

# The Science Communication in Context of New Media

## ——The Case of Science Journalism<sup>\*</sup>

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This article emphasizes the importance of science communication in context of new media. A brief summary is offered of some particular posture of scientific journalism from within new media. With the above background, four priorities for future science communication in context of new media are introduced: (1) a brief description about the actual status of science communication within the new media and mass communication process in general; (2) a solid theoretical and conceptual frame for scientific journalism within new media context; (3) a description of some possible forms of public for scientific journalism; (4) a brief analysis upon the possible set of negative effects of scientific journalism in new media and globalization context, and a need for a larger perspective in any attempt to understand the phenomenon of science communication within new media and mass communication processes.

*Keywords:* new media, science communication, scientific journalism, limits of science dissemination

### A Brief Description About the Actual Status of Science Communication

Not long ago, citizens listened scientists spoke in silence with respect and confidence. In that period people believed what the doctor, physicist or economist said. At the end of the Sixties, the term “scientific” began to take on negative connotations, evoking more doubts than certainties. Because of the negative impact that some of their findings had, the scientist promise to improve life for all began to lose ground in the collective imagination. Let’s remember the drug called “Talidomide”, the “DDT”, Chernobyl, and many other problems that science does not know how to solve. Not all of the impacts of science and technology, however, are equally beneficial, nor are they universally seen to be so. Fears have grown in recent years about the capacity of science and technology to intervene adversely in various dimensions of human life. Pollution and physical harm continue to be among the unintended consequences of many beneficial technologies such as electronics, pesticides and vaccines. The increasing dependence on fossil fuel based technologies is changing the planet’s climate, with very serious implications for future generations.

At the same time science and industry became closer, and the governments often actively encouraged science and industry to do this, they have called into question the presumed impartiality of science and the openness of scientific communication.

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Bultitude (2011) found that there are four key cultural factors that have influenced the separation of science from society, resulting in an increased need for scientists to engage with public audiences: (1) the loss of expertise and authority of scientists; (2) a change in the nature of knowledge production; (3) improved communications and a proliferation of sources of information (4) the democratic deficit (Bultitude, 2011).

The relationship between science and society underwent a crisis when science authority was questioned, even if science and technology are among the most positive forces for change at humankind's disposal.

The relationship between science and society is tremendously important: society needs science as a driver for social, economic and political success, while science lives off the resources, talents and freedom that the society makes available. Understanding and fairly communicating risk and uncertainty are increasingly important for science and society. At the same time incorporating science-society insights into scientific practice and public policy has to be developed. The fundamental objective is to establish a deeper and more solid relationship based on trust between them. Only on this basis will the inevitable gap be bridged, even if there will always be a difference between those who hold complex knowledge and all the rest.

It is essential to make a scientifically based voice heard loud and clear, especially in time of crisis (epidemics, financial crisis, earthquake, new medications, etc.) and this can be done through professional communication. The price for not communicating or communicating poorly is becoming higher every day because today those who are not well represented in the public arena risk losing their say, resources or trust. "Communicating is considered a strategic function by the majority of organizations which interact in our social system because it identifies and justifies them, it allows them to gain consensus and to work to achieve the objectives that all systems have: to survive, to protect themselves, to obtain resources, and to grow" (Carrada, 2006)

### **The Actual Theoretical Status of Science Communication in New Media Context**

The meaning of science communication and other terms used in the field of scientific literacy has been plagued by an unfortunate lack of clarity. Science communication is not simply encouraging scientists to talk more about their work, nor is it an offshoot of the discipline of communications. Although people may use the term "science communication" as a synonym for public awareness of science (PAS), public understanding of science (PUS), scientific culture (SC), or scientific literacy (SL)—in fact many of these terms are often used interchangeably—it should not be confused with these important and closely related terms. (Connor and Stocklmayer, 2003, p. 213)

This status of the field of science communication within contemporary general theories of Public Relations is a one of the main reasons for why it should be properly considered not only by a PR specialist but also by scientist and academic scholars. We can say that this could be seen almost like an imperative because it would be hard to deny the fact that in the present science is very closely linked with the public sphere and with the general phenomenon of globalization and mass communication. So, what is science communication? Which is its main public? Which are the PR techniques and which is the purpose of such a particular domain within PR and New Media phenomenon in general? And, maybe the most significant questions from all, which it could be, or it is, the impact of communicating science through PR and New Media techniques upon the general public?

