

## RedPOP: 25 years of a Science Communication Network in Latin America

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### Abstract

The *Red de Popularización de la Ciencia y la Tecnología en América latina y el Caribe* (RedPOP) (Latin American and Caribbean Network for the Popularization of Science and Technology) was created 25 years ago as an expression of a movement that started in the 1960s in favour of a scientific education. The purpose of this movement was to incorporate science into the general knowledge of the population by communicating science through different media, products and spaces such as museums and science centres. Since then, the movement has acquired considerable strength in Latin America and RedPOP has been a key factor to the development of this activity in the region, although several challenges still have to be addressed.

### Keywords

History of public communication of science; Popularization of science and technology

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### Introduction: the creation of RedPOP and its context

The Latin American and Caribbean Network for the Popularization of Science and Technology (RedPOP) was created 25 years ago. It is an interactive network, which brings together groups, programmes and centres for the popularization of science and technology in Latin America and the Caribbean. It was founded in November 1990 by the initiative of UNESCO's Regional Bureau for Science in Latin America and The Caribbean led by Eduardo Martínez during a meeting held in the newly-created Museum of Astronomy and Related Sciences in Río de Janeiro. Convened by UNESCO, the meeting saw the participation of about 20 organizations from Participants from about 20 organizations from Argentina, Brazil, Costa Rica, Colombia, Cuba, Guatemala, Mexico and Venezuela took part in this meeting.<sup>1</sup>

This paper will review the history of the network.<sup>2</sup> We will start by presenting some general information about the regional context at the time of its creation. We will explain how the network was created as part of a movement born in the 1960s

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<sup>1</sup>1<sup>st</sup> Meeting of the Latin American Network for the Popularization of Science and Technology, internal document of Unesco and Museum of Astronomy and Related Sciences.

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in favour of a scientific education, which included science communication,<sup>3</sup> and then we will see how the southern region was integrated into the network. Finally, in the conclusions we will discuss a few challenges that lie ahead.

Quite importantly, it should be noted that in several countries of Latin America, records of science communication activities have existed for at least two centuries [See, for example, Moreira and Massarani, 2002; Sánchez-Mora et al., 2015; Fog, 2004]. However, due to space constraints, we will limit our remarks to a few relevant events that occurred in the countries involved in the movement that led to the creation of RedPOP, especially Mexico, Brazil, Argentina and Colombia. At the end of this section, we will mention various noteworthy science museums, taking into account that the movement arose in several countries in a similar way.

Providing a context for the subsequent establishment of RedPOP, an innovative educational movement started to appear in several countries in Latin America during the 1960s, with roots in the importance of experimentation for a scientific education, under the influence of a few changes that occurred especially in the US. In addition to making an attempt to improve science education in schools, the movement also aimed to increase scientific literacy in the population using different media, spaces, strategies and products to communicate science.

At that time, a wave of enthusiasm for science journalism began in certain countries.<sup>4</sup> Several conferences and other initiatives seeking the participation of Latin American countries and Spain were organized, which led to the creation in 1969 of the Ibero-American Association of Science Journalism. National associations were also created in Argentina (1969), Venezuela (1971), Chile (1976), Colombia (1976) and Brazil (1977). In 1978, the Brazilian government established the Scientific Journalism Award 'José Reis', to pay homage to the science writer.

Mexico was then an emblematic and inspiring country for the region: the movement to incorporate science into general knowledge and the process to institutionalize and consolidate science created a favourable climate to start institutionalizing science communication as well [Sánchez-Mora et al., 2015]. The Universidad Nacional Autónoma de México (UNAM) was a pioneer in the region with an Experimental Science Communication Programme, which became the first university centre for science communication in 1981. In 1997 it was renamed General Direction for Science Communication, a university institution exclusively devoted to science communication through all media, with academic activities involving a staff of about 700 people — the only one in the region having such remarkable dimensions.

Three other scientific organizations played an important role in Mexico: the National Council of Science and Technology (CONACyT), which launched two

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<sup>3</sup>In Latin America various terms are used to refer to this practical and academic field such as science communication, popularization of science and social appropriation of science. Although these definitions overlap, they are slightly different. There is no consensus on such definitions. However we believe it is very important to respect these different perspectives. For practical reasons in this paper we chose to use the umbrella term of "science communication".

