PLACES

Platform of Local Authorities and Communicators Engaged in Science

Modules used: C1

Science Centre

2012

This is a standardized version of the original case analysis number 8. Specific names and locations have been substituted from the original document number 8 with generic references in order to preserve the anonymity of every participant.

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Abstract

Background

The science centre near the capital is the country's premier centre offering changing exhibitions and other public events on science and technology. It is affiliated to the PLACES project through its membership of ECSITE. In 2011 this centre had 320,000 visitors.

This case study explored the collaboration of scientists, science organizations, NGOs and industry sponsors with the science centre to produce two recent exhibitions. The former (exhibition A) was the science centre's own production; the latter (exhibition B) was updated and adapted from an exhibition originally on display in the adjacent country.

Research questions

This research aimed to describe and explore the collaboration between the science centre and outside partners and sponsors, and to obtain their assessments of the impact of this collaboration.

Methods

The methods used were modified from the PLACES toolkit (reference 2). The research was based on module C1, consisting of six semi-structured interviews (interviews with relevant actors, n=6). The science centre's own visitor surveys were used as background information.

Results

All the interviewees had a positive assessment of their collaboration with the science centre. Two of the organizations had worked with it previously while the other two started their collaboration in connection with the exhibitions under study. All continued to work closely with the centre after the exhibitions.

The individual researchers said their involvement had helped them gain new perspectives and insights into science communication, beyond traditional reporting and the giving of lectures and interviews. For research organizations, the collaboration provided greater exposure for their own work. The NGO involved said it had gained increased exposure for its own on-going campaign, while for the business company the collaboration had brought public image benefits.

The interviewees had some difficulty identifying the precise benefits of their collaboration, which they thought were mainly longer-term. Researchers

referred to their improved personal communication skills, while organizations mentioned the opportunity to establish new contacts for future cooperation as well as increased public exposure, which supported their broader societal goals.

Introduction

The science centre opened to the public in 1989. In 2011 it attracted 320,000 visitors, 27% more than in 2010. Half of the science centre's visitors come from the capital and the surrounding metropolitan area, while most foreign visitors come from the neighbouring country. Over 80% of the visitors spent more than two hours at this science centre.

This science centre is affiliated to the PLACES project through its membership of ECSITE. Roughly half of its funding is raised through its own activities, including admission fees. The other half comes in the form of subsidies primarily from a southern city and the ministry of education. At the end of 2011 the centre had 66 full-time employees and 40 part-time or fixed-term employees.

The science centre's major recent include exhibition B*,* an exhibition on climate change that was originally on display in the adjacent country and then updated and adapted for a local audience.

Interactive exhibition B opened in October 2011 and ran until January 2013. The time train took visitors on a journey into a city in a future year. The exhibition was based on a city simulator that taught visitors about future housing, transport, consumption and health care. As they moved through the exhibition, visitors were able to make choices that impacted the future. Based on these choices, the simulator profiled a personal sustainability barometer for each visitor. Exhibition B was part of the World Design Capital 2012 programme, and was designed in collaboration with researchers and foresight experts.

The exhibition's key theme was the sustainability of different lifestyles. Sustainability was measured from three different perspectives: the environment, society and the economy. Throughout their lives people constantly make choices that shape the future. Similarly, the exhibition visitors shaped their own future through the choices they made at each exhibit, making use of the feedback they received. The choices were compiled into a personal sustainability barometer that was stored with the aid of an identification wristband given to each visitor. The accumulated impact of the choices made by all visitors to the exhibition was made visible so that visitors could compare their own sustainability profiles with those of others.

Exhibition A, an exhibition about climate change and life in a world that is getting warmer, was opened in February 2012 and ran until February 2013. Exhibition A was designed to show the causes and consequences of climate

change and tell ordinary people what they can do to mitigate it and adapt to its inevitable impact.

The exhibition was constructed in a four hundred square-metre pool containing 40,000 litres of water. The centrepiece of the exhibition was a large, eight cubic-metre block of ice that was slowly melting. The water and ice block illustrated the rising of sea levels and the melting of glaciers along with global warming. Before entering the exhibition, visitors were provided with rubber boots so that they could wade through the water and melting ice in the exhibition hall. The exhibition concept was developed by a well-known foreign firm, and the exhibition was displayed at the museum of science, technology and medicine in the capital of the adjacent country during 2007–2009. Exhibition A was designed in collaboration with national climate experts. One section of this exhibition was produced jointly with the NGO.

