

SCIENTISTS' VIEW ABOUT COMMUNICATION IN THE ITALIAN CONTEXT

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Abstract

The dispute about science communication has tended to focus on public opinion and attitudes towards science and scientists. The views of scientists have often been neglected. Policies to deal with science and society issues make ever growing demands on scientists to improve their communication skills and to be involved in public dialogue, but there is a relative lack of knowledge about scientists' attitudes towards these themes. This knowledge should also be considered a basic need to improve the developing and delivering of science communication courses addressing to the researchers. We have considered various aspects of the problem by the construction of a representative survey of over 300 Italian researchers. We have started the qualitative stage of the research through interviews – that will serve as the basis for the quantitative stage based on a questionnaire - conducted with some scientists of different backgrounds and positions. We have explored if scientists recognize a need to communicate their research and its implications in the public sphere; if they feel able to communicate effectively themselves to the public, through the media, to politicians, etc. In this phase, a distance emerged between the perception of an activity, the communicative one, that is considered by scientists as secondary, and the reality of a working day that is full of communicative activities.

Keywords: Scientists, post-academic science, attitudes to communication

1. Introduction

The most established research tradition in the field of Public Understanding of Science (PUS) focuses on analysing public knowledge and perception of, and attitude to science through sample surveys carried out on wide population strata [1],[2],[3]. Most of the literature produced in this field has aimed to measure the public's assumed or real science cognitive deficit to provide tools to reduce ignorance, which is held to be the leading cause of groundless fears and irrational worries on matters relating to science and technology. This approach has been heavily criticised both in terms of the scientific and social model it implies and in terms of its methodology [4], [5], [6]. Critics of traditional PUS have especially underlined how an in-depth study of public perception of science, often aimed at assessing science literacy, is not accompanied by equally in-depth research on the public's ability to process information, on the importance of the social, psychological and cultural context in which scientific messages are received and on the active, political – and not merely transmissive - role of communication. The science and scientists behind this are fundamentally problematic. Even when traditional PUS studies dealt with scientists, the attention was focussed usually on the assessment of their communication abilities. These studies have seldom investigated scientists' awareness of the role played by communication in current changes in the relationship between science and society, the role that scientists attribute to communication, the communicative methods that determine scientists' opinions on science or the various social entities that interact with the techno-scientific system. It has become essential to achieve greater understanding of what scientists think of changes in the relationship between science and society and of the role of communication. Indeed, the latter is at the root of their ability to participate in the increasingly complex dynamics of decision-making processes on topics that concern the social impact of techno-scientific developments. Currently there are only a few studies of this type [7], [8] that could prove useful in defining the best interventions in terms of education (e.g., for young researchers or PhD students). We have therefore decided to analyse the reasons why scientists communicate, what they expect of communication activities and how aware they are of being involved in said activities. The scientific community often finds it hard to acknowledge the importance and diversity of the communicative acts in which they are involved with different social entities, despite the fact that in the so-called post-academic era [9] these acts form part of a researcher's daily life. The communication methods of scientists reveal their approach to their colleagues, the science system and other components of society, and to the image and self-perception of their own role. In other words, reconstructing the characteristics of the scientists' "communicative sphere" provides an answer to some of the questions concerning the current role of science and scientists within society. Our study examines the Italian researchers' community. Through a series of in-depth interviews, we intend to draw up a questionnaire that will be then given to a considerable number of Italian scientists.

2. Methodology

2.1 Subjects

To portray a general framework of the Italian research sector, three types of professional qualifications and several public research institutes (Universities, National Research Council [CNR], Public Health Institute [ISS], and other smaller institutes) representing the most significant cross-section of the sector were chosen (Table 1, 2).

Table 1 Databank of tenured staff in Italian universities by discipline (Miur, 2003).

Discipline	Professional qualification			Total
	Full	Associate	Researcher	
Mathematical sciences	816	862	742	2420
Physical sciences	796	855	669	2320
Chemical sciences	1011	1180	933	3124
Earth sciences	387	483	373	1242
Biological sciences	1441	1549	1703	4693
Medical sciences	2456	3208	4724	10388
Agricultural sciences	744	664	726	2134
Civil engineering and architecture	1099	1118	1126	3343
Industrial engineering	1049	893	668	2610
Information sciences	780	753	585	2118
Philological literary artistic classical studies	1718	1741	1791	5250
Philosophical historical pedagogical psychological sciences	1458	1406	1375	4239
Legal sciences	1633	999	1307	3939
Economic sciences	1055	825	705	2585
Political sciences	460	478	415	1353
Statistical sciences	362	338	307	1007
Veterinary sciences	250	233	265	748
Other	443	511	2012	2966

