The Power of the Pencil: Renegotiating the Museum-Visitor Relationship through Discussion Exhibits at the Science Museum, London

by Ben Gammon and Xerxes Mazda

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Visiting an exhibition about science and technology is generally a process of one-way communication—the museum speaking to the visitor. In contrast, the idea of allowing visitors to express and record their opinions is a departure, at least for museums of science. To include visitor comments in the exhibition and to give them status equivalent to the material produced by the museum is an even greater break with tradition.

An exhibit that enables visitors to express their opinions would seem to hold much potential as a novel interpretative tool. It involves the visitors and draws them into complex discussion far more successfully than static text, objects, or even interactive exhibits. This is useful because displays about modern science increasingly attempt to cover complex, unresolved issues. These topics do not easily lend themselves to the use of traditional exhibition media.

Although the use of such visitor feedback exhibits is on the increase, there has been surprisingly little assessment of how well they fulfill the objectives of either the museum or the visitors. Only a handful of studies have been published that explore the background and the effectiveness of this method of interpretation.[1]

This paper is concerned with an analysis of one method of garnering visitor feedback—discussion exhibits.[2] It begins by defining a discussion exhibit and describing the experimental use of this kind of exhibit in the Science Museum, London. The next section critically examines the motivations of the museum in providing discussion exhibits and the motivations of the visitor when using them. From this analysis we suggest that, although discussion exhibits can be effective and engaging, there are three possible pitfalls that may compromise their success.

What is a discussion exhibit?

A discussion exhibit is defined as an area where visitors can write their opinions or questions about issues covered by the surrounding exhibition. Visitors are prompted by a series of open-ended questions, for example, "What do you think about the Big Bang as a theory of the origin of the universe?" The visitors write comments on cards or sheets of paper and post their responses into a ballot box. Museum staff periodically empty the box and screen the comments to remove those that are irrelevant, obscene, or potentially libelous. The remaining comments are then typed, laminated, and added to the display of previous comments left by visitors. These discussion exhibits are never free-standing, but always form part of larger exhibitions. This definition of discussion exhibits excludes examples in which visitors are asked to select answers from a predetermined list or to vote on a particular issue. Nor does this definition include comments books, where visitors are asked to comment on their visit to the museum.

Discussion exhibits at the Science Museum, London

Since 1996, the Science Museum has been using discussion exhibits with varying success.[3] In order to better understand the possible pitfalls of such exhibits, the museum recently began a program of research into their use. Discussion exhibits were developed as part of a series of temporary exhibitions. Each exhibition covered a contemporary issue in science, technology, or medicine and was aimed at a nonspecialist audience aged 12 and above. The discussion exhibits were evaluated to determine how visitors were reacting to them and to assess

what the project teams were hoping to achieve by including them in the exhibition.

This paper will focus on discussion exhibits from the following three exhibitions:

1. ***Future Foods?*** looked at the science and issues behind genetically modified food.
2. ***Join the Great Fat Debate*** aimed to introduce visitors to the issues around Olestra—a manufactured substitute for fat.
3. ***The Big Bang*** covered the theory of the Big Bang, and the research that led to that theory.[4]

What motivated the museum to use discussion exhibits?

The second part of this paper explores the exhibit developers' expectations of the discussion exhibits. This was researched through interviewing members of the project teams for each exhibition, and analyzing internal museum documents. The research found that museum staff believe discussion exhibits encourage visitors to engage with what is perceived to be difficult material.

An exhibit developer has available a range of techniques for presenting science to the public. However, it is extremely difficult to cover predominantly issues-based subjects using traditional exhibition media. Many issues in contemporary science are abstract and do not easily lend themselves to the use of interactives nor to more traditional object-based displays. There is a danger that such exhibitions can become text heavy, with little appeal for the visitor. Previous experience of trying to develop issues-based exhibitions proved to be highly unpopular with visitors. For example, an exhibition about the issues behind screening for genetic illnesses was described by visitors to be "uninspiring" and "drab and dreary." As one visitor summarized: "If you had children with you then you would [walk by] because you couldn't keep them still while you sat and read. There's nothing to occupy them."[5]

The use of discussion exhibits is often seen as a way of getting around these problems. For example, the ***Future Foods?*** project team felt that "previous exhibitions have shown that a comments box is a successful way of allowing visitors the chance to explore their feelings about a variety of issues."