<sup>4</sup>These actions were carried out by some local people, following the example of Jacobo Brailovsky (Argentina); José Reis (Brazil); Aristides Bastidas (Venezuela); Sergio Prenafeta (Chile); Antonio Cagua Prada (Colombia); finally, the Spaniard Manuel Calvo Hernando. For more information, see: Massarani et al. [2013] and Cazaux [2010].

magazines for the general public between 1975 and 1980: *Ciencia y Desarrollo* and *Información Científica y Tecnológica*; the Mexican Academy of Science, which launched in 1982 “Sundays in Science”, a series of lectures for the public at the Museum of Technology in Mexico City; and the Mexican Society of Physics, which has organized the “Science Communication Meetings” since 1985. In 1986, the Fondo de Cultura Económica (Economic Cultural Foundation) launched a collection of books on different science subjects written by Mexican scientists called *La ciencia desde México*. Today, the collection has grown international and is called *Ciencia para todos* [Fariás, 2002]. The Mexican Society for the Communication of Science and Technology (SOMEDICyT) was founded in 1986. It is also worth mentioning *Chispa*, a science magazine for children created in 1981.

At that time, some countries in the region were under a dictatorship (Argentina, from 1966 to 1973; Brazil, from 1964 to 1985; Chile, from 1973 to 1990; Uruguay, from 1973 to 1985), with broad repercussions on their social, economic, educational and scientific life.

In this context of generalized repression, Brazil is also an emblematic case: in the 1970s, the dictatorial regime brutally targeted members of the scientific and academic community and exiled many people, including scientists, students, intellectuals, workers etc. However, the Brazilian Society for the Advancement of Science (SBPC) stood up to the regime playing a part in the resistance: in particular, its annual meetings became home to an opposition movement and had a political impact on the public and the media [Fernandes, 1990; Moreira and Massarani, 2002]. Within this movement, combining political resistance, democracy and the promotion of an alternative development path for Brazil, an idea stood out: science as an important instrument to overcome the underdevelopment and social issues the country was facing. Science education activities, mainly communication of science — with or without formal methods — were therefore fundamental to underpin the movement [Moreira and Massarani, 2002].

The mobilization around the SBPC and its meetings in the 1970s and 1980s led to the creation of groups of scientists, teachers and students in various parts of the country who relaunched movements to organize conferences and meetings of science communication, to implement scientific-cultural facilities and to create new instruments for the communication of science to the public through the media. In the scope of SBPC’s action, an outstanding initiative was the creation of the magazine *Ciência Hoje* in 1982. Later, a magazine for children, a science policy newsletter and virtual products were created too. In 1988, a group of Argentine scientists inspired by the then successful Brazilian model established *Ciencia Hoy*.

In Colombia, science communication was on the agenda of Colciencias, the organization responsible for scientific policies in the country.<sup>5</sup> In this organization there was the Communication Programme, which was intended to carry out scientific and youth activities; experiences in science parks and playgrounds, hands-on museums, science fairs and massive science events, exhibitions and science festivals. Although one of the first hands-on museums in Latin America (Museo de la Ciencia y el Juego) was opened in this country in 1984, the

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<sup>5</sup>1st Meeting of the Latin American Network for the Popularization of Science and Technology (1990), internal document, Unesco, Montevideo, Uruguay, and Museum of Astronomy and Related Sciences, Rio de Janeiro, Brazil.

implementation of the science communication programme was slow. Within the scope of Colciencias, *Cucli-Cucli* — a magazine for children — was established in 1990, the same year as the creation of RedPOP. It grew to a circulation of 45,000 copies and became known in many countries in the region. Magola Delgado, the first executive secretary of the network and coordinator of *Cucli-Cucli* said: “It was a playful programme with open questions without too much concern about providing answers. The aim was to leave questions open with the purpose of inspiring curiosity as well as encouraging children to look for answers and to do research”.<sup>6</sup>

In Argentina, there was great enthusiasm for the issues of non-formal science education in the 1980s. A practical result of this movement was the magazine *Ciencia Hoy*, as mentioned above, launched in 1988, and the creation of Mundo Nuevo, a Science Communication and Education Programme at the Universidad Nacional de La Plata, in the same year RedPOP was born, of which Mundo Nuevo is a founding member. Also in 1990, the Scientific and Technological Youth Activities Programme was founded. Its origins date back to the 1960s with the creation of the Extra-Curricular Scientific Activities and Science Fairs, which was firstly organized with the active participation of the Universidad Nacional de Córdoba and the support of the National Scientific and Technological Research Council (CONICET) [Álvarez, 2007].

