

Dissemination and valuation of astronomy in Chile

Teresa Paz Vernal Vilicic

Becaria Pre-doc Facultad de Comunicaciones Universidad Pompeu Fabra, Barcelona

(Conicyt Becas Chile 2011-2015).

tpvernal@uc.cl

Abstract

The Region of Antofagasta, Chile has natural geographical features that transformed it into an astronomical heritage recognized worldwide. The Paranal Observatory on Cerro Paranal and the Large Millimeter Array Atacama ALMA, have settled in this area and provide a numbers of opportunities that aim to the development of Chile.

Unfortunately these potentialities are not being used. It becomes important to strengthen an astronomical culture necessary to create awareness of the economical and cultural opportunities that this science can provide to the development of the region.

In this sense, the media is able to make many contributions and changes considering that they are the most powerful information tool, its influence is global, it is highly related to the citizens, and also the media is a key player in the information society.

Therefore the objective of this research is to establish the valuation that the media, academic, social and political leaders of the Antofagasta Region in Chile have of the astronomical potential for cultural and economical development and its further dissemination.

Introduction

Based on the astronomical potential of Antofagasta, Marcelo Lufin, Ph.D. in Economy from the Universidad Católica del Norte in Antofagasta¹, Chile; the media operating in this area should play two roles that are essential: first, to assign value to the fact that the observatories build in the Atacama Desert (same region as Antofagasta) are

¹ Interview conducted for the researcher on june, 2012.

constantly changing the idea that humanity has of the Universe and second, to work with schools promoting the astrotourism since early childhood. In this sense, it is necessary to build an astronomical culture to create awareness of the opportunities that this science brings to the economic and cultural development of the Antofagasta Region.

The media is a key factor for the enhancement of science, through scientific dissemination, that is why they are central to the development of this research. As proposed by Calvo & Calvo Roy (2011: 16) "the science is still the poor sister of the media. Leaving aside notable exceptions, to be published it is necessary that the scientific news have enormous relevance to occupy a prominent place in the media".

There are many contributions and changes that the media could grant. All this considering that they are the most powerful and influential tools, at a global level, and highly related to the citizens, along with being a key player in the knowledge society (Fontcuberta & Borrat, 2006).

Academics actors such as scientists and academics related to the social area linked to organizations and institutions that disseminate and educate science and people from the political area, whom are government decision makers will be a key factor to complement the work about media communication in this work (Sánchez, 2004). Therefore this investigation has as a central objective to generate an assessment of the regional media, academic, social and political aspects of the Antofagasta Region of Chile about the astronomical potential for cultural and economic development and confront their views on the importance of dissemination.

According to a previous survey made in this research project, it was possible to recognize that the media in Chile is composed of about 400 media channels of which about fifteen belong to the Region of Antofagasta, regardless websites. The media from this Region such as newspapers, television and radio do not consider an area of scientific expertise in their daily content.

Therefore with this study, the data presented and that under development will be possible to establish communication improvement projections for a scientific dissemination committed to the astronomical potential of the Antofagasta Region of Chile.

It is also expected that the data would serve as a door to design and implement projects that contribute to scientific communication and development. It is also expected to generate a rapprochement between communication leaders, social, academics, and politicians so that together they can agree on the astronomical potential, in view of economic and social development of the Region of Antofagasta.

Methodology

Methodological tools: Delphi Method

The main methodological tool used in this research is the Delphi method for qualitative research. This technique involves a group discussion of experts who do not perform a face-to-face interaction, but participate anonymously by controlled feedback. All of the above through a questionnaire with open questions that are sent over the Internet. It differs from other techniques such as survey, because "what is sought is not the existence of statistically significant differences, but the most likely scenario outlined by the convergence of opinions" (Camisón, Z., E. Fabra, Flores & Puig, 2009: 18).

The procedure and the implementation of the Delphi technique was an adaptation made by the author of this research paper, following the format of Jon Landeta (1999), Spanish researchers, Camisón et al. (2009), Baladrón and Correyero (2008).

The panel was conformed by 27 participants for the Delphi method questionnaires. These included twelve communication actors (managers and journalists of media), five academics, five social leaders and five political experts in the Region of Antofagasta. All were chosen according to their knowledge, experience and appropriate characteristics to participate in the study.

The phases and operation of the Delphi method have been mainly the development and evaluation of a pilot questionnaire, which was assessed by experts in the field of scientific communication. Once these participants were chosen, the questionnaires were sent via email, with open and closed questions. Then the feedback and iterative process were developed and after this, a second questionnaire, anonymously, with the most outstanding views of the participants and their own individual responses to generate feedback was sent. Finally the conclusions were made.