Similarly, ***Join the Great Fat Debate*** was developed "so visitors could directly participate in an exhibition about a chemical subject," because the exhibition developers felt that "it is not only scientists who have a valid opinion about science and technology."

The developers of the ***Big Bang***[6] exhibition were explicit in their belief that "the Big Bang theory raised contentious issues and some people would hold quite strong beliefs that they would want to be able to communicate... So we hoped that having a feedback book would prevent visitors from feeling any frustration at not seeing their personal views represented in the exhibition."

Evaluation of the discussion exhibits confirmed that the project team's wishes were met. For example, observation studies showed that 52 % of the visitors to ***Join the Great Fat Debate*** used the discussion exhibit by reading and/or writing comments. When visitors to this exhibition were interviewed about their reaction to the idea of developing more discussion exhibits, there was an overwhelmingly positive response.

> Go for it—it would give the public perspective.

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> People should be prompted to give an opinion rather than go along with it without thinking.

A series of focus groups and in-depth interviews were conducted to assess visitors' reactions to the ***Future Foods?*** exhibition. On the whole visitors responded very favorably to the discussion exhibit. As stated in the final report, "The visitors' comments book was seen in a very positive light. In fact for many it provided an important role in providing balance."

Some of the most convincing evidence for the effectiveness of discussion exhibits is in the number and quality of responses that were left by visitors. Over a three-month period, more than 2,000 comments were left in each of the three exhibitions. In many cases the quality and length of these comments illustrated the care and time which visitors were giving to their responses. The following two examples are typical of many comments that were left:

> I simply don't trust scientists (sorry!) to determine the future composition of my food. There is increasing evidence to link between certain diseases, notably cancer, and sprays, insecticides and other chemicals. At present we simply do not know the long-term genetic (human) implications of genetic tampering. I should vastly prefer my food to be as nature engineered it, spots and all!—at least then I know and can be responsible for what I eat, rather than having other people engineer it for me. The future of our food is terrifying, and particularly the fact that we have now reached a stage where whatever we buy, we cannot be sure whether or not it has been interfered with.

> There's enough fresh fruit and vegetables on the market. Adding extra artificial foods can only bring long-term problems to society's diets. I feel that the money that has been spent on researching such 'new' foods is better spent on promoting a healthy, natural diet, with a moderate amount of fat.

Similar results have been found for discussion exhibits in other museums. For example, the ***Share Your Reaction*** exhibits in the Art Gallery of Ontario received around 5,000 responses over a nine-month period. The quality of these comments was also deemed to be very high: "The range of responses have often left me quite speechless because of their power and mystery and none of them really reflects the kind of insight into the art experience that the gallery itself could articulate."[7]

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Although the desire to have an effective interpretative tool was found to be the major motivation for exhibition teams, the Science Museum was also keen to explore the use of discussion exhibits as a way of catalyzing debate on galleries without the use of expensive staff moderation. This is part of the Science Museum's aim to become a center for public debate on issues in contemporary science and technology.

It is interesting to ask how far discussion exhibits can fulfill this role. An analysis of the responses left by visitors showed that real debates were emerging. The following are four consecutive responses left in the ***Big Bang*** discussion exhibit. In this sequence, visitors refer back to previous comments, which gives the impression of a dialogue.