Since the 19<sup>th</sup> century, many Latin American countries have established natural history museums, zoos, botanical gardens and other museums related to science. But in the 1970s and 1980s a movement emerged simultaneously in many countries of the region (which continued throughout the 1990s and the 2000s), i.e. the incorporation of interactivity (*hands on*) in the design of museums, following the model of the Exploratorium (San Francisco), the Palais de la Découverte and the Parc de la Villette (both in Paris).

Among the first hands-on science museums created in the region are: Museo Tecnológico (1970, Mexico City, Mexico), Centro Cultural Alfa (1978, Monterrey, Mexico), Centro de Divulgação Científica e Cultural, connected to the Universidade de São Paulo (1980, São Carlos, Brazil), Espaço Ciência Viva (1982, Rio de Janeiro, Brazil), Museo de la Ciencia y el Juego (1984, Bogotá, Colombia), Museo de Astronomía e Ciências Afins (1985, Rio de Janeiro, Brazil), Estação Ciência (1987, São Paulo, Brazil), Museo Participativo de Ciencias (1988, Buenos Aires, Argentina), just to name a few. During the 1990s and the 2000s, many countries created their hands-on science museums. In 2015, RedPOP published the first *Guía de Museos y Centros de Ciencia en América Latina*, which shows the increase in the area: 470 organizations have been identified in different countries of the region [Massarani et al., 2015].<sup>7</sup>

Latin America has also stood out internationally in the field of science communication with various winners of the UNESCO Kalinga Prize for the Popularization of Science, an international prize created by UNESCO in 1952: José Reis, Brazil (1974), Luis Estrada Martínez, Mexico (1974), Marcel Roche, Venezuela

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<sup>6</sup>Interview with Lisbeth Fog, 2013.

<sup>7</sup>It is interesting to note that while many science journalism associations were created in the 1970s, associations of science museums were created more recently, such as in Mexico (1996), Brazil (1999) and Argentina (2007).

## Southward: the integration of Latin America

(1987), Aristides Bastidas, Venezuela (1980), Oswaldo Frota-Pessoa, Brazil (1982), Ennio Candotti, Brazil (1988), Jorge Flores Valdés, Mexico (1992), Julieta Fierro Grossman, Mexico (1995), Ernst Hamburger, Brazil (2000), among others.<sup>8</sup>

RedPOP was founded at a time when the desire to join forces was evident in Latin America. An example of this is the creation of *Interciencia* in 1974, in Brazil, registered in 1975 in Venezuela: “The *Interciencia* Association aims to unite the scientific community of the Americas, so that it can better serve the development of nations and the welfare of the people.”<sup>9</sup>

The creation of the aforementioned magazine *Ciencia Hoy* in Argentina in a collaborative project with the Brazilian counterpart was also a result of this willingness to share experiences, as demonstrated by its first editorial: “*Ciencia Hoy* will be published in Spanish, to be accessible to readers in other Latin American countries as well. In most of them science is facing with issues similar to those existing in Argentina. The editors hope that the magazine will become an effective tool for promoting integration and scientific cooperation in the region.”<sup>10</sup>

The editorial published in the magazine’s 10<sup>th</sup> anniversary special edition, written by Ennio Candotti, a creator of *Ciência Hoje* who personally supported the establishment of the Argentine magazine, clearly expresses the spirit of the time: “*CIENCIA HOY*, as well as *Ciência Hoje*, wanted (...) through exchanges and cooperation, to disclose what is learnt and researched in laboratories of other countries in Latin America. In the mid-80s (...) scientific cooperation between researchers managed to overcome arrogance and built strong ties of solidarity.

We could explore the time when we were summoned to rebuild, with democracy, the political life of our countries. (...) We thought, again, that Latin America was a region sharing the same history, environment and destiny. (...) It was clear to us that we took part in a larger political cooperation programme, in which we wanted to include science and technology. To that purposes, it was necessary to put together scientific societies, to promote the exchange of students and researchers, to create a lobby, putting Brazilians and Argentines together, able to imagine not only the communication of science, but also the creation of multinational research centres in the region. (...)” [Candotti, 1998].

In 1990, the year RedPOP was created, the SBPC held its annual meeting in Porto Alegre as part of an effort to integrate Latin America: “(...) The SBPC and the Forum of Argentine Scientific Societies proposed to the representatives of other Latin American scientific society who were present to establish a foundation to support research and scientific cooperation in the region and also to promote the circulation of researchers and the communication of science. (...)”