The research organizations involved in designing these two exhibitions were the national environmental institute, the national meteorological institute, the local university, the national futures research centre and a think tank. Exhibition sponsors included the capital and also a national innovation foundation.

According to the science centre's own visitor surveys, visitors typically spent between two and three hours at the exhibition. They had learned about the exhibition either on the Internet or through family and friends. Audience feedback on exhibition A was more positive than average, although not as good as from the previous, somewhat more entertaining, exhibitions.

Methods

The methods applied in this case study were taken from the PLACES evaluation toolkit, module C1. Semi-structured interviews were conducted with the most important outside partners, namely scientists, research organizations, NGOs and industry sponsors. The public official who was involved in designing exhibition B could not be reached for interview, despite several efforts. In order to gain a more representative view of the nature of the collaboration with this science centre we decided to interview scientists representing different research organizations and career positions, as well as a representative of a think tank that considers itself both a research organization and an NGO.

The interviewees were selected by the principal investigator in consultation with science centre personnel. The aim was to have a representative sample of outside partners involved in the two exhibitions. Interviewees were also selected based on their experience in science communication and collaboration with the science centre or other institutions involved in science communication. Most of the interviewees were engaged in the second, exhibition A. Some researchers and other actors involved in designing exhibition B were hard to reach, and some of them had moved abroad.

The interviewees were as follows:

- Professor MH, national environmental institute.
- Mr RM, development director, think tank.
- Mr KR, research scientist, national meteorological institute .
- Mr JL, senior researcher, national environmental institute.
- Ms HLK, climate coordinator, international NGO working on conservation.
- Ms RK, chief marketing officer, the sponsor's company.

The interviews were conducted between 23 November and 5 December 2012. Interviews 1-5 were conducted face-to-face and lasted 30-45 minutes. Interview 6 was conducted by telephone and lasted 15 minutes. The interviews were transcribed and analysed thematically.

Additionally, the science centre provided their visitor survey data for background information.

Results

All the researchers and representatives of research organizations had prior experience of science communication. Most of them had worked with this science centre before, which was why they were invited to contribute to these exhibitions too. However, they had only limited experience of actually designing exhibitions and they felt they had learned a great deal from this side of their collaboration. Designing a science centre exhibition differs very much from giving a talk to schoolchildren or writing a newspaper article, of which the researchers interviewed had ample experience.

The researchers took part in designing and creating the exhibitions and in preparing their texts but not in the actual audience events. In their estimation the project had required an input of 3-6 working days. The researchers from the national meteorological institute and the national environmental institute contributed without receiving separate compensation.

The think tank was involved in designing exhibition B under a separate agreement, and its contribution was greater than that of the two research institutes.

'*In a sense we're both a research organization and an NGO*.' (RM)

However the biggest input of all was from the international NGO, which at the time was running its own climate campaign. This collaboration gave the NGO campaign greater exposure and helped develop the campaign's overall message.

One local company gave financial support to the science centre, donated a weather station for exhibition A and provided background information on measurement techniques to the exhibition designers. In exchange, this company was allowed to host its own events in connection with the exhibition.

Motives for participation

The researchers' and research organizations' involvement in setting up the exhibitions was primarily motivated by their long-standing interest in science communication. There was also a sense of being duty-bound to contribute: the organizations concerned (the national environmental institute and the national meteorological institute) are not just research institutes. They also have an important public function. Some of the researchers said they would also have liked to be more closely involved in the actual implementation of the exhibition if only they had had the time.

Communicating our research results to the public is an important mission for us. And since the exhibition tied in quite directly with our areas of research, it made sense for us to get involved. And personally too, I'm interested in communication. This was also a chance to try out some new things. (NH)

The sponsor's company sees collaboration with the science centre as an integral part of its social mission. In exchange for its financial support the company was allowed to host its own events at the science centre for the press, its customers and personnel.

Our sponsoring activities are focused on science, research and promoting scientific thinking. Research into climate change and weather phenomena fits in well with our company's mission. Our involvement gave us increased exposure. (RK)

The impacts of participation

Even though the researchers received no separate compensation for their contribution to the exhibition they felt it was a rewarding experience.