Table 2 Staff composition of the National Research Council (CNR) and Public Health Institute (ISS)

Research institute	Professional qualification			Total
	Research director	Chief researcher	Researcher	
CNR	361	1000	2064	3425
ISS	102	192	207	501

The survey's subjects were selected from the staff of research institutes chosen according to their significance and geographical bracket. The sample is made up of researchers subdivided by scientific subject and sex (Table 3) and belonging to three different academic and professional statuses: approximately 32% are full professors or research directors; approximately 32% are associate professors or chief researchers; and approximately 36% are researchers (Table 4). The total amount of people involved in the survey is approximately one hundredth of tenured lecturers in Italian research institutes and public universities.

Table 3 Subdivision of the sample by sex and scientific subject.

Discipline	Male	Female	Total
Mathematical sciences	17	7	24
Physical sciences	19	4	23
Chemical sciences	23	9	32
Earth sciences	9	3	12
Biological sciences	27	21	48
Medical sciences	81	24	105
Agricultural sciences	15	6	21
Information sciences	19	3	22
Statistical sciences	4	6	10
Veterinary sciences	5	3	8
Total	219	86	305

Table 4.

Role	No.
Full professor	95
Associate professor	96
Researcher	114
Total	305

2.2 Tools

The survey was conducted beginning in October 2005. The first phase encompassed some non-structured face-to-face interviews (10) with scientists from different subjects and characterised by different professional statuses. For logistics reasons, the researchers approached were from Trieste public university structures (in North-East Italy). The interviews were of a merely exploratory nature and aimed to identify some useful topics for drawing up the questionnaire. A draft version of the questionnaire was submitted to a wider group of scientists with the aim of collecting more ideas as well as gathering comments and suggestions for the final version of the questionnaire. The latter will be given, in paper form, to a sample of three hundred and five Italian researchers working for public research institutes. Data received will undergo statistical analysis.

3. Preliminary analysis

This section shows some of the topics that emerged from the interviews. By presenting some interview excerpts, we are going to identify the key arguments that were partially introduced in the draft version of the questionnaire or that will be included in the final version. A significant aspect that emerges from the interviews is the difficulty that scientists encounter in conveying their activities. An important reason for that is the fact that scientific communication opportunities are not recognised as such by the researchers themselves. At the same time, several channels of scientific communication within society are often underestimated. Our first goal was therefore to define the difficulties of scientists in finding communication channels with society.

A young and established researcher expressed the contradiction between a hoped-for widened public involvement in science topics and the claim of research independence:

“Research autonomy is still a value, but at the same time it is not clear how research independence and quality and society control may be guaranteed. I work in a public institution, so I see that the community must be involved in some way, as in any other field, yet at the same time I can’t see how it can happen”.

The following typical preoccupations emerged from the researchers interviewed: the reduction in enrolments in the faculties of physics, chemistry and mathematics - which is felt as particularly severe in Italy -, the difficulty in securing funding and problems associated with the distribution of funds.

These factors are increasingly forcing the researchers to deal with what are normally considered as “secondary” activities. Along with their traditional research and teaching activities, researchers are more and more involved in organisational and administrative activities wherein communication represents an important element. As stated by one associate professor:

“In fact, organisational and administrative activities have become a stringent priority, though generally dependent on individual initiatives, so much so that those who deal with it as I do have come to regard it as a part-time job”.

An ever-increasing commitment is also communication to the public: meetings with high school students, conferences, attempts to involve the media, and open days are the run of the mill.

The researchers’ opinions on these activities vary. Some consider them as ill-spent time and prefer to let other people deal with them and concentrate on scientific research; others still believe they are a hindrance to scientific activity, but think that public communication of the practices, applications and values of their work cannot be avoided. In both cases, a lack of preparation and disorganisation on the part of scientific institutions in promoting their social role is acknowledged, to the detriment of the quality of proposed initiatives. According to one researcher:

“Recently I have often had to meet administrators or take part in seminars open to the public or students. Following these instances, I wonder if they achieved anything. Departments and staff are unable to assess this type of initiatives and to monitor success”.

Over the years, and in Italy too, the researchers have become more careful about involving and interacting with the media and greater public. The interviews reveal an obligation for the interviewees to meet other social components, with different judgment criteria, interests and values, towards which scientist are often impatient. The media are still either poorly understood or negatively regarded. One full professor states:

“In recent years, my colleagues and myself have held popular lessons for students or debates, and despite some awkwardness, both students and colleagues have rated such initiatives positively. There is some satisfaction in participating in such events, yet also some awkwardness because the methods do not always seem fit. With some difficulty we have sometimes been able to involve the media, even if in such instances they seem to concentrate on events and on the presence of well-known people rather than on content.”

