to public debates about science and scientific issues
- To contribute to discussions about the social and ethical issues science can raise
- To generate/stimulate additional funds for universities and colleges
- To recruit students to your subject
- To ensure the public is better informed about science and technology
- To raise awareness about your subject
- To raise awareness of science generally
- There are no other reasons to engage with this group
- Other, PLEASE SPECIFY

Q11 Looking at the list below, what do you think is the main drawback to scientists and engineers generally engaging with the non-specialist public?

- It makes them look bad in front of their peers
- It makes them a target
- It can send out the wrong messages
- It diverts money from research projects
- It diverts money from other, non-research, activities
- It takes up time that is better used on research
- It takes up time that is better used on other, non-research, activities
- There are no drawbacks to engaging with any of these groups (GO TO QUESTION 13)
- Other, PLEASE SPECIFY



Q12 Looking at the list below, what do you think is the second main drawback of scientists and engineers generally engaging with the non-specialist public?

- It makes them look bad in front of their peers
- It makes them a target
- It can send out the wrong messages
- It diverts money from research projects
- It diverts money from other, non-research, activities
- It takes up time that is better used on research
- It takes up time that is better used on other, non-research, activities
- There are no other drawbacks to engaging with any of these groups
- Other, PLEASE SPECIFY

Q13 In relation to the other things you have to do in your working life, how important is it to you that you find time to engage with the non-specialist public?

- Not at all important
- Not very important
- Equally important
- Fairly important
- Very important

Q14 Would you like to spend more time, less time or about the same amount of time as you do now engaging with the non-specialist public about science?

- I would like to spend more time (GO TO QUESTION 15)
- I am content with the amount of time I spend on this now (GO TO QUESTION 16)
- I would like to spend less time (GO TO QUESTION 16)
- Don't know (GO TO QUESTION 16)

Q15 Why do you say that?

- I work in a topical area of science
- I work in a controversial area of science
- There is a need to recruit more students
- Scientists and engineers need to be more accountable
- Scientists and engineers should engage more with the community
- Other, PLEASE SPECIFY



Q16 Below are some things people have said about engaging with the non-specialist public about science and engineering. Please indicate whether you agree or disagree for each statement.

	<i>Strongly Agree</i>	<i>Agree</i>	<i>Neither</i>	<i>Disagree</i>	<i>Strongly Disagree</i>	<i>Don't know</i>
a) Scientists who communicate a lot are not well regarded by other scientists	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Engaging with the non-specialist public might help researchers make new contacts for their research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Funders of scientific research should help scientists to communicate with the non-specialist public	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Scientists have a moral duty to engage with the non-specialist public about the social and ethical implications of their research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) I don't think my research is interesting to the non-specialist public	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) The main reason to engage with the non-specialist public is to get their support for science and engineering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) I simply don't have time to engage with the non-specialist public	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) I would not want to be forced to take a public stance on the issues raised by my research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) Engagement with the non-specialist public is best done by trained professionals and journalists	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) Engaging the non-specialist public in science is personally rewarding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k) My research is too specialised to make much sense to the non-specialist public	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l) I would need help to develop a science engagement project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m) I would be happy to take part in a science	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n) Public engagement could help with my career engagement activity that was organised by someone else	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o) Engaging with the non-specialist public is best done by senior researchers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p) There are no personal benefits for me in engaging with the non-specialist public	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Q17 How easy or difficult do you think it is to get involved in science engagement activities for those who want to do so?

- Very easy
- Fairly easy
- Fairly difficult
- Very difficult
- Don't know/can't say

Q18 How well equipped do you personally feel you are to engage with the non-specialist public about your research?

- Very well equipped
- Fairly well equipped
- Not very well equipped
- Not at all equipped
- Don't know

Q19 What training, if any, have you had in communicating science to the non-specialist public? Do not include any teaching training you may have had.

- None
- Media training on being interviewed by journalists
- Training in writing for the non-specialist public
- Training in speaking to the non-specialist public
- Training in understanding the UK school education system
- Training in speaking to school children (of any age)
- Other] Informal means / experience
- Other PLEASE SPECIFY

Q20 What would encourage you personally to get involved in activities that engage the non-specialist public in science?



Q21 To what extent would you personally be encouraged to get more involved in activities to engage the non-specialist public in science and engineering by each of the following?

