



Factors Affecting Science Communication

TECHNICAL REPORT PREPARED FOR

*The Royal Society
Research Councils UK
The Wellcome Trust*

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1 INTRODUCTION

This report serves as a record of the conduct of the quantitative survey of scientists and engineers based in UK universities. It sets out the sampling strategies, the construction of the sampling frames, the conduct of the survey, the response rate and the weighting strategy.

Appendices provide copies of all the supporting documentation, including letters to universities inviting them to take part and a copy of the questionnaire.

1.1 Timing

The project took place between April 2005 and February 2006. Fieldwork was conducted between 9 September and 14 November 2005.



2 University Sample

2.1 Defining the universe of UK HEIs

The universe for this study was defined as all UK higher education institutions (HEIs) with at least 50 staff recorded by the Higher Education Statistics Agency HESA as having a scientific or engineering research component to their job. Starting with the full list of UK HEIs the eligible universe was defined as follows.

2.1.1 Relevant disciplines

We began by identifying from the HESA data a list of relevant 'cost codes'. Data on the number of employees in all UK HEIs in the cost codes thought to be relevant to the study (listed below) was requested from HESA.

Medicine, Dentistry and Health

- 01 Clinical medicine
- 02 Clinical dentistry
- 04 Anatomy & physiology
- 07 Psychology & behavioural sciences
- 08 Pharmacy
- 09 Pharmacology

Agriculture, Forestry and Veterinary Science

- 03 Veterinary science
- 13 Agriculture & forestry

Biological, Mathematical and Physical Sciences

- 10 Biosciences
- 11 Chemistry
- 12 Physics
- 14 Earth, marine & environmental sciences
- 15 General sciences
- 24 Mathematics
- 25 Information technology & systems sciences

Engineering and Technology

- 16 General engineering
- 17 Chemical engineering
- 18 Mineral, metallurgy & materials engineering
- 19 Civil engineering
- 20 Electrical, electronic & computer engineering
- 21 Mechanical, aero & production engineering
- 22 Other technologies
- 39 Computer software engineering



2.1.2 Relevant staff

HESA classifies staff into four groups: teaching only, research only, research and teaching and neither teaching nor research. It was decided to include only those whose contracts included at least some element of research. Subsequent analysis was therefore confined to these two categories of staff.

2.1.3 Relevant HEIs

HEIs were then listed in order of the total number of research only and research and teaching staff in the relevant disciplines. Those institutions with less than 50 such staff were then excluded. This left a total universe of 111 HEIs (or 110 as the University of Manchester had joined with UMIST by the time of the study). These institutions are listed below:

| | | |
|--|--|--|
| University College London | The University of Sussex | Staffordshire University |
| Imperial College of Science, Technology & Medicine | London School of Hygiene & Tropical Medicine | The University of Salford |
| The University of Cambridge | The Open University | Leeds Metropolitan University |
| The University of Oxford | Heriot-Watt University | Birkbeck College |
| King's College London | The Nottingham Trent University | The University of Essex |
| The University of Edinburgh | The Manchester Metropolitan University | The University of Huddersfield |
| University of Manchester | The University of St Andrews | The University of Keele |
| The University of Bristol | The University of Northumbria at Newcastle | Anglia Polytechnic University |
| The University of Glasgow | Liverpool John Moores University | London South Bank University |
| The University of Leeds | The University of Lancaster | The Robert Gordon University |
| The University of Birmingham | The University of Portsmouth | The University of Wolverhampton |
| The University of Sheffield | The University of Exeter | The University of Sunderland |
| The University of Nottingham | The University of Central Lancashire | University of Wales, Aberystwyth |
| The University of Southampton | University of Hertfordshire | Southampton Institute |
| The University of Newcastle-upon-Tyne | The University of Greenwich | Oxford Brookes University |
| The University of Liverpool | The University of Hull | The University of Stirling |
| Queen Mary and Westfield College | Sheffield Hallam University | The Royal Veterinary College |
| The University of Aberdeen | University of Wales, Bangor | Bournemouth University |
| The University of Leicester | Brunel University | University of Abertay Dundee |
| The Queen's University of Belfast | The University of Westminster | Middlesex University |
| Cardiff University | Glasgow Caledonian University | Scottish Agricultural College |
| The University of Dundee | The University of Bradford | University of Derby |
| The University of Manchester Institute of Science & Technology | Napier University | The University of Paisley |
| The University of Strathclyde | University of the West of England, Bristol | Bolton Institute of Higher Education |
| University of Wales College of Medicine | 0052 University of Central England in Birmingham | The School of Pharmacy |
| The University of Warwick | De Montfort University | University College Northampton |
| University of Ulster | Coventry University | University of Luton |
| Loughborough University | City University | The University of Lincoln |
| The University of Reading | Royal Holloway and Bedford New College | London School of Economics and Political Science |
| The University of York | Kingston University | Buckinghamshire Chilterns University College |
| Cranfield University | University of Glamorgan | University of Wales Institute, Cardiff |
| University of Durham | Aston University | University College Chester |
| St George's Hospital Medical School | The University of Kent | Goldsmiths College |
| The University of Surrey | The University of East London | The North-East Wales Institute of Higher Education |
| The University of Bath | The University of Brighton | Liverpool Hope University College |
| The Institute of Cancer Research | The University of Teesside | University of Gloucestershire |
| The University of Plymouth | University of Wales, Swansea | |

