An analysis of the shares of spaces of science and divulgation of public participation in the portal of the Brazilian Ministry of Science, Technology and Innovation (MCTI)

França, A. A.
Federal University of São Carlos
São Paulo Research Foundation FAPESP
andalm.franca@hotmail.com

Hayashi, C. R. M.
Federal University of São Carlos
massao@ufscar.br

Hayashi, M. C. P. I.
Federal University of São Carlos
dmch@ufscar.br

Abstract

New pages appear on Web daily, addressing issues in Science and Technology (S&T) working in favor of scientific and public understanding and have as its purpose, primarily, the dissemination of scientific communication to the public, comprehensive and wide, promoting a scientific culture, ever closer to society. The Portal of the Brazilian Ministry of Science, Technology and Innovation (MCTI) is the official channel of this government agency on the Internet, making it that way, for his character to report on actions and issues in S&T, considered the initiative of scientific divulgation on web. To understand how the MCTI operates through its government portal, some questions were listed for use on site, which will eventually also address aspects that deal with the existence of spaces for public participation in society. It combines electronic services that

allow access for many services without apparent concern to contextualize these to access the lay citizen, although there is ample number information pertaining to the Ministry. The portal does not demonstrate to enrich the voice from common or broad questioning and discussion of matters of public interest. It is believed that the standard endorsed by the analysis of portal MCTI reflects how the initiatives of scientific web still present today offer little or no space for participation and interactivity for effective civil society, and, when these channels are provided, are not official, resulting in no influence and involvement of citizens in decision-making related to S&T.

Introduction

Pages on Web addressing issues in Science and Technology (S&T) are created and supported by centers, foundations and institutes of research, universities and other organizations, researchers and members of society in general, through scientific journals, periodicals, blogs, portals, among others, gathering news content, official or speculative character, revealing initiatives to the general public as to the specialist one.

These initiatives work in favor of scientific and public understanding (or socialization, popularization, vulgarization, although terms are similar, but not synonymous) of science and have as its purpose, primarily, the dissemination of scientific communication (which takes place between researchers experts) to the public, comprehensive, wide and not only, in order to promote a scientific culture, ever closer to society, of a topic so relevant and crucial to the development of the country as the S&T.

Gonçalves (2012) argues that Internet facilitated the performance and gives more visibility to the research and to the initiatives of scientific divulgation, outside the academic environment, approximating scientists to common people, expanding the search and exchange of scientific, technological in health and scientific content on the Web, contributing to disseminate the access to scientific knowledge. On the network, space has been set up for discussion about topics on S&T and they are also in virtual communities created on social media, such as Facebook, Twitter, Orkut, Wikipedia, YouTube, among others. In these places, individuals share text, images and other materials.

Valerio (2012) believes that there is participation of a new audience, no longer divided into producers and users of science on different sides, but united by the interest in

science, whether academic or otherwise, sites of scientific, sharing the same space forming virtual communities: such as sites, mailing lists, electronic mail or electronic journals. For Calvo Hernando (2002), scientific communication in the media is a democratic practice as it offers the majorities knowledge of minorities.

Marandino et al (2003) explains about the ideal profile of the popularization of science: there is a division of opinion, at one side, some believe this should be a role played by the scientist himself, or by his competence or commitment to share knowledge produced with the company that finances and on the other hand, another group that takes into account the expansion of training courses and professional experts in the field of scientific journalism, mediation and monitoring for performance in science museums. It is a consensus, however, concerns related to the scientific language in order to understand and understanding by the public, expanding the spectrum with the issues of why and how to publicize science.

Nieto Olarte (2002, p. 4) proposes: "that agents that promote science communication should focus their efforts on transforming the traditional imagery of science as something foreign, alien and unreachable and show it as a human activity in close relationship with our environment, our problems and our ability to solve them. In this way, we not only have businessmen, politicians and citizens convinced of its value, as well as better science".

