

## **Post Graduate Courses in Public Communication of Science in Mexico**

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Professional training in the field of Public Communication of Science in the UNAM began in the early 1990s. Perhaps the first formal course was designed for museum guides of the Science Museum UNIVERSUM of the UNAM which was inaugurated in 1992. Museum guides are the human face of the museum and therefore they require training in multiple facets. They must perform several tasks such as adapting the message of the museum to the specific needs and characteristics of the visitors, tend to school groups, perform demos and experiments, give guided tours, aid visitors in the proper use of the exhibits, offer workshops for children, help visitors find what they are looking for and provide complementary information. In a nutshell their task is to provide the visitors with a rich and enjoyable experience in the museum.

The first course UNIVERSUM for training museum guides was offered in 1992 and was called “Curso teórico-práctico de divulgación de la ciencia” (Theoretical-practical course in science communication). UNIVERSUM museum guides are university students from different careers. They spend 20 hours a week in the museum for a full year. Four of these hours were devoted to their training and the other 16 hours were spent in front of the audience as museum hosts. This training included conceptual and methodological elements of science communication as well as specific contents related to the area where they carried out their practical work. Constant evaluation of the course was carried out with the purpose of improving it and incorporating undetected needs of the museum guides and the public. Therefore opinions of the guides themselves, the public and the

educational sector were all crucial elements for the development of this program. Among the topics covered were: the discourse of science, the importance of public communication of science, museums as a media to communicate science, the history and mission of the museum, a full knowledge of its contents and everything the museum had to offer; the scientific contents and the technical aspects of the hall they were assigned to; how to talk to and help different audiences according to their age level, educational background, interests and needs; how to deal with audiences that had some kind of disabilities; alternative frameworks the public had in relation to certain scientific concepts and how to deal with the difficulties in communicating these concepts and ideas; science writing, a panorama of the different media available for science communication, security in the museum and voice and theatrical skills.

Additional courses in more specific topics were also offered to tend to the needs of the guides such as particular science topics and issues, sexual education, environmental science and the cognitive and emotional development of children. With the purpose of promoting team work, each year the students had to work on a project on a particular topic related to the museum within a multidisciplinary group of museum guides. The results were presented in a seminar at the end of the year with the presence of specialists in the field. Some of the topics were: science workshops for children, the use of the museum as an aid to formal education and proposals for visitors with some disability. The guides with an above satisfactory performance could spend a second year in the museum with further training and more responsibilities, which included training the new guides, assisting visitors with special needs and performing outreach activities. This course contributed significantly not only to improving the communication with the audience and enriching their museum experience, but also proved to be very beneficial for the professional development of the students themselves. All of them considered that the experience of being museum guides boosted their self-confidence and helped them acquire skills for speaking in public. Some of them are still working in the field of public communication of science today. However the majority went on with their careers in different fields. They are all convinced that public communication of science is an essential ingredient of their professional life (Reynoso, 2001).

After the inauguration of UNIVERSUM, the multidisciplinary team that created it developed other museums both in Mexico and abroad saw the need to train people in the field. When the new era of science communication started in Mexico in the late 1960s, no one had any formal training in the field. Some came from a scientific background and others from the field of communication. They learned to communicate science to the public through trial and error. Some decided to support their professional development by taking courses or postgraduate studies in some complementary discipline. With time it became evident that formal and specific training in the field of public communication of science was in order. Besides the previously described course for museum guides, there was also the experience of courses offered in science writing by the Centro Universitario de Comunicación de la Ciencia (CUCC- University Center for Science Communication) which later became the DGDC. After much discussion the contents, objectives and structure of such a course emerged.

The result was a postgraduate course called *Diplomado en Divulgación de la Ciencia* which was offered for the first time in 1995. The purpose was to provide the necessary theoretical tools and practical skills required to carry out science communication professionally. Since then this 240 hour course is offered every year and is open to anyone with a university degree with an interest in communicating science. Potential students must go through a selection process and pass an entrance exam. With the purpose of creating a multidisciplinary atmosphere which is advisable for public communication of science, people from different professional backgrounds, experiences and interests are accepted.

