



Short training courses in science communication. Why? To whom? What?

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Abstract

The design, delivery and evaluation of JCOM Masterclasses has given us the opportunity to reflect on the audiences, training needs and training schemes available to people working at different levels and in different contexts to communicate STEM subjects to a diverse variety of people. Although not always widely available, short courses in the communication of science have been offered in a number of countries around the world over the past few years. We felt it is now time to open a discussion on the rationale, the methods and the objectives of such training programmes.

Keywords

Professionalism, professional development and training in science communication

At the time this issue will be published, three JCOM Masterclasses courses have been delivered in Trieste, Italy. JCOM has developed these Masterclasses to provide opportunities for scientists, senior-middle managers of cultural institutions and other professionals to access continuing professional development in science communication and public engagement. The programme provides a series of short, intensive training courses focusing on communication to non-expert audiences, developing successful exhibitions, museums and science centres and facilitation skills.

The design, delivery and evaluation of these courses has given us the opportunity to reflect on the audiences, training needs and training schemes available to people working at different levels and in different contexts to communicate STEM subjects to a diverse variety of people. Although not always widely available, short courses in the communication of science, such as the courses offered by JCOM, have been offered in a number of countries around the world over the past few years. We felt it is now time to open a discussion on the rationale, the methods and the objectives of such training programmes.

Why are such courses needed and for whom should they be developed?

In broad terms, there is a recognition that continuing professional development programmes benefit both individuals (in terms of new skills acquired) and the organisations for whom they work. In the context of science communication, we might also expect benefits for the public, if all those (including scientists) involved in communicating science, whether in museums, at science festivals or open days, or involved in the design of exhibitions, have the opportunity to develop related

knowledge and skills. This means broadening the range of courses beyond the traditional media skills courses offered to scientists and science writing courses offered to those interested in journalism careers. In fact, it means considering a range of 'unusual suspects', who might be involved in the development of museum buildings or exhibitions, for example architects and interaction designers. Today's science communication project teams are diverse and while it may not be practical to develop courses specifically for all the multiplicity of disciplines involved, some thought might be given to training which caters for mixed groups (perhaps with the explicit intention to develop multidisciplinary working skills in addition to specific science communication knowledge).

Training can also take the form of recognised qualifications, though specific qualifications in science communication may not appeal to the wide range of actors now involved in delivering projects, particularly if specific disciplines (e.g. architecture) have their own recognised qualifications. Internationally, the availability of Masters qualifications in related disciplines (e.g. science communication, science journalism, museum studies) is mixed; some countries offer a wide variety of postgraduate programmes which are either directly related to science communication or focus on closely related content. In other countries, few such qualifications are available. Where available, Masters programmes typically recruit students who wish to work as professionals in the field, e.g. science journalists, museum professionals or those interested in science policy roles. They also require a substantial commitment of time, often as a full time student, though some programmes cater for those in work through part time modes of study, and financial resources. As such, these programmes may not be suitable for people whose communication role may be only a small part of their day job (e.g. active scientists) or those who have already embarked on a career in, for example in the museum's or mass media's sectors. Increasingly, young scientists may be provided some communications or public engagement training as part of their academic studies, but this may not be sufficient or delivered at a time when it can be directly applied to enable them to develop the competences to contribute, at an individual or institutional level, to public engagement in science and technology. Moreover, even if science communication training is included in some Ph.D. programmes, it remains absent from scientists' training in many universities and countries. Furthermore, the scope of such training is limited, normally and for good reasons (e.g. applicability), to basic knowledge and skills that can be useful for all future scientists: understanding media and press offices, oral presentations, science writing; sometimes blogging and social media. Yet actors working in public engagement in STEM might come to science communication via routes that would not provide specific training in this area. Architects and designers, for example, may design science exhibitions and museums whilst their academic training may not cover issues crucial for the task such as interpretative design, understanding audiences and their needs, or the peculiarity of the communication of STEM subjects.

