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European Research in the Media: the Researcher's point of view



Report
December 2007

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Table of Contents

1.1	BACKGROUND TO THE STUDY	3
1.2	ABOUT THE STUDY	4
1.3	PROFILE OF RESEARCHERS INTERVIEWED.....	5
2.0	SUMMARY OF KEY FINDINGS	6
2.1	COMMUNICATING SCIENCE AND RESEARCH – SPECIFIC EXPERIENCES	7
2.2	MEDIA COVERAGE OF SCIENCE.....	8
2.3	MEDIA COVERAGE OF EUROPEAN FUNDED SCIENCE	9
2.4	TYPES OF SUPPORT FOR SCIENTISTS IN COMMUNICATING SCIENCE	9
2.5	FUTURE CHALLENGES OF COMMUNICATING SCIENCE	9
2.6	SEGMENTATION OF RESPONSES ACCORDING TO RESEARCHER CHARACTERISTICS	10
3.0	INTERVIEW RESULTS	12
3.1	SCIENTISTS AND THE MEDIA – AN OVERALL VIEW	12
3.2	COMMUNICATING SCIENCE AND RESEARCH – SPECIFIC EXPERIENCES	15
3.3	MEDIA COVERAGE OF SCIENTIFIC TOPICS	17
3.4	MEDIA COVERAGE OF EUROPEAN FUNDED SCIENCE	21
3.5	TYPES OF SUPPORT FOR SCIENTISTS IN COMMUNICATING SCIENCE	23
3.6	FUTURE CHALLENGES OF COMMUNICATING SCIENCE	25
4.0	MAIN CONCLUSIONS.....	29
5.0	ANNEX – INTERVIEW DISCUSSION GUIDE	31

1.1 Background to the study

The increasing impact that science has come to play in society has paved the way in recent years for a more fluent dialogue between the scientific community and the general public. For many scientists today, communicating science and technology to the public is growing into a recognised activity. But despite the progress achieved in the direction of dialogue and participation, it is also true that there are still many obstacles to be addressed in consolidating a culture of science communication in Europe.

Scientists' main focus is research but have more difficulties to work in the world of the media. Finding out more about the public and developing ways of talking with and to them more effectively are becoming increasingly necessary. It is no longer possible to ignore the public. If science is not successful in reaching the general audiences, it is unlikely that it will find the support and resources it needs to continue to develop.

The European Commission and its Member States have been increasingly supporting this process through a wide range of tools and instruments, including the development of different types of events¹, projects² and prizes³; thematic web sites⁴; information magazines, brochures, leaflets, newsletters and posters; as well as activities to enhance public understanding of science. Several studies have also been commissioned in the recent past to address the views of scientists and other relevant groups on factors affecting research scientists engaging in science communication activities.⁵ But the impact of science is such that communicating research activities and results to the public must be helped and encouraged by a wider community of stakeholders, including not only the Commission and national authorities, but also authorities at the regional and local levels, scientific academies and funding agencies, the media and the scientific community itself.

¹ The **Communicating European Research** (CER) Conferences were organised by DG Research in 2004 and 2005 to enhance the dialogue between the scientific community and the media and communications community to improve public awareness of science and technology.

The **pan-European Science and Technology week** is celebrated since 2000 with the aim of showing Europeans how science is relevant to all. The weeks promote lively, visual projects and activities that capture citizens' imagination and try to create a new perspective on science. In addition, many EU Member States organise their own science weeks or 'festivals' on an annual or two-yearly or ad hoc basis.

² **MESSENGER** was funded by the European Union under the 'Science and Society' section of the Sixth Framework Programme, and was undertaken by the Social Issues Research Centre (SIRC) in partnership with the Amsterdam School of Communications Research (ASCoR).

³ The **EU Descartes Prize for communicating science** was launched in 2004 and rewards professionals scientists and communication professionals who have conducted excellent and innovative science communication projects.

⁴ **AthenaWeb** (www.athenaweb.org) was launched in 2005 to boost science film production and circulation. The portal – which is operated by Lab to Media for DG Research – is currently being redefined, retooled and redeveloped.

Xplora (www.xplora.org) is the European gateway to science education. It is aimed at teachers, pupils, scientists, science communicators and science educators.

⁵ In the UK, a study funded by **The Royal Society, Research Councils UK and the Wellcome Trust** was carried out in 2006 to provide evidence to support the development of strategies to encourage scientists and engineers to communicate with the public, policy makers and media. A representative sample of UK researchers completed an online questionnaire and took part in interviews to establish the level of current 'outreach' activity, and how such activities were perceived. See <http://www.royalsoc.ac.uk/page.asp?id=3180>.

The **Swedish Association Vetenskap & Allmänhet**, VA (Public and Science) has produced a wide range of surveys and studies on how the public views research, how researchers view dialogue and what specific groups of society think about science. See <http://www.v-a.se/>.

1.2 About the Study

Within this background context, the Directorate-General for Research of the European Commission is organising the first European Forum on Science Journalism in December 2007 in Barcelona with the aim of improving the media coverage of European research. In particular, the Forum is expected to discuss the actions that can be taken to improve the visibility of EU research in the media.

In preparation for this event, DG Research commissioned a study of the views of a selected sample of researchers across Europe on the portrayal of European research in the media. The overall goal of the study was to analyse the views and perceptions of researchers on how European research is presented and covered in and by the media in Europe.

The study involved in-depth telephone interviews with a sample of 100 researchers who have participated in projects funded by the European Commission's Research Framework Programme, based on the excellence of their scientific work. Researchers from all Member States and representing a broad spectrum of scientific fields were interviewed in order to adequately reflect different sub-groups. The fieldwork and data reporting were undertaken by The Evaluation Partnership (TEP) and Deloitte between end April and mid June 2007.

The study had 4 objectives:

- To gain a detailed understanding of the issues, variables and constraints faced by European researchers when communicating with wider audiences;
- To undertake an analysis of options – what can be done to increase coverage of scientific research in the media, and in particular to help researchers better communicate with the media;
- To gain a detailed picture from EU researchers of their interactions with the media in the communication of their scientific work;
- To find common ground for debate and discussion between the scientific community and the media in the longer term.

The interviews aimed at discussing in detail the specific experiences of researchers when communicating their work to wider audiences, and the importance that each assigns to communication issues. In particular, it was important to assess the degree and types of initiatives taken by researchers in their relation with the media, and their average exposure to different media channels – including TV, radio and newspapers.

The overall view that researchers hold of the relation between the scientific community and the media was also assessed, as was the comparison between the coverage exercised by the different types of media. The perceptions on the positive and negative aspects of the quality and quantity of science coverage in the media led to the discussion of the existence of a potential “mismatch” in what scientists might wish to see receiving media coverage and what the media might see as newsworthy, and of solutions that might help to fight the differences.

In this general context, researchers were then asked to provide their views on the media's coverage of European-funded science. Interviewees were requested to rate the relation between European-funded scientists and the media, and in particular to assess the degree to which the European dimension of their scientific was of interest to the media in comparison to the work carried out at national level.

Researchers were also asked to reflect on the evolution of the communication of science and its relationship with the media throughout the life span of their careers, and on their expectations towards the future of media's coverage of science. Their views on what each side – the media and the scientific community – can do to improve communication of research results were also tested.

Finally, the study aimed at collecting the views of researchers on the current degree and type of support for scientists in dealing with the challenges involved in communicating their science to the media; and at discussing alternative tools, information and initiatives that they would like to see out in place – both for scientists and for media representatives.

1.3 Profile of Researchers Interviewed

Researchers from nearly all the EU-27 Member States took part in the study. Scientific fields are also widely represented in the study, covering fields such as Information Society Technologies, Energy, Health and Industrial Technologies, Environment, Science, Society & Economy, Biotechnology, Food, Transport, SMEs, INCO, Astronomy, Biology and Marie Curie Actions, etc..

