

**Science and the Public:**

**Mapping Science Communication Activities**

Prepared by Research International



# Foreword

This research was carried out by Research International with funding from the Wellcome Trust. The findings of the research do not necessarily represent the views of the Wellcome Trust.

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# Executive Summary

1

Science is advancing and changing our lives in many ways. While outcomes may be very beneficial there are also many areas of ethical concern. The Wellcome Trust is aware of the current climate and commissioned this project as part of a wider programme of work aimed at widening public understanding of science and focusing on access to science education. Research International were commissioned to carry out the research, and this report details the results.

2

The key objective of the research was to identify the range of science communication activities that are currently undertaken in the UK today, towards building up a 'map' of these activities. The Wellcome Trust also wished to understand:

- whether to change current activities;
- how to improve public engagement in debates on scientific issues;
- how to develop communication strategies.

3

The approach used for the research was a flexible one, combining a mixture of desk research, qualitative research and quantitative methods. The sample was obtained through 'snowballing' as well as from desk research and was wide ranging. Nine qualitative face-to-face and 15 telephone interviews were conducted with providers of activities and specialists in science communication. Thirty-five semi-structured telephone interviews, along with an Internet questionnaire, formed the quantitative stage to the research.

4

Most of our discussion focuses on science communication between the scientific community and the general public. The aims of science communication were expressed in a variety of ways. A priority for most was to impart a positive attitude to science, while communicating the impact of science on an economic and social level was also important.

5

Providers felt that a move away from the traditional image of science was necessary to overturn the limiting image of science and scientists as 'boring', 'white, male and middle class'. A need for two-way communication between the public and scientific community was identified, although in both these issues it was felt that improvements had already been made.

6

Teaching and the media were identified as very important routes through which to communicate science, however providers expressed some concerns, particularly with regards to the media. It was felt by many that the media often sensationalized and misrepresented science. With regards to this, many providers focused upon the actual marketing and selling of the science communication activities as an area for improvement.

7

The different types of science communication activities identified at all the stages of the research are mapped in six different ways, using different axes to represent the main variables that can be used to categorize different types of activities.

8

Providers felt that a hands-on and interactive approach worked particularly well. Among other advantages, it was felt that this approach helped to break down barriers between the scientific community and the public, as well as establishing science communication as a dialogue. Some audiences were still felt to be under-targeted.

9

The research revealed that there was a wide variety of activities currently taking place in the UK, and that the development of communication strategies would aid their success.

10

Umbrella organizations should focus upon coordinating smaller groups to aid better promotion of science communication.

11

Funding is crucial to allow scientists more time to give to communicating the benefits of science to the public.

# 1 Background

Science is advancing and changing our lives in many ways. Wholly positive outcomes include new powers to fight disease, but there are also many areas of ethical concern. Science coverage is increasing in the media, but is dominated by high-profile, sometimes biased stories.

The Wellcome Trust is aware of this situation, and is involved with a broad programme of work aimed at widening public understanding of science and focusing on access to science education. The main aims of the Wellcome Trust in this area are:

- to facilitate access to information, discussion and debate on the social and individual impact of developments in the biomedical technologies;
- to influence decision makers through dissemination of results of discussion and debate.

Science communication is a growing concern for the scientific community – as a sphere of activity it is an increasing priority for most of the members of this community. A large number of different organizations and groups are involved in a huge range of science communication activities. Increasingly, therefore, this community has begun to speak of the need for a better understanding of who is providing which types of activities, and whether the activities are successful.

The Wellcome Trust and the Office of Science and Technology (OST) are cooperating on the following projects:

- mapping science communication activities – funded by the Wellcome Trust;
- qualitative research into public attitudes to science, engineering and technology (SET) – led by the Wellcome Trust;
- quantitative research into public attitudes to SET – led by OST;
- research into scientists' perspectives on their role in SET communication – led by the Wellcome Trust.

These projects taken together will, for the first time, allow an analysis of what SET communication is taking place in the UK currently, and whether there is any disparity between providers and recipients in terms of anticipated audiences and impacts.

Mapping Science Communication Activities is the 'supply-side' research – that is the report looks into science communication provision in the UK. In October 1999, the Wellcome Trust commissioned Research International, a market research company, to perform the research, the results of which are presented here. The results of the other projects are published separately.

## 2 Objectives

The key objective of this research was to identify the range of science communication activities which are currently undertaken in the UK today, towards building up a 'map' of these activities.

In order to map these activities and decide on the most useful ways of studying them, the research needed to explore the nature of the activities:

- aims;
- target audience;
- topics covered;
- location/coverage;
- success.

The resulting 'maps' would then give an indication of current provision and help inform the following areas of enquiry:

- whether to change current activities;
- how improve public engagement in debates on scientific issues;
- how to develop communication strategies.

## 3 Methodology

As the key objective of the research was to identify the range of science communication activities, and not to compile a list of providers or of activities, a detailed sampling structure and a uniform methodology were not appropriate for this study. The approach used was a flexible one, combining a mixture of desk research, qualitative research and quantitative methods.

The sample was obtained through 'snowballing' as well as from the desk research, and was compiled in regular consultation with the Wellcome Trust. Snowballing refers to the act of asking an interviewee to generate leads of other appropriate respondents.

All the face-to-face and telephone interviews were conducted by RI executives on the project team.

### 3.1

#### *Desk research stage*

Thorough desk research was the first step of the project, and continued throughout the research process.

A substantial number of organizations involved in the communication of information to the public are using the Internet as a communication tool. There is therefore a wealth of relevant websites and Internet links.

Psci-com, the web-based catalogue of public understanding of science Internet resources launched by the Wellcome Trust in June 1999, in collaboration with OMNI (Organising Medical Networked Information), was a useful starting point.

Reviewing of literature (leaflets, newsletters, etc. produced by the organizations to be interviewed) was also an important part of the desk research stage.

### 3.2

#### *Qualitative stage*

Nine qualitative face-to-face and 15 qualitative telephone interviews were conducted with providers of activities and specialists in science communication.

The interviews explored the following areas:

- science communication activities conducted in the past and currently
  - topics covered
  - objectives
  - role of organizers
  - success of activities
  - criteria used to judge success
  - funding;
- science communication activities planned for the future;
- knowledge and experience of other types of activities taking place in the UK;
- opinions on science communication
  - criteria for success
  - areas of neglect.

### 3.3

#### *Quantitative stage*

Two different methodologies were used for the quantitative stage of the research: telephone interviews and a web-based questionnaire (see Appendix 2). The same questionnaire outline was used for both methods. The questionnaire was based on the same areas of enquiry as the qualitative stage.

Thirty-five telephone interviews were conducted, and these were semi-structured. This means that the interviews were based on the quantitative questionnaire, but the aim to obtain information on a range of activities was kept in mind, and the interviews did depart from the questionnaire when appropriate.

An Internet questionnaire was also distributed in the form of a URL link to a Research International web page ([www.research-int.co.uk](http://www.research-int.co.uk)) in the following ways:

- mail-out to Psci-com mailing list;
- mail-out to e-mail addresses compiled through the desk research;
- advertisement on Psci-com home page;
- advertisement in the British Association for the Advancement of Science's SCAN newsletter.

## 4 Sample Profile

Overall, 103 members of the science communication community participated in our research. The activities of many more organizations were eventually taken into account in the analysis, however, through mention during the interviews as well as through the extensive desk research.

The following interviews were carried out:

- nine qualitative face-to-face interviews;
- 15 qualitative telephone interviews;
- 35 semi-structured telephone interviews;
- 44 completed web questionnaires.

### 4.1

#### *Qualitative sample*

In total, 24 qualitative interviews were conducted – nine face-to-face and 15 on the telephone. Following the desk research exercise, we contacted a wide range of organizations – their sample profile is detailed in the table below:

Table 1 Types of organization contacted for the qualitative sample

Organization	Number
Media organizations	4
Research Councils	4
Learned societies	2
Universities	2
Industrial companies	1
Charities	1
Science festivals	1
Science centres	1
Museums	1
Other public bodies	7

### 4.2

#### *Quantitative sample*

A total of 79 quantitative interviews/questionnaires were completed – 35 on the telephone and 44 via the Internet.

The types of organizations who participated in the quantitative stage are detailed in Table 2.

Table 2 Types of organization that participated in the quantitative stage

Organization	Number
Learned societies	15
Science centres	15
Universities	11
Industrial companies	6
Media organizations	5
Local government bodies	4
Museums	3
Other public bodies	5
Other organizations	15

The activities undertaken by providers covered a wide range of scientific disciplines, as shown in Table 3.

