Report on the

1st Science Museums and Communicators Online Discussion Event

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1. Introduction

The primary objective of the DESIRE project is to identify how new project results of methods and practices in science education can reach teachers and schools more efficiently. The online discussion events (ODE) of DESIRE are used to facilitate the sharing of experiences between stakeholders in science and math education. The ODEs have the purpose of collecting qualitative material for the DESIRE Project.

This report is a summary of the first science museums and communicators Online Discussion Event which took place in the period 23-25 July 2012 and was moderated Elisabetta Tola, founder of the science communication agency formicablu in Rome and Bologna (Italy).

During the three day event, science museums staff in charge of education or teacher training, and science communicators at large were invited to discuss how they are informed about European and national science education project results. The following sections contain summaries of the discussed themes each of the three days and the outcome of the discussions.

2. Day 1

The first day aimed to define the habits of the participants in gathering data. The first mentioned source was the web, especially to gather pictures and videos, but also some science education news. "*To get information, I often refer to "Scientific American" for science news, and gather science education resources at http://www.schoolscience.co.uk/.*"

The main quality of the web was that it enabled to get information from a wide variety of sources. "*The web is also my main source. I browse for instance New Scientist, Wired (.it and .com), educazioneduepuntozero, bbc/news/science (and tech and health) pages, ... Google news (searching for science and technology) in US and UK.*"

Science blogs were often used, on a regular but not intense basis. Several platforms (scienceblogs.com, www.cafe-sciences.org...) were mentioned. These blogs were used to keep up-to-date. However, when designing a specific activity, experienced manager advised that online source were not sufficient: "*With my young collaborators I often have to struggle to convince them to stop sometimes searching the web and make a couple of phone calls and go and talk to people!*".

Indeed, many of the participants immediately mentioned that direct contact with people involved in research or project was crucial: "*the web is an obvious place to keep up to date, see what's happening. but - in particular if your are developing things which have a longer temporality than the news, nothing can replace the direct contact with researchers. Spending time talking is still the best access to information for me.*" The participants all agreed that the most important source was the researchers themselves: they mainly relied on direct contact with scientists to get complete and reliable information, as well as for understanding how a topic is tackled.

Social media were mentioned – Facebook in particular – but the live human network seemed even more appreciated than the internet social network. Conferences on science communication and

education were seen as a very good access to new projects and practise. "*I don't go to proper scientific conference. No time. Moreover they are too specific for me. On the other hands it is a good opportunity to attend to conferences as ECSITE or PCST or HANDS-ON International.*"

Newsletter and bulletins were appreciated, most of them were national or local ones.

These different channels were seen as complementary, as they were not providing the same kind of information.

The fact that science education was often restricted to the public sector was mentioned: "*I never experienced any difficulty while editing popular science, instead this seems the case with educational publishing and research in science education. Just a while ago I was told by a friend of mine – an educational researcher himself and a precious source! – that, as an employee of a publishing company, I probably wouldn't be welcome into his environment. I guess this is due to some kind of uneasiness in sharing ideas and projects between a public institute and a private enterprise (but are our goals so incompatible, after all? I don't think so).*" One may assume that having science education disseminated through public and private channels may enhance its impact.

3. Day 2

On the second day, the discussions focused on European projects results.

Participants usually obtain information through newsletters and national press releases. Journals for science education are used, but most of the articles concern formal science education – in the classroom: "*Therefore we mainly check relevant journals for science education (e.g. the journal for didactics in science of the University of Kiel http://www.ipn.uni-kiel.de/zfdn/) or the database of the Austrian IMST-Project. Unfortunately most of the articles focus only on science teaching in a classroom context, there is very little evidence about non-formal science teaching.*"

Once again, conferences and events were seen as the main point to hear about the latest European projects. "*If I come across EU projects relevant for my work I do check the different work packages and try to find out their respective leaders. But I think that it's usually at conferences that I hear about EU projects that I am interested in, so the main channel for me are conferences...*". "*At the last ECSITE conference I heard about the research2practice project (http://www.research2practice.info/) which I really consider as a great idea: on this page you find abstracts and short overviews about actual research concerning non-formal science teaching. I think, this form of dissemination of very specific research concerning exactly our field of interest is a practical way to be up-to date within an acceptable amount of time.*"

There was a need for informal science education results that led to the idea of having a common European database were all ongoing and finished science education projects would have to deliver their results. "*Maybe it could become part of the dissemination routine of EU projects to post an abstract and a short version on a common data base (instead of producing lots of useless brochures that nobody will read)...So at least all people involved in*

projects know about this data base. Another idea could be to link the database to homepages of national, regional and topic-related networks."