When analysed the profile by gender, almost 7 out of every 10 respondents (69%) are male researchers. The remaining 31% are female scientists. When analysed the profile by seniority, nearly all of the participants in the study (94%) are senior researchers. There is a minority of junior scientists though represented in the sample, which amounts to 6%.

2.0 SUMMARY OF KEY FINDINGS

- A **wide range of views and heterogeneous reactions** was found. Even though the majority of researchers feel that the relation between scientists and the media is faced with complex challenges that are the result of the different – if not opposite – logics that prevail in each world, in general **the relation seems to be regarded as better than it is commonly understood to be**.
- **Many researchers are conscious that there are barriers to the reporting of science on both sides** (media and scientific community) and recognize the need for scientists to be more open towards journalists and media in general.

Factors that make the reporting of science difficult

- To explain certain topics it is suggested that a higher level of prior knowledge is required by journalists or that scientists need to provide a much clearer explanation.
- Biologically-related science pertinent to health, food, and agriculture is easier to convey than areas requiring mathematical concepts such as IT-based engineering design.

Factors that impact negatively on the quality of science reporting

- **Scientists believe that covering a scientific story can be driven by other imperatives than the science itself**. In particular politics, for example climate change has been a topic of scientific interest for around 20 years but only recently high profile because of a political agenda.
- **Scientists fear that prominence is given to the need to have an attention-grabbing angle at the expense of factual accuracy**. A black and white scenario is thought to be of more readership interest than a balanced portrayal and short term concerns are deemed to be more exciting than long term scenarios.
- Scientists believe that the modern preoccupation with a celebrity culture results in the use of **popular scientific communicators on scientific topics for which scientists believe they are not appropriate**. This suggests that scientists attach a high level of importance to the credibility of the source, rather than taking a view that using personalities to convey science is a justifiable means to an end.

Factors related to the type of media

- Many regard **TV and radio** as the most powerful media, but consider that it can be more difficult to get the message right through these channels.
- The **press** is seen differently in different countries with big differences between serious and popular newspapers.
- **Popular science magazines** are praised by some as being the best researched media channel, though the majority agreed that the distribution is not widespread among the general public.

- The **internet** is viewed somewhat favourably. **Podcasts** and **blogging** are also seen as valuable developments. However though doubts are expressed about the quality control of the material available.

2.1 Communicating Science and Research – Specific Experiences

- Most of the **scientists interviewed consider communication of their work to be very important**, but report that they are most committed to communicating when the research area is of critical impact to society (e.g. health, nutrition) or controversial (e.g. nuclear energy).

Levels of interaction with the media

- There seem to be **three levels of science-media interaction adopted by researchers**.
1. **Circa one third of respondents have limited contact with the media. This group enjoys exposure in scientific circles, but is reactive to working with the wider media and has not been in contact with the media in the last 12 months.** Having the support and resources of the institution that these researchers work for is critical to their ability and desire to communicate with the media.
 2. **Nearly half of the sample has more frequent interaction with the popular media, but this is still episodic.** Scientists in this group tend to receive some back-up from the institutions or projects for which they work but this is still not sufficient to generate stronger and more frequent links with the media.
 3. **Approximately 20% of researchers enjoy an active interaction with the wider media.** This group can be categorized as being adequately supported by their institutions and being proactive seekers of the links with the media.

The rationale for communication with the media

- **Public accountability is commonly cited as the reason why scientists feel a need for wider communication actions, which aim to inform taxpayers of the results of the research they indirectly support.**
- Providing **information to correct or avoid misconceptions of science** is another key motivator, particularly given their fear that scientific information is sensationalised if not provided by trustworthy sources.
- Some scientists also see public communication as important to **attract young people to their scientific field**. It is well known that there has been a reduction in science students in the last 10 years.
- The **'knock-on' potential effect of generating support for further funding is often cited** as well. Communicating the results of research is important to inform the actual financiers of the work and thus to ensure continued funding.

Communication initiatives

- There is no lead/single initiator of media coverage. Most scientists report that they **both take initiatives themselves and respond to media approaches**.
- The range of initiatives undertaken is wide. **Preferred methods** include the use of press releases, local and national interviews, school talks, specific occasions for user groups or stakeholders that help to shape the research, publications and broadcasting contributions.
- The majority of media interactions are managed by the organisations that employ the researchers, though some are led directly by individual researchers and these interactions are more spontaneous and informal.

2.2 Media Coverage of Science

Views on the quality and quantity of media coverage of science

- **Most researchers believe that the quality of science coverage in the media could be improved.**
- The **lack of specific funding for communication, the lack of time and the difficulties in finding a simpler language** to communicate clearly and effectively to the wider audiences are highlighted as the main constraints stemming from the scientific community.
- The **lack of specialized science journalists** in the media, **commercial drivers, time and space constraints, editorial policies, lack of continuity and preference for one-off “hot topics”** are highlighted among the most cited media drawbacks in the fight for quality.
- The **reporting of scientific material is now less widespread**. Once the media reflected an enthusiasm for science but that is thought to be no longer always the case.

Proposed solutions to improve the relationship between scientists and the media

- The **solutions proposed** include:
- **Better training both ways**, via dedicated university courses, round tables and joint science-media events, concepts modelled on ‘artist in residence’ (‘journalist in residence’), sabbaticals fostered or periods of on-the-job training.
- Greater **attempts to integrate science into communication on areas that have a wide public interest/take up in every day life**. Key tools suggested included popular magazines, TV soap operas, and entertaining films. This is perceived to be a good way to portray science as underpinning everyday life rather than being a specialist, niche activity.
- **Scientists are conscious that they do not always recognise the socio-economic context of their work and are often not good communicators**. Many feel that if they received training on specific communication skills, they would probably be better prepared to interact with the wider public through the media.

- **There is unanimity among scientists that they would like a more continuing and in-depth relationship with the media** so that the public realise that science is about acquiring new knowledge and satisfying curiosity - not just inventions or new products.
- **It is suggested that media editors/producers need to pay more attention to the importance of science and to make changes within the profession to recognise this significance, for example through** attracting scientists to work in the media and science training or sabbaticals for journalists.

2.3 Media Coverage of European Funded Science

- **The relationship between European-funded scientists and the media is not considered to be different to the media relationship with non-EU funded scientists.** In most cases, the fact that a project is funded by the EU is not newsworthy. However, in smaller and newer Member States this factor can ignite media interest.
- Views are divided on the degree of effectiveness of initiatives to communicate European science. Around **half of the researchers interviewed perceive that European-funded projects are better at communicating than their national counterparts.** However, **the other half specifically question if these communication efforts are successful in generating media coverage.**
- Those researchers who have **attracted media attention to European-funded projects suggest that this relates to the size and trans-nationality of the projects and not the results of research per se.** Others who have not attracted the media as a result of **European funding suggest that the content of the research is of more interest than its European funding source.**

2.4 Types of Support for Scientists in Communicating Science

- In general there is **not thought to be enough support for scientists endeavouring to communicate their science** to the media.
- Many complain that they **lack the tools, the incentives and the time to communicate their work at wider levels**, and consider that if communication were given a more prominent role at institutional level, they would certainly enjoy a more fluent and fruitful interaction with the media.
- Some people favour access to more fully structured and staffed **PR departments**; others want **more training** to be available both ways. No particular approach is a magic solution. Whatever the mode, the essential feature is that it must be funded properly to be taken seriously and be an instrument of change.

2.5 Future Challenges of Communicating Science

- Most of the scientists interviewed feel that there has been **some change in the relationship of science with the media over the time span of their career.** Several see the change in a **positive light with more professional coverage and greater dynamism.** However some –

more likely to be among the older age groups– feel that the relationship is now more distrustful often as a result of sensation seeking.

- **More needs to be communicated on what science is about – its culture of enquiry and open-mindedness.** This seems to be a recurring theme picked up across the interviews. An understanding is required of limitations to knowledge and the provision of only a relative answer at any one time.
- To avoid science becoming stereotyped in an unfortunate way **structural changes are required to the role of scientists**, so that in the way that scientific publications help to establish a researcher's credibility, effective public communication is also recognized.