Table 3 Scientific disciplines covered by the range of science communication activities

Discipline	Number
Biosciences	42
Physics	40
Earth, marine and environmental sciences	38
Technology	37
General science	37
Chemistry	36
Medicine	34
Engineering	29
Mathematics	21
Agricultural and forestry	18
Other	11

These results are based upon raw numbers, base 79, multicode question

# 5 Issues in Science Communication

This section outlines the issues in science communication in the UK today as identified by the providers of science communication activities who participated in our research. This analysis is based on the results of both the qualitative and quantitative stages of this project.

## 5.1

### *Meaning and aims*

The actual definition of the term 'science communication' was a subject of debate in itself for most providers. It can be interpreted as communication between:

- groups within the scientific community;
- scientific community and the public;
- scientific community and government/policy makers/journalists.

Most of our discussion focuses on science communication between the scientific community and the public, although we have included comments on the other types of communication where there is direct relevance or impact on communication with the public.

The aims of science communication were also expressed in a variety of ways. One objective is to communicate scientific knowledge as such, and a distinction was made between purely factual information, versus placing the information into the context of daily life. A priority for most was to impart generally a positive attitude to science. An appreciation of the social and economic impact of science was also considered important, as was the more personal impact – incorporating science into everyday activities and communicating the relevance of science to everyday life.

## 5.2

### *Science and scientists*

Providers highlighted a number of issues that have affected the image of science in recent times. It was felt that recent public health food concerns have undermined public confidence in science. Recent developments in science have linked scientific advances to corporate organizations in a negative way, and it is difficult for the public to disentangle scientists from the organizations funding them.

Some providers felt that it is problematic for society to keep up with what they perceive to be rapid developments in science, especially with regards to genetic research. Science seems to be increasingly broaching ethical concerns.

Providers felt that a move away from the traditional image of science is necessary to deal with these issues. There was a need to overturn the limiting image of science and scientists as 'boring', and 'white, male and middle class'. Most importantly, there was a need to facilitate conditions for more informed public debate and two-way communication. Almost all providers mentioned this as a priority in science communication, but some felt that this was already well under way, and that the scientific community was acknowledging the importance of public debate.

Rather than simply telling the public that 'science is good for you', providers felt that there could be more focus on 'why things are done' and the social impact of scientific research. More involvement from the public could be achieved through encouragement of more lay persons on to scientific boards, and generally more transparency within the scientific community.

There was some concern too over whether the science community itself has been naive and unreflective. The Government, the media and scientists may all have different definitions of the public, according to their differing perspectives. Some providers felt that the science community should perhaps be looking more into 'the scientific understanding of the public' rather than the public understanding of science, and analyse its assumptions on what the public wants, and needs out of science.

With regards to the role of scientists, some providers mentioned that many scientists are educated in a language that is impenetrable and there is a need for training in public communication. More scientists need to appreciate that talking to the public is a worthwhile way of communicating science. This is particularly important as it is felt that working scientists talking directly to the public can be a very effective method of communication.



Science communication should therefore be a more formal part of scientists' careers. It was acknowledged, however, that this may be difficult, as scientists already have high demands on their time, such as the pressure to produce scientific papers.

Another issue was the assessment of funding for universities, which focuses on research. Some providers felt that some emphasis on the assessment of science communication as such would enable and encourage scientists to spend more of their time on it.

### 5.3

#### *Education*

Teaching in schools was mentioned by all as very important to science communication, although some problems were identified.

Some providers mentioned that there seems to be a gap between schools science and real science. Science is moving forward faster than the communication of ideas can follow. It was also felt by some that school teaching is suitable as preparation or training for scientists, but is much less appropriate for those who will not become scientists. One problem, it was felt, is that science is often portrayed at school as a discipline of absolute certainties.

Some providers also felt that like scientists, teachers also need more remission for science communication training. There are also possible problems in making sure that the information that reaches teachers is actually disseminated further.

### 5.4

#### *The media*

The media (specifically the press and television) was seen as very powerful by most providers. It was generally felt that scientific coverage is increasing - broadcasters and publishers have perceived a high level of interest among the public and therefore are responding to it.

When reading newspapers or watching TV, people do stumble on science topics and issues that they might not have come across otherwise. Advertising or drama, where science is not the main focus, can also put across powerful images or stereotypes. It was felt by some providers that the media, and especially TV programming in general, could be used more, and that there were many opportunities for science communication. One idea mentioned by several providers was to base a 'soap opera' in a laboratory.

Most providers did, however, criticize the media. It was felt by most that misrepresentation and 'unnecessary

sensationalism' were widespread. It was also felt that the media is sometimes used by organizations for self-promotion rather than purely communicating science.

Science journalism in the UK, although generally praised, was seen by some providers as insufficiently appreciated. Coverage tended to be considered as less extensive than in other countries, in particular in comparison with France, Germany, and the USA.

Some providers mentioned that journalists writing about science do not necessarily have a scientific background, which can often lead to inaccuracy. In some cases, these journalists are not even sufficiently knowledgeable to ask appropriate questions.

### 5.5

#### *Promotion of activities*

Many providers focused on the actual marketing and selling of the science communication activities as an area for improvement, or at least more attention.

Sparking interest and curiosity with a fun and lively approach was often mentioned as very important for success. Some providers also saw the personality and attractiveness of the communicators, especially in TV, as crucial. Presenting science centres and activities more as a general 'see the sights' family day out rather than 'overtly labelled science' was a move seen by many as necessary.

The source, or 'messenger' of activities was also seen as very important. People will identify more strongly with a local organization or issue.

It was also felt by most that only the members of the public who are already interested in science are actually being reached.

### 5.6

#### *Neglect*

#### 5.6.1

##### *Demographic groups*

- Most providers identified some demographic groups as being under-represented in science communication, sometimes among the public taking part in activities, but also within the scientific community.

- Most science communication literature was felt to be unsuitable for the less well educated. The web is becoming a greater source of information, but those without web access were also highlighted as being disadvantaged.
- Some providers mentioned older people as a group not sufficiently catered for, as well as pre-school children, for whom material was felt to be rare.
- Scientific events were also seen by some as manifestly male.
- It was also highlighted that in terms of museum attendance, visitors do tend to be predominantly white ABC1s, with high levels of education and income.

### 5.6.2

#### *Type of science*

- Certain types of communication or specific disciplines and topics were also identified as insufficiently covered or used.
- A few providers mentioned that particularly in the media, the focus tended to be purely on the findings of scientific research, rather than the actual process of research.
- Complex technology, chemistry and food hygiene were mentioned as areas lacking in emphasis. Areas of mathematics, in particular concepts of space, shape and form versus numbers were identified as neglected.
- Using music was seen as a type of communication that could be used more, such as using musicals in the same way that theatre is already being used to communicate science.

### 5.7

#### *Concerns*

Some providers identified other issues that can be difficult to balance with a focus on the altruistic promotion of science. For example, industry, as well as nondepartmental public bodies, needs to foster an environment in which their work can flourish. Meanwhile academics and charities need to focus on raising funds. Within the media also, the content of science articles or programmes is dependent on, for example, the concerns or particular interests of editors.

Funding for science communication was mentioned by many providers as a problem. Some providers also felt that funding for science tends to be inferior to the funding available for 'the arts'.

### 5.8

#### *Monitoring of success*

Many providers felt that what makes an activity successful depends entirely on the specific activity and its context. Most providers rated evaluation highly however, and use a range of monitoring methods:

- size of memberships;
- number of visitors/audience figures;
- number of books sold;
- feedback from users of material;
- telephone calls and letters from listeners (radio);
- media coverage;
- critical reviews;
- peer review;
- level of sponsorship.

Resources for adequate evaluation were, however, seen by most as difficult to obtain.

### 5.9

#### *Diversity versus authority*

Opinions varied widely on whether there is too much or too little science communication today. Some providers felt that the different forms of activities, and the variety of organizations that provide them in the UK is a strength for science communication.

While, others emphasized the lack of coordination and planning, and the need for a coalition of interests and motives. The number of activities was seen by some as overwhelming for audiences. Some also felt that science communication was experiencing a 'crisis of authority', and the science community should harness the energy, enthusiasm and funding in science communication towards larger, more coherent purposes. There therefore seems to a need for a balance between spontaneity and organization.