My own experience is pretty much limited to traditional reporting in newspapers and journals and to giving interviews. The most interesting thing about this exhibition was the way in which it used different means to communicate a message via different senses. The water element is particularly interesting, getting the sense of touch involved. (JL)

The exhibition was constructed in a four hundred square-metre pool containing 40,000 litres of water. The visitors, wearing yellow rubber boots, had to wade through water that was 10 centimetres deep. The centrepiece of the exhibition was a large (eight cubic metres) ice block that was slowly melting.

In connection with the exhibition the national environmental institute also took the opportunity to improve and publicize the online climate change guide it had produced in collaboration with the national meteorological institute and the local university.

For the think tank, the collaboration provided an opportunity to test the concept of the future workshop it had developed.

This collaboration was really important for us. This science centre was our first-ever real client who purchased this kind of future process from us. What they wanted and needed was precisely what we can deliver and what we wanted to develop. We continued our collaboration by bringing our own workshops to this science centre, where people talked about the future and these scenarios. (RM)

The collaboration between the NGO and the science centre was the result of fortunate coincidences, and it proved highly beneficial for both sides. At the time the NGO was producing material for its own Earth Hour campaign, in which consumers are encouraged and advised to reduce their carbon footprint.

This was later integrated as part of the science centre exhibition. The NGO campaign was targeted at families with children and at young people, who are well represented among the centre's visitors. At the same time the exhibition gave increased exposure to the NGO's mission.

We're both committed to increasing public awareness about climate change and that's what we did. Hundreds of newspaper articles were written on the subject and it was covered on television too. (HLK)

This science centre also helped the NGO in the production of its Earth Hour campaign videos. These videos were shown at the exhibition and were also posted on the NGO website and YouTube.

We were also provided the facilities to organize our researcher meeting at the science centre. All of this brought us much positive exposure. (HLK)

Science communication: learning by doing

Among the scientists and representatives of research organizations interviewed, only one had received formal training in science communication. However all of them were highly motivated to communicate their research results and to talk about science in general to the general public. All were also agreed that the best way of learning is by doing.

I'm sure there's much for us to learn about science communication, and really the only way to learn is to try things. It's one thing to have a theoretical debate, but practice is always a different story altogether. (NH)

Writing and editing exhibition texts is a very special challenge because they have to be very succinct. You had to give special thought to how to get the message across and consider the large number of schoolchildren in the audience. (KR)

Quite often the focus in science communication is simply on outcomes. In designing this exhibition it was interesting to consider the methods and research instruments as well. How are these results produced, what kinds of research tools have been used over the years, going back to the indices and instruments, and how can we get that information across in a readily intelligible way? (JL)

There were many ingenious things at the science centre exhibition which clearly demonstrated the impact of humans on climate change. For instance, how blocks of ice melt more rapidly as a result of human action, when we touch them. It's important to pick up on this and learn from these particular ways of science popularization, even for an expert organization such as ours. (HLK)

Networking

All the interviewees saw the exhibition as an opportunity to deepen their collaboration with the science centre. The organizations interviewed had also

continued their collaboration with the science centre after the exhibition in one way or another.

We got to know these people from this science centre, and since then we've developed a pretty good informal institutional relationship with them. Many of them are interested at an individual level in what we're doing and are involved in our work. (RM)

The exhibition sponsor has also continued its collaboration with this science centre since the exhibition. The company is planning to work closely with this science centre in the forthcoming Mars exhibition too. (RK)

The NGO started its collaboration with the science centre in the context of exhibition A, and it has continued this collaboration since.

We were already involved in a Climate Conference for young people in this science centre and we've now been planning ahead for the next exhibition. (HLK)

For the researchers working on these projects, involvement in the exhibitions provided invaluable networking opportunities for the future.

There were lots of climate researchers there working in a whole range of different fields. There's no question that this increased communication and mutual understanding among scientists. If there's now something you need to go back to in your research, you know who to contact. (JL)

During the exhibition the national environment institute and the national meteorological institute collaborated in the production of a climate change guide, and that collaboration has continued since.

Advocacy

The researchers interviewed were agreed in their opinion that advocacy is an integral part of science communication.