	A great deal	To some extent	Not very much	Not at all	Don't know
a) If my head of department/line manager were to give me more support and encouragement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) If there were awards and prizes for me were to give me more support and as an individual	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) If it was part of getting professional status, such as chartered engineer or membership of my professional body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) If it helped with my own career	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) If I was relieved of other work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) If the RAE exercise was changed to encompass communication with the non-specialist public	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) If my department or institution was recognised by an award or prize	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) If it brought money into my department	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) If it was easier for me to get funds for engagement activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) If grants for engagement covered staff time as well as other costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k) If it was easier to organise such activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l) If I had some (more) training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q22 What is stopping you from getting (more) involved in activities that engage the non-specialist public in science? Please mark all that apply

- | | |
|---|---|
| <input type="checkbox"/> I am already involved enough | <input type="checkbox"/> There is not enough funding |
| <input type="checkbox"/> I am too junior | <input type="checkbox"/> I need to spend more time on my research |
| <input type="checkbox"/> I am only in the UK for a limited period | <input type="checkbox"/> I need to spend more time teaching |
| <input type="checkbox"/> English is not my first language | <input type="checkbox"/> I need to spend more time on administration |
| <input type="checkbox"/> I feel that I am encroaching on Press Office work/research | <input type="checkbox"/> I need to spend more time getting funding for my |
| <input type="checkbox"/> There is no senior level support | <input type="checkbox"/> I would have to do it in my own time |
| <input type="checkbox"/> Other PLEASE SPECIFY | <input type="checkbox"/> Peer pressure |
| | <input type="checkbox"/> I just don't want to |

Q23 Do other members of your department take part in activities that engage the non-specialist public in science?

- Yes, most of them
- Yes, some of them
- Yes, one or two of them
- None of them
- Don't know



Q24 Are the researchers in your department generally supportive towards those who take part in activities that engage the non-specialist public in science?

- Yes, very supportive
- Yes, fairly supportive
- Not particularly supportive
- Not at all supportive
- Don't know

Q25 Is your institution generally supportive towards researchers who take part in activities to engage the non-specialist public in science?

- Yes, very supportive
- Yes, fairly supportive
- Not particularly supportive
- Not at all supportive
- It varies between departments
- Don't know

In order for us to understand the views of different types of respondent, please tell us something about yourself. All replies will be treated in the strictest confidence.

Q26 Which of these best describes your current position?

- Professor or above
- Reader/senior lecturer/researcher/fellow
- Lecturer/researcher/fellow
- Junior/assistant researcher/fellow
- Technician/other support staff

Q27 Working status

- Working full-time (>35 hours per week)
- Working part-time (<35 hours per week)

Q28 Which best describes your main role at your institution?

- Research (including clinical research)
- Research and teaching
- Teaching only
- Clinical work only
- Management/administration

Q29 From the list below, which discipline most closely describes your current area of research interest?

- Clinical medicine (including dentistry)
- Non-clinical bioscience (including medical, psychology, veterinary, agricultural)
- Engineering/engineering sciences (including IT)
- Chemical/chemical engineering
- Physics (including materials sciences) and astronomy
- Mathematics
- Environmental sciences (including earth and marine sciences)
- Other PLEASE SPECIFY



Q30 Do you think your work has implications for society and/or policy-makers and regulators?

- Yes
- No
- Don't know/not sure

Q31 What was the latest RAE score for your department/unit of assessment?

- 1
- 2
- 3
- 4
- 5
- 5*
- Don't know

Q32 What is the principal source of funding for your research?

- Wholly or principally funded by a Research Council
- Wholly or principally funded by a Government Department
- Wholly or principally funded by a Higher Education Funding Council
- Wholly or principally funded by an EU research grant
- Wholly or principally funded by The Wellcome Trust
- Wholly or principally funded by the Royal Society
- Wholly or principally funded by another charity
- Wholly or principally funded by industry
- Other principal source of funding, PLEASE SPECIFY

Q33 Which council is funding your research?

- BBSRC
- MRC
- NERC
- EPSRC
- PPARC
- ESRC
- AHRB/AHRC

Q34 To the nearest year, how long have you been working in scientific research, whether in academia or elsewhere? If less than six months enter 0, if more than six months but less than a year enter 1.

Q35 What was your age last birthday?

Q36 Are you:

- Male
- Female

Q37 What is your ethnic origin?

- | | |
|--|--|
| <input type="checkbox"/> White - UK | <input type="checkbox"/> Black - US |
| <input type="checkbox"/> White - Europe | <input type="checkbox"/> Black - Other |
| <input type="checkbox"/> White - US | <input type="checkbox"/> Chinese |
| <input type="checkbox"/> White - Other | <input type="checkbox"/> Indian |
| <input type="checkbox"/> Black - African | <input type="checkbox"/> Pakistani |
| <input type="checkbox"/> Black - Caribbean | <input type="checkbox"/> Other Asian |
| <input type="checkbox"/> Black - UK | <input type="checkbox"/> Mixed race |
| <input type="checkbox"/> Other, PLEASE SPECIFY | |

Q38 Is English your first language?

- Yes
- No



Q39 Do you intend to work in the UK in the long term?

- Yes
- No
- Don't know

Thank you for giving up your time to complete this survey. Your views will be treated in confidence, and we will not pass individual comments back to the Royal Society, the Wellcome Trust or Research Councils UK. Over the coming months, we would like to talk to some respondents to this survey in more depth about their views. If you are willing to be contacted by People Science & Policy Ltd. for a short interview by telephone or in person please enter your contact details below.

Q40 Please provide us with the following contact details

Your name

Your telephone number

Your e-mail

Thank you very much for your help. Please press "**submit**" to send us your responses.