2.6 Segmentation of responses according to researcher characteristics

Analysis by Scientific Field

- Researchers are **more committed to communicating when the research area is of critical impact to society** (e.g. health, nutrition) **or controversial** (e.g. nuclear energy). The **range of involvement covers a wide spectrum** and their specific involvements can be wider than just their own field.
- It is **less likely for researchers working on information society technologies, transport or international cooperation to be contacted by the media**, unless they exercise an active approach – either at an individual or at an institutional level – to attract their attention.
- The **quality of the media is more criticised by researchers working in the fields with wider societal impact** for not being sufficiently accurate, usually because they feel that their stories are being oversold, the results of their work are being magnified, and that there is insufficient understanding of their topics.
- Researchers working in the **less topical fields** are **more upset about quantity issues**. Many point out to the fact that the results of their work are relegated by those of other areas with wider media appeal. There is consensus however that this tendency is inevitable as the media are more attracted to those fields that have a stronger impact on people.
- Respondents working in those fields that are less attractive to the media are more likely to perceive that **European-funded projects perform better in terms of communication than their national counterparts**.
- Researchers working in those **areas with wider media impact** are more wary than others of the fact that **what most interests the media of EU-funded projects is the information that has to do with the funding and the composition of consortia**.
- Researchers working in **less appealing or more sensitive fields** are **more likely to perceive the lack of institutional support** and are thus more demanding of specific communication tools than those doing research on the topical scientific areas.
- When consulted about the **changes in the relationship of science with the media over the time span of their career**, researchers working in those fields that experienced wider media recognition in the past years (e.g. environment, nutrition, and industrial research more recently) are more conscious of the magnitude of the changes as they have had a direct impact in the dissemination of their research.

Analysis by Nationality

- **Researchers in the EU-15 MS are more optimistic** about the relation between science and the media **than their colleagues in the EU-12 MS**, many of whom are especially concerned about the role of politics in the media and the fact that science has lost its public space to other issues nowadays.
- In general, **researchers working in the EU-15 Member States** – particularly in Germany, France, the UK, The Netherlands, Finland and Scandinavia – are **more likely to find it easier to communicate their work** to wider audiences because science tends to be more widely and better covered in the media.
- Researchers working in the **EU-12 MS** tend to have the **least exposure and this related to a lack of culture of researcher mass communication**. However when working in European-funded projects, researchers from the EU-12 MS put more efforts into communicating the European nature of the project than researchers in the EU-15 because they are more likely to get media coverage.
- **Scandinavian, Finnish and Dutch researchers** are among the **most satisfied** with how the media covers science in their countries. Researchers working in **other EU-15 MS – in particular in southern Europe – tend to be more critical** about the quality and quantity of the media coverage of science in their countries.
- When asked to provide their views on the **support they receive to communicate their work, those working in the EU-15 MS** – in particular in Sweden, UK and France – **are more satisfied**. Respondents working in the EU-12 MS believe that there is a need for greater support by their organisations but consider that there is good support from the European Commission.

3.0 INTERVIEW RESULTS

3.1 Scientists and the Media – an Overall View

3.1.1 Views on the current relation between scientists and the media

The majority of researchers interviewed agree that the relation between scientists and the media is rather heterogeneous and not an easy one. The heterogeneity might be dependent on subject area, where the feeling is that some have more mutuality with public interest than others. Among the main issues of concern to scientists is the perception that the media responds to its own “black and white” logic which is different – if not opposite – to the logic that governs science and research. Interviewees are of the opinion that there is a media need for immediacy whereas science accepts that it is OK to be wrong and one published paper is usually just a contribution to the whole. In the eyes of researchers, the media are attracted to big, novel, and straightforward stories with a selling hook which can often lead to inaccuracies and misinformation when reporting science to the wider public. Science on the other hand is led by small advancements that are almost never one-dimensional. Scientists thus find it difficult to get the message out and are discouraged when they feel that their work was not accurately reflected by the media:

- *“The media wants things new not true, which leads to inaccuracies.”*
- *“We cannot speak exactly the same language.”*
- *“Usually science is not related to scandals, so it is not interesting for the media.”*
- *“Research projects with more than 10 years’ work are usually reported in two lines in the media.”*

Many researchers also feel unenthusiastic by the lack of space assigned to science in the media. People in this group consider that the interest in their work is relatively low as opposed to the broader coverage of other topics such as sports or politics. There are however variations and different insights according to the field of research and the country of researchers. In general smaller countries seem to achieve a better and longer lasting relationship and scientific areas depending on mathematical concepts or underlying base technologies appear to have a more difficult one:

- *“There is no atmosphere in the media to talk about research, it is only about politics.”*
- *“The same issues appear with frequency.”*

Among those interviewees with a more critical attitude towards media’s coverage of science, it is common to hear them say that the media make little or no effort to add value to the communication of science, mainly because they are not actively looking for stories or sources but are more reactive to specific episodes or pieces of news. Several people think that journalists do not know much about science but topical areas such as climate change certainly are felt to be benefiting. A few also mention that there tends to be a wider dissemination of scientific topics that are financed by strong interest groups or that are communicated by popular scientific personalities who are not necessarily the most credible source of information on science and research:

- *“Journalists – even science ones are often quite generalist and have difficulty with mathematical concepts for example.”*
- *“The problem for them is that the range of scientific activity is very large.”*

There are however many respondents with a more conciliatory approach who are conscious that the difficulties stem not only from the media, but also from the scientific community. People in this group feel that the links are stronger now than they used to be and are supportive of the need for scientists to be more open and receptive towards journalists and media in general:

- *“One needs to provide a service and be available to the media.”*
- *“The relationship is getting better; journalists understand the complexity of science and the need for feedback.”*
- *“Journalists are limited by all types of constraints. Scholars think that whatever they have to say is the most important thing. There is a need to present science in an appealing way and to give space and time for journalists to look into your field and find angles of interest.”*

3.1.2 Comparisons between the different media

When asked to assess the differences between the different types of media, the majority of researchers are particularly pessimistic about TV's coverage of science. The general reaction to the value of TV is that while it can be very powerful, it is difficult to do well. Interviewees point out that TV loves controversy and scandal, and thus tends to focus on the spectacular aspects of science. TV is not interested in science per se but in specific topics or events that are linked to science. In addition, TV usually allows for no time to check on facts or to develop long messages, which makes it less likely for scientists to have control over what is being discussed. As a consequence, circa two thirds of researchers admit being intimidated by television and feeling more comfortable in their interaction with the written media instead.

- *“TV is more spectacular, and thus covers those pieces of news that generate wider impact.”*
- *“TV is more event-oriented.”*
- *“Timing in TV is quite limited.”*

Some differentiate between programmes with a scientific basis and news items on TV. The latter are thought to be too dependent on short clips of footage so the positive reaction of those interviewed is directed more towards the longer documentary programmes. Also, some specialised TV channels are highlighted as providing high quality media coverage for the general public:

- *“TV can be quite well researched and informed. There is a lot of work behind.”*

Even though radio is not as present in the minds of researchers, it is perceived by many to be similar to TV but slightly better in terms of coverage. In addition to reaching wide audiences, radio allows dedicating more time to specific issues and thus provides space for a more balanced coverage of scientific issues. In addition, some interviewees recognise the attractiveness of local radios to discuss science topics of local impact – though there is a risk that local radio stations are sometimes not adequately informed:

- *“Radio allows for a more serious assessment than TV.”*
- *“Radio is the most objective media; discussions tend to be more balanced.”*

Serious newspapers are thought by several people to do a good job but such a reaction to press coverage is counter-balanced by the negative impact of popular tabloid newspapers. Even though nearly all researchers agree that the coverage of science in “top quality” newspapers is more extensive and detailed than that of TV or radio, the majority still consider that – with these few exceptions – there prevails an insufficient coverage coupled with an excessive interest for the big, flashy news as opposed to the more serious assessments of science issues:

- *“Serious newspapers provide the best accuracy.”*
- *“Newspapers do present serious science articles that rely quite heavily on the content of the press releases sent by the scientific community; headlines can be quite misleading however.”*

Popular types of scientific publications are felt by some to be doing a good job but having limited impact. The majority agree that the distribution is not widespread and that they tend to be mainly read by the close scientific community circle:

- *“Magazines are more sensitive as they have more space to dig deeper.”*
- *“The problem with science magazines is that their dissemination is limited.”*

There are several favourable responses regarding the internet which is seen as increasingly important because many scientists can be involved and do the communication well. However there are concerns expressed about quality and variability of material as well, which can be misleading for the wider audiences as it is difficult to discern the good from the bad. Web-based information could be seen as lacking in quality control. *Blogg*ing and *podcasts* are also mentioned favourably by some:

- *“The internet suffers from variability and quality.”*
- *“The Internet provides you with 24-hours news. It is interesting as a disseminator of hot issues.”*
- *“It is very difficult for the general public to differentiate the very good information from the very bad information.”*

There are a variety of views on the context of the media. Circa seven out of every ten researchers feel that it is necessary for researchers to understand the commercial drivers and constraints of the media in order to be more prepared when interacting with the media and thus get value from any scientific coverage. There are a fewer respondents – nearly one out of every three – who are more critical and feel there are no significant differences between the various vehicles, and consequently no tailored approaches to be exercised. Different vehicles might differ somewhat in different countries. For example a serious newspaper is widely read in Finland whereas in UK the newspapers are very competitive and cover a wide range of different readerships. One interviewee felt that insufficient use was made of film as an entertainment medium to promote interest in science.

- *“Depends on more people understanding the commercial drivers.”*
- *“Big division between serious and popular journalism”*
- *“Film itself should be considered – usually entertainment but can have a big impact like Jurassic Park.”*

3.2 Communicating Science and Research – Specific Experiences

3.2.1 Degree of involvement in communicating science to wider audiences

It is encouraging to note that the majority of those interviewed acknowledge some experience of communicating their science to a wide audience, and that even in those instances where the involvement is conditional there is recognition of a commitment. More specifically, researchers can be classified into three distinct categories in terms of their degree of involvement in communicating science. Circa one third of respondents enjoy an active exposure in the usual scientific circles – journals, conferences, universities – but have very limited contact with wider audiences through popular media. Having the support and resources of the institution that these researchers work for is critical to their ability and desire to communicate with the media. The majority in this group is mostly reactive to media approaches and has not been in contact with the media in the past 12 months. Many of them point out that the system does not encourage them to interact with the wider public as it does promote their participation in specialised conferences and journals:

- *“Interviews with the media give no extra points. It is better to write in a good scientific journal.”*
- *“My scientific domain is not of interest to the large public.”*
- *“I have no time. Besides I feel that I am not the right person to do this.”*
- *“I basically do theory, so my audience is academic.”*

There is a second and more numerous group of scientists – who account for nearly half of the sample – who do exercise a more frequent interaction with the popular media, but this is still episodic and usually linked to specific projects or events. Scientists in this group generally receive some type of back-up from the institutions or projects for which they work but this is still not sufficient to generate stronger and more frequent links with the media. Researchers in this group may be more or less active in their approach to the media, but they usually highlight that their specific fields of work are not actively sought for by the media. In general, they acknowledge some sporadic contacts with the media – mostly newspapers and radio – in the past 12 months:

- *“Some years ago I was awarded a prize for innovation that had a big communication impact in the media.”*
- *“Sometimes I am contacted by journalists, but this does not happen that often.”*
- *“We try to attract the media in general, but they only come if it is something that sells.”*

Finally, there is a third and more reduced group of researchers – circa 20% of the sample – who enjoy an active and periodical interaction with the wider media. These are mainly researchers who – besides being adequately supported in this role by their institutions – are also active individual seekers and supporters of the links with the media. They may be favored to some extent by the attractiveness of their specific fields (e.g. waste disposal, safety issues, environment), or by their critical impact to society (e.g. health research) but their hands-on approach is what generally makes the difference. They tend to have weekly contacts with newspapers – either as regular columnists or as consultation sources – and combine these with monthly or bi-monthly appearances in radio or TV:

- *“I personally have a journalistic background, so our team normally communicates our work.”*
- *“We are a team of 9 researchers working closely with the media. We are engaged on a daily basis with journalists.”*
- *“I am quite aware of communication issues as part of my work. I am regularly in contact with media representatives from TV, radio and newspapers.”*

3.2.2 Perceptions on the importance of communicating science to wider audiences

Notwithstanding their particular communication experiences, more than nine out of every ten researchers are conscious of the importance of communicating their scientific work to wider audiences. Communication is essential for many reasons. It is important that citizens in general are aware of science advancements to act independently and make their own decisions. It is also important that taxpayers are informed on how their money is invested in the case of public research. Communication is also vital in those fields where scientific research has a direct impact on people (i.e. health and nutrition), and in those areas that are more sensitive to public opinion (i.e. nuclear technology, environment):

- *“It is important to communicate as people often are not aware of issues that impact on them.”*
- *“There are areas where it is more important to communicate, and others where debate is less advanced and the urgency of communicating is not the same.”*
- *“It is mostly important for public-funded research to reflect how the money of the taxpayers is being invested.”*
- *“The general public is very sensitive to some topics. Scientists need to explain things in a very open and simple way to help people understand.”*

For some there are other agenda items in communication that are seen as important. Some mention that one value of communication is the underpinning of support for the work and generating positive support for further funding. The need for the public to understand the work in order to counter misconceptions is cited by others. The public has a right to be informed and this is an enabling element. Others feel that feedback is important both from policy decision-makers and in developing and in shaping applied work to needs. They argue that it can be important to influence society and indeed the scientific community on difficult issues. A further aspect mentioned by several interviewees is the need to attract young people into science and capture their interest even if other immediate benefits of broader communication are not so apparent.

- *“Communication is important to ensure policy support and funding for research.”*
- *“Very important to communicate in order to influence society.”*
- *“We need a strong wave of new students, which is another reason why we go public.”*

Researchers also recognise that this imperative to communicate is faced with a number of barriers and constraints. The lack of specific funding for communication is generally coupled with the lack of time and the difficulties in finding a simple common language to translate to the wider audiences:

- *“The problem is that the percentage of funding assigned for research is not high, and dissemination of results is usually not part of the funding equation.”*
- *“There is not enough time to communicate results of research.”*
- *“We are not media specialists, so we find it difficult to communicate our work in a simple and appealing language.”*

3.2.3 Types of initiatives to promote media interest in research

Quite a wide range of involvements are mentioned as initiatives to promote media interest in research. In average, circa nine out of every ten of these initiatives are more commonly handled in association with or by an institutional communication department. A very low proportion – one out of every ten initiatives – is led directly by individual researchers.

The most frequently cited initiative is the use of a press release produced in association with or by an institutional communication department. Interviews and other forms of contact are then stimulated by this. Other initiatives stemming from an institutional level can either take a more traditional form –press conferences, newsletters, information leaflets for specific purposes, attendance and demonstrations at international science fairs and media meetings, – or search for more novel approaches – documentaries, public exhibits, breakfasts or training sessions with journalists, development of log-in websites, articles for policy makers and industry and the production of material for schools:

- *“We issue press releases, newsletters, e-mailings.”*
- *“If we are doing field-work we shoot a film to show our work to the media and the local community. It is a very simple way to disseminate our research.”*
- *“We organise all kinds of events, including breakfasts and training sessions with journalists.”*
- *“Material produced for schools and schoolteachers using pictures.”*

Individual initiatives – which are fewer in number – follow a more ad hoc nature, such as telephone and face-to-face contacts with journalists, radio and TV appearances, or collaborations for newspapers and magazines. These are usually undertaken by some of the more active researchers working on the topics with wider societal impact:

- *“I regularly write in newspapers but I am also responding to TV and radio.”*
- *“Usually I try to find journalists interested in my theme and try to contact them before releasing an article or speaking in a press conference. If they have a piece of news that is exclusively theirs and not shared with others they make it bigger.”*
- *“I call journalists I know and try to establish a person-to-person contact.”*

3.3 Media Coverage of Scientific Topics

3.3.1 Views on the quality and the quantity of science coverage in the media

Even though more than half of the scientists interviewed feel that the quality of the coverage of science in the media is poor or problematical, respondents are very careful in avoiding generalisations and do make a point in differentiating the good from the bad media products. Quality of scientific coverage is globally perceived by interviewed scientists as good in media such as *El Pais*, *El Mundo*, *Le Monde*, *International Herald Tribune*, *The Guardian*, *Information (DK)*, *Le Soir*, *Frankfurter Allgemeine Zeitung*, *Die Standart*, and on TV stations such as *BBC*, *National Geographic* and *ARTE*, amongst other media. Also, scientific TV documentaries are often praised for their good quality. According to the interviewees, regional newspapers, TV news coverage, commercial channels and tabloids tend on the other hand to present low quality reporting on research.

