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Editorial

Critical Education and Science Outreach in Public Libraries

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Science is not for the satisfaction of the individual scientist nor for the amusement of intellectuals. If society sustains us, it is for the benefit of the society.

Mauricio Swadesh

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Without information there is no opinion. This premise, although it seems obvious, can be evidenced today with issues that concern us all: the war in Gaza, the use of transgenics, mining, hydroelectric dams, among many other issues that are of a scientific, public and social nature, and of which it is necessary for the whole society to know and understand in order to make decisions and have the option to choose, with a basis, what is the best option from an individual position but also for the benefit of a collective. In order for people to have an opinion, they first have to be informed, but how can society be informed and know about scientific issues; the answer might seem simple and just say that each person has the ability to document and educate themselves; however, in the real world this does not happen and that is when the role of scientific dissemination is essential and spaces such as libraries, whether public, private, specialized or university can become scenarios for dissemination but also for construction and creation of knowledge.

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In the Age of science, as Revel (2012) calls it, the communication of knowledge is organized in three spheres: research, teaching and public communication. The latter is part of the commitment assumed by the researcher: to communicate the results. Dissemination from the institutionalism of knowledge outside the scientific community takes place through other pedagogical channels such as informal education in which the public has contact with the knowledge produced by research and practical knowledge.

Talking about libraries and science outreach means reflecting on how libraries can be scenarios to disseminate, promote and spread knowledge, and thus build citizenship. To this end, we will review the history of science popularization, the role of the popularizer and the chain of science popularizers, which allow knowledge to be more accessible to the communities.

Raichvarg and Jacques (1991) say that the popularization of science is "an indispensable complement to the history and philosophy of science, in the sense that it raises new questions: why, for whom and how a science, at a given time, was diffused in the social fabric of an era; which people appropriated this science at a given time and by what means".

Throughout history, science has facilitated the appropriation of knowledge by people, and it is also related to the universal knowledge of the world and the education of people. For such research, discoveries and findings made by scientists to reach the entire population, it is essential to have a clear language and use terms and expressions that can be understood by any type of public. The objective of scientific popularization is to make it easier for people to understand the basic knowledge related to science and technology, taking into account the heterogeneity of the public that receives popularization; a public that, without being specialized, has a scientific background that allows them to understand abstract concepts and relationships and also those who have not acquired this background, but whose interest can be awakened with a serious and understandable scientific communication.

Cortiñas' book (2006) tells the history of scientific popularization; the author describes and details four fundamental traditions (Italian-Renaissance, French, Prussian-German and Anglo-Saxon) in scientific popularization in the West. The first is heir to the Greco-Latin past, born with the integral humanism of Renaissance Italy, and is embodied in Galileo, known as the first scientific popularizer. The second is the French tradition of the 18th and 19th centuries, which has its origins in the Enlightenment and continues with Flammarion, one of the greatest popularizers of the 19th century.

Thirdly, the Central European tradition of Prussian origin, where Goethe, Schrödinger or Einstein appeared, one of the milestones of popularization just before Nazism changed the course of history. Lastly, the Anglo-Saxon tradition of popularization stood out in the 19th century in the United Kingdom, with Darwin and Faraday, and dominated the 20th century, basically from the United States. The powerful Anglo-Saxon 20th century produced such popular authors as Gamow, Asimov, Sagan and Gould.

This history proposed by Cortiñas (2006) shows that there is a need for people to know about the advances; since Galileo, there has been talk of scientific dissemination, as it is evident that in his texts he sought clarity in the language, that is, a simple and concrete use, in addition to the fact that they were written in Latin, a massive and easily accessible language at the time.

Now, taking into account that there is an interest in science popularization, and that this interest has increased in the 21st century, the question arises as to who is responsible for popularization or if it only depends on the scientist; in this sense, as Guerrero (2011) says, the work of popularization is interdisciplinary and is carried out by scientists, teachers, communicators, technicians, and the figure currently known as science popularizer. "The contents that are interesting to disseminate are discoveries and scientific advances such as the discovery of the Higgs Boson, but also more or less established theories or hypotheses, such as Darwin's evolution or Einstein's relativity". On the other hand, content dedicated to entire disciplines of science, such as astronomy, is also disseminated; this does not mean that small advances or discoveries that seem insignificant compared to the previous ones cannot be disseminated.

How could this type of knowledge be part of the libraries for their task of dissemination and at the same time to generate knowledge from the experimental? We will see the answer from two particular cases of this task carried out in two networks of public libraries. The first is the Public Library System of Medellin, Colombia, which carries out a project called Bibliolabs. This project works in a network with the libraries of the city and its users through experimentation with technology and science from a multimodal narrative; it works from open-source information systems, free software, digital maps of the territories, programming interfaces to visualize information created with the community and sound media with stories of the locations; each initiative created by the community can be shared, modified and acquires a character of permanent creation.

The Library System also has a work team that coordinates with the various scientific research institutes so that scientists or disseminators can visit the libraries and share with people not only their findings but also, through experimental workshops, understand how certain topics work. Likewise, they generate platforms for the dissemination of new findings and the work team is responsible for writing them and making the publication a particular emphasis so that it generates interest and curiosity in users and readers.

The other case is the Network of Libraries of Salamanca, in Spain, which has radio programs in which they invite various people from the scientific field to disseminate their work; they are also associated with institutes and universities, in addition to actions such as informative web pages, thematic exhibitions, communication campaigns and activities aimed at environmental dissemination and public awareness in order to achieve a model of sustainable development; They offer activities such as workshops, trails, guided tours; they conduct interviews and reports on the most important research groups in the community; they prepare scientific events and current debates or conferences and establish channels of exchange between the media and the scientific community.

Both examples are consistent with the vocation with which libraries were created: to disseminate knowledge and make it reach everyone. Over time, libraries have been transforming and adapting to social needs, which is why their role makes them one of the key players in the institutional framework of scientific communication and research; they seek to popularize science and make it more accessible to all. While we know that science works on very complex and specific topics, the challenge for libraries and popularization in general is to tell in such detail what is happening with science in an inclusive and understandable language.

Trying to explain science is important for society, the economy and the development of countries and a large part of the task of libraries is to contribute to the formation not only of readers but also of critical citizens, those who have an impact on recomposing the social world of which they are a part. To understand science is to understand everything that shapes us as humans; that is why libraries will continue to preserve the past in order to make available the entire collection that allows us to understand ourselves as a society and that will undoubtedly serve to accumulate strength to face the future.

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