It is no surprise that, for the most part, the scientists interviewed believe scientific communication to be a simplified transfer of information and concepts. When it comes to popularisation, they express a negative opinion. Under fire, in accordance with the most classical judgments of scientists on activities aiming to popularise science, is the loss of accuracy or the way science writers easily indulge in transforming research into fiction material

“My opinion,” states one researcher, “is that when I happen to read popular scientific articles or books about topics that might even fall within my own field of research, there is an excessive simplification or inaccuracy, even though sometimes I find the stories very stimulating. They may be fascinating, but they seem more akin to the fantasy genre”.

One full professor refers to the necessity of communicating the difference, corresponding more to an ideal – though deeply rooted in the perception of scientists – operating model, between basic research and applied research:

“The age-old problem facing researchers is to communicate and make accessible for the public the grounds for and implications of their work; considering that – even in non-applied research – there are extremely important scientific repercussions”.

The idea that basic research is “difficult to communicate” runs parallel to the rooted conviction that research represents an important driving force behind technological and social progress.

Other researchers speak about feeling some embarrassment when having to publicly explain their own research. For some interviewees, this fact caused a profound reflection on the importance of their work for society and on the role they play within it:

“I had to explain why I am a scientist and why it is important. I had to think about it at length, it was the first time that I had to publicly deal with this matter. I did answer but I think that next time I would do it differently”.

According to most interviewees, these difficulties are due to the fact that at the beginning of a career in science, the researcher must concentrate on the career itself and on publications. Therefore, little time remains to worry about how one’s career is popularised or perceived at a social level or about the work of colleagues in other sectors.

Participating in or planning study meetings and seminars continues to be an opportunity for scientists to meet and debate common interest topics. According to the researchers’ opinions, these instances are much more than a mere secondary activity. While being an occasion for research and teaching to converge, meetings and seminars also provide a unique opportunity for the establishment of fruitful working relationships. As one researcher states:

“Networks tend to develop that are considered as favourable by the institutions, so much so that in some research sectors papers published in collaboration with colleagues from other institutes are deemed more valuable; clearly, this benefits the students themselves who get to know and gain contacts with a wider community of researchers”.

The organisation of these types of events often depends on the initiative of young researchers, a fact that seems to confirm the necessity to foster and achieve scientific and professional collaborations. This trend appears to confirm some recommendations from institutions that deal with research policy: promoting the so-called “knowledge transfer” and establishing trans-national research networks.

Administration and communication functions focussing on research organisation and policy, whether within one’s institution or through relationships with institutional interlocutors, are entrusted to expert researchers.

In this case the commitment is also remarkable, and those involved deem this service to be “necessary not only for the survival of the sector, but also for the quality of research”.

With regard to other issues, such as technological transfer, which is crucial in the distribution of funding, interviewed scientists show a clearer interest and a positive attitude, also in relation to specific methods of communication in this sphere. While communication towards the media and the general public is often delegated to other professionals, when it comes to activities linked to research assessment and technological transfer the scientists themselves generally wish to acquire useful communication tools and methods.

4. Conclusion

The interviews have confirmed that nowadays communication is important for the scientist’s profession.

Every day researchers deal with communication, but they believe that they do not do so effectively. They believe they do not have the necessary skills, but most of all they seem not to bear in mind the influence that communication can have on their work.

The idea that scientific communication is a useful tool for the scientific community to persuade or involve other components of society is deeply rooted; nevertheless, awareness of how communication may in turn affect and influence the scientific community is lacking. This is confirmed by the fact that the researchers interviewed do not seem to understand clearly enough when they are communicating and when they are experiencing or benefiting from communication.

They tend to identify scientific communication with the popularisation of scientific contents, holding all other communicative processes – which the interviews confirmed to be the greater part – to be secondary activities that do not affect the complex relationship between science and society. On the one hand, the interviews show the need for scientists to acquire new skills and abilities in the field of scientific communication; on the other hand, they show a wish to delegate this task to other competent people, still maintaining some control over content. Very often the interviewees express great expectations towards communication, especially when it comes to the media.

In short, the interviews have not revealed any particularly original visions, but they have confirmed the need for further investigation concerning some aspects, e.g. on the distance between the perception of communication, considered as secondary by most scientists, and a researcher’s real working day, which is full of “communicative acts”. The questionnaire will also be a useful tool to highlight the differences between the various disciplines, particularly between those scientific research fields that, within the framework of a changing relationship between science and society, fuel increasingly controversial ethical and social debates and inevitably experience constant media exposure.

5. References

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