

OPINIONS OF LIFE SCIENTISTS ON SCIENCE COMMUNICATION IN JAPAN

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Abstract

Scientific information from scientists has become an increasingly important part of our society, enhancing citizens' understanding of science and technology relating to their daily lives. For both scientists and our society, the need to understand the impact of the science on society becomes extensively stronger nowadays. For this reason, scientists are expected to know how to convey their researches effectively to members of their society. Here, we have a problem that we do not have enough knowledge about the actual activities, or concerns of scientists themselves. To what extent should scientists convey their scientific information to public, or how much are they concerned about citizens' participation in public decision making processes?

We interviewed more than 40 Japanese life scientists and 20 science communicators to examine their opinions on the issues. It is clear that most Japanese life scientists want more global discussions or judgments in/from the society, considering the social value and influence of their research. It also appears that the relationship between scientists and science communicators, especially science journalists affects greatly on the quality of the scientific information. It is suggested to provide systematic support for both scientists and communicators to make science communication more effectively.

Keywords: science journalism, life scientist, scientific information, communication

1. Introduction

Recent advances in science, for example nanotechnology or high energy physics, make scientific information apparently and extremely important in our lives. It is necessarily for all the people in our society to share the scientific information to consider their potential impact in their life. This is why scientists are expected to give firm information about their studies to the public. In Japanese life science, this is also the same [1].

It is well known that mass media such as magazines, television, daily newspapers have large impact on the daily lives of ordinary people both in the positive and negative way. However, the public may not be well informed about scientific information, despite widespread media coverage in society. This is one of the serious points in science communication, similar to the risk communication. Of course, misrepresentation of medical information by mass media can have negative consequences. And, representing good side of the information only is also another type of misrepresentation [2], [3], [4], [5].

Most of the distortion in media coverage of science has been attributed to poor communication between scientists and science journalists, particularly those who are not trained in science. It is important that, as Rose said in his article, both scientists and the media were blamed for their miscommunication in science. Then, how could scientist use the media to give their side of the story to the public? And, what kind of information do the media want to make their coverage more qualitative [2]?

The importance of the life science in our daily life is getting remarkably higher position for its relation to the human life. It is really anticipated to construct truly effective relationship for both life scientists and the public. Now it isn't the only use of mass media for scientists to educate the public about life science but regard them as a possible tool to inform scientific information including risky things to discuss widely in our society [4], [6].

In this article, we interviewed both life scientists and science journalists, or science communicators, to investigate their actual activity, or honest opinions about their relationships. Then we explore the effective ways to improve science communication in Japanese life science, instead of determining which side is to blame.

Like other countries, the mass media are primary sources of scientific information for many Japanese people. The point here is that we do not know well enough about the actual activities, or concerns of scientists themselves about the science communication in Japan. Actually, there has been little documentation of what contributes to or constitutes a positive relationship between scientists and journalists.

2. Method

2.1 Samples

We interviewed life scientists (n = 43), science communicators (n = 9) and science journalists (n = 10) individually.

2.1.1 Life scientists

Most scientists were specialized in molecular biology, or use it extensively for their medical and biological research, and all of them had academic positions.

2.2.2 Science communicators and Science journalists

Those who were engaged in a public relations department in academic institutes were categorized as science communicators, and those who were employed or had been employed in popular press were classified as science journalists. All science journalists and communicators were well experienced, skilled.

2.2 Procedures

Using e-mails, we obtained informed consent from all scientists, communicators and journalists before the interview. All the subjects were interviewed between about one to three hours.

2.2.1 Life scientists

Scientists were asked about

- (1) The point that they usually emphasize on when they communicate to the public by themselves,
- (2) The kinds of science communication activities that they had experienced before,
- (3) Experiences and episode of communicating their researches thorough mass media,
- (4) The extent to which scientists should convey their scientific information to public,
- (5) The extent to which they wanted citizens to participate in public decision making processes in the area of life science.

These questions were asked with other questions that are not discussed in this article.

2.2.2 Science communicators and Science journalists

Science communicators and journalists were interviewed about their impression of life scientists as source of scientific information. They also asked some ideas of improving the relation between scientists and media, especially science journalists.