Providers suggested several ways of improving the coordination of activities. One idea was compiling a 'yellow pages' directory of science communication activities and useful organizations, to be used by those outside the scientific community. Adequate promotion would be, however, imperative for such a directory to achieve its aims.

Introducing a 'kite mark' to indicate the quality of activity and information would also be useful. This is particularly important for the web, where there has been a very rapid growth in sources of information.

Coordinating activities should then facilitate promotion, as there will be less unrelated activities to advertise.

## 6 Mapping the Activities

Throughout both qualitative and quantitative stages of this research, we identified a wide range of science communication activities. The activities have been mapped in six different ways, using different axes to represent the main variables that can be used to categorize different types of activities.

These maps provide an overview of science communication activity. We have focused on different types rather than citing specific examples. We have nevertheless used the specific examples we encountered during our research to inform the most appropriate place to locate the types along the axes.

### 6.1

*Overall map: All types of activities*

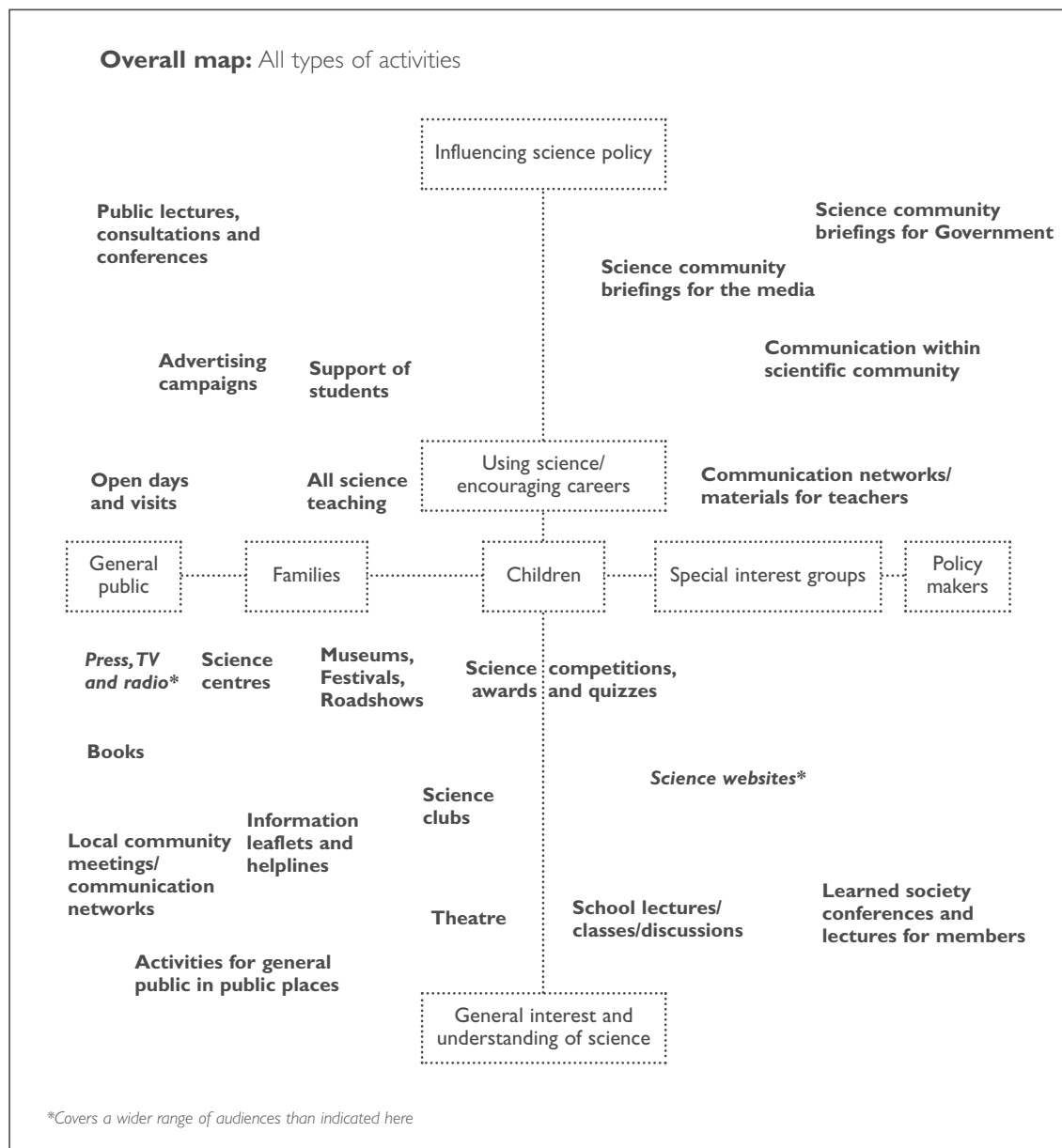
The first map aims to cover all types of activities. The different types are broadly defined, and mapped according to their target audience and the context or aims of the activity.

Horizontal axis: Target audience

- From 'General public' to 'Policy makers'

Vertical axis: Context

- From 'Influencing science policy' to 'General interest and understanding of science' ('Influencing science policy' refers to activities undertaken in the context of aiding government policy development.)



6.2

Detailed maps 1–4

The different types of activities are subdivided with more detail, and spread across the different maps according to which axes are most appropriate to describe them.

6.2.1

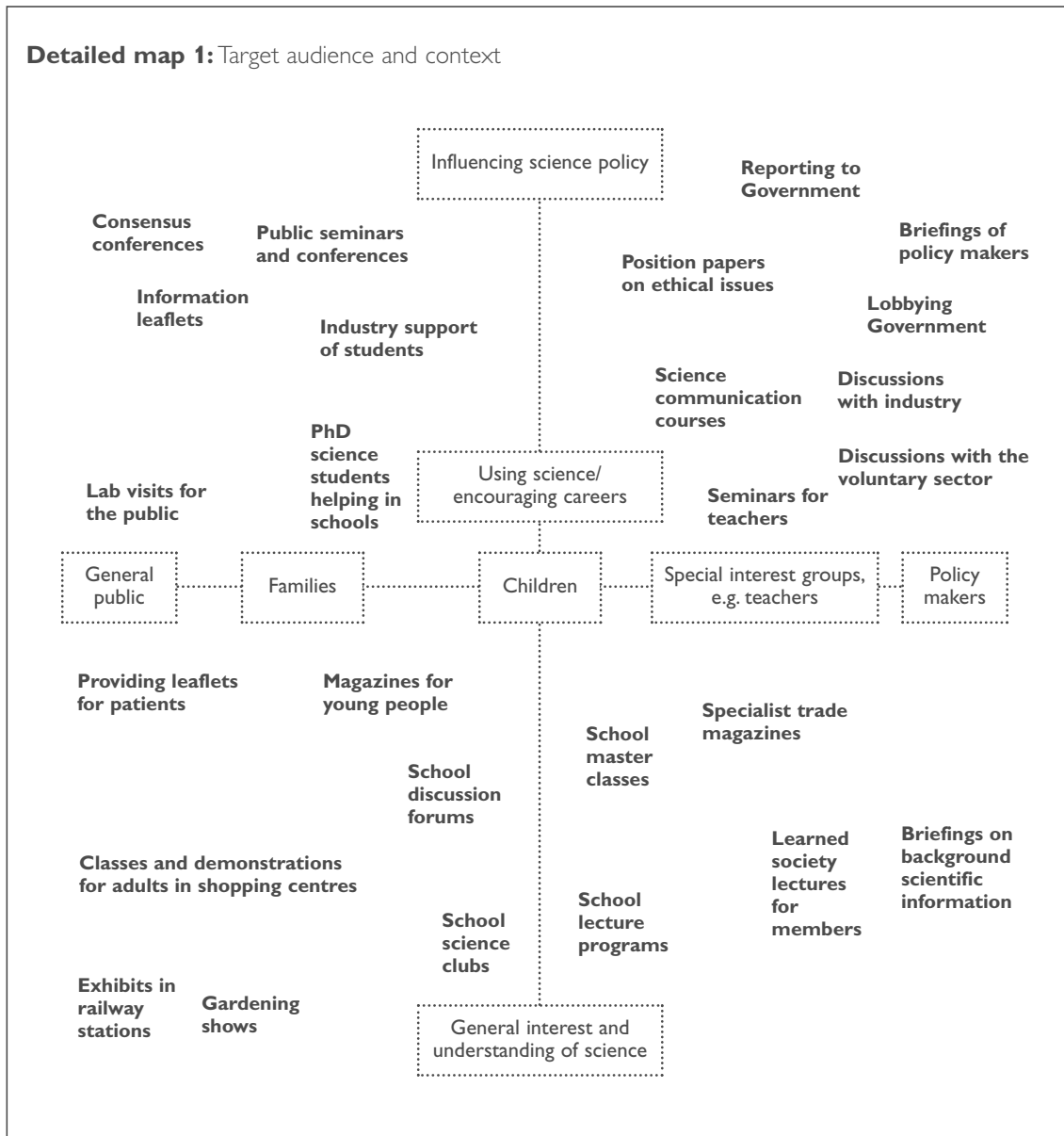
Detailed map 1: Target audience and context

Horizontal axis: Target audience

- From ‘General public’ to ‘Policy makers’

Vertical axis: Context

- From ‘Influencing science policy’ to ‘General interest and understanding of science’ (‘Influencing science policy’ refers to activities undertaken in the context of aiding government policy development.)