The Brazilian Ministry of Science, Technology and Innovation (MCTI): a brief analysis of the portal

Science and Technology are expressions that are separated even seen as having multiple meanings. Although coexist two types of approaches, the first one considers the technology as the application of science and second that views technology as a precedent to science, it is believed that today is the most appropriate approach in that it has both an interaction and symbiotic. As efforts are needed one to the other, both scientists and technologists learn and help each other in mutually beneficial ways, even if their jobs are likely to develop themselves synchronically or diachronically, it is their social interaction emerging innovations. The knowledge and skills of science serve as intellectual tools to technology as well as knowledge and skills of the technology serve as material inputs to

science, in the same way that knowledge is constructed as technological materializes what science theorizes and built much of the scientific knowledge, as it conceptualizes what its technical breakthrough provides (PRAIA; CACHAPUZ, 2005).

The Portal of the Brazilian Ministry of Science, Technology and Innovation (MCTI) is the official channel of this government agency on the Internet, making it that way - for his character to report on actions and issues in S&T, events, opportunities, research, indicators, decisions government, as well as laws and norms on area - considered the initiative of scientific divulgation on web.

The MCTI was created in 1985 and since then has been important to social and economic transformations and the consolidation of S&T in the country, to become an economic power and social achieve a prominent position in the international arena, need investment in S&T and education, to train young researchers who act in funding agencies, centers and research institutes and development universities, concerned with policies to encourage innovation, as well as the involvement of cooperation agreements and partnerships with other countries. The subjects of their competence areas are the national policy for scientific and technological research, planning, coordinating, supervising and controlling the activities of science and technology, policy development and automation; national policy on biosafety, space policy, nuclear policy; and control the export of sensitive goods and services.

To understand how the MCTI operates through its government portal, first in regard to scientific publication, some questions were listed for use on site, which will eventually also address aspects that deal with the existence of spaces for public participation in society, precisely because it is a government agency and are highly visible to the general public, for example, when using the search term "science and technology" in the most used search engine on web, Google, in Portuguese, the first of thousands of results that come up on the screen is the portal of MCTI.

Information about the creation and performance of the portal to the society as well as the importance that represents the official release of S&T, are not in the portal. It combines electronic services that allow access to systems, consulting documents, legislation, lists, reports, statements and terms that are very specific use, without apparent concern to contextualize these to access the lay citizen, although there is ample number

information pertaining to the Ministry, such as contests, events, entities that represent, commissions, agencies, councils comprising, publications and organizational structures.

It is noticed that the focus of the portal is serving updated news about S&T, government decisions and others organizations in the country. Twenty-five subjects are listed by the portal as the responsibility of the ministry, ranging from agribusiness, agriculture and fisheries, to biotechnology, climate change, nanotechnology and Information Technology and Communication, themes that permeate the daily life of every individual, to a greater or smaller proportion.

Praia; Cachapuz (2005, p. 174) say that is no longer "[...] possible to think science nowadays, as well as its structure and construction of scientific knowledge outside the context of society at breakneck technological development". Furthermore "[...] People need access to science and technology, not only in order to understand and use the artifacts and mentifacts as products or knowledge, but also opine on the use of these products, realizing they are not neutral, not definitive, let alone absolute" (PINHEIRO; SILVEIRA; BAZZO, 2007, p. 72-3).

Thus, it is relevant to emphasize not only the importance of access to information and scientific communication through scientific publication, but also and mainly to the opportunities that are offered to the society to opine, participating actively in the issues and themes raised in the portal.

About the access to information, the portal of MCTI fulfills the requirements of the law on access to information in view of the mandatory divulgation on the official sites of the Internet. There is a tab on the portal called "access to information" and also a section of "access to information" responsible for reporting MCTI datas which are of general interest.

As for the public communication of S&T, Fares; Navas; Marandino (2007) deal with models that explain the relationship between science and society, featuring two major trends, which are divided between communication models single, unidirectional via, leaving the scientist to society and those who propose dialogic processes of communication, whose main attention is focused on the participation, involvement and active public stance. Adapting the reality of these models for portal analysis of MCTI, realizes that public communication available on the web portal environment refers to the

most basic model among those listed, the deficit model, coupled with the vision of science popularization that weighs scientists as experts knowledge holders and the public deficit of knowledge in S&T. In this case, the communication occurs in single track, with scientists as senders and the public as a passive recipient.

Few initiatives of accessibility are found in the portal and when they are present, refer to the same layout. There is no explanatory page on the subject or special flap that gathers information about the actions of the portal to provide accessibility to users. This topic is relevant for allowing the promotion of content posted on the portal to all individuals, regardless of their physical condition, they refer to a visual or hearing some difficulty, for example, but whose concern is to attend and allow access much more facilitated the page.