> A theory is just a theory. We cannot be sure if it is reality. As long as there are no experiences made, that speak against it, it has to be taken for true. To me, the Big Bang appears to be a quite good explanation. I hope it is true. If it is, we have done one more step to wisdom. But no-one will ever know!
>
> The validity of this highly contentious theory is proved by the exhibit—simplistic, naive, lacking in proofs. Just look at the rest of the museum for inspiration! Allah, creation!
>
> And the Koran has proof in it does it? That's a big NO.
>
> But this exhibition SAYS Big Bang is a theory! And it says about the 'proofs' to back it up. For example the background radiation and the amount of helium. I don't think it's a contentious theory at all, it seems to have more evidence than steady state or Creationist views of the Universe. I know what I'd rather believe.

In addition, the ***Future Foods?*** focus group displayed considerable support for the idea of extending the discussion element by having feedback from experts as well as visitors. Comments to this effect were even written by visitors to the exhibition: "It would be a great idea to answer the questions in this exposition." Although the practicalities of regular expert response to visitors' comments are awesome, it is something that the Museum will attempt to do in the future.

Visitors' motivation to write

The third part of this paper looks at visitors' motivations to take part in discussion exhibits—both to read and to write comments. Three key motives were found for visitors to write comments.

An outlet for anger

Visitors seemed to be using the discussion exhibit as an outlet for their anger and frustration. Many of the comments showed real passion, with words written in capitals or heavily underlined. The specific points raised in the exhibition appeared to have acted as a catalyst for visitors to express opinions drawn from their own knowledge, experience, and prejudices. The following two examples illustrate this.

> Where is the democracy?! It is the consumers who do not benefit. The companies who produce it are there to make a profit! All genetically engineered food should be banned or at the very least labelled in shops so we are not hoodwinked into buying it.
>
> Olestra adds no calories to the diet. It cannot be used by the body. How much has it cost to develop and how much profit do the manufacturers want to get back from it? Twenty-five years of testing is an awful lot of investment. Why do we need it? Answer: we don't, but someone thinks they can profit from it.

A wish to cause change

Visitors seem to be motivated by the belief that their comments would be read by manufacturers and policy makers. This belief is not particularly surprising, because almost the only time public opinion is sought is in market research. A ***Future Foods?*** focus group

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participant voiced the belief of many visitors when she said:

> I think it is a very controversial topic and a lot of people are very upset about it. It stirs emotions. So I think they're trying to find out what people think, and then they can use that to focus their marketing strategy to counteract, because after all they're selling a product of some sort.

The graffiti effect

The desire to scribble graffiti appears to be a powerful motivation for visitors to use the discussion exhibit. Although many of the examples shown so far have been of a high quality, it would be wrong to imply that this was always the case. On the contrary, many of the comments are best described as graffiti. Of the 2,259 comments left in the ***Future Foods?*** exhibition, only 34 % were deemed relevant to the exhibition, while for ***Join the Great Fat Debate***, the percentage was 22%. The largest proportion of "graffiti" comments comprised scribbles, with a smaller amount of obscenities and general views about the museum.

Many of the comments that were considered relevant and were displayed in the exhibition comprised very short sentences, with only the most tenuous link to the question that was asked. The following examples, taken from ***Join the Great Fat Debate***, in response to the question "What do you think about olestra?" amply illustrate this point:

> "Eat it if it tastes nice."
> "Olestra is super-fat man."
> "What is olestra?"
> "Gemma likes it."
> "Chocolate is my favourite food"

Visitors' motivation to read

It was also possible to identify three motives for visitors to read the comments left by previous visitors.

Language

The first motive to read comments concerns the style and language used by visitors when expressing themselves. The comments make compelling reading. Why is this so? One possible explanation lies in the emotive language that visitors use, as illustrated by these examples:

> I am a molecular biologist and GM food scares me to death.
>
> No problem with genetic mods or clones. If we had let religion have its way we'd still be in the caves.
>
> GE is not an extension of existing selective breading. GE is clumsy and dirty. In some processes tiny particles of tungsten are fired into the chromosomes of 'host cells' [...] its like firing a cannonball at a butterfly with a maggot and an appleseed attached and hoping it sticks in the eyeball and not the wing! Stop it you silly people.