This list constitutes the universe of HEIs from which the sample was drawn.



2.2 Sampling HEIs

It was decided that in order to ensure a widely dispersed sample and to mirror the 2000 study funded by The Wellcome Trust and the Office of Science and Technology, conducted by MORI that 66 HEIs should be selected for inclusion in the study. However, once the HESA data had been analysed it became apparent that it would be most appropriate in terms of sampling intervals to select 67.

In order to draw the sample of HEIs, we stratified the list by size (number of eligible staff in relevant disciplines and who were classified as either research only, or research and teaching staff) into 3 bands.

| | | |
|----------------|----------------|------------------------------------|
| Band 1: | >700 | to select 24 out of 24 HEIs (100%) |
| Band 2: | 350-699 | to select 11 out of 22 HEIs (50%) |
| Band 3: | <350 | to select 32 out of 64 HEIs (50%) |

We then further stratified Bands 2 and 3 by the twelve geographic regions of the UK and then by the percentage of all research staff in the eligible disciplines classified as conducting bio/clinical science research.

Once stratified, all institutions in Band 1 were selected. In Bands 2 and 3, every alternate institution was selected beginning with the first.

2.2.1 The sample

Using the above methodology, the following institutions were selected:

| | | |
|--|--|-----------------------------------|
| University College London | The University of York | Oxford Brookes University |
| Imperial College of Science, Technology & Medicine | The University of Plymouth | The University of Kent |
| The University of Cambridge | The University of Reading | Buckinghamshire |
| The University of Oxford | The University of Surrey | Chilterns University College |
| University of Manchester + UMIST | Heriot-Watt University | Scottish Agricultural College |
| King's College London | The Manchester Metropolitan University | Glasgow Caledonian University |
| The University of Edinburgh | University of Durham | The Robert Gordon University |
| The University of Bristol | St George's Hospital Medical School | The University of Paisley |
| The University of Glasgow | London School of Hygiene & Tropical Medicine | Liverpool Hope University College |
| The University of Leeds | Cranfield University | The University of Lancaster |
| The University of Birmingham | Loughborough University | The University of Salford |
| The University of Sheffield | The University of Hull | The University of Teesside |
| The University of Nottingham | The University of Huddersfield | The School of Pharmacy |
| The University of Southampton | Leeds Metropolitan University | Birkbeck College |
| The University of Newcastle-upon-Tyne | Aston University | The University of Greenwich |
| The University of Liverpool | Coventry University | City University |
| Queen Mary and Westfield College | University of Central England in Birmingham | Kingston University |
| The University of Aberdeen | University of Wales, Bangor | London South Bank University |
| The University of Leicester | University of Wales, Swansea | The University of Essex |
| The Queen's University of Belfast | The North-East Wales Institute of Higher Education | Anglia Polytechnic University |
| Cardiff University | University of the West of England, Bristol | University College Northampton |
| The University of Dundee | Bournemouth University | De Montfort University |
| The University of Strathclyde | | |
| University of Wales College of Medicine | | |

**Table 1 Distribution of a sample of 67 HEIs against the population**

| | | <i>Population (HESA data) All UK HEIs</i> | <i>Sample (67 HEIs)</i> |
|---------------------------------|--------------------------|---|-----------------------------|
| DISCIPLINE | | | |
| | Clinical/Bio | 54% | 58% |
| | Others | 46% | 42% |
| REGION | | | |
| | East Midlands | 6% | 6% |
| | Eastern | 7% | 7% |
| | London | 18% | 18% |
| | North-East | 5% | 4% |
| | Northern Ireland | 2% | 1% |
| | North-West | 9% | 9% |
| | Scotland | 13% | 15% |
| | South-East | 11% | 10% |
| | South-West | 6% | 6% |
| | Wales | 7% | 7% |
| | West Midlands | 7% | 6% |
| | Yorkshire and the Humber | 7% | 9% |
| TEACHING VERSUS RESEARCH | | | |
| | Research only | 47% | 51% |
| | Teaching & Research | 53% | 49% |

This sample of 67 HEIs is representative of all HEIs in terms of size, geographic location, discipline and number of staff in research only versus research and teaching. This is illustrated by the statistics in the following table.