6.2.2

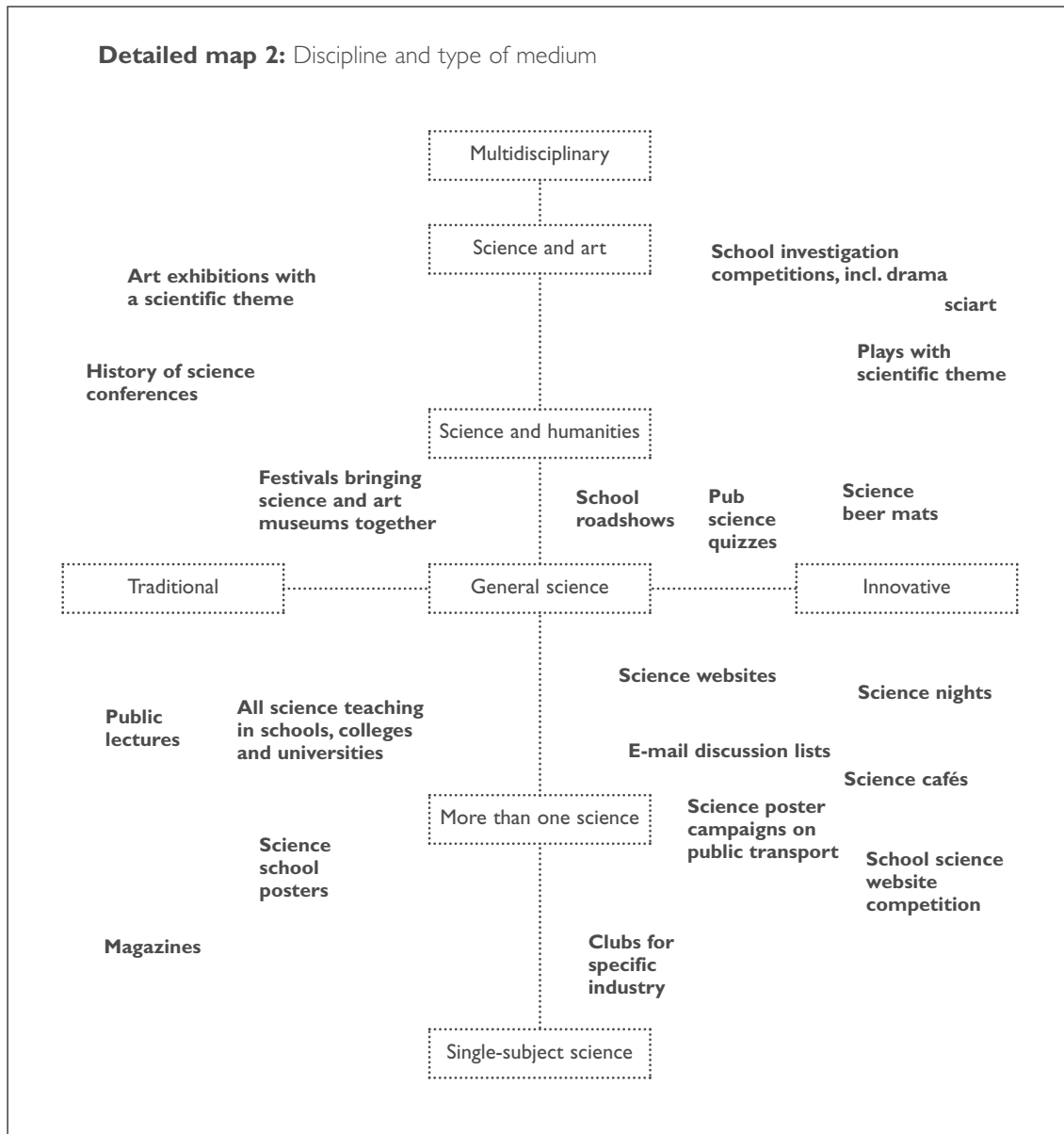
Detailed map 2: Discipline and type of medium

Horizontal axis: Discipline

- From 'Multidisciplinary' to 'Single-subject science'

Vertical axis: Type of medium

- From 'Traditional' to 'Innovative' ('Traditional' refers to activities using traditional channels of communication; 'Innovative' refers to activities using unusual or new channels of communication.)



6.2.3

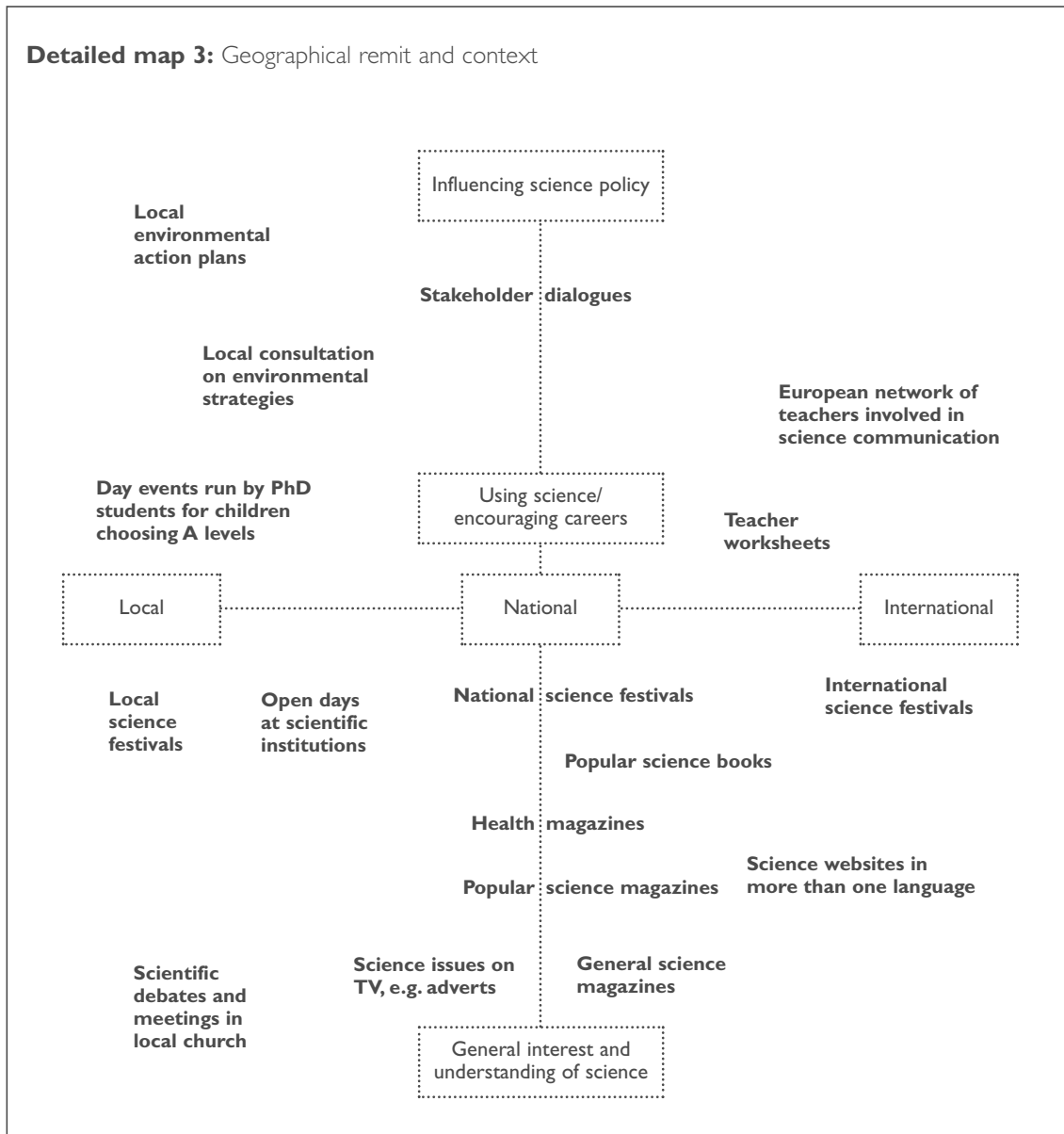
*Detailed map 3: Geographical remit and context*

Horizontal axis: Geographical remit

- From 'Local' to 'International' ('Local' refers to activities undertaken within the local community; 'International' refers to activities involving other countries but either partly or wholly led by the UK.)