This course has evolved over the years. The first one was heavily oriented towards preparing science museum professionals. However a few years later it was decided that the emphasis should be on science writing, since this is the basic skill for any project. Students demanded a broader scope, therefore with the purpose of improving and updating the contents of this *diplomado* constant evaluation, both internal and external, became a systematic practice. In 2007 an external group of professional evaluators was hired to make a diagnosis of the course which included a curricular analysis, the national and international environment, a study of the potential, accepted and former students; and the opinions of outstanding figures in the field as well as those of the teachers and former students

(Medina, et.al., 2007). The results of these evaluations have been extremely useful in keeping up with the field and to satisfy the professional requirements of its students.

Today the main strands are:

1. Introduction to the field of public communication of science.
2. Contemporary science and its communication.
3. The philosophical, historical, sociological context of science.
4. Different theoretical and methodological approaches in the field of public communication of science.
5. Development of skills for communicating science.
6. Different media for communicating science.
7. Practice in science communication.

At present the 19<sup>th</sup> edition of the *diplomado* is in process. In these 19 years 340 persons from varied backgrounds and experiences have graduated from this course. Some of them are professional science communicators and others are scientists who consider that communicating science to the general public is their social responsibility. The success of this course has led various institutions in other regions in Mexico as well as abroad to request similar courses in their locality. Several *diplomados* have been offered in the last 10 years in different regions of the country. These courses last from 120 to 160 hours. Each one is designed to fit the specific needs, infrastructure, possibilities and interests of the context.

Since the first *Diplomado en Divulgación de la Ciencia* was launched in 1995 there have been significant changes in the field of public communication of science. New media and technical possibilities have appeared. Media such as the web and social networks have become increasingly popular means for communicating science and scientific issues. Considerable theoretical and methodological advances of the field have emerged and public communication has not only become much more in demand but the objectives for such projects and activities have diversified. Public communication of science is now required in

several scientific institutions and universities. On the other hand, students require more practical experience. Therefore, the *Diplomado en Divulgación de la Ciencia* has become insufficient to deal with all the professional needs in the field. At most what it offers today is an introductory and panoramic view of the field of public communication of science. Therefore, although these *diplomados* are still successful and the demand for shorter versions continues to increase, several attempts have been made over the years to take further steps towards acquiring a more profound and practical preparation in the field.

In 2003 the DGDC joined forces with other institutions such as the School of Science, the School of Philosophy and the Institute of Philosophical Research with the purpose of opening a new terminal branch for the public communication of science within the masters and doctorate degrees in Philosophy of Science. The students who graduate from these programs have a profound theoretical background with the potential to do research in the field but do not have the knowledge or the skills they need to carry out projects in science communication (Reynoso, et. al, 2010).

In 2008 a project for a new program for preparing professional science communicators was started in the DGDC, taking into consideration the experiences of the *diplomados* and the masters and doctorates program in Philosophy of Science, the positive and negative outcomes and features of each of these programs; the detected needs of the potential and former students; the advances in the field of public communication of science and an analysis of the national and international courses. It was decided that the best option within the UNAM was a three semester post-graduate program called *Especialización única en comunicación pública de la ciencia*. The purpose of this 420 hour course is to prepare professional science communicators with a solid theoretical and methodological background as well as the opportunity for extensive practice in a particular media. It offers the student a basic backbone of obligatory subjects we consider any science communicator should have; as well as flexibility in designing their own program with a wide offer of optional subjects for the student to choose from in different programs within the university. Finally it also offers the opportunity of extensive practical experience in some media developing a project in public communication of science (Reynoso, et. al, 2010). This program is now in the process of being examined by different university authorities for its approval. Hopefully it will open in the near future.

## **Bibliography**

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