It was later discovered that the University of Wales College of Medicine merged with the University of Cardiff in 2004/05. The University of Cardiff was included in the size band where all HEIs were selected. The University of Wales College of Medicine was selected from the smallest size band and is close to the end of the stratified sampling frame. It was therefore decided that the overall sample was not affected and no substitution was made. The total number of HEIs contacted was therefore 66.

2.3 Contacting universities

A letter introducing the project was prepared on Royal Society headed paper and sent to the Vice Chancellor of every selected institution, inviting them to take part in the survey. Information about the background to the project was included, the data on staff that would be required, and a consent form. Vice chancellors were requested to sign the consent form if they agreed to take part in the survey and to nominate a contact at the university for future correspondence.



In total, 41 consent forms were returned by post and a further 9 universities confirmed their participation via telephone and/or e-mail to give a total of 50 participating institutions. These were:

| | | |
|--|-------------------------------------|--|
| Birkbeck College | Oxford Brookes University | University of Liverpool |
| Buckinghamshire | Queen Mary and Westfield College | University of Manchester + UMIST |
| Chilterns University College | Queen's University of Belfast | University of Newcastle-upon-Tyne |
| Cardiff University | School of Pharmacy | University of Nottingham |
| City University | Scottish Agricultural College | University of Paisley |
| Coventry University | St George's Hospital Medical School | University of Plymouth |
| De Montfort University | University College London | University of Reading |
| Heriot-Watt University | University College Northampton | University of Salford |
| Imperial College of Science, Technology & Medicine | University of Aberdeen | University of Sheffield |
| King's College London | University of Bristol | University of Southampton |
| Leeds Metropolitan University | University of Dundee | University of Strathclyde |
| London School of Hygiene & Tropical Medicine | University of Durham | University of Surrey |
| London South Bank University | University of Edinburgh | University of the West of England, Bristol |
| Loughborough University | University of Essex | University of Wales, Bangor |
| Manchester Metropolitan University | University of Glasgow | University of Wales, Swansea |
| North-East Wales Institute of Higher Education | University of Huddersfield | University of York |
| | University of Hull | |
| | University of Lancaster | |
| | University of Leicester | |

Of the 16 remaining institutions, 2 were found to be ineligible because (contrary to HESA data) they informed us that they had fewer than 50 research active staff in science subjects, 6 declined to take part because of the administrative work involved and 7 initially agreed to take part, but withdrew due to administrative difficulties.

2.3.1 Gathering data on eligible staff

The relevant contact at each participating institution was asked for a list of all research active staff in the eligible departments (listed in section 2.1.1 above) with their department, job title and work e-mail address. This excluded those who were teaching only or administration staff.

Universities varied significantly in their administrative capabilities with regards to organising full departmental staff lists and in their data protection policies. Where these issues arose a number of options were subsequently presented. These included giving permission for PSP to download details from public websites, providing staff names on an opt-in or opt-out basis, providing only a sample of names, or providing no names but agreeing to draw and contact their own sample. In the latter two circumstances, we requested data in advance on the overall numbers of research staff in each department, by grade where possible, and then specified the composition of the sample to be drawn based on the overall profile of all the participating institutions. Institutions provided data as follows:

- 32 provided full lists of eligible staff
- 3 gave permission for the full list to be downloaded from their websites
- 3 provided full lists, compiled on an opt-out basis
- 2 provided full lists compiled on an opt-in basis (these were small datasets and therefore treated as samples)
- 1 provided a sample compiled on an opt-in basis
- 5 provided a sample
- 4 agreed to draw and contact a sample independently, according to our instructions



2.4 PREPARING THE SAMPLE

2.4.1 Disciplines

Firstly, entries were categorised into three disciplinary groups: 'clinical', 'non-clinical biomedical' and 'other'. These were defined by the following HESA cost centres:

Clinical:

- 01 Clinical medicine
- 02 Clinical dentistry Biomedical:

Biomedical:

- 04 Anatomy & physiology
- 07 Psychology & behavioural sciences
- 08 Pharmacy
- 09 Pharmacology
- 03 Veterinary science
- 13 Agriculture & forestry
- 10 Biosciences
- 14 Earth, marine & environmental sciences

Other:

- 11 Chemistry
- 12 Physics
- 15 General sciences
- 24 Mathematics
- 25 Information technology & systems sciences
- 16 General engineering
- 17 Chemical engineering
- 18 Mineral, metallurgy & materials engineering
- 19 Civil engineering
- 20 Electrical, electronic & computer engineering
- 21 Mechanical, aero & production engineering
- 22 Other technologies
- 39 Computer software engineering

Since university personnel returned lists of staff under departmental headings rather than by cost centre headings, we used the HEFCE publication, *Assignment of departments to academic cost centres 2001-02*, to map university departments to Cost Centres. All individuals working in subjects that did not fit into these disciplines were removed from the database. Where necessary, some further clarification was carried out using university websites to exclude individuals from sub-disciplines that had been included as part of a whole department but were not considered to be relevant (for example human geography, social psychology and some of the health sciences).

This was then reconciled with HESA data for 2003/04, which showed that the spread of disciplines was roughly consistent. On average, once cleaned, actual numbers by discipline were fewer than predicted by HESA statistics, particularly in clinical research. This finding is consistent and with a survey conducted by the Council of Heads of Medical Schools (CHMS) and the Council of Heads and Deans of Dental Schools (CHDDS), which showed that the number of clinical academics fell by 2% between 2003 and 2004, and by the Chief Medical Officer's Annual Report for 2003 which states that the number of clinical academic posts declined by 14% from 2000 to 2003.



Table 2 Distribution of the sample by discipline group against HESA data

| | CLINICAL | BIOMEDICAL | OTHER | TOTAL |
|---|----------|------------|--------|--------|
| Number of researchers in PSP database of 50 HEIs | 9,039 | 11,006 | 12,330 | 32,375 |
| Distribution | 28% | 34% | 38% | 100% |
| Number of researchers, HESA returns for these 50 HEIs | 12,139 | 10,087 | 15,599 | 37,825 |
| Distribution | 32% | 27% | 41% | 100% |

2.4.2 Grade

Individuals were then categorised into four grade levels - 'Professor', 'Senior Researcher', 'Researcher' and 'Assistant' - on the basis of their job titles. Broadly speaking, grade levels were defined as follows (although this varied by institution):

| Professor | Senior Researcher | Researcher | Junior Researcher / Assistant |
|--------------------|------------------------------|--------------------|--------------------------------------|
| Professor | Reader | Researcher | |
| Head of Department | Manager | Academic | Post-doctoral research assistant |
| Chair | Senior Researcher | Research fellow | Post-doctoral researcher |
| Vice chancellor | Senior Lecturer | Lecturer | Junior research associate |
| Provost | Advanced Fellow | Clinical scientist | Junior researcher |
| Director | Group leader | Senior assistant | |
| Dean | Senior Fellow | Research associate | |
| | Principal Lecturer | Research officer | |
| | Principal Researcher | | |
| | Senior Research Associate | | |
| | Senior Research Fellow | | |
| | Principal research associate | | |

Laboratory technicians, experimental officers and departmental administrators were removed from the database. Visiting and honorary fellows were also removed on the basis that these people may only be loosely associated with the university. This yielded an overall sample profile as follows.

Table 3 Distribution of the sample by grade

| | PROFESSOR | SENIOR RESEARCHER | RESEARCHER | ASSISTANT | |
|-----------------------|-----------|-------------------|------------|-----------|-------|
| Number of researchers | | 4,513 | 6,232 | 13,394 | 3,726 |
| Distribution | | 16% | 22% | 48% | 13% |

NB some universities did not provide this data (hence lower overall numbers than in the previous table) and comparable data was not available from HESA.



2.5 Drawing the sample

The resulting database was stratified by disciplinary group (clinical, biomedical, other), and within each of these three strata it was further sorted by university, department, grade and name (all in ascending alphabetical order). The number of interviews required across all three strata was 1,500. It was assumed that twice the number of leads would be necessary to obtain the number of interviews required.

It was decided to under-sample clinical scientists to match the earlier Wellcome Trust/OST survey conducted by MORI in 2000. We therefore aimed for 10% of the sample to be clinical scientists. Biomedical and Other scientists were then be sampled in the same proportions relative to each other as in the actual sample, but as a combined proportion of 90% of the sample. Table 4 below shows the target sample profile, the target number of leads, the target number of interviews and the achieved number.

Initially a total sample of 4,000 researchers was drawn, and 1 in 4 of those (1,000) were kept aside as a reserve in the event that the main sample yielded a large number of errors or insufficient responses. Sampling was conducted on a 1 in n basis. The additional 1,000 sample was not used as the main sample of 3,000 generated sufficient response.