The visitor who wrote this third comment certainly had a good working knowledge of genetic engineering, and yet, unlike explanations written by the museum, the style of writing is very emotive, expressive, and ultimately very readable. It is quite conceivable that many of the points made by this visitor could have been made by the Science Museum, but the language would be more measured, balanced, and neutral.

Balance

The second reason why visitors read the comments left by other visitors is concerned with bias. Visitors felt the ***Future Foods?*** exhibition was biased in favor of genetically modified food.[8] For example:

> This exhibition boldly states that risk assessments examine all potential effects that GM could have on our health and environment then goes on to list impressive sounding committees. This is a ridiculous and scientifically inaccurate claim. It is impossible to assess how a gene pool will behave—just as nobody foresaw the impact of introducing new species in Australia or New Zealand.

The book of comments was valued by visitors as an essential component of the exhibition, as it was perceived as a method of redressing the imbalance. As one focus group participant commented, "It was interesting that in the comments book it was all the opposite way, so maybe there was some balance there." Visitors even wrote comments to this effect in the book: "This seems to me to be a very agribusiness dominated exhibition. The only doubts are ours, the punters, on these slips of paper."

A novel point of view

Finally, the discussion exhibits were valued by visitors as they allowed issues to be tackled from the point of view of the visitor rather than that of a scientist, exhibit developer, or manufacturer.

To summarize, museums see discussion exhibits as valuable components of exhibitions because they provide effective methods of interpretation that involve visitors, encouraging them to engage with the complex issues in modern science.

Visitors, on the other hand, are motivated to write their comments by a desire to vent their anger and register their concern over an aspect of the exhibition material. Some visitors may take this further, believing that their comments could affect the technology under discussion, and yet other visitors respond to the same impulse that drives them to add to graffiti in a public place. The resulting collection of visitor comments makes compelling reading owing to its emotive language, the way it addresses visitors' concerns rather than those of the exhibit developer, and the way it can make up for perceived bias in the exhibition.

So, on the surface, there appears to be a good match between the Science Museum's primary expectations and the visitors' experiences. The museum wants the visitor to engage with complex ideas expressed in the exhibition, and the visitor certainly finds the discussion exhibit engaging. Yet it is necessary to sound a note of caution. This research has identified some potential problems which need to be addressed. We suggest that both the museum and the visitor need to be aware of the following three potential delusions.

The delusion of universal application

It is tempting for exhibit developers to believe that discussion exhibits could work for all subjects. Yet having teased out the visitors' motivations, it becomes clear that this is not the case. Discussion exhibits work best on subjects that visitors feel strongly about—those covering controversial and emotive issues. The more detached the visitor feels from an issue, the weaker become the anger and the desire to

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effect change, and there is a danger that the primary visitor motive to contribute becomes the graffiti effect. By its nature this would make the written comments less compelling to read, thereby downgrading the degree of visitor interaction with the discussion exhibit as a whole.

This has indeed been the case in other discussion exhibits tried at the Science Museum. For example, in the exhibition ***Bucky Balls,*** a discussion exhibit was included that posed the question "What do you think Bucky Balls might be used for in the future?"[9] There was no compelling motivation for visitors to answer this question, as evidenced by the fact that less than 20 comments were left over the five months the exhibition was open.

"This seems to me to be a very agribusiness dominated exhibition. The only doubts are ours, the punters, on these slips of paper." Visitor comment

The delusion of market research

To all intents and purposes, the discussion exhibit looks to a visitor like a tool of market research. This paper has already presented evidence that the visitor believes the data is being collected by the Science Museum on behalf of manufacturers.

This illusion has several ramifications. First, the museum is in danger of compromising its neutrality. How can visitors believe the museum is neutral if they see that the museum is acting as an agent for manufacturers by acquiring commercially valuable market information?

