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Public Science Communication: Notes on the Reality and the Ideal

Lada V. Shipovalova, Saint Petersburg University, [l.shipovalova@spbu.ru](mailto:l.shipovalova@spbu.ru); Yulia V. Shaposhnikova, Saint Petersburg University, [j.shaposhnikova@spbu.ru](mailto:j.shaposhnikova@spbu.ru)

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An ongoing discussion and its emerging provocations and conflicting interpretations indicates, perhaps more than anything else, the significance of a topic or a text. Such a text or topic brings further into focus prominent contemporary issues which require serious reconsideration. Professor Erickson's article (2020) invites further discussion of the problems raised in *Social Epistemology's* special issue on 100 Years of Max Weber's 'Science as a Vocation.' These problems include the possibility and conditions of successful public science communication. We cannot ignore the invitation to respond since the problems discussed are acute and the answers to them relevant.

In examining the significance of Weber's ideas for the implementation of public science communication, Shipovalova (2020) drew a parallel between the difference in the behavior of a scientist 'in the lecture room' and 'in the street' and the two roles of a scientist. She showed, on the one hand, the role of a scientist in academia who engages in professional activities and offers ideas for discussion to the scientific community and students mastering the discipline and, on the other hand, the role of a scientist as an expert who practices public science communication in front of the public and authorities. Shipovalova argued that the concept of objectivity, which Weber associated with the requirement to present inconvenient facts to listeners, regulates both forms of communication for scientists. In our opinion, Weber's work allows such an interpretation since the criticism scientists provoke when addressing the public 'in the street' can also be interpreted as the implementation of their striving for objectivity. In the case of the public speaking, scientists grant to the audience the right to present inconvenient facts, whereas in the case of a lecture room presentation, scientists assume that right on their own (Weber 2004, 20-21).

Shipovalova justified the validity of this interpretation and its applicability to contemporary science communication; first, by analyzing the concept of objectivity and showing that it allows expanding the application and; second, by addressing the realities of the current situation of risk and uncertainty in the society arguing that such an extension of application is necessary. This interpretation is important because understanding objectivity as a norm that unites both types of communication allows public science communication to be construed as an extension of professional communication in science and can serve as further motivation for scientists to participate in the former.

Professor Erickson (2020) rightly states that the desire to improve science-society communication should be accompanied by the awareness of a significant distance separating the ideals that describe it from its practical implementation. He also claims that Weber had little idea about the practices of professional scientists. Indeed, the 'laboratory' was not the object of Weber's research but the real field in which he worked as a scientist. However, alternating between the professional work of a scientist and his public activity, including political activity, was no less problematic in Weber's time than it is now. That is why the doubts expressed by Professor Erickson about the difference between what is (real) and what is due (ideal) regarding the possibility of the transition are valid and require a response. Our response, firstly, will focus on the reality of science communication practices and,

secondly, will justify the benefits of appealing to an ideal or the constructiveness of conceptual work.

### **The Reality of Science Communication**

According to Professor Erickson, successful science communication presumes good faith and equal actions on all sides. In our opinion, the good faith and the good will of scientists should primarily become a matter of discussion. There are different ways to determine if scientists enter into public scientific communication by their good will. For example, good will expresses itself in the fact that scientists attach great social importance to their research, considering that it affects social being and consciousness. A study that was conducted by Shipovalova and a group of researchers within the framework of the project *The Problem of effectiveness of scientific research* in mid-2016 illustrates this statement. The study was a quantitative survey among professors and researchers of Saint Petersburg University (St. Petersburg, Russia) with the participation of the Resource Center of the University 'Center for Sociological and Internet Research'. The method of data collection was an online survey based on a self-administered web-questionnaire, which controlled for mutually exclusive responses. As a result, 381 valid questionnaires came from representatives of more than 21 institutes and faculties. In this survey, answering the question of 'How would you define the main outcome of your scientific research?' less than 20 % of scientists chose answers associated with the recognition of the significance of the 'external effects' of science (e.g. growth in the level of public welfare, formation of public consciousness, etc.). This example confirms the validity of Professor Erickson's doubts.

However, we can offer a counter-example showing that scientists express their good will by mere participation in science-society communication. In this case, we refer to another online survey conducted by Shipovalova in 2019 within the framework of the project 'Scientific Leadership and the Specifics of its Transformations in the Conditions of the Formation of Innovative Economy in Post-Soviet Countries.' The survey was also conducted with the participation of the Resource Center of the University Center for Sociological and Internet Research and the same methods were applied, however, the research was conducted in a slightly different field. Among the participants were representatives of leading universities and research organizations in Russia. As a result, 327 valid questionnaires came from representatives of more than 5 different organizations. In this study, when asked about the experience of inclusion in the public science communication, 36.3% of participants admitted to having no such experience, but the rest admitted that they actively implement their knowledge in one form or another (popular science publications, preparation of expert opinions, participation in public discussions, etc.).