Vertical axis: Context

- From 'Influencing science policy' to 'General interest and understanding of science' ('Influencing science policy' refers to activities undertaken in the context of aiding government policy development.)



6.2.4

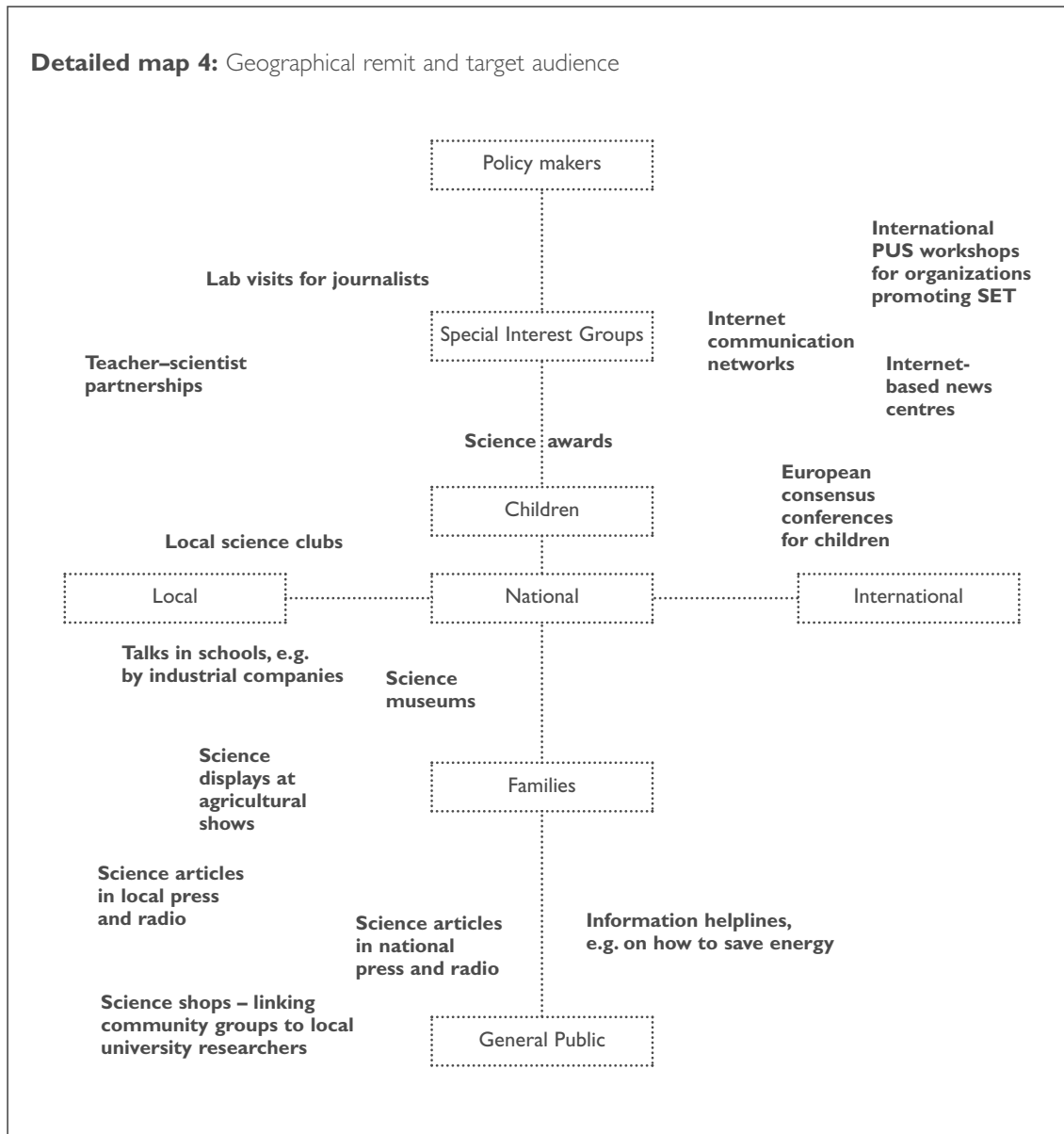
*Detailed map 4: Geographical remit and target audience*

Horizontal axis: Geographical remit

- From 'Local' to 'International' ('Local' refers to activities undertaken within the local community; 'International' refers to activities involving other countries but either partly or wholly led by the UK.)

Vertical axis: Target audience

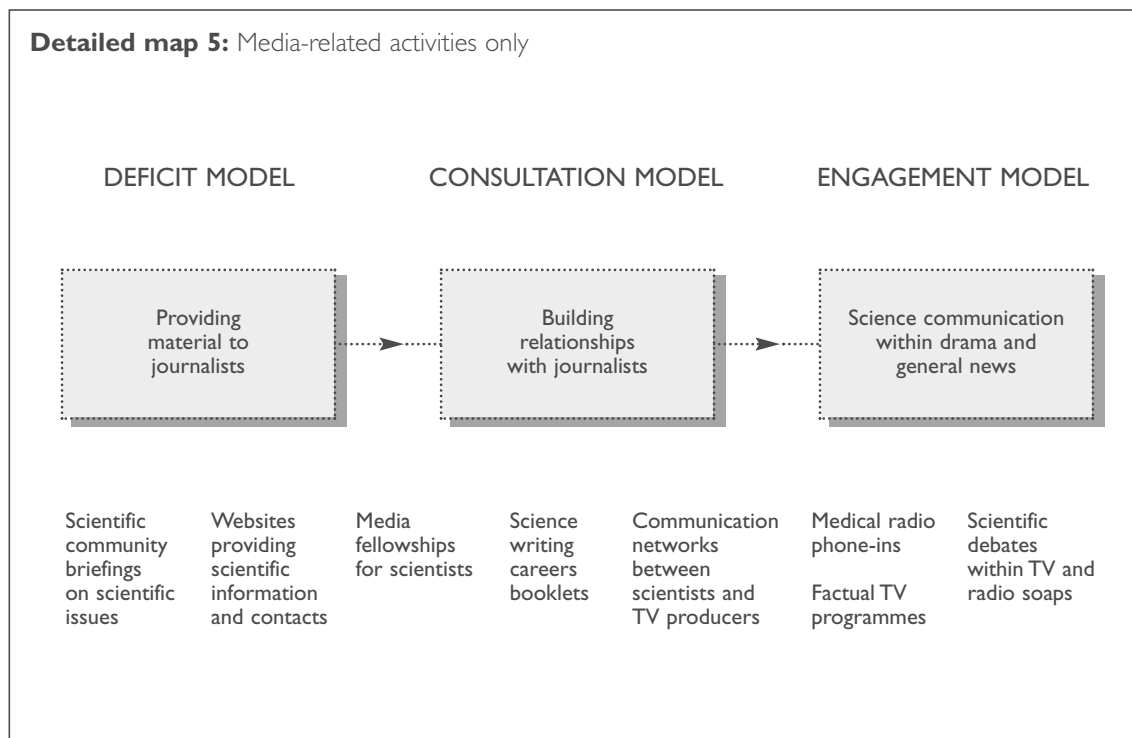
- From 'General public' to 'Policy makers'



6.3

*Detailed map 5: Media-related activities only*

This map focuses on media-related activities, and has only one axis, based on the way in which scientific information reaches the media.





# 7 Conclusions

## 7.1

### *The range of current activities*

The research identified a wide and comprehensive range of activities that are currently undertaken. These activities have been mapped in various ways to illustrate the breadth of coverage of the activities and to identify any gaps. They provide a clear picture of how these types of activities relate to and complement each other. The maps were constructed according to the following axes:

- target audience;
- context;
- discipline;
- medium;
- geographical remit.