Even where postgraduate courses are available, they are unlikely to meet the needs of all professionals working in science communication, implying that a system of short courses is necessary to enhance the professional development of all actors involved in the public engagement in STEM. Such short courses (from 2 up to 5 days) may be developed with specific fields in mind (e.g. citizens science, science diplomacy, exhibition development, serious games, social media), to present and

discuss knowledge and competences that are not tackled in the more general academic programmes. Importantly, these courses bring together participants with different experience and backgrounds, and represent in themselves an opportunity for this diverse group of participants to share experiences and points of view and learn to work together. An example from our experience of JCOM Masterclasses is the course “Developing successful exhibitions” (Trieste 5–9 October 2015) which brought together people with different subject expertise and from several continents to discuss best practices, to create a common theoretical framework and to gain a taste of what it is like to work in multidisciplinary teams that include content experts, curators, designers, educators, multimedia experts etc.

Multidisciplinary learning experiences

The JCOM Masterclasses are premised on the idea that there is a basic set of knowledge that various groups involved in STEM communication need. These short courses also aim to build common understanding of issues in STEM communication. For example, we might consider as a basic requirement that those engaged in creating effective STEM engagement platforms and programmes need some basic understanding of the dialogue model vs the deficit model, the user-centred development of media and programmes, citizen participation and social inclusion. Some shared awareness, if not deep knowledge, is needed regarding the existence of public perception and visitor research, evaluation and audience development. Knowledge related to the specific areas of the communication of science might include, for example, informal learning, when the course addresses museum and exhibition development or the different methodologies for face-to-face facilitation. For more specialist courses, learning might explore design of inquiry-based activities or the mechanics of interactives and multimedia, story telling or visual communication. Other courses might consider project management, branding and marketing.

In multidisciplinary projects each different actor brings expertise in their specific area, and courses which bring these professionals together provide also an opportunity to learn how put these different expertises together to develop projects. Awareness of the different responsibilities, roles and related competences is fundamental for effective team work and helps develop respect for everyone’s contribution to a common aim. This makes working together easier, more efficient, less controversial.

International short courses not only offer a multidisciplinary learning experience, but also have the added benefit of bringing together participants from different national contexts. While this can present challenges (e.g. around language and the relevance of sessions to all participants and the need to cater for people with different background knowledge), it also provides an opportunity to share different approaches and understandings. It can be very helpful to learn that someone in a very different national context actually faces many of the same problems. Equally, the opportunity to explore international best practice can suggest new solutions to existing problems as well as providing valuable networking opportunities. Course designers need to consider how to include the latest innovative approaches and to ensure that course caters for what can be quite different working contexts or drivers for communication.

Challenges

The evaluation of the JCOM Masterclasses shows that participants valued the opportunity to meet and work with people whose experiences were quite different from their own. A senior manager with years of experience can learn much from working with a young researcher who may have had few contacts with the public and has few preconceived ideas about how communication might or should occur. Both gain fresh ideas and different insights, which facilitate the development of innovative and original approaches. However, it is also true that experienced professionals are also interested in advanced courses tackling specific issues they face. Offering courses at different levels can be both an organizational and financial challenge, particularly if there is a relatively small pool of senior staff interested in particular training. One solution might be to offer paths within an overarching course, allowing more senior staff to train together on specific issue, while also benefiting from the wider or more general training which is also applicable to more junior staff.

For those working in the field, finding out about courses, particularly at the international level, can be problematic. JCOM has recently opened a news section on the journal website and we invite readers to suggest international training programmes that would be of interest to our readers. One of the main aims of JCOM is to provide a platform where distant communities can meet: academic scholars, scientists, journalists, museum operators and other professionals. It is in itself an instrument, we hope, for self-development, but we would like to enhance its role in international community building, not least with the promotion of JCOM or other providers' professional development courses.