Preliminary results

In the first item on "assessment, identity and development" - the first questionnaire for Delphi-method was intended to know the valuation of the economic vision of the identity that the communicational experts, academics, social and political in the Region Antofagasta in Chile have on the astronomical potential of the Region for cultural and economic development.

It was possible to interpret the 27% of the respondents established that the astrotourism would be a fundamental issue, when valuing the identity of the Region. Upon confronting opinions, communication, social and political experts felt that scientists and academics should disclose their knowledge in a simple language, closer to the community and linked to education to generate a greater appreciation of astronomy.

Accordingly, it was possible to interpret also that the communication experts have had an almost non-existent relationship with academics and scientists from the Region of Antofagasta, but felt it could be improved through creating stronger relations.

Communicational, social and academic experts stated that the work of politicians on the assessment of regional astronomy has to do with financial, legislative and discursive contributions. While two of the 27 participating experts felt that politicians should not get involved in this topic.

For communication academics and policy experts, the work of the agencies working with science and technology in the Region of Antofagasta, such as foundations (of companies), corporations, museums, groups of scientists-dissemination or scientific programs has been limited to creating events, projects and public relationships from their business interests.

As for the direct relationship of the respondents with astronomy in the Region of Antofagasta, the vast majority has been linked to this science through their professional positions. In this sense, it was possible to interpret that both academic and social experts have been linked more to astronomy due to their daily activities.

On the relationship of astronomy with the media, 65% of communication experts considered that the main reason that the media do not publish frequently regional astronomy news is that "scientists are inaccessible". Moreover, 50% agreed that it is also associated with the "lack of specialists in the area."

In the item on "scientific information and disclosure" it was important to know the role of the 27 experts interviewed in the regional astronomical dissemination of information. By asking respondents about what topics should address the media to refer to economic development, 48% felt it should be mining and 19% chose astronomy. Meanwhile the remaining 33% chose between environment, health and aquaculture options.

Also 11% of respondents associated astronomy with "economic development for the region" and "Identity of northern Chile."

As for science dissemination tools, 65% of respondents felt that television is the most attractive way to disseminate astronomical potential of the Antofagasta Region. This because of its massiveness, playful image and immediacy. 41% considered Internet, 22% of respondents cited the press, 8% the radio and 15% agreed that all means are attractive to disclose astronomy in the Region.

On the relationship of the media in the Region with the dissemination of science, all respondents agreed that it is a poor relationship due to the lack of rigor of the media to address science and remoteness of these scientists. They also mentioned the need for of journalists' specialization in science and English language skills.

In this instance, it was also important to know the appreciation of the role of school education and scientific vocational motivation that communicational experts, Scientifics and social politicians have in the Region of Antofagasta in Chile. Thus it was possible to interpret that academic experts, social and politicians recognize some degree of responsibility to enforce the astronomical potential in the Region of Antofagasta and contribute to the vocational motivation of young people in science careers. However, none of them recognized to have some responsibility to encourage future scientists and considered that this would be the task of education, family and observatories.

Discussion and Conclusion

It was possible to interpret that the media in the Region of Antofagasta recognize that they have a task and responsibility for the valuation of astronomical sciences, especially in regard to specialization in science dissemination. They also consider that the relationship with scientists is not optimal and it should be improved from both sides.

This last statement is key to improving scientific communication and provides an assessment of it, but unfortunately one of the biggest problems of disseminating the astronomy and other sciences, is the poor relationship between journalists and scientists (Fernández & Angulo, 2011)

Regarding the relationship of astronomy outreach with other agencies such as social leaders (museums, NGOs, educational institutions, foundations, etc.) it is mainly based on business interests and social responsibility. Something similar happen with the political leaders of the Region who, according to statements made by the respondents, could contribute to the astronomical information, but only from the financing and legislative work.

While respondents did not directly relate astronomy as a development opportunity for the Region of Antofagasta, they did not overlook the issue from the “northern” identity point of view.

Finally, in terms of educational level, all respondents assume some degree of responsibility and commitment to youth motivation to study science careers. However communicators’ respondents attribute this work to school and family, not assuming their contribution or responsibility.

Many contributions could be made from the media to disseminate astronomical potential. McLuhan talked about media as an extension of human and psychic abilities (Ferres, 2008).

Currently, science journalism has been pioneered in the use of the multimedia for their own purposes, which can satisfy different levels of curiosity along with popular science teaching granted to everyone (Diaz, 2004). However the media and new technologies such as social networks alone do not solve educational problems.

Thus, in terms of outreach and science education, the population has less science knowledge and the media have the responsibility to pass on some. As pointed out by Carlos Elias, "is key to have a mystery element at the beginning and especially incorporate anecdotes or metaphors that displease scientists. We must spare no effort "(Elias, 2003).

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