A number of reasons for such disquiet among the critical scientists are put forward. One is the lack of specialised science journalists. Another reason is the perceived need for journalists to have black and white inputs and immediacy. Others however feel that enthusiasm for, and faith in science is being lost and so the wider coverage is more precautionary. The presentation of findings can often be misleading so that a small number of scientific publications might be made use of and then conclusions extrapolated from them which are statistically untenable. Lack of continuity and preference for one-off “hot topics” are also raised by many as influencing negatively the public perception of research. There are other issues that are associated with the media logic and its tacit rules that represent a stronger challenge. Commercial needs, time and space constraints, editorial

policies, and a focus on sensationalism and conflict are among the most cited drawbacks in the fight for quality:

- *“The problem is that general journalists are often asked to write about science, and they generally misunderstand the real concepts.”*
- *“Some of the media want straightforward issues and are very eager to have final statements.”*
- *“Very seldom what you read in the media goes beyond the surface.”*
- *“It’s poor – if they do not have a good angle on it they look to sensationalise. The stereotype of the scientist is that of the unapproachable boffin”*

Among the positive features, there are some researchers who highlight that the quality of science coverage has improved and that there are positive examples in different media of careful fact search, balanced reporting and ethical standards. The role of the scientist is to check factual accuracy so that what is conveyed is a balanced and considered portrayal. This needs to depend on trust and confidence in the reporting. When this is done well the result can be very professional. A feeling shared by respondents in this group is that the calibre of the scientific journalist is a key aspect of this, but the view is also stated that it is really up to the scientist to create the necessary scientific links on things to report:

- *“Media professionals are more prepared each time.”*
- *“My experience with journalists is that they always make careful fact search before publishing, and that they report the two sides if there is a debate.”*
- *“Twofold – those who are responsible in relation to facts are very professional; others can be provocative and look at only one side of an issue.”*

In terms of the extent of scientific coverage in the media the significant comment is that it is patchy. This patchiness can differ by scientific area, media vehicle, and internationally. For example more biologically-related areas such as health attract significant coverage whereas areas more dependent on mathematical concepts get less exposure. Some feel that this variability is the result of user interest – whether there is a public market for the information. Others feel that the driver is the political imperative - e.g. climate change. Some researchers in this group compare the situation in Europe with the wider coverage of science that exists in the United States. The existence of strong public and consumer groups who stimulate debates on scientific topics on the one hand, and the size and amount of staff of the main publications all have a positive impact on the quantity of science coverage in the United States as opposed to Europe:

- *“Science coverage is very small. It is usually beaten by other topics.”*
- *“There could be more but it is a chicken and egg situation to argue public interest/disinterest on the basis of low coverage or high coverage.”*
- *“There are some fields that have more applications and impacts on the population and this is reflected in the coverage.”*
- *“In the United States, science is much more part of everyday life of the public. In Europe we lack that type of debate.”*

Some argue for a contextual change by tying science more specifically to societal issues then devoting time to it. Another thought is to see more embodiment of science across the board so that many types of articles or media vehicles mention scientific matters in different contexts rather than science being perceived as a niche activity:

- *“Why not have science mentioned in TV soap operas or popular magazines?”*
- *“TV probably has more space to fill so can provide more science items tied to societal issues.”*

There are fewer researchers – slightly less than one out of every five – who think that the quantity is adequate in general, and that it has tended to grow considerably over the last decade with the explosion of the internet and the internationalisation of TV stations. There are even a couple of

voices in this group who feel that there is sometimes too much coverage of science issues in the media that risk misleading the public:

- *“Quantity is growing dramatically in the media. On satellite TV there is a lot.”*
- *“In my field (cancer research) many people have heard that some products have a positive effect against cancer but they do not understand that it is not a protection or a cure. So there is a risk that more coverage will lead to unintended consequences.”*

3.3.2 Problems of mismatch between science and the media

The great majority of scientists interviewed – circa more than nine out of every ten – recognise an obvious problem of mismatch between what scientists might wish to see covered in the media and what media people regard as newsworthy. Whilst some of them admit the responsibility of scientists, there are others who blame the media, and many who cannot see an easy way round this and feel it as a fact of life and as an inevitable feature of the relation between both worlds.

Researchers who hold themselves responsible – who account to 20% of the sample – recognise that scientists do not always see the socio-economic context of their work and that they question norms and are not always good communicators when doing so. In addition, their problems in understanding the media logic and constraints, and the fact that communication is not perceived as part of their priorities make it more difficult to interact with the media:

- *“We are not educated to communicate science and people do not understand us.”*
- *“Sometimes science can be very boring and I don’t see a way to make it more attractive.”*
- *“The scientific community has not understood the media language and pace yet.”*
- *“Scientists are too busy, and their organisations do not assign an important space for the communication of science.”*

Those who blame it exclusively on the media – who represent approximately one third of the sample, slightly outnumbering the first group – allege their commercial interests, their need to find a ‘story’ or a sensational angle or look for a balance when there is not a balance, their stronger focus on coverage of news and events instead of on knowledge dissemination, and their lack of qualified science journalists:

- *“Journalists want new stories. Free-lance journalists won’t have a commission if they don’t write about the latest things. There is no interest in the well tried and tested messages.”*
- *“Media wants to talk about the negative effects of science and technology.”*
- *“There is a lack of specialised journalists, and there is no interest from the media in investing in such specialisation.”*
- *“There is a problem of risk and consequence; the media like consequences rather than elucidation of risk levels.”*

Finally one out of every two respondents considers that the differences are to be expected. Some feel that there is public confusion about science and its aim of achieving understanding and creating knowledge. Others suggest that the overall impact of science on many aspects of life is part of the problem – perhaps because it is no longer necessary to think about it separately. However the view is put forward that that the scientific community should think of newer overall messages that contribute to the understanding of science.

- *“There exists a large gap between the media and the scientists. These are two different worlds.”*
- *“Our language is different than the media’s, which is practical and oriented to policy impacts.”*
- *“The media are influenced by political and societal issues so scientific perceptions are trivialised.”*

3.3.3 Proposed solutions to help fight the differences between science and the media

Most scientists interviewed have no “magic bullet” solution to fighting the differences identified between the culture of science and the culture of the media. One summed it up by stating “just keep trying”. Commonly suggested approaches however include better training both ways, anchoring science into obvious societal benefits that are more meaningful to the public at large (though without increasing expectations unreasonably), writing science into more everyday outputs such as popular magazines, and catching the interest of young people:

- *“We need to recognise scientific journalism as a career with more scientists involved.”*
- *“As far as possible dress up the science knowledge acquisition function into likely societal benefits and work back from that into the science knowledge base.”*
- *“Media management should be made mandatory as part of our scientific duties.”*

On the other hand scientists often have their own agenda. They would like to see a more in-depth and on-going relationship with the media, initiatives to get editors interested in science, getting scientists into media posts or training better qualified journalists, having science shows targeted at the media, creating better forms of understanding by reducing the attractions of short-term results.