A problem of recognition

Short courses, especially those involving speakers from a range of countries or contexts, can easily present up to date knowledge and practices. Given a didactic, functional structure of topics, speakers who represent interesting or state of the art practice can be invited to fill the programme. However, it is also true that such courses cannot be repeated frequently, and cannot reach a large number of participants. Other models, such as online training provision, might overcome some of these barriers (certainly in relation to travelling to attending training), but present other issues. Interaction online is not the same as face to face working and while a number of online training opportunities are being explored, we still have much to learn about how well they cater for participants needs.

Moreover, many institutions (whether universities, research institutes or museums) may not fully value importance of the training in science communication (and related fields) and so may not readily to pay for it. In a way it is a problem of recognition. Recognition that staff whose primary role may not be public engagement, would benefit from this type of course. Recognition that staff may benefit longer or more intensive training and so time and funds must be made available. Recognition of the broader range of competencies required for effective public engagement, particularly if these are not seen as the core business of certain categories of people and/or do not seem to involve a big corpus of knowledge and skills ("Writing for newspapers? If just I had time I could do it very easily and better than journalists" some scientists, for example, may think). Everybody who has ever delivered a course in science communication to researchers has experienced how much the course was appreciated and how many declared after the course that: "This training should be included in all scientific careers". Yet it can

still be challenging to recruit participants or to persuade employers that such training is necessary.

As mentioned before, science communication training is beginning to be part of many Ph.D. programmes, and where this happens it produces an indirect but very important recognition of the importance of public engagement in science. We hope such training will become a common practice. However, even if it does, there is still likely to be a place for specialist training (for scientists) in a range of public engagement practices and skills. And of course, the many staff working alongside researchers (whether in museums, science festivals or other venues) still deserve the opportunity for professional development catering for their needs.

The problem of recognition, though, has another aspect: should (or even could) a complete definition of competences for the communication of science be created? Is a formal body required which would provide professional accreditation for those working in the field? Or should we move ahead in two parallel strands: on the one hand defining competencies which are included in academic programmes and on the other exploring new practices, which in turn require new competencies and knowledge? These questions are further complicated by the fact that science communication, as a field, overlaps with many other fields, such as science education and journalism. Skills and knowledge might pass from one field to another in a process of productive and fruitful contagion, and in the process be adapted to new situations and needs. Such fruitful cross pollination necessarily means an ever growing list of new competencies to be learned and new knowledge to be acquired.

Questions remaining

It may be that in time, the variety of academic courses (e.g. Masters programmes in science communication, museum studies, journalism) will be more widely offered throughout the globe and indeed it may become common practice for researchers to receive science communication training as part of their Ph.D. studies. However, there will still be a need to offer short, focused courses designed to provide those already working in science communication and researchers with access to the latest thinking and practice around public engagement. This will not only help to improve the quality and efficacy of STEM engagement, but will also lead to greater recognition of science communication and related fields, as well as raising the professional standards with which they are undertaken.

We also believe that innovation with regards to professional training will have an impact on the academy, as professionals demand graduates (or postgraduates) with the knowledge and skills needed to function effectively in a changing STEM engagement landscape. Trainers will continue to innovate, adapting to (and sometimes pushing the boundaries of) the ever changing technological environment in which STEM engagement occurs. There will also remain a need to provide knowledge and skills to those who end up working in (or with) the STEM engagement community, but who started their careers in other fields, most probably delivered through short courses. The variety of participants and the advanced nature of some training programmes will guarantee special experiences and provide opportunities for peer-to-peer learning. Furthermore, professional short courses might also promote (and in some cases already do) discussion of new

challenges, creativity and innovation, thereby encouraging the diffusion of new new practices and standards.

We invite you to reflect on the situation in your field, geographical region or local context. What would excellent short courses cover? For whom would they cater? And importantly, how would your short courses differ from what is already available? The discussion is open.

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How to cite

Rodari, P. and Weitkamp, E. (2015). 'Short training courses in science communication. Why? To whom? What?'. *JCOM* 14 (04), E.



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ISSN 1824 – 2049. Published by SISSA Medialab. <http://jcom.sissa.it/>.