

Communicating astronomy with the public for scientists

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This article intends to convey the improvement regarding the knowledge exchange in the astronomical field through an improvement in the quality of professional communication between researchers, teachers and the like whose job is to broadcast astronomical concepts. It has been a couple of years since the difficulty of communicating astronomical concepts decreased due to institutional projects, schools and education systems. Inside the education system, the need to include astronomy as an innovative element in curricula has become obvious. Outside, an informal public interested in astronomy became greater in number and began to be fostered by different organizations which spread their astronomical knowledge via workshops and demonstrations. An example of a place where courses, learning projects and informal activities relating to astronomy are held is the Planetario Galileo Galilei. The planetarium is the empirical proof that it is possible to bring together researchers, teachers and others who are focused on the popularization of Astronomy around a project, in which they combine their skills to transmit their knowledge to the public. The Planetario offers various means (multimedia/rooms) which enable visitors to have access to scientific material. The course called the universe, stars and galaxies: Is there more matter than the visible one? although inspired by scientific texts, it was changed into a stimulating medium which facilitated the interaction with the public and permitted them having a better comprehension of some subjects. The success of the course was possible because of the collaboration of various professionals in the field: Dr Josefa Perez, Dr Hector Vucetich as well as the Planetario staff in charge of the course. The combination of knowledge and professionalism of all the actors (researchers, teachers and others) led to very positive results for it successfully captured the attention of a large public. During the process of data collection, I employed material from the internet and libraries in order so as to encourage analysis and study in a public which were as diverse as their fields of expertise from lawyers to science, biology and architecture professors. My intention was to convert the scientific terminology in the texts into a more educational register in order to change the recipients of the texts from a group of researchers to a wider public. Due to the lack of experience among the public, the techniques applied in the workshop were different from the ones utilized by the experts. Notwithstanding, the public did not attend classes to become astronomers. Participants were merely willing to acquire a general knowledge about astronomy, in this particular case, to comprehend astronomical phenomena and theories as well as to incorporate information. The impression that the public had formed about scientists gained importance in this workshop. As it was mentioned before, the purpose of this course was to arise the dynamic of curiosity in the public by the use of simple techniques, readings, problem setting and solving. The idea is that the public would not be satisfied with immediate and passive solutions. On the contrary, exercises were aimed at putting the public into action and inviting participants to assume their roles as researchers. Each class was centered on a theme which in turn corresponded with the one utilized in the research project. Even though the background of each participant varied, the groups managed to maintain their unity when working together. An example of this behavior was when they did not necessarily know the meanings of scientific terms. Despite this, they implicitly

understood them by means of the context. Other topics covered in the course were the stars, galaxies and the models of the universe which are currently accepted. The scientists also had to deal with misconceptions, myths and errors which were caused either because of the lack of information or because of the influence of media in which an expert opinion is rarely consulted. It is important to note that scientists do not spread the information only taking into account the popular aspect of science. Information has to be founded on scientific grounds rather than resembling a piece of news. The tactics when reaching the public may vary, but they always have to convey the essence of the message. Is the public aware of the heterogeneous nature of its participants? Developing the conscience of a unified group in the public requires that the science broadcaster as well as the scientist show their existence different from a passive role, in which preconceptions about scientific notions or the ideas that are created after treating a topic are generated and rejected. As the public lacks the ability to control the means in which the communication is established, it is at risk of being manipulated by the science broadcaster. The latter has to be transparent about the sources of the ideas conveyed. It is also important that the public understands that information of any kind of subject always comes from a source and that comprehension is achieved through different means such as the narration of a story, the display of images and the use of outreach techniques. As regards the scientists who had participated in the informational classes, they sought examples that were easy to understand so as to encourage the public's interest in the topic. In relation to the scientific jargon, it is complicated to understand from an outsider's view. Semantics are communicated effectively between scientists. But this is not the case of the public. The successful delivery of the contents will chiefly depend on the experience the scientist has at addressing the public and the role he assumes in the communication process. By eliminating the language barriers and mingling with the public, the scientists will be able to perceive reality from the receiver's point of view. What matters at the moment of undertaking the receiver's role is to display the obscurities and challenges that may appear at the time of facing problems that arise from a scientific model. Needless to say, the scientist has to be in good spirits and has to take his time to dexterously accomplish his role as a communicator. In this case, both scientists who collaborated with the workshop, Dr. Hector Vucetich and Dr. Josefa Prez intended to achieve a good communication with the public. The purpose was to deliver assorted knowledge to the public through experience. They both showed respect towards the public and were able to create an integrated environment, which meant to destroy class differences for the sake of cognitive skills. One of the keys for capturing the public was being modest. It was meant to discard any verticality of knowledge acquisition that may widen the gap between the public and the astronomical science. At the end, scientists and public create an active and serene language. The difficulty to understand a concept still existed but the friction between the public and the comprehension was reduced since the public had a better disposition. Although the length of the course was short and only covered the general contents without acknowledging the public in advance, scientists were successful at achieving communication. In reply, the public displayed an active attitude. These proved that prejudices and myths about scientists were wrong. By the use of a simple though accurate language, a rigorous method and implementing the appropriate technology in the research, the public was able to interact and to improve their intellectual capacity. Science popularization offers the public the possibility of discovery, method and knowledge acquisition. If the scientist is capable of delivering these skills, the public would be able to distinguish when the source and the intermediary apply their tools to create an image so as to maintain the public's confidence. In this particular case, the purpose was achieved as the course dropout was rather low at the end.