In order to obtain some answers to these questions we consider that the entire debate should start by recognizing the fact that in the present science communication has become something more than a simple trend within the general phenomenon of mass communication. There are at least two major reasons in our view for

which the issue of science dissemination should be seriously considered by PR specialists but also by everyone who works in the New Media sphere (O'Connor, 2014).

The first one is just about the proliferation of this so called "New Media". By its potential to have a very deep impact at the level of general public, at least in terms of coverage and technological level of this coverage, and by its tremendous technological potential to establish even a personalized contact with each individual the New Media context had become indeed a very powerful tool not only in the hands of those who want to send a message in a short and effective manner to the general public but also in the hands of the general public itself. This is because, even it is not always as simple as it seems, the New Media contact offers an interactive contact with the general public and this also could be seen as a specific characteristic of the new set of tools involved in the general process of mass communication and globalization.

The second reason is strongly linked with all of those who could be seen as emitters of the message regarding the action of disseminating science to the general public. The process of sending messages about science to the general public is made by significant segments of stakeholders from the society and the message sending is not, or at least it should not be, random and futile. This means that it should be clear for everyone which is interested in the New Media and Mass Communication process that in the present there are specific segments of emitters which are especially interested in disseminating science, and not only through New Media, to the general public. The emitters are usually entities who have a strong interest to send a message in terms of science dissemination content by the New Media or PR general techniques to some specific segments of public. Here we must also take into account the fact that in the present a significant part from the research activity from within academic system is directly linked with industry and with the general possibility of implementing the results to the economic level by those who pay for the research in the first place. This situation is an additional reason for a serious approach of the entire phenomenon regarding science communication and dissemination in the present New Media context. It also shed light upon the complexity of this phenomenon:

Science communication receives significant attention from policy makers, research institutions, practitioners and scholars. It is a complex and contentious topic that encompasses a spectrum of issues from the factual dissemination of scientific research to new models of public engagement whereby lay persons are encouraged to participate in science debates and policy.

### **The Theoretical Frame for the New Style of Scientific Journalism**

The action of transmitting the results of scientific research to the general public is a relatively new phenomenon within the process of globalization and mass communication. Because of different reasons are the need of having an appropriate conceptual frame by which the results of dissemination could be evaluated, the process of science communication requires a theoretical frame in order to see where is situated among other specific forms of mass communication (Bronson, 2014). In other words we need a set of concepts able to define and to explain the phenomenon. But this need was not always seen as a strictly theoretical one. As it was said, science communication requires a specific type of emitter, a one who needs to be more prepared than an average journalist from a general type of media.

A scientific news portal that provides information directly from those who produce it (the scientific, medical and environmental community) to the general public. Futurity, which has now extended to more organizations and also to institutions in Great Britain, is a clear alternative to what used to be the most common

way of communicating on science: intermediation of journalists (Cormick, Nielssen, Ashworth, La Salle, & Saab, 2015). In other words, a “bypass” has been created today that allows the world of science to skip the unavoidable collaboration or – for some – the obstacle represented by the media in their objective of circulating information to the general public, who also have the option of searching for information directly from the specialized sources. The case of “Futurity” illustrates a trend produced by the spread of the world of internet and serves to pose several questions:

- (1) If the public can access the information first-hand (and for free), why turn to the media?
- (2) Do the media have an added value for the user as information providers?
- (3) What reasons do scientists and doctors have for communicating their information to the public?
- (4) Is it worth this additional effort for the world of science?
- (5) Is traditional journalism partly to blame for this bypass spreading?
- (6) Can the quality of the information be affected in the new form in which it reaches the people?

