

## **BA and ESRC Science in Society seminars 2006**

### **How do we communicate science through exhibits and exhibitions?**

The fourth seminar in the ESRC Science in Society series focused on unpacking the types of action and interaction that occurs at science exhibits and exhibitions in science centres and museums. The seminar was led by Professor Christian Heath, Dr. Dirk vom Lehn and Robin Meisner – members of the Work, Interaction and Technology Group, a social science research group at King's College London. The group presented some of the findings from their ongoing research project that explores how people respond to and engage with exhibits in informal science institutions. It also looks at how exhibits can be designed for interaction and collaboration, and specifically the informal learning and communication that occur.

In order to investigate the activity occurring at specific exhibits, the research group video records individuals' actions and interactions. They subject the recordings to detailed study, looking at the talk, bodily and material conduct, and focusing on the highly contingent, moment-by-moment coordination of action. In addition, they collect supplemental data in the form of ethnographic studies of the design and development of exhibits and conduct naturalistic experiments, for example designing exhibits which work through social interaction.

The seminar focused on one aspect of the research project which investigates the following question: How do visitors discover, and/or how do others (eg. family members, friends or strangers) help them to discover, how to use or make sense of an exhibit? They presented three lines of inquiry which emerged from the video data - producing imitative actions, performing and perceiving performance, and occasioned explanation, or explanations which arise from the situation at hand – as ways in which visitors begin to understand or help others to make sense of both exhibit use and content.

The group presented samples of video data from each of the categories. In essence, the examples worked to show the following – how visitors might use observation of another's activity to create a firsthand experience from witnessed secondhand actions, how individuals might draw on the embellished actions they see another produce at an exhibit to make sense of the exhibit's intended use, and how individuals might draw on the specific features of an exhibit and their own prior experiences to explain the working of an exhibit to another.

The researchers suggested that the work presented offers implications not only for the project, but for education, design and the field of social science itself. For education, the research highlights the importance of focusing on the social learning that occurs at exhibits and offers insights into how learning might be mediated in such setting. In terms of design, it offers suggestions of how exhibits can be created to enable co-participation and collaboration, particularly around issues of visibility of use. And, for social science, it indicates that the fine details of participation are key to understanding experience and interaction.

Ben Gammon, a consultant in museum exhibition development and the former Head of Learning at London's Science Museum, acted as the discussant for the session in order to add a practitioner's perspective on the research. He suggested that in recent years there has been an increasing interest in visitor research being conducted in museums and galleries, but such work focuses on more immediate needs than does academic research. He suggested that partnerships with academic researchers are important for the museum community because the museums lack the resources to investigate the same sorts of questions as academics. He stressed that museum practitioners and academics offer different types of knowledge and experience to research projects.

He suggested that museums are very complicated places because the space is used in many different ways. Visitors often behave in unpredictable ways in a museum environment. In addition, they spend relatively little time using any given exhibit. As such, exhibits are extremely complicated to create.

Because designing exhibits is a difficult pursuit, he suggested that the type of research carried out by the team at King's College can aid in making the challenge more

transparent. For example, in bringing to light the importance of making visible to others what individuals are doing at an exhibit. He suggested that the research methods themselves – ie, the video analysis – could be used to give museum-goers a new experience of their own behaviour. That is, by allowing visitors to watch video of themselves, they might be able to learn from their own action with the exhibit and interaction with the other visitors.

During the open discussion period following the presentations, one member of the audience, a curator from the V&A museum said that because the video presented in the session featured children, the research seems to implicate that children interact more with the exhibits than adults, implying that adults read and observe. While the researchers stated that there are many examples involving adults, the question raises the issue of how museums can get adults to engage physically with an exhibit. Suggestions highlighted the importance of design, particularly designing exhibits that look sophisticated rather than like children's toys.

A representative from the Eden Project asked what people actually learn from mechanical interactive exhibits. She argued that in the experience of the Eden Project, visitors only really learn when they are emotionally moved by something. However, Ben Gammon did not agree with this and supported this with an example of a group of children who visited the Energy Gallery in the Science Museum, London. Considerable evidence has been gathered that visitors to this gallery gained sustained educational benefit from the gallery. For example their knowledge of energy vocabulary was tested before and after the visit and was found to have increased considerably and showed good evidence of long-term and sustained interest in what they had learnt. Ben stressed the importance of matching the exhibit medium to the subject area and stressed that there some content is not suited to mechanical interactive exhibits. He thought that, perhaps, the Eden Project could benefit from using digital technology.

A participant from the Research Councils raised the issue that the research presented focused on what was happening at the exhibit face, and asked whether there are any investigations that look at longer-term effects of exhibit use. **It was also raised the notion that if the majority of conversation about an exhibit or subject takes place after someone has visited an exhibition.** In response to this question, Robin Meisner from King's

College highlighted two research studies – one, an ethnographic study based at the LIFE Center in Seattle which follows individuals throughout their informal learning experiences. She also noted that another project by a researcher in Canada, David Anderson, conducts interviews with individuals 20, 30 and even 40 years after they attended exhibitions.

There was also some debate about whether learning takes place if conversation does not occur at the moment of interaction with the exhibit. Ben Gammon believed that people do not necessarily need to converse during interaction to learn. For example, computer-based exhibits do not require conversation but often engage people for a very long time.

Such discussion prompted the representative from the Eden project to ask what the outcome of communicating science should be, and whether it is just a matter of cognitive learning. She suggested that for the Eden Project it is more important that visitors' behaviour is changed following their experience with exhibits. She mentioned studies which suggest that the more people know about a subject, the more difficultly they have in making critical decisions that involve such knowledge. She stressed that changing visitors' views might be more beneficial than adding to their content knowledge. But as Ben Gammon pointed out, the definition of learning is very broad. Learning can be cognitive, social, affective, etc. and that it is critical that museums help visitors feel confident to learn and engage with issues. The ultimate outcome is to stimulate thinking.

A participant asked whether the data gathered are broad enough in scope to investigate such learning. Professor Heath stated that until recently the activity that takes place at the exhibit itself has remained largely unexplored. He stressed that unpacking such activity is a prerequisite necessary for taking design and design for learning seriously.

Mr Gammon added that there is a need for a venue where experimental work could be carried out to explore the types of exhibits that work or may not work. One can learn just as much from exhibits that fail as from those that succeed, however, at the moment, it is difficult to produce an exhibit that might not work because failure is not desirable. A member of the audience questioned whether visitors behave differently if they know they are being studied. The King's College team remarked that the way in which they record

is very unobtrusive and there is little evidence to suggest that the filming changes visitor behaviour. Mr Gammon commented that museum visitors expect unusual things to occur and think nothing of coming across a video camera.

To conclude the seminar, the speakers were asked to consider what they think would be most interesting and important areas of study. Professor Heath suggested that it is of utmost importance to unpack the structure of the activities which underpin learning. Ben Gammon's priority was to expand the focus of research from looking at interactive exhibits to include the study of object-rich galleries, and to look at the conversations that take place when people are looking at objects.