Sampling intervals for the universities that had provided a full list of their researchers (which also included "dummy" numbers for the four universities that would be drawing and administering their own samples) were 'clinical' 1:21.34, 'biomedical' 1:6.02 and 'other' 1:6.02. The resulting samples for the four self-administering universities were then e-mailed to the relevant contact for them to complete from their own records.

For the eight universities that were only able to send a sample of researchers, a sub-sample was drawn (where necessary) on a 1 in n basis by university (sorted in alphabetical order by discipline, department, grade and name), such that the final numbers yielded for each university would be consistent with that university's proportion of the overall sample.



3. OTHER SAMPLES

3.1 Research Council Institutes

Four Research Councils were deemed to be relevant to the study as having 'stand alone' research institutes and therefore to fund researchers who would not be included in the university sample. These were the Biotechnological and Biological Sciences Research Council (BBSRC), the Engineering and Physical Sciences Research Council (EPSRC), the Medical Research Council (MRC) and the Particle Physics and Astronomy Research Council (PPARC).

Each Research Council, co-ordinated by Research Councils UK (RCUK), was asked to provide names of scientists in each of their research institutes based outside universities. In the event, some of the contact details for scientists working in Research Council funded Institutes were provided by the relevant Research Councils, others were obtained from staff listings on Institute websites. As far as possible this list was deduplicated against the list of scientists and engineers selected for the main university sample, the Royal Society sample and the Wellcome Trust sample. [Four universities distributed the sample themselves and we were unable to deduplicate against these respondents.] This generated a list of 2566 scientists, however email addresses could not be sourced for 35, resulting in a sampling frame of 2525. The sample was stratified by Research Council, institute, grade (where known) and name (all in alphabetical order). As with the HEI sample, scientists were then sampled to provide twice the number of leads to the number of interviews required. A sample of 500 was drawn on a 1 in n basis.

Of the 500 researchers contacted, 19 replied that they were no longer eligible and 22 were uncontactable (emails bounced back). Hence 469 eligible questionnaires were despatched. 262 usable responses were received, a response rate of 56%.

3.2 Royal Society funded researchers

The Royal Society provided a database of all its funded researchers, which constituted 484 individuals. It was decided to survey every member. Of these, 19 were found to already be in the 3,000 HEI sample. The remaining 465 were therefore approached separately in the survey. Of these, 6 had completed the university sample, 4 were uncontactable (emails bounced back), 1 replied that they were no longer eligible, 1 was a duplicate and 2 were on maternity leave. Hence 452 eligible questionnaires were despatched. 314 usable responses were received, a response rate of 69%.



3.3 Wellcome Trust funded researchers

The Wellcome Trust provided a database of 2,346 funded researchers. This database was first cleaned by removing non-researchers who are engaged in science communication activities (e.g. science museums) and then by removing all those whose contact e-mail addresses were missing. This left a population of 1,942 individuals. The sample was then sorted by institution, department and name (all alphabetically). As with the HEI sample, scientists were then sampled to provide twice the number of leads to the number of interviews required. A sample of 500 was drawn on a 1 in n basis. This was then checked against the HEI sample and duplicates were replaced with the next entry in the database.

Of the 500 researchers contacted, 1 had completed the university sample, 34 were uncontactable (emails bounced back), 3 replied that they were no longer eligible, 1 was a duplicate, 1 was no-longer funded by the Wellcome Trust, 22 had invalid addresses and 2 were undeliverable. Hence 436 eligible questionnaires were despatched. 243 usable responses were received, a response rate of 56%.



4. FIELDING THE SURVEY

The survey was fielded in the week beginning 5th September 2005. This date was chosen because it was assumed to be a relatively quiet period when researchers would be returning from summer vacations but would not yet be engulfed in the full throws of university term time. Participants were sent an e-mail inviting them to take part in the survey, with a hyperlink, containing a unique identifier, to an Internet-based version of the questionnaire. Introductory e-mails were tailored according to whether the participant was part of the main university sample, the Research Council sample, the Royal Society sample or the Wellcome Trust sample.

Two reminders were also sent by e-mail to non-responders in the main university sample. These were sent on 22 September 2005 and 13 October 2005 and on 4 November 2005 notice of closure was sent to non-responders. The survey closed for responses on 14 November.

Only one reminder was sent to the Royal Society, Research Council and Wellcome Trust samples.

4.1 Spam

E-mails were sent out in batches in an attempt to mitigate against institutional servers rejecting them as spam. The main contact at each institution was also sent advance notice of when e-mails would arrive to forewarn their IT departments. Some universities also chose to send notices round to employees informing them of the e-mail's arrival. Where a lower than average response rate and a large number of "bounced" messages were observed from a particular institution in the first week of the survey, the main contacts were notified and some subsequently sent further e-mails to participants advising them that the message was legitimate.