## 7.2

### *Should current activities be changed?*

Identifying the range of activities and obtaining the views of a variety of science communicators has allowed insight into whether current activities should be changed. The following issues arose that relate to this discussion.

- Providers felt that a hands-on and interactive approach to science communication activities worked well. Although, as the research indicates, many activities are already interactive, providers believed that this approach should be used more widely. It was felt that any activity that is interactive helps to break down barriers between the scientific community and the public, as well as to establish the communication of science as a dialogue.
- Science communicators also acknowledged that although a hands-on and interactive approach is successful, in many cases the approach should be tailored to the type of activity and the target audience. Where these factors are taken into consideration, it was indicated that success was more likely to follow. This illustrates a point raised earlier, that is that the scientific community is already beginning to learn about its public, rather than requiring the public to make this effort.
- Some audiences were still under-targeted, for example female adults, but there was also evidence to suggest that efforts were being made to involve them in more activities.
- The media seemed to be an area where some concerns were raised, as well as opportunities. Science communicators felt that the media sometimes conveyed science in a way that they did not like or did not intend. An improvement in communication between scientists and journalists in the UK was suggested as a way to improve the flow of scientific information between journalists and the public. Yet, the media was also identified as a huge opportunity to communicate science to wider audiences due to its perceived power and popularity.

### 7.3

#### *Engaging the public*

There was a high awareness of the importance of dialogue – moves were being made towards more two-way communication between providers and their audiences. Again, the success of this approach depends on the context of the activity.

People's ability to engage in scientific debate is also improving. School children are now studying more science than ever before. Their better grounding in science should make them more scientifically literate: it is too early to see the effects of this, but a generation with a much more scientific background is growing up. If this proves to be the case, tomorrow's generation should be much better equipped to understand scientific issues, and to respond to them in a more informed way.

### 7.4

#### *Development of communication strategies*

There is a wide variety of activities currently taking place in the UK, therefore the challenge is to ensure that these activities are as successful as possible. The development of communication strategies can aid success in several ways:

- Umbrella organizations should focus upon coordinating smaller groups. These organizations will then be able to facilitate greater communication between groups, and could make use of their position to enable, among other things, different activities to be coordinated. If activities are better coordinated then publicizing those activities becomes easier, as does ensuring that the correct audiences are targeted. An increase in funding is crucial to aid the better promotion of existing activities.
- In order to improve development of communication strategies, increased funding will be necessary to enable scientists themselves to give more time to communicating impact of their research. This would enable the public to understand better the direct effects science can have on society, and consequently would help to break down perceptions that science is irrelevant to people's lives. Furthermore, allowing scientists more time to give to communication may also help to prevent some of the mis-communication of scientific issues. It could also help towards bridging the perceived gap between the scientific community and those outside that community.

# Appendix 1: Quantitative Results

This section details further results of the quantitative stage of the research (telephone interviews and web-based questionnaire).

## *Target audience*

The key target audiences of the organizations interviewed usually reflected the nature of the organization or department we spoke to. Organizations or departments that focused upon education targeted the following audiences:

- children (under 14);
- young people (14 and over);
- teachers;
- the general public;

Organizations or departments that focused upon media activity targeted:

- opinion formers, e.g. MPs, journalists, Government;
- the general public.

## *Providers of the activities*

The main people involved in coordinating, producing and running science communication activities are as shown in Table 1A.

Table 1A Types of staff involved in science communication activities

Staff within the organization	Number
PR/communications staff	36
Scientists	30
Administrations staff	25
Managers	23
Teachers	17
Non-staff	
Scientists	25
Lecturers	17
Teachers	16

These results are based upon raw numbers, base 79, multicode question

The contexts in which science is discussed

For the results that follow, organizations only referred to the main activity they organized. The results showed that their most important activity was much more likely to be science discussed in the context of education or topical news issues than local community issues or hobbies. Science was discussed in isolation by very few, which suggests that organizations have taken heed of the need to explain science in context and are acting upon this.

Table 2A below shows the top-four objectives of the main science communication activity:

Table 2A Top-four objectives of the main science communication activity

Encouraging a general interest in science	51
Encouraging appreciation of science	44
Encouraging a greater appreciation of a particular science issue	40
Encouraging careers in science	30

These results are based upon raw numbers, base 79, multicode question

## *Type of medium*

As the table below illustrates, many organizations are involved in providing more than one type of activity, for example they may produce worksheets, attend exhibitions and issue press releases. Consequently, many organizations are able to target more than one audience. This suggests that organizations are trying to reach as many different people as possible in as many different ways as possible, and therefore that they have already acknowledged and responded to the need for as many different audiences to learn about science as possible.

Table 3A The types of activities performed by each organization

PUS activities	243
Media	227
Teaching/education	140

These results are based upon raw numbers, base 79, multicode question

# Appendix a2: Web Questionnaire

## Introduction within questionnaire

The Consultation and Education section of the Wellcome Trust has commissioned Research International to undertake a review of science communication activities in the UK. This study is part of a larger research programme designed to inform science communication.

If you have any queries, please contact Anne Kazimirski, at Research International, on 0171 656 5000.

### Q1 Please type in the space below the name of your employer

.....

Self-employed

### Q2 From the list below choose the category which most appropriately describes your employer's organisation

Please mark one only

- |                          |                          |                            |                                                          |
|--------------------------|--------------------------|----------------------------|----------------------------------------------------------|
| Self-employed            | <input type="checkbox"/> | <i>Independent body</i>    | <i>Education</i>                                         |
| <i>Public body</i>       |                          | Medical research charity   | <input type="checkbox"/>                                 |
| Research Council         | <input type="checkbox"/> | Other research charity     | <input type="checkbox"/>                                 |
| Research organisation    | <input type="checkbox"/> | Independent museum         | <input type="checkbox"/>                                 |
| Government department    | <input type="checkbox"/> | Science centre             | <input type="checkbox"/>                                 |
| Museum                   | <input type="checkbox"/> | Learned society            | <input type="checkbox"/>                                 |
| Local government         | <input type="checkbox"/> | Science Festival           | <input type="checkbox"/>                                 |
| Other public body        | <input type="checkbox"/> | Other independent body     | <input type="checkbox"/>                                 |
| <i>Media</i>             |                          | <i>Industry</i>            |                                                          |
| Newspaper                | <input type="checkbox"/> | Aerospace                  | <input type="checkbox"/>                                 |
| Magazine                 | <input type="checkbox"/> | Agricultural               | <input type="checkbox"/>                                 |
| Book publisher           | <input type="checkbox"/> | Automotive                 | <input type="checkbox"/>                                 |
| Broadcasting – Radio     | <input type="checkbox"/> | Chemicals                  | <input type="checkbox"/>                                 |
| Broadcasting – TV        | <input type="checkbox"/> | Construction               | <input type="checkbox"/>                                 |
| Production company       | <input type="checkbox"/> | Electronics                | <input type="checkbox"/>                                 |
| Other media organisation | <input type="checkbox"/> | Energy                     | <input type="checkbox"/>                                 |
|                          |                          | Ferrous/non-ferrous metals | <input type="checkbox"/>                                 |
|                          |                          | Financial sector           | <input type="checkbox"/>                                 |
|                          |                          | Food processing            | <input type="checkbox"/>                                 |
|                          |                          | Mining/quarrying           | <input type="checkbox"/>                                 |
|                          |                          | Petrochemical              | <input type="checkbox"/>                                 |
|                          |                          | Pharmaceutical             | <input type="checkbox"/>                                 |
|                          |                          | Retailing                  | <input type="checkbox"/>                                 |
|                          |                          | Software/IT                | <input type="checkbox"/>                                 |
|                          |                          | Telecommunications         | <input type="checkbox"/>                                 |
|                          |                          | Other industry             | <input type="checkbox"/>                                 |
|                          |                          |                            | <i>Education</i>                                         |
|                          |                          |                            | School <input type="checkbox"/>                          |
|                          |                          |                            | University <input type="checkbox"/>                      |
|                          |                          |                            | College <input type="checkbox"/>                         |
|                          |                          |                            | Other educational establishment <input type="checkbox"/> |
|                          |                          |                            | <i>Other</i>                                             |
|                          |                          |                            | (please specify) .....                                   |

Please complete the rest of the questions from the point of view of the organisation with which you are most closely associated for science communication activities. If you are not associated with any organisation, just answer for yourself.