However, Candotti commented: “The history of our countries in the 1990s preferred to walk alongside the programmes we identified with. They aimed to

<sup>8</sup>See <http://www.unesco.org/new/es/natural-sciences/science-technology/sti-policy/global-focus/science-popularization/prizes/kalinga-prize/> (Retrieved on 8 April 2015).

<sup>9</sup><http://www.interciencia.org/associacao.htm> (Retrieved on 4 April 2015)

<sup>10</sup>*Ciência Hoje*. Editorial no. 1 <http://www.cienciahoy.org.ar/hoy01/editorial.htm> (Retrieved on 6 April 2015).

integrate into the world only through trading and financial liberalization. The social price was high.” And he added: “By reading once again, ten years later, the pages we wrote on *Ciência Hoje* — CIENCIA HOY, we have understood that ‘Southward’ was not only poetic imagery, but also a direction that we follow and will keep on following.” [Candotti, 1998].

In the field of popularization of science, the need for an integrated organization became a reality with the creation of RedPOP.

Graciela Merino, of the Universidad Nacional de La Plata, who joined the group that created the network, said: “We were very cooperative among us and we immediately saw the need for regional cooperation.”<sup>11</sup> To Jorge Flores, another founding member, “RedPOP responded to the need of having closer relations among science communication, as in Latin America they were virtually non-existent”. He stated: “I see RedPOP as something that was necessary, and that fulfilled and still fulfils its mission. RedPOP, unlike other organizations, still has validity and meaning. These are difficult processes in Latin America as the distances are huge and money is tight”.<sup>12</sup>

### Looking ahead: the challenges

In the 25 years since the creation of RedPOP, science communication in Latin America has grown considerably. A reflection of that can be seen in the conferences held every two years in different countries of the region, which are considered the main forum for the discussion about issues related to science communication in Latin America, with the participation of different stakeholders.

However, in order to reinforce the network there are many actions that may be taken to address the challenges lying ahead. Some of these actions are:

1. The development of a catalogue of all the groups, programmes, centres and institutions engaged in science communication in the region, in order to learn about their activities, the studies carried out and the potential they have to support or collaborate with other members of the network. The first step in that direction has been the *Guía de Museos y Centros de Ciencia de América Latina* [Guide of the Museums and Science Centres in Latin America], written in Portuguese and Spanish, launched in 2015 [Massarani et al., 2015]. In addition, it is critical to identify the groups carrying out academic activities related to science communication such as the training of professionals in the field and specific research.
2. A crucial aspect is to ensure the existence of collaboration and integration projects among members in different countries. It is precisely through such collaborative projects that one can have the perception of actually belonging to a network, thus sharing experiences, strengthening the various skills, and taking synergic action. A few examples of projects that could be carried out are: comparative studies of the impact of our products and activities; establishing criteria and indicators to evaluate our work as well as the popularizers themselves; developing new models and strategies to

<sup>11</sup>Interview with Constanza Pedersoli, 2013.

<sup>12</sup>Interview with Elaine Reynoso Haynes, 2013.

communicate science and the reflections on the theoretical and methodological aspects of the professional field in order to contribute to its process of construction and consolidation, and helping to strengthen public policies on these issues, especially in countries not having a long tradition there.

3. A further challenge for the Network is to support the growth and strengthening of science communication in Latin America, especially in those areas where experience is limited or simply non-existent. In this regard some actions, already implemented but not to the extent required, are: a) conferences or seminars in different scopes of action such as museums, training of communicators, and science journalism; b) advice to initiate science communication programmes, c) shared workshops training courses and post-graduation for science communicators.

Finally, we believe that in this first quarter of the century we have many reasons to celebrate: the institutions involved in science communication in Latin America have increased significantly; the synergies between science centres and museums have strengthened through participation and networking; the public policies of the countries we live in have put science communication at the core of their agendas, and guidelines and projects aiming to stimulate and strengthen national and regional programmes in Latin America have been outlined.

This growth can be measured in quantitative but also qualitative terms. The field of science communication in Latin America is acquiring a greater professional status and that translates, among other things, in the emergence of more and more professionals (communicators, artists, educators, etc.) that focus on these activities. It can also be assessed by the quantity and quality of their academic production, as well as by the spread of communication and educational practices that are less cobbled together and increasingly supported by studies and research.

These exchanges are fundamental as they contribute to building time and space for institutional coordination, discussion and collective production; they greatly contribute to the growth of science communication as an academic field, and strengthen educational and cultural proposals as is the case with the experiences of children, youth and adults who participate in them.

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