4.2 Ineligibles

Errors in some institutional records resulted in a number of e-mails being undeliverable and bounced back by institutional servers. These records were dealt with in two steps. Firstly, records were scrutinised to identify misspellings or errors in the individual's e-mail address and these were corrected. Secondly, if no errors were found, an attempt was made using university and other academic websites to find alternative e-mail addresses for each contact. Invitations were then resent to contacts using the corrected e-mail addresses.

Where these e-mails were bounced back a second time and/or where no alternative e-mail address was found, the respondent was assumed either to have left the institution and/or not to have been accessible. These respondents were therefore assumed to be ineligible and were not included in the final response rate. Respondents who were out of the office and not receiving work e-mail for longer than the survey was due to be running (for example if an auto response message stated they were on maternity leave) were also classified as ineligible. A number of participants also replied directly to the invitation stating that they were not eligible, either because they had moved on, retired or did not work in a relevant field or position.



4.3 Response rate

Table 4 Response rate

| SAMPLE ISSUED | 3,000 |
|--|------------|
| Ineligible, based on information from respondent | 14 |
| Could not be reached, email 'bounced' | 41 |
| Ill* | 3 |
| On maternity leave* | 3 |
| On long term leave/sabbatical* | 3 |
| Retired* | 5 |
| No longer working at HEI* | 7 |
| Failed delivery notice at first stage | 15 |
| Failed delivery notice at first reminder | 20 |
| Failed delivery on closure | 5 |
| Eligible questionnaires | 2,882 |
| Usable responses | 1,485 |
| Response rate | 52% |

**This was determined by automatic email responses, other potential respondents may have fallen into these groups but not informed us. In addition, other addresses may have been defunct but not 'bounced'.*

Table 5 All scientists - sample profile

| | CLINICAL | BIOMEDICAL | OTHER | TOTAL |
|--------------------------|----------|------------|--------|--------|
| No. researchers (HESA) | 12,139 | 10,087 | 15,599 | 37,325 |
| 32% | 27% | 41% | 100% | |
| No. researchers (actual) | 9,039 | 11,006 | 12,330 | 32,375 |
| 28% | 34% | 38% | 100% | |
| Target leads | 300 | 1,303 | 1,397 | 3,000 |
| 10% | 43% | 47% | 100% | |
| Target interviews | 150 | 651 | 699 | 1,500 |
| 10% | 43% | 47% | 100% | |
| Achieved interviews | 110 | 574 | 796 | 1480* |
| 7% | 39% | 54% | 100% | |

**Five respondents did not provide sufficient information to enable classification.*



4.4 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 of the achieved sample before and after weighting:

Table 6 Weighting

| | <i>Unweighted</i> | | <i>Weighted</i> | |
|----------------------------|-------------------|-------------|-----------------|-------------|
| | <i>No.</i> | <i>%</i> | <i>No.</i> | <i>%</i> |
| ACADEMIC EMPLOYMENT | | | | |
| 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% |



<Title>
<Address 1>
<Address 2>
<Address 3>
<Address 4>

*From the Treasurer and Vice-President Sir David Wallace CBE FRS
23 May 2005*

Dear Colleague,

Factors affecting science communication: a survey of scientists

I am writing to invite your University to take part in a study by the Royal Society, Research Councils UK and the Wellcome Trust to examine the factors affecting science communication by UK scientists. The overall aim of the study is to promote better understanding between science and society which will, amongst other things, make a contribution to the flow of young people into science and engineering.

The study will comprise a web-based survey and telephone interviews with UK scientists to examine individuals' behaviour and attitudes to science communication. Its purpose is to provide evidence to funding organisations, universities and other research institutions on which they can base a workable system to reward scientists for their efforts to engage with the public. The study will be overseen by a consultative group of which I am chair. More details on the study are enclosed.

The survey and interviews are being undertaken on behalf of the Society by People Science and Policy Ltd (PSP). I hope that you will be able to join us in this important work and agree to your University helping PSP to select a representative sample of your scientists and engineers for the study. I would like to invite you to nominate a contact that can supply PSP with the names and work email addresses of these staff. I must emphasise that all individual responses will be treated in the strictest confidence.

If you are willing for your University to take part, please complete the enclosed consent form and return it in the reply paid envelope to *Dr Suzanne King, People Science & Policy Ltd, Hamilton House, Mabledon Place, London, WC1H 9BB*. If you have any queries or would like to discuss this further please contact *Dr King* on 020 7554 8636 or *Dr Darren Bhattachary*, manager of our science in society work at the Society on 020 7451 2566 or email darren.bhattachary@royalsoc.ac.uk

Yours sincerely



Factors affecting science communication: a survey of scientists

Funders

- The Royal Society, Research Councils UK and the Wellcome Trust.
- The survey is being undertaken on behalf of the funders by People Science & Policy Ltd (PSP).