### Q3 Please enter the name of the organisation with which you are most closely associated in the context of science communication activities, if this is not your employer. ....

The organisation with which I am most closely associated in the context of science communication activities

is my employer ROUTED TO Q5

I am answering for myself ROUTED TO Q5

**Q4 From the list below choose the category which most appropriately describes this organisation.**

Please mark one only

<i>Public body</i>		<i>Education</i>		<i>Industry</i>	
Research Council	<input type="checkbox"/>	School	<input type="checkbox"/>	Aerospace	<input type="checkbox"/>
Research organisation	<input type="checkbox"/>	University	<input type="checkbox"/>	Agricultural	<input type="checkbox"/>
Government department	<input type="checkbox"/>	College	<input type="checkbox"/>	Automotive	<input type="checkbox"/>
Museum	<input type="checkbox"/>	Other educational establishment	<input type="checkbox"/>	Chemicals	<input type="checkbox"/>
Local government	<input type="checkbox"/>	<i>Media</i>		Construction	<input type="checkbox"/>
Other public body	<input type="checkbox"/>	Newspaper	<input type="checkbox"/>	Electronics	<input type="checkbox"/>
<i>Independent Body</i>		Magazine	<input type="checkbox"/>	Energy	<input type="checkbox"/>
Medical research charity	<input type="checkbox"/>	Book publisher	<input type="checkbox"/>	Ferrous/non-ferrous metals	<input type="checkbox"/>
Other research charity	<input type="checkbox"/>	Broadcasting – Radio	<input type="checkbox"/>	Financial sector	<input type="checkbox"/>
Independent museum	<input type="checkbox"/>	Broadcasting – TV	<input type="checkbox"/>	Food processing	<input type="checkbox"/>
Science centre	<input type="checkbox"/>	Production company	<input type="checkbox"/>	Mining/quarrying	<input type="checkbox"/>
Learned society	<input type="checkbox"/>	Other media organisation	<input type="checkbox"/>	Petrochemical	<input type="checkbox"/>
Science Festival	<input type="checkbox"/>			Pharmaceutical	<input type="checkbox"/>
Other independent body	<input type="checkbox"/>			Retailing	<input type="checkbox"/>
				Software/IT	<input type="checkbox"/>
				Telecommunications	<input type="checkbox"/>
				Other industry	<input type="checkbox"/>
				<i>Other</i>	
				(please specify) .....	

**Q5 Why does this organisation undertake science communication activities?**

Please mark all those that apply

To encourage a general interest in science	<input type="checkbox"/>	To foster a social climate in which science can flourish	<input type="checkbox"/>
To teach scientific facts to the public	<input type="checkbox"/>	As PR for the organisation	<input type="checkbox"/>
To encourage a greater understanding of a particular science issue	<input type="checkbox"/>	As part of a programme of social responsibility	<input type="checkbox"/>
To encourage young people to follow careers in science	<input type="checkbox"/>	Other (please specify) .....	

**Q6 Looking at the list below, which types of science communication activity does this organisation undertake?**

Please mark all those that apply

Media – Magazines/Magazine articles	<input type="checkbox"/>	PUS activities – Exhibitions	<input type="checkbox"/>
Media – Newspapers/Newspaper articles	<input type="checkbox"/>	PUS activities – Science Fairs	<input type="checkbox"/>
Media – Films/Television programmes	<input type="checkbox"/>	PUS activities – Festivals	<input type="checkbox"/>
Media – Television advertising	<input type="checkbox"/>	PUS activities – Lectures/Talks	<input type="checkbox"/>
Media – Radio programmes	<input type="checkbox"/>	PUS activities – Science Shops	<input type="checkbox"/>
Media – Radio advertising	<input type="checkbox"/>	PUS activities – Organizing Competition/Awards	<input type="checkbox"/>
Media – Internet sites	<input type="checkbox"/>	PUS activities – Judging Competition/Awards	<input type="checkbox"/>
Media – Posters	<input type="checkbox"/>	PUS activities – Activity stands in public places	<input type="checkbox"/>
Media – Press releases	<input type="checkbox"/>	(e.g. shopping centre)	
Media – Writing	<input type="checkbox"/>	PUS activities – Drama	<input type="checkbox"/>
Media – Producing	<input type="checkbox"/>	PUS activities – Books	<input type="checkbox"/>
Media – Publishing	<input type="checkbox"/>	PUS activities – Discussion Groups	<input type="checkbox"/>
Media – Broadcasting	<input type="checkbox"/>	PUS activities – Information/Helpline	<input type="checkbox"/>
Media – Other media activity (please specify) .....		PUS activities – Other public activity	
Teaching/Education – Courses for children (under 14)	<input type="checkbox"/>	(please specify) .....	
Teaching/Education – Courses for young people (14 and over)	<input type="checkbox"/>	Member activity – Members’ Newsletters	<input type="checkbox"/>
Teaching/Education – Courses for the general adult public	<input type="checkbox"/>	Member activity – Other activity for members	
Teaching/Education – Providing Worksheets/Teacher notes	<input type="checkbox"/>	(please specify) .....	
Teaching/Education – Writing Worksheets/Teacher notes	<input type="checkbox"/>	Other (please specify) .....	
Teaching/Education – Other teaching related activity			
(please specify) .....			

Please complete Q7–14 in relation to the most important type of science communication activity which this organisation undertakes

**Q7 Looking at the list below, what type of science communication activity is it?**

Please mark one only

- |                                                             |                          |                                                   |                          |
|-------------------------------------------------------------|--------------------------|---------------------------------------------------|--------------------------|
| Media – Magazines/Magazine articles                         | <input type="checkbox"/> | PUS activities – Exhibitions                      | <input type="checkbox"/> |
| Media – Newspapers/Newspaper articles                       | <input type="checkbox"/> | PUS activities – Science Fairs                    | <input type="checkbox"/> |
| Media – Films/Television programmes                         | <input type="checkbox"/> | PUS activities – Festivals                        | <input type="checkbox"/> |
| Media – Television advertising                              | <input type="checkbox"/> | PUS activities – Lectures/Talks                   | <input type="checkbox"/> |
| Media – Radio programmes                                    | <input type="checkbox"/> | PUS activities – Science Shops                    | <input type="checkbox"/> |
| Media – Radio advertising                                   | <input type="checkbox"/> | PUS activities – Organizing Competition/Awards    | <input type="checkbox"/> |
| Media – Internet sites                                      | <input type="checkbox"/> | PUS activities – Judging Competition/Awards       | <input type="checkbox"/> |
| Media – Posters                                             | <input type="checkbox"/> | PUS activities – Activity stands in public places | <input type="checkbox"/> |
| Media – Press releases                                      | <input type="checkbox"/> | (e.g. shopping centre)                            |                          |
| Media – Writing                                             | <input type="checkbox"/> | PUS activities – Drama                            | <input type="checkbox"/> |
| Media – Producing                                           | <input type="checkbox"/> | PUS activities – Books                            | <input type="checkbox"/> |
| Media – Publishing                                          | <input type="checkbox"/> | PUS activities – Discussion Groups                | <input type="checkbox"/> |
| Media – Broadcasting                                        | <input type="checkbox"/> | PUS activities – Information/Helpline             | <input type="checkbox"/> |
| Media – Other media activity (please specify) .....         |                          | PUS activities – Other public activity            |                          |
| Teaching/Education – Courses for children (under 14)        | <input type="checkbox"/> | (please specify).....                             |                          |
| Teaching/Education – Courses for young people (14 and over) | <input type="checkbox"/> | Member activity – Members’ Newsletters            | <input type="checkbox"/> |
| Teaching/Education – Courses for the general adult public   | <input type="checkbox"/> | Member activity – Other activity for members      |                          |
| Teaching/Education – Providing Worksheets/Teacher notes     | <input type="checkbox"/> | (please specify) .....                            |                          |
| Teaching/Education – Writing Worksheets/Teacher notes       | <input type="checkbox"/> | Other (please specify) .....                      |                          |
| Teaching/Education – Other teaching related activity        |                          |                                                   |                          |
| (please specify) .....                                      |                          |                                                   |                          |