2.3 Data analysis

During each interview, an interviewer took notes but not record instrumentally, as the recording might disturb the answers relating to other questions not discussed here as mentioned above. The protocol was classified into each question. The opinions of the science communicators were included in the category of the science journalists' for their qualitative similarity.

3. Results

3.1 Question one to three

There were many points that Japanese life scientists want mass media to improve from their experiences (Table 1). About half of the scientists we interviewed paid attention to following three points. (1) Correctness of the information, (2) understandability of the information, and (3) simplicity of the information, that is, tend not to use sensational or hopeful words and phrases so as to prevent the public from having too much expectation about their researches. There were thirty-five effective answers relating to this point.

Though science journalists and communicators regarded (1) and (2) as important as well, there were some large differences around these points between life scientists and science journalists or communicators. First, from the science journalists' or communicators' point of view, there are two types of correctness of the scientific information. They are providing information that is not purely scientific but compounded with social value or the newsworthiness. Second, in many cases, the information understandable for scientists themselves is not understandable to public. Our results also showed that this latter point was well understood in Japanese life scientists and almost all of the scientists were agreed to have someone's support to make their research more understandable to the public. Third point is the most controversial point in this research. There were many different opinions in journalists' side, as well as in the life scientists' side in details.

Almost all of the scientists had experienced scientific communication two or three times par year. The majority of the activities were public lectures and talks in their institutes.

3.2 Question four

Responding to the question four, about 40 percents of the scientists did not consider communication with mass media as their duty. At the same time, similar percentage (two fifth) of the scientists did consider it as their duty. For the former, the basic activity, duty of the scientist' to the society was, to do and to publish high level researches at the academic level. The number of the effective answers was twenty-two in the question four.

3.3 Question five

More than two third of life scientists considered that their research were not understandable to the public. They also believed that natural science should be shared among the society to have considered about ethical and legal aspects. The awareness of the accountability or responsibility of scientists' was also high, that is, almost all the scientists were supporter of that kind of trend in Japan. The number of the effective answers was twenty-eight in the question five.

Table 1 Basic shortcoming of the media:
Opinions of Japanese life scientists on science journalism

Lack of basic knowledge of science itself.
Overemphasis on the applicability of academic researches even in the area of basic science.
Too much sensationalism in reporting.
Too much mixing of the scientific facts with mendacities that are not said by scientists themselves in press or TV interviews.
Omissions and distortions of scientific stories talked by scientists.
Tendency of demanding answers that fit the story presented by the journalist him/herself.

4. Discussion

Present study shows that Japanese life scientists have relatively strong consciousness about science communication with the public, though their activities are limited and do not have enough skill or time to spare for it. That is the reason that the relations between scientists and mass media should be more effective, though there are many problems to be solved.

There are many gaps between Japanese life scientists and science journalists, or science communicators. For example, many scientists blamed journalists for their omission and sensationalism that distort reports of science. Another example is the difference in awareness of news value of scientific information between scientists and journalists or communicators. We can find similar tendencies in other countries [7], [8], [9], [10].

It might be true that the first step for scientists is to notice about these differences concretely and to understand that the media are not for scientists themselves but for the entire society. That is why scientists need to make more effort to communicate directly to the public in addition to collaborating with mass media. In such direct communication, they can provide scientific information that do not have enough newsworthiness but have scientific values. For that reason, it is also necessary for scientists to provide systematic supports by which journalists can obtain basic knowledge as well as cutting-edge information. This kind of attempt will prevent media stories from omitting important facts that can lead to misconceptions among the public about the applicability of, for example, genetic research. Or, for instance, another relatively important attempt is to train capable personals in publicity activities in academic institutions. Of course, there are many projects relating to above [11], [12].

There were also differences of opinion among life scientists, or science journalists themselves. For example, in spite of others' affirmative attitude to the mass media, especially to newspapers, many scientists said that science got a harsh deal in media. It might be true that media coverage that focuses on the negative aspects of genetic discoveries may be disgusting to genetic researchers, for example. Nevertheless, it is suggested that good partnerships between experienced science journalists and scientists may result in less sensationalized and more accurate and informative science reporting.

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