- *“Get scientists interested in media posts.”*
- *“Science training for journalists – and media training for scientists to avoid frustrations.”*

Among those researchers who believe that the efforts need to be coordinated jointly between the scientific community and the media – who amount to nearly two thirds of the sample –, the range of options goes from general suggestions such as the need to be more open and understanding towards each other; to practical recommendations, including organising special programmes at university level, or round tables and common events in order to strengthen links between scientists and journalists:

- *“Researchers need to interact with journalists more often, and journalists need to learn to interpret researchers in order to disseminate the scientific topics in an attractive way.”*
- *“Professional interfaces are necessary, entailing efforts from both parts. Round tables and common events could be organized to find common grounds for discussion.”*

There are also some isolated sceptical voices – less than 10% of researchers – that consider that the differences between the approaches taken by scientists and the media are irreconcilable and that it is uncertain that any efforts undertaken to try to fight these differences will be successful:

- *“There will probably be no solutions ever. Science tends to focus on the research and not on the impacts – which is what interests the public in general.”*

3.4 Media Coverage of European Funded Science

3.4.1 Relation between European-funded scientists and the media

Whilst circa six out of every ten researchers consider that the relationship between European-funded scientists and the media is not very different from the usual situation for non-EU funded scientists, the rest of the sample is evenly split between those who believe that the communication

component is stronger in European-funded projects than in their national counterparts, and those who argue that communication is not as effective at EU-level.

Those who consider that EU-funded projects perform better in communication than national ones – circa one out of every five researchers – give credit to the important role that the Commission assigns to communication in the projects they support. Dissemination of results is a central and often required component of each project. As such, the Commission encourages national partners to assume an active role through the design and distribution of material and through the interaction with key stakeholders. In parallel to the efforts undertaken by the Commission, scientists are also stimulated by novel communication experiences and best practices that are put into practice by other consortium partners:

- *“Dissemination of results is an integral part of a project contract. Actions go from producing leaflets, designing websites, advertising in newspapers.”*
- *“EU funded research is more likely to lead to media coverage as all projects have to present a plan for dissemination of information.”*
- *“The relations are better because EC stimulates communication which in turn stimulates researchers to communicate more.”*
- *“European projects are integrated by different partners and different countries, which bring about many new and stimulating ideas.”*

Interviewees who are not as positive about the relation between European-funded scientists and the media – representing the other fifth of the sample – are concerned about the effectiveness of the communication efforts undertaken. While researchers in this group do not deny the communication component that exists in the projects they participate in, they question if the efforts are successful in reaching the media. Some people in this group suggest that the lack of effectiveness in reaching the media may be linked to the implementation of general communication approaches that are not always tailored to the different national contexts:

- *“Communication does not appear as effective as it should. Scientific coverage of European projects is very limited in the media.”*
- *“Even though projects give a role to communication, the communication of the results is not good enough.”*
- *“Communication at EU level is sometimes far from the local cultures. The challenge is to find the right way to communicate to wider audiences in each country.”*

3.4.2 Interest of the media in the European dimension of scientific work

Researchers have divided opinions on the level of interest of the media in the European dimension of their scientific work. Circa half of the researchers interviewed are of the opinion that the national media is more interested in communicating the results of local research than those of European-funded science. There are others who in turn consider that there is no real difference in relationship perceptible between European-funded scientists and the media and other situations.

The essence for researchers in this second group is thought to be the content of the science rather than the European dimension:

- *“Our journalists tend to be nationally biased.”*
- *“It is very difficult to generate big interest with the projects ongoing. You don’t get stunning results until the end of a project and this is what journalists want to have.”*
- *“The job is science irrespective of funding.”*

Many researchers agree that what most attracts the media of European-funded science are not so much the results of research per se but the “political” information that comes with each project (e.g. amount and sources of funding, size and composition of consortia, trans-nationality of partners, etc). The lack of palpable short term results, coupled with the big dimensions of projects at EU-level, make it much more attractive for journalists to engage on the operational issues and funding figures.

- *“Whenever I see something of European projects in the media it is about the money spent, the partners involved.*
- *“There is more interest in the amount of money coming in than on the projects themselves.”*

In a few instances the aspect of demonstrating the internationally collaborative nature of the funding is thought to have some media value. This is generally the case for researchers working in smaller Member States where national funding for research is not as strong as in other countries. The participation of national scientists in EU projects thus shows that things are feasible despite the difficulties. Another argument raised by researchers in this group is that European research has the added value of being able to compete against US or Japanese research, which is why it is attractive to the media. Some highlight also that the EU funding is perceived as a “quality stamp” which makes it attractive to the media:

- *“There is a lot of interest in European projects. These are rated at a higher level by the media than national-funded projects.”*
- *“European projects have a special aura because of the size and the European label. Receiving EU funding gives prestige to a project.”*
- *“EU funding means selection. This gives a guarantee of quality and seriousness. This makes projects attractive to media.”*
- *“The European flag wakens the interest of the media much more. European research can compete with US and Japan.”*

3.5 Types of Support for Scientists in Communicating Science

3.5.1 Degree of support for scientists in communicating their science to the media

Approximately eight out of every ten scientists feel that they do not receive enough support or training in dealing with the challenges involved in communicating their science to the media. Many feel a lack of tangible support for example in the form of a press office or communications department, and complain that they lack the tools, the incentives and the time to communicate their work at wider levels without the appropriate support. If communication were given a more prominent role at institutional level, researchers feel that they would certainly enjoy a more fluent and fruitful interaction with the media:

- *“Scientists are at a loss on how to be visible – some structured training on this might be valuable and certainly feedback.”*
- *“Support should be increased. It is not clear for scientists which channels are the most effective to get to the media.”*
- *“There is a culture of needing the immediate story which is of no value to a professional scientist and his CV. In contrast if one communicates in the scientific field then the value is positive. So science needs to attach more value to the area of wider communication.”*
- *“Science competition is getting tougher and tougher. I am not sure how many time younger scientists can devote now to publishing and communicating their work if they are not supported by their institutions.”*

There are however a few researchers – less than one fifth of the sample – who are satisfied with the level of support they receive from the research institutes or universities they work for. The existence of an active press office organising specific training or helping with media contacts can be key in encouraging researchers to communicate their work to wider audiences:

- *“My school provides good support, which is important for many researchers.”*
- *“Sometimes support can be as simple as one or two days of a senior professor having a media education seminar.”*
- *“Good support at university level. They organise test interviews in front of cameras and provide us with tools to improve our writing skills.”*

3.5.2 The most effective types of support for researchers and the media

There is overall consensus among respondents that it is important to identify the adequate specific tools that may enhance the capacity of researchers to communicate the results of their work, and that in general these need specific funding. Suggestions range from media literacy and media training courses – where researchers are given practical advice on how to tackle different types of media formats – to more fully structured and staffed press offices or to mobility initiatives promoting the exchange of best practices. In doctoral programmes it would be beneficial for people to spend some time in other activities:

- *“Media literacy courses could be of use to provide us with simple insights on how the media actually works.”*
- *“Useful to have some kind of benchmarks on what to do and what not to do in talking to journalists and the media.”*
- *“Training on write-ups, interviewing, press releases, and conferences.”*
- *“Mobility of researchers is a good strategy to learn from best practices in other research organisations.”*

Even though the internet is seen as a powerful tool of attraction to younger persons some have concerns about the caliber of the written material available and the lack of control over it. Different arguments can be advanced on the internet without any need to get the balance right. However others feel that quality control tools would develop spontaneously and the ability of the internet to get the word out quickly and easily is more important than concerns over its absence of peer review methodology.