Aim

The study will examine the factors affecting science communication by scientists and will provide evidence to support the development of strategies to encourage scientists and engineers to communicate with stakeholders including the public, policy makers and media.

The findings will provide an understanding of:

- the relative importance of science communication to UK researchers;
- the amount and type of science communication activities undertaken by UK researchers;
- factors that may facilitate or inhibit science communication;
- the extent to which researchers may wish to undertake further science communication;
- the views of funders, senior academics, social scientists and other relevant groups on factors affecting research scientists engaging in science communication activities; and
- how universities, other research institutions and funders can promote effective science communication.

Consultative group

The study will be overseen by a consultative group chaired by Sir David Wallace FRS, and comprise senior representatives from organisations including the Royal Society, Research Councils UK, the Wellcome Trust, the Higher Education Funding Councils, Universities UK, the British Association for the Advancement of Science, the Academy of Social Sciences and the British Academy.



The Sample

Some 65 higher education institutions plus Research Council institutes have been selected to generate a total sample of 1,500 scientists and engineers. This sample will be drawn to be representative of all scientists and engineers employed in these institutions.

Fieldwork and outputs

The survey will take approximately 15 minutes to complete and the fieldwork will take place between September and December 2005. A final report will be published in February 2006.

Contacts

Dr Suzanne King, People Science & Policy Ltd, Hamilton House, Mabledon Place, London, WC1H 9BB. Telephone: 020 7554 8636. Email: Suzanne.king@peoplescienceandpolicy.com

Dr Darren Bhattachary, Royal Society, 6-9 Carlton House Terrace, London, SW1Y 5AG. Telephone: 020 74512566. Email: darren.bhattachary@royalsoc.ac.uk



DATA FORMAT

If your institution is willing to participate we would require the following information from you:

- Names of research scientists and their grade listed by Department e.g.:

| NAME OF DEPARTMENT | NAME OF RESEARCH SCIENTIST | GRADE | EMAIL |
|-------------------------------------|----------------------------|-----------------|-------|
| Biology | John Smith | Professor | |
| Biology | F. Brown | Reader | |
| Biology | J. K. Green | Lecturer | |
| Biology | Ann White | Lecturer | |
| Institute of Biomedical Engineering | Graham Jones | Professor | |
| Institute of Biomedical Engineering | S. Wilson | Senior Lecturer | |
| Institute of Biomedical Engineering | C. Clarke | Lecturer | |

- We would like a list of for all the staff who are working in the disciplines covered by:

Medicine, Dentistry and Health

- Clinical medicine
- Clinical dentistry
- Anatomy & physiology
- Psychology & behavioural sciences
- Pharmacy
- Pharmacology

Agriculture, Forestry and Veterinary Science

- Veterinary science
- Agriculture & forestry

Biological, Mathematical and Physical Sciences

- Biosciences
- Chemistry
- Physics
- Earth, marine & environmental sciences
- General sciences
- Mathematics
- Information technology & systems sciences

Engineering and Technology

- General engineering
- Chemical engineering
- Mineral, metallurgy & materials engineering
- Civil engineering
- Electrical, electronic & computer engineering
- Mechanical, aero & production engineering
- Other technologies
- Computer software engineering



- Please exclude from your list, staff who are teaching only staff and do not have any research responsibilities.
- We would prefer to receive your lists electronically e.g. in an Excel file or ASCII text, which can be saved onto a disk and posted or e-mailed to: If this is not possible, we would of course accept a paper list.
- Please send us the staff lists by 8 July 2005.



Factors affecting science communication - consent form

I agree to my University participating in the 'Factors affecting science communication: a survey of scientists' study by the Royal Society, Research Councils UK and the Wellcome Trust. The University will help People Science & Policy Ltd to select a representative sample of its science and engineering staff and provide the names and work email addresses of this sample to PSP. I understand that PSP will hold these details in the strictest confidence.

I nominate the person named below as PSP's contact at this University.

NB This must be someone who can access complete staff lists for sampling purposes and who can provide names and email addresses for selected staff to PSP.

PLEASE PRINT

Name.....

Position

Telephone

E-Mail

The questionnaire will be distributed by email by PSP. In order to alert potential respondents to the survey, it would help if your office or the selected contact would send an email to staff on 5th September 2005 informing them of the survey and its importance. If you would be willing to do this, PSP will provide a draft email for the University to send.