“The public can now access the direct source of the information which they are interested in. However, people must also be prepared to learn the new rules of the game. An initiative like the one used as an example can really pursue an increase in society’s scientific knowledge or pursue other goals aimed more at personal benefit. For example, quite a common objective and justifiable, not always transparent, is that behind an initiative like this the aim is also to promote universities and research centers (a new channel of institutional communication). Sometimes, the scientific, medical or environmental organization that is at the origin of the portal not only seeks to promote itself, but also looks for new clients, to improve their social image, diffuse specific information with a very clear intention (for example, seeking additional financing), etc. The user comes face to face with a piece of information and the intentions are not always clear. Absolute objectivity does not exist in journalism, but it does even less so in the world of institutional communication.

Therefore the new “disintermediation” of scientific information can be very positive, since it allows for more proximity between sources of information and society. But it can also have a negative side and the regulatory role that journalism should have in the search for the truth and as much objectivity as possible is being lost. We could ask ourselves, clearly, if the media have really played this rebalancing role in the recent past or are currently playing it or if, on the contrary, how they have acted and their interests – which they also have – have contributed to a gradual social discredit and distancing of their normal users.

Starting with the set of questions about the status of New Media in scientific journalism work the primordial question is who is in fact the public? Which is the public of scientific journalism in New Media trend? The question cannot be solved by a simple and robust answer. If the problem of public is already difficult enough in the general PR theory in the case of New Media approach the issue is more difficult due to large set of possibilities to establish contact with the receptor of the message by technological performances for the New Media segment. Still, even so, the theoretical approaches in this issue were indeed significant. A very interesting study was done by considering the public of scientific dissemination through New Media and through Media in general not from a general sociological and strictly PR perspective but by the attitude of different segments of individual regarding science in general. The study shows few categories of the public in this perspective: confident believers, technophiles, supporters, the category of concerned public, the category of a neutral public (non sure) which do not has any clear attitude regarding science, and the category of those who consider that science is not for them (not for me category).

It is important to mention that this classification is in general operational not only for the New Media environment in terms of science dissemination and its relations with the public but also for the traditional tools in media and PR (Feinstein, 2015). Anyway, a more detailed analysis of this perspective of approach suggests, in our view, the fact that science dissemination would never have as a public the segment of scientists. This could be seen as a principle statement but it has implications on the negative part of the effects which science dissemination could have in general and this negative part is very important for the segment of scientists. But before we will see the possible set of negative effects of New Media's role in science dissemination let us disclose in more details those attitudinal categories regarding the perception of science through tools of mass dissemination.

### **Conclusions: Some Aspects for Further Debates in Scientific Journalism**

In order to disclose the difference between different forms of communication regarding science one of the ways could be reduced to this: the process of science dissemination to the masses, even if it is done by New Media platforms, has always in the part of the receiver something which is by principle passive. The public of science dissemination, regardless the medium of communication and the tools is always a passive receiver of the scientific information. And this is even more true within new technologies from New Media regardless the great range of possibilities. This is important to notice because is disclosing a key factor, situated at the most fundamental level in the conceptual frame of science dissemination by media in general: any form of communication from the scientific community to the masses is and will be always a form which consider the receiver something totally passive even if apparently things are not look in this way. This is important to mention because the New Media technological platforms which are been used in order to disseminate science could sometimes give to the public the impression that it could play an active role within the entire process. Even more there are different levels within the process of communication in general, levels of professionalism and different forms of segments of stakeholders in science dissemination process which can complicate the perception about the role and the function of the receiver.

Within a larger perspective we can say that a distinct subject within science communication theory is the relation between scientists and the media in general and, as a specific form of problem, the relation between the job of being a scientist and the act of science communication when this is done by the scientists themselves. Both issues indicated here, the issue of the type of communication within science dissemination process (unidirectional or bidirectional) and the issue regarding the type of relation which could exists between the job of being a scientists and the act of communicating science to the general public are, of course, yet debatable. Maybe some parts of the problems are not even totally conceived within the conceptual frame of sciences of communication regarding issues from New Media. Anyway, and with this we close, is possible that this historical time of mass communication and globalization to be just transitory and maybe in the future science will be again something encapsulated only within small communities. However, until then we had to deal with the actual status and to try to understand the process of science communication by using the tool of current sciences of communication.

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