- *“The internet can be a powerful tool but there can still be difficulties for effective communication”*
- *“I would support the internet as the tool of the future. For young people the speed and immediacy is what they want and the more personal minimalist style. For older people such a form of communication may perhaps suffer from lack of person-to-person contact but young people do not sense this”.*
- *“I am not so worried about the lack of quality control with the internet. Communicating science widely is the number one issue.”*

Though less numerous, there are also proposals for support at higher levels – either from national governments or from the European Union – that include the improvement of public television and the promotion of EU-funded mixed consortia that integrate professionals from both the communication and the scientific fields:

- *“Public TV should promote the creation of educational programs for the dissemination of science.”*
- *“I have never seen a mixed consortium with communication and science professionals working together.”*

When consulted about specific tools that could help the media in their efforts to communicate science to the wider public, researchers are in general conscious of the importance of creating stronger and more regular links with the media through the organisation of different joint activities, such as workshops, seminars, conferences, open days, and training sessions. These initiatives would not only stimulate the interest of journalists in science but would also allow generating trust among both groups in the long run:

- *“We should encourage structured relationships with research centres and universities; regular exchanges offering windows to communicate results.”*
- *“We had a journalist who stayed with us during one month at the university as part of an exchange. It was a very useful initiative.”*
- *“Professional science networks are important to help journalists check that their interpretation of science is good.”*

There are however a few respondents who disbelieve of the supportive strategies and are more inclined to demand a more proactive approach on the side of journalists:

- *“They should search for us on the Internet, come to our seminars and events.”*
- *“Journalists know their way. Their own media archives give them access to a wide variety of sources. They should know how to do their research by themselves.”*

3.6 Future Challenges of Communicating Science

3.6.1 *The evolution of the relationship between science and the media*

Nearly all of the scientists interviewed think that the communication of science and its relationship with the media are different now than from when they started their careers. The ways in which the situation is different are however subject to different interpretations. Many respondents tend to judge this trend positively, though there are some who think that the situation is worse now than it was in the past.

The big jump – according to many – was caused by the internet, which strongly accelerated the pace of science and research by making it easier to obtain and disseminate information on nearly every topic and thus by stimulating scientists to communicate outside their usual circles:

- *“The internet generated a big change in how we communicate. It is now easier to get information.”*
- *“The internet and the e-mails made it much easier to communicate.”*
- *“There is more public awareness of what is going on in science, due in part to the internet.”*

The few detractors of this phenomenon complain that the amount of available data is too much to handle, which in turn makes it difficult to discern the good from the bad information:

- *“The amount of information became too much to handle. It is much more difficult now to select important things.”*

Among the other positive changes identified by interviewees, media interest is thought to have increased and the coverage improved (though still insufficient) in terms of being more professional and balanced than previously. Audiences addressed by the media are also more sophisticated to the extent that both sides – media and science – can be guilty of “spinning” of a story. Another factor that is seen to influence positively on media coverage is the increased awareness of the need to communicate among researchers to better reach the wider public and to have wider access to funding:

- *“In many ways it has become better. People are much more critical now, positively questioning the role of science.”*
- *“The major change is that scientists are becoming more accountable on how they communicate their research to society.”*
- *“Today scientists are faced with more competition. You have to show why your research is more interesting than that of your colleagues. Competition is positive in this sense.”*

The pessimistic researchers – who are more likely to be among the older age groups – tend to have a nostalgic view of science and research back in the old times. They are mainly critical of the current commercial trend in the media, and evoke the better quality of journalists, the media, and science in general. Some go further and feel that the impression conveyed is that science is irresponsible now. The situation might be more dynamic but it is also more sensation-seeking:

- *“Media has become more commercial-oriented. Today it is more difficult to present research in a careful way.”*
- *“When I grew up there was another type of specialised journalist trained in a different type of school.”*

For the few younger researchers who were interviewed, many of whom experienced a fluent relationship with the internet from the outset of their careers, the external changes are not that evident. Researchers in the younger age groups are more inclined to associate the changes with individual experiences and a personal maturity process than with big outer trends such as the internet:

- *"I don't perceive any substantial changes apart from me having acquired the tools to transmit the results of my work."*
- *"At the beginning you don't have experience to speak about science outside your closer circles. With time, you learn how to communicate with wider audiences."*

3.6.2 Prospects for the future

Aspirations for the future of media communication of science are for more balanced treatment of science in the media – including a wider coverage vis-à-vis other topics –, achieving a better in-depth understanding, taking more holistic viewpoints and improvement of the factual basis of what is presented. Some people working in the EU-15 Member States want to see a return to the public enthusiasm for science that used to be evident and which is more commonly observed in developing countries. Researchers in the more advanced countries agree that there is a need to help society to grapple with the uncertainties in science to better digest its news. But notwithstanding the challenges, researchers are conscious that they have a strong role to play in the quest for facilitating the access of science to the wider public.

- *"I think it is appropriate that the media coverage should start from societal and policy issues and not from the current state of knowledge of research. Policy and problem driven research should be taken as a starting point for redesigning the relation between research and the outer world."*
- *"I would like science to be more open as it is not exclusive patrimony of scientists but of society as a whole."*
- *"I would very much like it if the scientific community as a whole shifted the focus from specific issues to discuss how science affects society as a whole."*

Some see a need to make more conscious attempts to embed scientific knowledge into everyday life, not least so that it is not viewed as an odd or separate activity. It is difficult to communicate complex issues to the public and the public currently have a different perception of scientists and scientific endeavour from the reality. Some argue that science is far more cross-cutting and multi-component than is portrayed by the media and that social sciences need to be brought more regularly into the scenario so that research is not just seen as comprising the traditional physical sciences:

- *"Create better awareness of the science culture – a culture of enquiry or open-mindedness"*
- *"Media should try to avoid covering issues that are too premature or too superficial."*
- *"There should be a wider thematic coverage of science in the different media."*
- *"I would like to see journalists showing up in meetings, trying to communicate with researchers, taking the initiative."*

It is perceived that governments and policy-makers – both at national and European levels – should also promote initiatives to enhance the correct dissemination of science among the younger generations. Science education at schools and universities, as well as science dissemination through public TV, should be legitimated by political authorities with a view of strengthening the longer-term impacts of science communication:

- *“The involvement of the media in science should walk in parallel to increasing education at schools.”*
- *“I would like to see more programmes dedicated to science in public TV.”*

Specific ideas for the future include a perceived need for funding agencies to provide support for scientists to do the communication work – in the same way as ethical audits are now required. More honest face-to-face communication must be fostered between science and the media through concepts like a “scientific attaché” or “journalist in residence”. Science journalism certainly needs to be developed and recognised and the media must assume the role of an actor creating links between the long term and the present position:

- *“More professional development of scientific journalism.”*
- *“More journalists need to be trained in science.”*
- *“Funding agencies should provide dedicated support for communication.”*

3.6.3 Improving communication of science: efforts from both sides

Many scientists recognise the need for action in the scientific community as well as in the world of the media. There is a need to get scientists more interested in the media through initiatives such as promoting media fellowships or placement programmes. Scientifically trained people are needed in the media so that the media can come to better understand scientific issues. There is certainly a perceived need for better two-way dialogue perhaps stimulated through events like joint workshops or science shows for media audiences:

- *“Get scientists interested in the media”*
- *“It is a two-way process and depends on both parties”*
- *“Foster the interdisciplinarity of scientists and their media links will improve”*
- *“Scientists might go into journalism but this is a rather extreme solution”*

Among the many things that the media can do, editors need to be persuaded of the importance of communicating science in a responsible way. Continuous contact and time are needed to absorb and explain difficult issues. The range of subject material is a further problem. There needs to be more media emphasis on the mindset of innovation and the contribution this can make in terms of benefits to society. Dialogue is very important and it is a two-way process dependent on both parties and the dynamics of it need to be learned both ways. There is value in using vehicles/messages that can be assimilated readily and using the social impact as a route into the underlying science. In addition to this change in attitude, there are also specific tools – such as codes of practice, peer-reviews, and check-lists – that could improve the quality of media’s coverage of science:

- *“Media should be more open and try to understand researchers.”*
- *“There should be more specialized science journalists in the media. If they understood the problem, they would be able to promote it in a different way.”*
- *“The media should let us know that they are interested in our work. Scientists do not approach the media because they think that there is not interest in their work.”*
- *“Journalists should be aided in their efforts to communicate science by useful tools such as peer-reviews, check-lists and codes of practice.”*

Scientists put too little emphasis on communication. Respondents believe that it is very important that researchers assume communication of science as a core component of their work instead of considering it as an extra activity to be pursued whenever their agendas allow for. This is a change that needs to be encouraged at institutional level, as researchers usually have little or no incentives

to strengthen this important aspect of their work. Changes can be fostered through various initiatives. Scientists need to be trained in the presentation of results – even to their own community. At institutional level, periods of time need to be set aside for journalists and events staged for the media to attend that portray science outcomes. Scientists might be trained in media communication but learning on the job from experienced science communicators would be a better approach - preferably when they are young. Then they would learn how to contact and prepare for the media:

- *“Scientists should always keep in their agendas the time to communicate as part of their work.”*
- *“Scientists need to go outside and interact more with the industry and the real world.”*
- *“We should try to ease our language to make our work more attractive to the wider public.”*
- *“There are some basic rules that all scientists should learn to follow. Availability is important. Flexibility and willingness to work with the deadlines is also key.”*

4.0 MAIN CONCLUSIONS

- Scientists and the media inhabit different worlds. This survey highlights that scientists are concerned about the way that science is reported by the media and that they believe that there are still significant barriers and constraints, which need to be addressed because they seriously limit the effective communication of science and research to the general public via the media.
- Despite the current status quo, scientists are not necessarily sceptical of the media, which they see as an important mechanism to shape and inform public opinion. Scientists report that they have witnessed an increased and improved relationship with the media in some scientific disciplines (for example environment and nutrition). However, there is a strong desire for a better relationship with the media, which ensures balance on scientific issues and a more considered and holistic approach overall.
- Only 20% of scientists interviewed have an active relationship with the media, although most have been involved in some way in communicating to a wider audience on a sporadic or very occasional basis. Those scientists who do not currently take an active role believe that it is their moral duty to do so. There appears to be a significant willingness to create dialogue and partnership with the media to achieve better coverage of science as the key to improving the public's perception of scientific culture and its benefits. Despite these good intentions, the fact that so few senior scientists are involved in explaining a topic that is vital to everyday life is worrying, because this community is dependent on outside support to allow it to continue to make the significant advances that are enjoyed by society.
- There is a clear mismatch between what the media want to communicate (news items) and what scientists believe needs to be communicated. It seems that for many scientists explaining about science in general and the scientific method are more important than the short term dissemination of the results of their work. Although research results that are groundbreaking and new are likely to be of interest to the media there is great potential for scientists to be the interpreters of the day-to-day events which affect people's everyday lives, but this role does not seem to have been fully harnessed by either side.
- For scientists to feel comfortable with the science-media dialogue there is a need for trust between the scientist and the media contact. However, scientists believe that this trust is best achieved through face-to-face contact, which means that establishing the required trust remains somewhat out of reach. This suggests that to improve communication between scientists and the media there is a need to find a more immediate and feasible mechanism to allow trust to be established.
- Scientists understand that the media has the power to influence the public, but also believe that the media has a responsibility to educate the public rather than respond to popular interest areas. Thus, according to scientists the way to improve the coverage of science and the public's perception of science is for the media to be provided with and to commit to disseminating the 'right' scientific messages. This view shows a lack of realism on the part of scientists that the media is able to perform a purely didactic role, and is not driven by the need to attract viewers, readers and listener by being responsive to their interests.
- Scientists report that they are often discouraged by the barriers they face in their efforts to disseminate the results of their work more widely. The goodwill shown by many is pushed to

its limits by the difficulties that to some extent stem from the lack of professional recognition within the scientific career for those who are successful at communicating their work to the public. In a community that rewards specialist publications and does not emphasise on the need for general communication, it is obvious that scientists are faced with a lack funding to support specific communication measures and a lack of time to communicate. To compound these systematic barriers there is a skills gap whereby scientists often find it difficult to find the right language with which to communicate to the wider audiences.

- Many scientists recognise that there is a fundamental difference of approach in media reporting and scientific reporting and they suggest that this leads to frustrations on both sides. A key issue is that the media are thought not to understand the basis of the scientific method or its culture, including the timescales required to achieve results and the fact that these are then only valid until proved otherwise. Despite this concern, it can be considered that if the focus of media interest relates to the ability of scientists are to play a greater role in the interpretation of everyday occurrences rather than purely resting on the release of research results this issue does not have to be a barrier. However, it may be that some scientists are not reaching their potential because they believe that the public is not really interested in science.
- With regards to specific media, it seems that many researchers feel intimidated by the possibilities offered by TV broadcasting and are more comfortable with written media. If not dealt with through specific training, this apprehension might hinder the potential of science to effectively reach the wider audiences as TV is one of the best mechanisms for reaching the wide audiences and visual images significantly aid comprehension.
- Many researchers, particularly those from the EU-15 Member States, report that the fact that their work is funded by the European Union is not a factor that generates media interest and therefore these researchers do not strive to include the source of funding in their communications. This situation is different in some of the smaller and new Member States where European research funding is perceived as more newsworthy. For these countries, the need to adapt messages to the national context for example highlighting the national benefit is vital.
- It is important to note that there are no significant differences in the views of scientists by nationality, but age seems to be a factor. The older generation of scientists (those around the age of 60+) seem to be more distrustful of the media because they are very aware of sensation seeking. In contrast, younger generations seem to be more open and are particularly aware of the force of the internet.

5.0 ANNEX – INTERVIEW DISCUSSION GUIDE

Section 1 – Introductory Discussion

<i>Topic</i>
Describe the purpose of the interview and thanks for participating
Emphasize the European/FP dimension of the study
Purpose of the Barcelona meeting
Other

<i>Question</i>
Please briefly describe your scientific field and your own involvement in it
Have you been involved in communicating your scientific work to a wider audience? Y/N
Can we discuss your experience in more detail? (Section 2) (If No) proceed to Section 3

Section 2 – Your specific experience

<i>Question</i>
How would you rate the importance of communicating your scientific work to wider audiences? (High – average – low) Why?
Do you take initiatives to promote media interest in your work or do you prefer to respond to unsolicited media approaches?
(If takes initiatives) What sort of initiatives have you pursued to promote media interest in your work?
Roughly how many times in the past 12 months have you... Been interviewed on radio Been interviewed on TV Been interviewed by a newspaper Written an article for the wider public

Section 3 – Scientists and the media – an overall view

<i>Question</i>
How would you rate the current relation between scientists and the media?
To what extent do the following media reflect your science properly? TV Radio Newspapers Popular science magazines Internet

Section 4 – Media coverage of scientific topics

Question
What are your views on the quality of science coverage in the media? Can you identify any positive and negative aspects on the quality of media's coverage?
What is your opinion on the extent of science coverage in the media? Can you identify any positive and negative aspects on the extent of media's coverage?
Do you see a problem of mismatch in what scientists might wish to see receiving media coverage and what the media might see as newsworthy? Y/N
Can you think of solutions that might help to fight these differences?

Section 5 – Media coverage of European-funded science

Question
In this overall context, how would you rate the relation between European-funded scientists and the media?
Have you found the European dimension of your scientific work to be of particular interest to the media? Why?

Section 6 – Future challenges of communication science

Question
Is the communication of science and its relationship with the media different now than from when you started your career? (If yes) In what ways is it different?
And how would you like the media's coverage of science to evolve in the future?
Is there anything that the media in general and journalists could do to improve communication of research results?
And is there anything that scientists in general could do to facilitate the work of the media?

Section 7 – Types of support for scientists in communicating science

Question
Is there enough support for scientists in dealing with the challenges involved in communicating their science to the media?
What type of support is the most effective and why?
And what type of support is currently missing that you would like to see put in place?
In this same line, can you think of any specific tools and/or information that could help the media in their efforts to communicate science to the wider public?

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