Regarding the performance in social networks, Marteleto (2010) believes that information and communication are the most important power in social networks, and even further: influencing decision-making processes related to public policy, disseminate information and knowledge in the public interest; mobilize actors to implement joint actions to influence "public opinion" and common sense.

Conclusion

Finally, we point out that it is not observed attention to user learning by using glossaries or examples for explanation of concepts, for example, any initiative aiming at scientific literacy or commitment to sustaining a scientific culture to the country. The news reported by site express facts, figures and officials and for this reason, distances itself from other practices from other marginalized sections of society non-specialized. The portal does not demonstrate to enrich the voice from common people in the forms of public comments, criticisms, questions, suggestions or demonstrations of the population who are visible and contribute to discussions, there is only the option to contact by e-mail, which is justified just in case of specific questions, but not intended for broad questioning and discussion of matters of public interest.

In the portal, the space for public participation is scarce and unconvincing, there is no project to guarantee it or encourage it, because despite having the necessary infrastructure, the portal also offers no openness to discussion forums, blogs, chats and

other forms of interaction, not trying to build and sustain an online community for the purpose of discussion in S&T practice about the ministry or even more broadly, the country. Interactivity, which would be a step further public participation is non-existent because there is no way of sending society's demands for ministry and immediate return on your part, there is no way for users to express their opinions or questions that could be answered and replicated, expanded and incorporated into other discussions.

Thus, it is believed that the standard endorsed by the analysis of portal MCTI reflects how the initiatives of scientific web still present today offer little or no space for participation and interactivity for effective civil society, and, when these channels are provided, are not official and the demands are not brought to the attention of the government or the competent bodies, resulting in no influence and involvement of citizens in decision-making related to S&T.

References

Calvo Hernando, M (2002), "El periodismo del tercer milênio: problemas de la divulgación científica en Iberoamérica". INCI, 27. Available at: http://www.redalyc.org/articulo.oa?id=33906502. Access on: 24 nov. 2013.

Fares, D. C.; Navas, A. M.; Marandino, M (2007), "Qual a participação? Um enfoque CTS sobre os modelos de comunicação pública da ciência nos museus de ciência e tecnologia". en X Reunión de la Red de Popularización de la Ciencia y la Tecnología en América Latina y el Caribe.

Gonçalves, M (2012), "Contribuições das mídias sociais digitais na divulgação científica", en Pinheiro, L. V. R.; Oliveira, E. da C. P. Múltiplas facetas da comunicação e divulgação científicas: transformações em cinco séculos, pp. 368.

Marandino et al (2003), "A educação não formal e a divulgação científica: o que pensa quem faz?", en IV Encontro Nacional de Pesquisa em Educação e Ciências.

Marteleto, R. M (2010), "Redes sociais: formas de participação e de informação", en Gómez, M. N. G. de, Lima, C. R. M., Informação e democracia: a reflexão contemporânea da ética e da política. pp. 171.

Nieto Olarte, M (2002), "El público y las políticas de ciencia y tecnologia". INCI, Available at: http://www.redalyc.org/articulo.oa?id=33906508. Access on: 26 nov. 2013.

Pinheiro, N. A. M.; Silveira, R. M. C. F.; Bazzo, W. A (2007), "Ciência, Tecnologia e Sociedade: a relevância do enfoque CTS para o contexto do Ensino Médio". Ciênc. educ. (Bauru). Available at: www.scielo.br/pdf/ciedu/v13n1/v13n1a05.pdf. Acces on: 01 dec. 2013.

Praia, J.; Cachapuz, A (2005), "Ciência, Tecnologia e Sociedade: um compromisso ético". Rev. iberoam. cienc. tecnol. soc. Available at: http://oeibolivia.org/files/Volumen%202%20-%20N%C3%BAmero%206/doss07.pdf. Acces on: 01 dec. 2013.

Valerio, P. M.; Pinheiro, L. V. R. (2008), "Da comunicação científica à divulgação". TransInformação. Available at: http://periodicos.puc-campinas.edu.br/seer/index.php/transinfo/article/view/532/512. Acces on: 04 dec. 2013.