

**Twenty years of the SISSA Master's Degree in Science Communication**  
**A case study**

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**Abstract**

In 2013 the Master's Degree in Science Communication of the International School of Advanced Studies of Trieste (Italy) celebrated its 20<sup>th</sup> birthday. Born in 1993 thanks to an open, dialectical collaboration between scientists and science journalists, this two years long programme offers a mixture of professional training and cultural empowerment - not limited to the equipment of students with communication skills and a good understanding of basic scientific knowledge, it aims at empowering them to explore the countless connections that are incessantly developing between science, technology and society. Interdisciplinarity, a complete panorama of science communication areas (publishing, museums development, science writing, data journalism etc.) and close contacts with the

Italian job market are the assets of the longest running Italian training in science communication. The paper presents the history and the challenges that the Master's Degree of Trieste is now facing, and some result from the last survey on the opinions of former students on the programme's effectiveness and their current occupation.

### **A short history**

The two-year long Master's Degree in Science Communication (Master in Comunicazione della Scienza, MCS) at the Interdisciplinary Laboratory of the International School for Advanced Studies (SISSA) of Trieste is the oldest and longest-running Italian training school in science communication and one of the oldest in Europe. Founded in 1993, the Master's degree has been held for twenty years, with over 300 graduates.

MCS was born thanks to the insight and the resolution of the science journalist Franco Pratico and the theoretical physicist Paolo Budinich, a scientist who after the Second World War played a key role in the revival of physics studies in Trieste and eventually in the regeneration of the town itself, now renowned as a main international scientific centre. Together with the Nobel Prize Abdus Salam, Budinich founded the International Centre for Theoretical Physics (ICTP) and later SISSA. He was also a key player in the development of the Trieste Technological Park (Area) and of Elettra, an institute of research specialized in synchrotron and free electron laser radiation. Pratico and Budinich were persuaded that there is one and only one "culture", and that any separation between science and humanities is unnatural and detrimental, not least because it prevents a full understanding of the contemporary society increasingly shaped by science and technology. Bridges between the two dimensions of the human culture, natural until the Renaissance, should be rebuilt – one of these, crucial and urgent, being represented by the public communication of science and technology. They were persuaded that, in order to promote and support the public engagement in science and technology, training was needed, and a school for science communicators had to be developed. This idea was taken on by the director of the Interdisciplinary Laboratory of SISSA, the physicist Stefano Fantoni, and in 1993 the first Italian Master's Degree in Science Communication was born.

### **MCS key features**

Two features distinguish MCS from other courses, in Italy and abroad. The first is the joint management of the Master's programme – on an equal footing – by scientists (mainly physicists) and science communicators. Probably not planned, this feature has been the result of a history of discussion and collaboration between the two communities, achieved thanks to the informal atmosphere of SISSA – an exception in the Italian academia – and to the non-competitive and innovative environment of the programme, that has attracted to Trieste some of the most prominent Italian practitioners in science communication. The second is the genuine interdisciplinary and cultural imprinting of MCS. Born as a cultural endeavor, MCS has never aimed to train mere “technicians” of the communication of science, equipped with good communication skills and a good understanding of basic scientific knowledge. More ambitiously, MCS has aimed at empowering students to explore the countless connections that are incessantly developing between science, technology and society, and possibly to cast some light on them. In order to achieve this goal, MCS has always given prominence not only to science and communication competences and skills, but also to history, economics, sociology, philosophy, art and literature.

Over the years, those two features – shared management by scientists and communicators; broad cultural vocation – have grown steadier and richer. Being faithful to its origins, MCS has nevertheless evolved in time, including the new developments of the field, both theoretical and concerning practices, media and societal challenges. In 2011, besides the well-established MCS programme, the introduction a new course focused on science and social media was explored. Eventually a Master's Degree in Digital Science Journalism (MGSD) was launched, a one-year programme devoted to those interested in achieving professional expertise to act as science journalists in the digital media ecosystem. MGSD provided a multidisciplinary and job-oriented curriculum with career expectations particularly significant in on-line newspapers and magazines and in the multimedia publishing industry. Despite students' appreciation of the new training programme, and in particular of its focus on the new media system, applicants seemed to prefer the “traditional” MCS. Therefore MGSD was closed after two years, but its most successful elements have been integrated into MCS, renewed with

innovative courses focused on new media, data journalism and entrepreneurial competences. A new Scientific Committee has been appointed to help in the definition of future strategies, monitoring in particular the development of the job market and in general the changes in the science communication practices.

This renewed MCS programme is nevertheless still moving on the tracks of the original broader approach to the communication of science, that considers dedicated mass media as only a tiny part of the flow of knowledge, information, opinions, emotions and images that inform the dialogue between science and society. It is a complex, dynamic system in which not only scientists and professional communicators are active but also, just as an example, politicians, policy-makers, judges, movie-makers, artists, etc. Considering this complexity, training in science communication cannot be limited in providing general rules and communication templates, but needs to foster the ability to interpret different contexts and adapt methodologies and practices to them. Science communicators must be flexible and innovative. In order to achieve this goal, the students are also given basic competences in action/research, thanks to the Master's thesis work, that has to include aspects of research or reflective practice, and the partial overlapping between MCS's staff and the SISSA research group in science communication (ICS), that was established 12 years ago. Over the years ICS resulted in many European projects (in which many students were also involved) and in the establishment of the Journal of Science Communication – Jcom, which reflects MCS interdisciplinary approach.