This searchable database would include material for specific groups of interest (teachers, informal learning, event organizers...), and results from more research-action experiences which do not usually get published in academic journals. Participants raised an issue on how to deal with the technical jargon, and even the English language was seen as a barrier in some countries.

"So I think setting the data base could be a priority with respect to a "translation" for a broader audience. Provided that the projects and outcomes are published in English too... Otherwise a translation would be very handy."

4. Day 3

The third day specifically aimed to determine the key information that should be communicated to catch science communicators' attention.

First of all, the participants defined their strategy to select relevant information. Once again, the live human network appeared as crucial: information relayed by colleagues met during specific events was seen as extremely valuable. More than on communication tools (graphics, pitch...), professionals claimed to rely on their peers to outline the relevant projects. In database or newsletters, categories (educational fields...) or the type of educational setting it refers to (formal, informal...) were the first selecting tools.

"The key categories I prefer when searching in data bases or deciding to open documents are:
1.) to which educational setting does the research refer (e.g. non- formal learning, primary school...)
2.) the field of science education (e.g. conceptual knowledge, cognitive competences, epistemological   competences,   procedural   competences)
3.) the methodology and philosophy of teaching (e.g. constructivist didactics, IBSE)
4.) the methodology of research (e.g case study, action research, qualitative or quantitative study)
5.) who is the author, which institutions are involved"

Several tools were again mentioned. Some of them closed due to a lack of funding (*Intute*), others were about to start (*eLife*).

The Day 2 discussion went on during day 3, and it appeared to all that involving the future results users (teachers, communicators...) in the project since the beginning may imply a relevant dissemination, right from the start. The users may even be co-authoring some works to ensure the materials are accessible. However, this approach could be challenging:

*"1. early inclusions of 'users' in the project and not only final destination - this though raises **few other problems**: involvement means also **sharing funding** (I do not know in other countries, but in Italy for instance teachers are quite badly paid and are not always willing on taking a lot more commitment to other things without an economic incentive) - in a EU project I have been involved into, scientists preferred in the end to keep the money for their research rather than using it for real and effective stakeholders involvement which resulted, as a consequence, in a very weak one.*

2. Co-production of material is a great idea, but it requires a lot of effort on all sides: finding a common language, recognizing each other skills and competence, and so on. Does anyone, besides the ones who have already told us about, have good examples of this? Which tools might further help and enhance this cooperative ability and attitude?"

It was even suggested that the outcomes of European projects could be disseminated to students in schools. *"Thus, the research projects deliverables could feed in the school and pupils projects. Even if the results are not exploitable yet, the problematic linked to the preliminary knowledge, the method and the chosen protocols is already very interesting and should be accessible in a simple and usual language to the pupils"*.

Good options may also be to organize early project meetings with future users, or to include users in an advisory board.

"One thing we did in an EU project I am part of was to have a stakeholder meeting in the middle of the project. We presented our initial ideas and topics to a selected audience that we knew had interest in the final outcomes of the project. So we presented them our various ideas BEFORE actually going out and doing empirical work. That gave us the opportunity to get their views on several things: that our frames are useful to them, that we didn't miss something out, to already disseminate some ideas, to establish contacts... We will have another such meeting towards the end of the project.

So I think a crucial thing is to build in several mechanisms for allowing "user feedback", or whatever you might call it.

Another method I have come across is to have a sort of advisory board or panel of "consultants" for the project, including not only academics but all kinds of people. Getting their view on intermediary reports and ideas is also useful..."
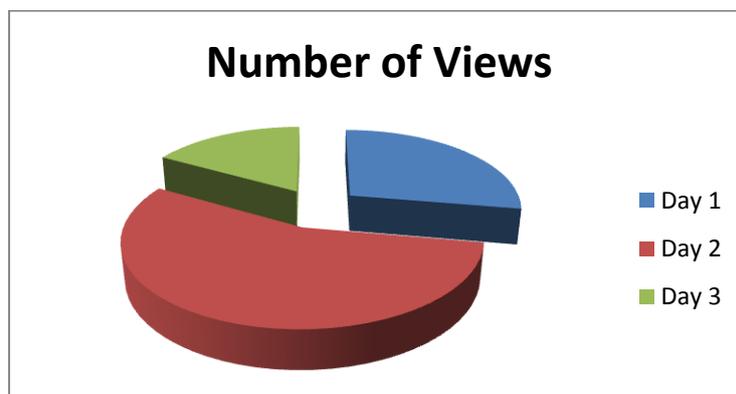
5. Participation