Second, there is a danger that the visitor is being deceived. If visitors believe that they are indirectly shaping technologies because the people who can make a difference will read their comments, then what will these same visitors think if they find out that their comments are instead kept in a file in the museum archives? This probably over-exaggerates the case. It would certainly be very difficult for a museum to hand comments over to a manufacturer without compromising the museum's position of neutrality. However, during the course of an exhibition the comments are displayed for all to see. Both the manufacturer and groups representing other sides of the debate are likely to visit the museum in order to investigate the range of concerns that people would have.

The delusion of lay discussion

Who contributes to discussion exhibits? Is it the lay public, people with a specialist knowledge, or representatives of the manufacturers or pressure groups? It is probably all of these, but importantly there is no way of telling, as all comments are anonymous. Without evidence to the contrary, museums and their visitors presume that the comments are those of the general public. What is to stop manufacturers or pressure groups from anonymously adding comments in an organized fashion? Admittedly it seems a lot of effort to go to when discussion exhibits currently have such a low profile, and it is unlikely that either ***Future Foods?*** or ***Join the Great Fat Debate*** were targeted in this fashion. However, if ever discussion exhibits gain a higher profile, they are likely to be highjacked by organizations with financial or moral interests in the subject matter, and both the museum and visitors will be deluded.

Conclusions

The above research has convinced us that discussion exhibits are a popular, cheap, and effective interpretative tool for engaging visitors in debates about emotional and controversial scientific issues. Using the findings of the research, a second generation of these exhibits

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is being developed for use in the galleries of the new Welcome Wing at the Science Museum, London. Taking a wider view, there is no doubt that discussion exhibits will increasingly be used in museums and galleries, whether they are concerned with science or the arts.

The work outlined above has exposed some of the ground rules and pitfalls of discussion exhibits. As these exhibits increasingly play a useful role in museums of modern science, project teams should keep a firm eye on the three delusions in an attempt to minimize their impact. With this caveat, we believe discussion exhibits have a bright future in renegotiating the traditional relationship between museums and their visitors.

Endnotes:

[1]For example, see Douglas Worts, "Gallery Enhancement: Forging a New Partnership with the Public," ***Visitor Studies: Theory, Research, and Practice*** 6 (Jacksonville, Alabama: Visitor Studies Association, 1993): 176–197.

[2]Other forms of visitor feedback would include comments books, video stations, audio recording, public debates, gallery drama, consensus conferences, and various methods of voting.

[3]An early example of feedback in the Science Museum, London, was mentioned in the Annual Report for 1937. A temporary exhibition about electric illumination was attended by about a quarter of a million people over five months. The report states that "by means of an operable exhibit, 147,272 persons recorded opinions about the amount of light desirable for comfortable reading, and a large number recorded their decisions about a heterochromatic photometry experiment. The Museum had been asked to preserve the results of these tests as a basis from which important conclusions were to be drawn—an example of how the Science Museum can fulfill a useful function where mass statistics are required as the material of scientific investigation. The co-operation of the public was marked by the care and intelligent interest which the majority displayed."

[4]***The Big Bang*** discussion exhibit differed from other discussion exhibits in that visitors wrote their contributions on a sheet of paper bound into the same flip-book as the typed-up comments of previous days. It was therefore much more like a traditional comments book.

[5]***Genetic Choices?*** was a temporary exhibition about the issues behind screening for inherited diseases.

[6]Sarah Hunt, personal communication (1998).

[7]Douglas Worts, "Gallery Enhancement," op cit., 180.

[8]This view was not unusual—see Les Levidow, "Domesticating Biotechnology: How London's Science Museum Has Framed Controversy," ***European Association for the Study of Science and Technology Review*** 17, no. 1 (1998): 3–6.

[9]***Bucky Balls*** aimed to introduce visitors to the science and potential applications of Bucky Balls, a recently discovered form of carbon.

Evaluation reports cited include:

Genetic Choices?—*Results of a visitor evaluation,* an unpublished internal Science Museum report produced by Creative Research Ltd. (1997).

Future Foods?—*Visitor Comments,* an unpublished internal Science Museum report, ed. Nicola Perrin (1998).

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