MCS graduates have successfully colonized the Italian science communication landscape, and many of the former students are now among the most prominent Italian science communicators in radio, newspapers, publishing companies, museums, universities etc. Not a few cover important positions also abroad, strengthening a growing number of international connections and collaborations.

### **MCS graduates and the job market**

MCS offers a maximum of 20 positions every year. Students - who apply from all over Italy - are selected through written and oral examinations taking into account their cv, especially in relation to past experiences in writing, organizing events, outreach programmes and alike. A Bachelor Degree in any discipline (humanities or sciences) is a

sufficient title to apply, but the large majority of students have already a Master's Degree when not a PhD. The acceptance rate has been various in the course of the years, from 1 accepted out of 5 candidates to 1 in 2, but applicants always outnumber the number of open positions. Students pay the course and all accommodation expenses, but some grants are offered by private foundations or the local government. Overall, the strict selection to access the programme and the onerous commitment needed to attend it ensure that students are usually brilliant and motivated people, and peer-to-peer learning is an extra-value of the programme.

MCS quality and usefulness are regularly checked through surveys addressed to former students. The latest was undertaken on February 2013 and was addressed to ten classes of graduates who had completed the MCS course since more than two years (A.Y. 1999-2001 – A.Y. 2008-2010). 132 responses were collected, corresponding to 81% of contacted students. Results show that the 70% of the former students currently work in science communication (Fig.1). Journalism, publishing, institutional communication and event organization are among the fields where most of them are employed. 90% of the former students working in science communication think that MCS had an important (34%) or crucial (54%) role in obtaining their current job (Fig. 2). Overall 74% of the former students are very satisfied of their training experience (Fig. 3).