Along the three days event, we had 99 posts and about 3398 views. The high amount of views might be interpreted as the result of a successful dissemination of the event. The distribution of the posts and views per day is shown on the next figure:

1st Science Museums and Communicators ODE
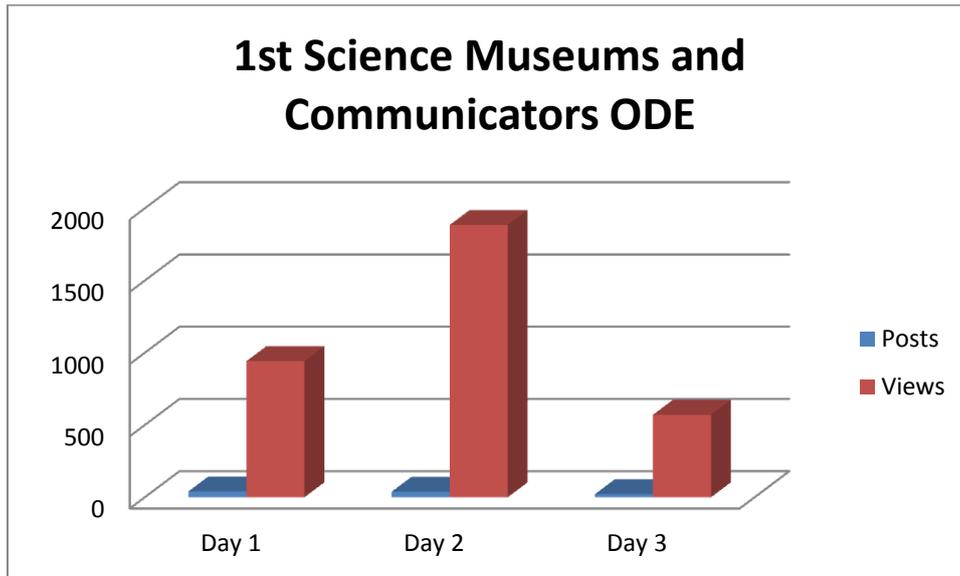
The first and second days had a higher number of posts, as shown in the next figure:

Number of Posts
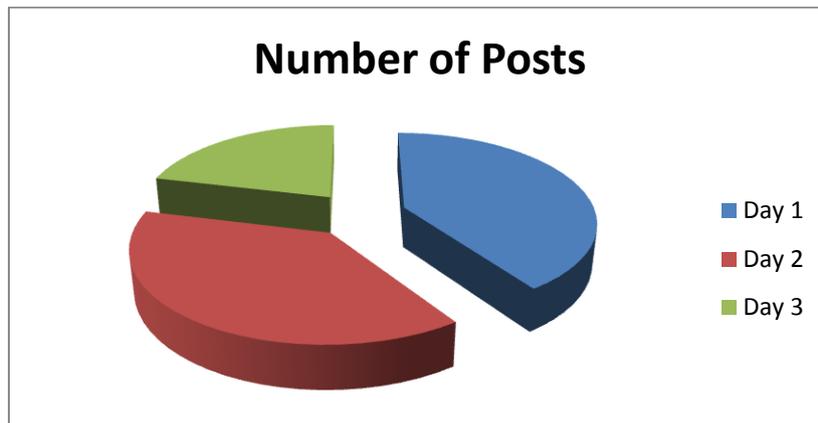
The day with more views was the second day:

Number of Views

6. Conclusion

Participants agreed that several useful ideas came up during the three days. They also shared many references such as blogs, websites, databases or other sources of information. However, having the event run for three days was difficult for some of them, due to their work constraints. It was suggested that a live event in a teleconference or webinar format could help the ones who were not comfortable with written English, and would make the event livelier. Moreover, it would be much easier for Science Museums managers to devote themselves completely to an event for one hour than to connect from time to time during three days. Thus, though the quality of the exchanges was acceptable, Ecsite will try changing the format, in accordance with EUN, for the next ODE.