We want to contribute to promoting sustainable climate solutions and in general to achieving social change through knowledge. However everything must always be grounded in research and the aim is to promote knowledge-based public debate. (NH)

One of the difficulties in trying to effect change in the environmental area is that the people who are prepared to receive new information will mostly be interested in these issues anyway, while those who are indifferent or perhaps take a hostile attitude tend to brush this stuff aside. In this sense science has much the same problem as religion. (KR)

The representative of the think tank also stressed that advocacy does not only have to be about persuading people's opinions, but is also and importantly about creating opportunities.

Yes, that's certainly one of our main aims, to try and influence things. But we've noticed that understanding is not a be-all and end-all. It's also important to try and create opportunities for action. In other words we're not trying to influence people's values or opinions, but their opportunities for action. (RM)

The NGO has a very down-to-earth and solution-minded approach to communication:

What we want to offer is solutions to problems like climate change. To explain what individual consumers can do through their choices. Or how the energy industry can reduce its emissions. (HLK)

Marketing and public image

The exhibition sponsor has collaborated with this science centre for a number of years. For instance, this company has sponsored the centre with an exhibition room, a room-sized, global display system that uses computers and video projectors to display planetary data.

According to the sponsor's company its collaboration with this science event delivered no immediate financial benefits for the company, but it did support the company's mission and vision while also strengthening its public image.

Climate change is one of those things we want to be involved in studying and on which we want to have an impact. At the same time our staff members feel we're doing the right kind of things. (RK)

The research organizations were also keen to stress the importance of exposure.

For a research organization such as ours, making a difference and gaining exposure are important. In this case it was mainly our climate change guide that gained exposure. (NH)

Conclusions

All the interviewees had a positive assessment of their collaboration with the science centre. Two of the organizations had worked with it previously while the other two started their collaboration in connection with the exhibitions under study. All continued to work closely with the centre after the exhibitions.

However the interviewees had some difficulty identifying the precise benefits of their collaboration, which they thought were mainly longer-term. Researchers referred to their improved personal communication skills, while organizations mentioned the opportunity to establish new contacts for future cooperation as well as increased public exposure, which supported their broader societal goals.

The researchers said their participation in the exhibition projects had helped them gain new perspectives and insights into science communication, beyond traditional reporting and the giving of lectures and interviews. For research organizations, the collaboration had given a welcome opportunity to showcase their own work, such as workshop tools (think thank) and the climate change guide (national environmental institute and national meteorological institute). For the NGO, collaboration with the science centre had been an important source of support as well as giving its own climate campaign greater exposure. Collaboration proved most beneficial when the organization had an on-going communication project that it could develop in cooperation with the science centre. For the hi-tech company that sponsored the science centre, the collaboration helped strengthen its public image as a socially responsible partner (the sponsor's company).

The researchers interviewed described this science centre's approach to science communication as innovative and they felt they could learn some invaluable lessons. They were keen to develop science communication in a more practical direction, towards greater public engagement.

Recommendations

Previous studies on the public engagement of science (reference 1; 3) have shown that public engagement (PE) activities require institutional support. ‘Although relying on the enthusiasm of individual scientists PE activity is a feature of the organizational culture of a laboratory or a research institute. And this developing culture can either encourage or discourage PE activities through the allocation of resources and the recognition and celebration of outreach efforts…’ (reference 1). This was confirmed in our research.

The researchers who were involved in designing the exhibitions described the experience as useful and beneficial, but complained that science communication is not a part of their own job descriptions in their respective organizations. Therefore, they often have to work on these projects during evenings and weekends once they have completed their regular duties. However, they also said that science communication was personally rewarding and socially important. If only they had the time, they would participate in this kind of collaboration beyond just early stage planning.

‘It would have been interesting to stay on a bit longer and closer to the point that the exhibition opened. Also it would have been interesting to see to what extent the objectives set were achieved.’ (RM)

Methodologically, the proposed questions (PLACES toolkit, module C1) provided a useful tool for assessing the impacts of collaboration among the actors concerned. In this case the questions had to be modified slightly because the participants had been mainly involved in designing the exhibition rather than in the public events. In order to study public engagement activities more closely the questions would need to be further modified.

In order to gain a more comprehensive and representative view of the nature of collaboration, we decided to interview scientists from different research organizations representing different career positions and not just one representative of one type of organization.

References

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