**Have you been active  
in science communication in the last 12 months?**

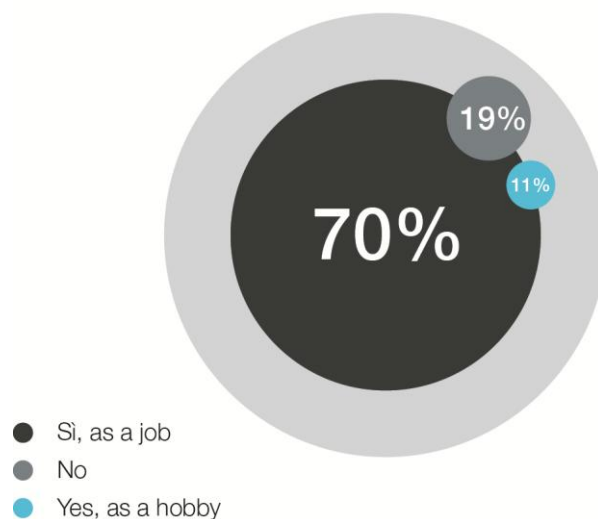


Figure1

**What role did the Master course play in obtaining your current job?**

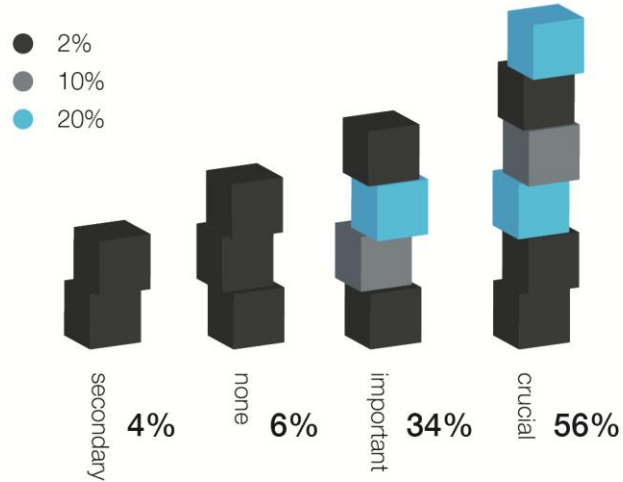


Figure 2

**SATISFACTION OF FORMER STUDENTS**

**Overall, how satisfied are you with your Master course experience?**

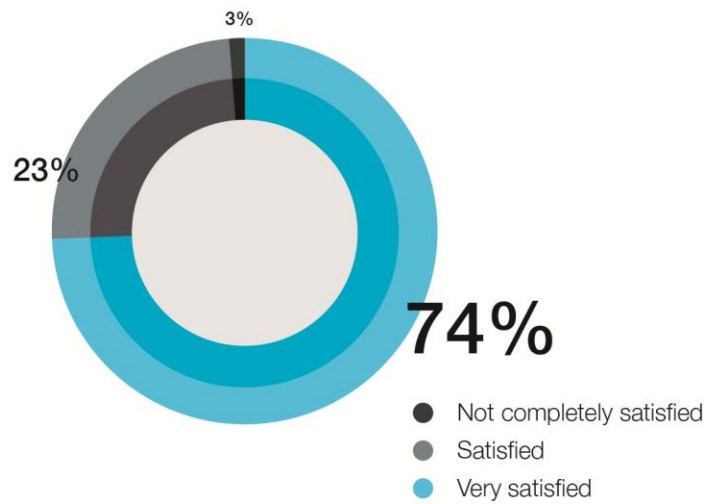


Figure 3

## **MCS structure**

MCS training programme is a vertical part-time course currently structured over two years. The lessons are distributed over eight sessions, from November to June, with mandatory attendance. During the first year, the classes are organized over 8 days for each monthly session, for more than 500 hours in total. Classes focus on two main subjects: science communication and scientific topics. The first subject is addressed through courses on science journalism, theory of science communication, risk communication, social media and science writing laboratories (both in Italian and in English); a panorama of other science communication fields (such as exhibition development and museums, publishing, corporate communication etc.) is also presented in every session. Scientific topics are jointly tackled by teams of scientists and science communicators and include the most relevant issues in biology, mathematics, physics, neuroscience, medicine and environment. These two main training areas are supported by additional courses on the history and philosophy of science, the analysis of science in society main relations, project management and entrepreneurship. The second year is organized over 6 days of lessons for each monthly session, for about 400 hours in total. The courses, mainly more job-oriented, focus on specific fields of science communication, including: data journalism, corporate communication, scientific publishing, museums, multimedia production, digital media and journalism. The Master's programme is completed after the preparation and discussion of a thesis in science communication. An evaluation based on commitment, exercises and attendance determines the access to the second year and the thesis defense.

MCS combines traditional training - through lectures, workshops and homework - with work experience. During the two years students have the opportunity to spend a period of internship in a wide number of organizations including communication agencies, magazines, research institutes, publishing companies, museums etc. in Italy and abroad. Moreover the majority of students start professional collaborations already at the end of the first year, thanks to the contacts that professors and invited speakers (approx. 30 every year) largely provide.

## **New challenges**

Although successful, MCS has to evolve with the evolving society. We have identified three main challenges for the near future: internationalization, entrepreneurship and specialisation.

*Internationalization.* MCS is a programme for Italian young people, held in Italian, oriented to the Italian job-market and, in many of the courses, with Italian-focused contents. This is useful to produce the excellence in Italian writing that all science communicators should master and to support student's search of occupation as well as their ability to play a role in the Italian society. For these reasons SISSA is not planning the complete internationalization of the Master that would necessarily involve the use of English as official language (that is though already common practice for SISSA PhD scientific programmes). However, in the last years elements of internationalization have been introduced, e.g. a whole course in English science writing (held by the well-known journalist and science communication researcher Brian Trench) or shorter seminars by invited speakers coming from different countries. Some courses, being less conditioned by the language (as in the case of the museum and exhibition development course), are giving students an international perspective also if held in Italian. But the problem of how and how much to open MCS to an international audience (both meaning students and professors) is still open.

*Entrepreneurship.* In the last twenty years the science communication job market has dramatically changed; positions that were common in the past - such as full time employee in a newspaper - are nowadays rare, whereas new opportunities -such as to work as a freelance blogger - emerged. In the last years MCS introduced the courses of project management and entrepreneurship in the attempt to equip graduates to establish their own company or to work as freelance. The integration of these competences in the curriculum, though, is still experimental.

*Specialization vs flexibility.* We have until now argued the value of science communicators' flexibility, that not only empower the students to interpret the complexity of contemporary society but allow them to assume a broad variety of roles in projects of different nature, e.g. journalists, science writers, content-providers for exhibition development, script writers for documentaries, etc. However, it is also true that



in the last decades science communication practices have become more and more sophisticated and that a large quantity of research on methodologies and impacts has also been produced: media studies, visitor studies, evaluation, public perception of science studies, etc. This means that the amount of knowledge and skills the students should grasp to be fully operational in a specific field might conflict, in the long term, with the global and cultural approach to training that has so well characterized the Master of Trieste.

The answer to this problem has been, recently, to offer short, specialized courses that tackle specific areas of the science communication fields. Organized in the framework of European projects and/or in collaboration with other institutions these courses are useful to Master's graduates (but also other practitioners) to deepen their knowledge accordingly to their specific training needs. They have mostly been delivered in English to an international audience and with lecturers and tutors coming from different countries, therefore offering at the same time opportunities to specialize and to get in contact with the international community. Among others: the Pilots training school dedicated to museum explainers and facilitators ([www.thepilots.eu](http://www.thepilots.eu)), the Science Writing Workshop held by the Guardian Science editor Tim Radford, and now the JCOM Masterclasses ([jcom.sissa.it/masterclasses](http://jcom.sissa.it/masterclasses)), four intensive, international courses dedicated to different, specialised areas of the science communication field: the facilitation of discussions on controversial issues; the science exhibition development; the museums and science centres development; personal skills to communicate current research.

## **References**

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