Of course, only scientists themselves can testify what motivated them to participate in public science communication—their goodwill and sense of duty or some external (usually financial) stimulus. But it is most likely goodwill that makes scientists aspire for recognition of the importance of public science communication among science managers and take public communication into account in evaluating the effectiveness of scientific research itself. The true scientists' interest concerns solving the so-called 'researcher's dilemma' of choosing

between ‘classical academic activities to produce scientific publications’ and involvement in ‘public outreach activities’ (Kassab 2019, 711). Whether the dilemma is successfully solved depends on the establishment of a positive relationship between the effectiveness of research and the involvement of scientists in public activities. Studies of the Sustainability Science Research Center in Switzerland prove that this relationship is possible and hopefully will someday transform the system of scientific research evaluation in such a way that it will include public science communication (Kassab 2019).

The above given examples are, undoubtedly, taken from different fields of research and, in some ways, they contradict each other. However, these examples represent the reality of scientific practices, which can and should be *worked on* precisely because of its contradictoriness; there is both the indifference of scientists towards inclusion in science-society communication and the desire for this communication to be recognized as significant by the power institutions. The *work* in question, in our opinion, characterizes the work of the philosopher of science and the social epistemologist on the distribution of what they consider the norm, which defines the practice of both professional and public scientific communication. This distribution is carried out in the education system and should involve idealization and constructive conceptual work.

### **Science Communication and Education**

Education or training in the sphere of scientific communication partially corresponds with the development of effective methods for the scientist to influence the public, engage the public in a dialogue or invoke interest in specific research. These methods determine the implementation of specific goals that scientists set for themselves when practicing science communication. These goals may include, for example, ‘ensuring people are informed about scientific issues,’ ‘getting people interested or excited about science,’ ‘demonstrating the scientific community’s expertise,’ ‘hearing what others think about scientific issues,’ ‘demonstrating that the scientific community cares about society’s well-being,’ ‘demonstrating the scientific community’s openness and transparency’ and so on (Besley, Dudo and Yuan 2017, 712). Scientists’ goals may be achievable or not. At times, they may even come into conflict with the requirements of the situation, with the topics discussed in scientific communication, and look irrational in certain contexts. For example, this may refer to the requirement to comply with openness and transparency (John 2018).

It is noteworthy that whichever practical methods may be developed to implement the goals of scientists in science communication, the goals themselves are pre-defined. Their formulation is related to the way scientists interpret the place of scientific activity in society and culture, to how scientists’ own objectives correspond with social values, to which image (or ideal) of science guides researchers in their activities. A scientist forms this image in the process of universally understood education, including relevant courses at universities, communication with established academics, reading various popular or professional, scientific or philosophical writings. ‘Resources for making sense of science,’ which Professor Erickson (2015) explores in his book, can also be interpreted as ways to form such an image.

We would like to emphasize the importance of education in proper sense of the word, which partly determines the context and the content of Weber's lecture.

As a case in point, in Russia, 'History and Philosophy of Science' is a mandatory discipline in post-graduate students' training program for all scientific specialties. With this course, philosophers and historians of science can contribute to shaping the image of science. This course allows students to discuss basic concepts that define scientific activity, analyze their various aspects, emphasize some ideas and neglect others as currently irrelevant. Discussions concern, for instance, the concept of objectivity, the significance of which is hardly questioned by scientists themselves, but to reveal its content, to understand what it means to 'be objective' nowadays, requires special work of a philosopher or an historian of science. Substantiating the relevance of new concepts used by philosophers to grasp and adequately describe the specifics of modern science communication practices, e.g. *post-normal science* (Funtowicz and Ravetz 1993) is another example.

In this sense, philosophers' and science historians' views on norms and ideals of science communication influence the formation of goals that scientists will implement in science communication, and the good will that will encourage them to participate in science communication or withhold from it. The most significant aspect of this educational work is that it stimulates a scientist's meditation regarding one important question, which Professor Erickson asks at the end of his article: 'What is the value of science?' (Erickson 2020, 23). Absent this question, the value of science can be taken for granted. With it—the value of science becomes the subject of care and the joint work of a scientist, philosopher and a historian of science, as also any one of public, who lives in the world largely determined by results of scientific activity. In our opinion, the value of science lies in that it contributes to discovering or inventing 'better ways of living together' in the complex world that includes uncertainty (Shipovalova 2020, 139) and that it is able to initiate and actively engage in discussions those who can define these paths.

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