PLEASE TICK ONE BOX

I AM willing for an email to be sent to relevant staff

I AM **NOT** willing for an email to be sent to relevant staff

The Royal Society would like to name your University in the report as having participated in the survey. No results would be attributable to individuals or to your institution.

PLEASE TICK ONE BOX

I AM willing for our University to be named as having participated in the survey

I AM **NOT** willing for our University to be named as having participated in the survey

Name.....

Position

University

E-Mail

Telephone

Signature.....

Date.....



Introductory e-mails

HEI sample

Dear "Title" "First_name" "Last_name",

As you may have heard, the Royal Society, in partnership with the Research Councils and the Wellcome Trust, is conducting a survey of research scientists across the UK. People Science & Policy Ltd has been appointed to undertake the survey. I hope that you will take this opportunity to let research funders know what you really think. It should only take 10-15 minutes.

The purpose of the project is to obtain your views on why you do, or do not, take part in science communication activities. The results will help to understand the role communicating science plays in a scientific career, and research funders and Government will be developing their thinking on science communication based on this evidence.

You have been selected using a rigorous sampling procedure to ensure that the findings are statistically representative of all scientists and engineers working in academic research in the UK. So it is important that you personally respond. Please do not forward this questionnaire to anyone else.

The hyperlink below takes you to your own copy of the questionnaire. Copy and paste it into the address bar of your web browser if it does not work directly. You can scroll to the end and click 'save' if you have to stop in the middle and want to finish the questionnaire later. Once you have submitted your questionnaire it cannot be accessed again.

Your responses will be treated in the strictest confidence. Only those involved in processing the data at PSP will know what individuals have said. The report will only contain aggregate or anonymised results.

"Hyperlink"

Thank you very much for your help with this. I look forward to receiving your questionnaire. If you have any difficulties please contact me at the address below or by replying to this email.

Yours,

Dr Suzanne King

Director

People Science & Policy Ltd
Hamilton House, Mabledon Place, London WC1H 9BB
Direct line: 020 7554 8638
www.peoplescienceandpolicy.com

Company registration no. 3891609

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We have taken precautions to minimise the risk of transmitting software viruses but we advise that you carry out your own virus checks on any attachments to this message. We cannot accept liability for any loss or damage caused by software viruses.



Royal Society, Wellcome Trust and Research Council samples

Dear "Title" "First_name" "Last_name",

The "leading organisation", and "other organisations" have commissioned People Science and Policy (PSP) to conduct a survey of research scientists across the UK. Participation in the survey is optional but as a Royal Society funded researcher, the Royal Society would very much like to know your views on why you do, or do not, take part in science communication activities. The results will help to understand the role that communicating science plays in a scientific career, and research funders and Government will be developing their strategies on science communication taking account of this evidence. The questionnaire should only take 10-15 minutes to complete.

You have been selected as a "leading organisation" funded researcher, so it is important that you personally respond. Please do not forward this questionnaire to anyone else. If you have already received this questionnaire and have chosen not to respond or have already done so, we apologise for troubling you.

The hyperlink below takes you to your own copy of the questionnaire. You can copy and paste it into the address bar of your web browser if it does not work directly. You can scroll to the end and click 'save' if you have to stop in the middle and want to finish the questionnaire later. Once you have submitted your questionnaire it cannot be accessed again.

Your responses will be treated in the strictest confidence. Only those involved in processing the data at PSP will know what individuals have said. The report will only contain aggregate or anonymised results.

The survey has been developed in conjunction with the "other organisations" and the project is overseen by a consultative group comprising senior figures in academia, HEFCE, UUK and the sponsoring bodies.

"Hyperlink"

Thank you very much for your help with this. If you have any difficulties please contact me at the address below or by replying to this email.

Yours

Dr Suzanne King

Director

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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"/> 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 |

Q4 Why do you say that? PLEASE WRITE IN



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

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

Q6 Why do you say that? PLEASE 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

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"/> | to |
| 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"/> | in |

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"/> |



| | <i>Strongly Agree</i> | <i>Agree</i> | <i>Neither</i> | <i>Disagree</i> | <i>Strongly Disagree</i> | <i>Don't know</i> |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 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?

| | <i>A great deal</i> | <i>To some extent</i> | <i>Not very much</i> | <i>Not at all</i> | <i>Don't know</i> |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 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 checked="" 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 | <input type="checkbox"/> I need to spend more time getting funding for my research |
| <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"/> Peer pressure | <input type="checkbox"/> I just don't want to |
| <input type="checkbox"/> Other PLEASE SPECIFY | |



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, <i>PLEASE SPECIFY</i> | |

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.