**Q8 Which, if any, scientific discipline(s) do/did you cover in this activity?**

Please mark all those that apply

- |             |                          |                                         |                          |
|-------------|--------------------------|-----------------------------------------|--------------------------|
| Medicine    | <input type="checkbox"/> | Technology                              | <input type="checkbox"/> |
| Biosciences | <input type="checkbox"/> | Earth, marine and environmental science | <input type="checkbox"/> |
| Chemistry   | <input type="checkbox"/> | Agricultural & Forestry                 | <input type="checkbox"/> |
| Physics     | <input type="checkbox"/> | General Science                         | <input type="checkbox"/> |
| Engineering | <input type="checkbox"/> | Other (please specify) .....            |                          |
| Mathematics | <input type="checkbox"/> |                                         |                          |

**Q9 From the answers listed below, would you say that the activity is/was:**

Please mark all those that apply

- |                                                            |                          |                                                                       |                          |
|------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------|--------------------------|
| Science discussed in the context of local community issues | <input type="checkbox"/> | Science discussed in the context of hobbies (e.g. gardening, sport)   | <input type="checkbox"/> |
| Science discussed in the context of topical news issues    | <input type="checkbox"/> | Science discussed in the context of new applications and technologies | <input type="checkbox"/> |
| Science discussed in the context of education              | <input type="checkbox"/> | Science discussed in the context of future issues                     | <input type="checkbox"/> |
|                                                            |                          | Science discussed in isolation                                        | <input type="checkbox"/> |

**Q10 What are/were the main objectives of the activity?**

Please mark all those that apply

- |                                 |                          |                                        |                          |
|---------------------------------|--------------------------|----------------------------------------|--------------------------|
| Encouraging interest in science | <input type="checkbox"/> | Encouraging appreciation of science    | <input type="checkbox"/> |
| Encouraging careers in science  | <input type="checkbox"/> | Encouraging a greater understanding of | <input type="checkbox"/> |
| Teaching scientific facts       | <input type="checkbox"/> | particular science issue               |                          |
|                                 |                          | Other (please specify) .....           |                          |

**Q11 What is/was the main target audience for the activity?**

*Please mark one only*

**Q11a And what are/were the other audiences you hope to attract?**

*Please mark all those that apply*

- |                            |                          |                              |                          |
|----------------------------|--------------------------|------------------------------|--------------------------|
| Children (under 14)        | <input type="checkbox"/> | Scientists                   | <input type="checkbox"/> |
| Young people (14 and over) | <input type="checkbox"/> | MPs                          | <input type="checkbox"/> |
| Adults over 18             | <input type="checkbox"/> | Ethnic minorities            | <input type="checkbox"/> |
| Older people (55 plus)     | <input type="checkbox"/> | Disabled community           | <input type="checkbox"/> |
| Women                      | <input type="checkbox"/> | Members of our organisation  | <input type="checkbox"/> |
| Men                        | <input type="checkbox"/> | The local community          | <input type="checkbox"/> |
| Journalists                | <input type="checkbox"/> | The general public           | <input type="checkbox"/> |
| Teachers                   | <input type="checkbox"/> | Other (please specify) ..... | <input type="checkbox"/> |
| Healthcare professionals   | <input type="checkbox"/> |                              |                          |

**Q12 Who is/was involved in producing (providing) the activity?**

*Please mark all those that apply*

- |                                                  |                          |                                         |                          |
|--------------------------------------------------|--------------------------|-----------------------------------------|--------------------------|
| Staff of organisation – Managers                 | <input type="checkbox"/> | Non-staff - Teachers                    | <input type="checkbox"/> |
| Staff of organisation – Teachers                 | <input type="checkbox"/> | Non-staff - Scientists                  | <input type="checkbox"/> |
| Staff of organisation – Scientists               | <input type="checkbox"/> | Non-staff - Lecturers                   | <input type="checkbox"/> |
| Staff of organisation – Lecturers                | <input type="checkbox"/> | Non-staff - Fellows                     | <input type="checkbox"/> |
| Staff of organisation – Fellows                  | <input type="checkbox"/> | Non-staff - Administration              | <input type="checkbox"/> |
| Staff of organisation – Administration           | <input type="checkbox"/> | Non-staff - Healthcare Professionals    | <input type="checkbox"/> |
| Staff of organisation – Healthcare Professionals | <input type="checkbox"/> | Non-staff - PR/Communications staff     | <input type="checkbox"/> |
| Staff of organisation – PR/Communications staff  | <input type="checkbox"/> | Non-staff - Directors                   | <input type="checkbox"/> |
| Staff of organisation – Directors                | <input type="checkbox"/> | Non-staff - Government ministers        | <input type="checkbox"/> |
| Staff of organisation – Government ministers     | <input type="checkbox"/> | Non-staff - Clergy                      | <input type="checkbox"/> |
| Staff of organisation – Clergy                   | <input type="checkbox"/> | Non-staff - Other (please specify)..... | <input type="checkbox"/> |
| Staff of organisation – Other (please specify)   |                          |                                         |                          |

**Q13 What criteria do you use to judge the success of the activity?**

*Please mark all those that apply*

- |                                                  |                          |                              |                          |
|--------------------------------------------------|--------------------------|------------------------------|--------------------------|
| Numbers attending, subscribing, etc              | <input type="checkbox"/> | Commissioned evaluation      | <input type="checkbox"/> |
| Comments collected using a questionnaire         | <input type="checkbox"/> | Own perception of the event  | <input type="checkbox"/> |
| Feedback on an ad hoc basis from those attending | <input type="checkbox"/> | Other (please specify) ..... | <input type="checkbox"/> |

**Q14 How is/was the activity funded?**

*Please mark all those that apply*

- |                                                             |                          |                                              |                          |
|-------------------------------------------------------------|--------------------------|----------------------------------------------|--------------------------|
| Funding from a single source – Own organisation             | <input type="checkbox"/> | Joint Funding – Own organisation             | <input type="checkbox"/> |
| Funding from a single source – Government grant             | <input type="checkbox"/> | Joint Funding – Government grant             | <input type="checkbox"/> |
| Funding from a single source – Grants from charities        | <input type="checkbox"/> | Joint Funding – Grants from charities        | <input type="checkbox"/> |
| Funding from a single source – Fundraising among the public | <input type="checkbox"/> | Joint Funding – Fundraising among the public | <input type="checkbox"/> |
| Funding from a single source – Industry/Commercial          | <input type="checkbox"/> | Joint Funding – Industry/Commercial          | <input type="checkbox"/> |
| Funding from a single source – Members' subscriptions       | <input type="checkbox"/> | Joint Funding – Members' subscriptions       | <input type="checkbox"/> |
| Funding from a single source – Entry Fees                   | <input type="checkbox"/> | Joint Funding – Entry Fees                   | <input type="checkbox"/> |
| Funding from a single source – Other, please specify        | <input type="checkbox"/> | Joint Funding – Other (please specify).....  | <input type="checkbox"/> |

**Q15 And in the last year, how many different types of science communication activities has this organisation been involved in?**

*Please mark one only*

- |      |                          |             |                          |       |                          |      |                          |
|------|--------------------------|-------------|--------------------------|-------|--------------------------|------|--------------------------|
| One  | <input type="checkbox"/> | Two         | <input type="checkbox"/> | Three | <input type="checkbox"/> | Four | <input type="checkbox"/> |
| Five | <input type="checkbox"/> | Six or more | <input type="checkbox"/> |       |                          |      |                          |

**Q16 In general terms, what do you think of the extent of the provision of science communication activity in the UK today?**

*Please mark the statement which you agree with most*

- |                                                                                   |                          |                                                                        |                          |
|-----------------------------------------------------------------------------------|--------------------------|------------------------------------------------------------------------|--------------------------|
| There is far too much science communication activity in the UK today              | <input type="checkbox"/> | There is too little science communication activity in the UK today     | <input type="checkbox"/> |
| There is too much science communication activity in the UK today                  | <input type="checkbox"/> | There is far too little science communication activity in the UK today | <input type="checkbox"/> |
| There is about the right amount of science communication activity in the UK today | <input type="checkbox"/> |                                                                        |                          |

If you have any further comments, please type them here:

.....  
.....  
.....

No further comments.....

Thank you very much. The purpose of the study is to collect information on the breadth of science communication in the UK. If you have time and you/your organisation have organised or participated in other types of activities, we would be grateful if you could give us more detailed information on the most recent activity (other than the most important type) – to return to Q7, please click here...

[clicking returns to Q7 itself, NOT the instruction 'please complete...in relation to the most important activity...']

That's the end of the questionnaire.

Thank you very much for your time and help in completing this questionnaire.

We will be producing a report at the end of our study, which we can send to you electronically. If you would like to receive a copy, please type in your name and email address below:

Name

Email address