

Technology assessment and 'edutainment'

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Introduction

Museums today have, according to Stephen E Weil, three basic responsibilities: to preserve, to study and to communicate.¹ 'To preserve' subsumes the two basic duties of collection and conserving and thus satisfies the more comprehensive view of the purpose of a museum defined by the International Council of Museums (ICOM). More important in the case of creating a new exhibition is 'interpretation' and 'exhibition' which are covered by the overall term 'communication'. Communication as a goal for present-day museums is much more appropriate than either exhibition or interpretation alone because the word reflects a more encompassing task. Communication includes not only displaying artefacts and describing them with labels but also educating the visiting public by conveying ideas and values to them. Communication implies a two-way exchange of ideas and needs, involving the audience in the making and the evaluation of displays. Many museum people see audience involvement as controversial because it can be argued that to make an intelligent choice about content requires the audience to have previous knowledge about the subject. It is often the case, therefore, that museum communication is, in practice, only one-way.

This paper will concentrate mainly on the communication of messages from the creator of the exhibition to the public. An exhibition in a museum does not of itself provide a learning situation as does the classroom. There is no two-way communication between the creator of the exhibition and the visitor; indeed, there is very little communication between the visitors themselves. The motivation of the average museum audience is to do with leisure and does not involve specific learning objectives. Even if a museum visit is orientated towards education, successful learning situations require preparation and consolidation time which is not normally available during museum visits.

Museum displays which are made for a broad public and intended to impart a substantive message are much more characteristic of mass-media

communication than of the educational situation.² 'The public' consists of a heterogeneous body of people whose behaviour and responses, in the museum context, are likely to be individualistic, inconsistent and unpredictable. The content of museum displays is created and the display media chosen without consideration of the wishes of the public because those wishes are not known. Visitors cannot be gathered together in the kind of social network that will help them to give each other some direction in the interpretation of the exhibition. It can be argued, therefore, that it is worth adapting mass-media tools for museum interpretation, without forgetting the ultimate goal of educating the visitor, which is to achieve a two-way communication between teacher and taught.

Visitors passively consume the content of the exhibitions without necessarily understanding or learning from what they see. The content of an exhibition will be compared with knowledge acquired previously; linking new with old is essential for acquiring new knowledge. Such linking is achieved and reinforced by discussion of the content with those who have, in the eyes of the visitor, a certain authority. The credibility of the institution where the exhibition is displayed helps that reinforcement. The museum visitor has no choice in the topics within an exhibition nor in the way that they are structured. The only way a visitor can make a choice, other than by choosing not to visit at all, is to concentrate on particular parts of the exhibition and to ignore others. The selection of aspects of the exhibition is based on how interesting and how visually appealing they are, on what the visitor already knows and even on how the visitor feels. It follows, therefore, that by choosing topics within an exhibition, by presenting them in an eye-catching way and by drawing on academic credibility, the museum can both attract the attention of an audience and also stimulate a learning effect.

The layout and content of exhibitions and displays have to catch the attention of the visitor. Instead of interpreting a topic in a careful analytic structure, an exhibition should tell a thrilling story. It should, as Jeshajahu Weinberg, the Director of

the US Holocaust Memorial Museum in Washington DC, says, 'drive up the blood pressure';³ it should provoke an emotional response and perhaps discussion with other visitors. Ideally, the main message of an exhibition should build on something about which the general public is knowledgeable and to which it is attracted.

In the sort of museums with which we are all concerned, it is not enough to tell a dramatic story; the content has to include an evaluation and a contextual explanation of the technology concerned: a 'technology assessment'. Not only has the functioning of past technology to be explained but also the social, economic and cultural importance of that technology. The context also has to be presented. The more recent a particular technology, the more important it is to talk about consequences rather than function. Our concern today is more about the consequences of applied technology, and less about the possibilities. A technology assessment in an exhibition should include the positive and negative aspects of a development and show how contemporaries dealt with the situation. The presentation of several subjective perspectives will allow visitors to identify with the issues raised in an exhibition. A more or less open-ended story, which includes different perspectives, will allow the visitors to draw their own conclusions.

Having discussed the theory, I now want to compare the theory about exhibitions as mass-media communication with the contents of exhibitions as technology assessment at the Swiss Transport Museum. In particular, I want to look at the question of credibility, content and the relationship between sponsors (in this case Swiss Federal Railways) and museums.

Content

From the foundation of the Swiss Transport Museum in 1959 to the early 1980s, the vehicles, as the core of the museum collection, stood for progress and a national identity which was shaped in the pre-World War Two period. The railways in Switzerland as a national organisation were, apart from being almost the only means of transportation, a symbolic network tying together the nation and enabling it to withstand the destruction of World War Two. Main line electrification of Swiss Federal Railways, completed in 1936, could be seen as a symbol of independence from foreign energy sources. The museum, and especially the railway

displays, were reminders of the strength of the country and the successful prevention of direct involvement in World War Two. In addition, the vehicles and the whole museum celebrated the successful industrialisation of Switzerland.⁴ Economic growth meant progress, which was reflected in the aim of the museum which was, until 1992, according to its statute, the promotion of increased traffic by land, water and air.⁵

The symbolic content of the artefacts and of the displays slowly became obsolete as a result of criticisms of the concept of continuous progress and questioning of the constitution of the Swiss national identity in the 1970s. Nevertheless, having been such a success in earlier periods the artefacts were left on display in what had become the traditional layout, but their symbolic meaning had been eroded and the audience of the museum had changed. Today's average visitors are not necessarily reminded by the artefacts of specific periods and events in Swiss history; they have not seen the core locomotives of the museum collection such as the *Crocodile*, the *Landi-Lok* or the *Red Arrow* in service. The railway no longer has the importance it had in Swiss life before the predominance of the motor car. Visitors are generally less familiar with the railway and have less interest in the subject. Present-day exhibitions of railway material must, therefore, be restructured to help visitors understand the significance of the tons of iron and steel which constitute a major part of the museum's railway galleries.

The first significant change at the museum came with the expansion of the exhibition space in the railway department in 1982. A new hall of about 1700 sq m was built, and the old and new halls were connected with a roof covering about 2100 sq m, thus tripling the covered display space. Because of financial constraints, the main emphasis of this expansion was on the protection of as many historic vehicles as possible. Thus the display could almost have been compared to a storehouse and the displayed items were not well interpreted. The committee which created the exhibition included representatives from groups interested in all aspects of railways and their history. As a result, many labels ended up enumerating facts such as speed, power and provenance, or in describing the machine in technical terms such as:

You will notice the two close-coupled motor bogies with their large front parts, the short central body with the

driver's cab and the driving mechanism with jackshafts and coupling rods.⁶

The interpretative tools failed to connect the artefacts with one another and they did not relate the artefacts to a context familiar or accessible to the lay public. The labels gave the impression that they were written for a privileged audience of very knowledgeable railway enthusiasts, or *Pufferküssers* (buffer kissers), as they are called in Switzerland.

I believe that it is not enough, however, merely to make connections between the artefacts and to relate them to particular periods; interpretation has to be part of a story. This new interpretative approach has begun its first trial with the exhibition *Safety on the Railways*, sponsored by Swiss Federal Railways, which opened in late 1993. The thread of the story is the development of signalling and safety devices from the beginning of railways to the present day. The highlight of the exhibition is a link to the working railway showing signalling on the St Gotthard line which lies just outside the museum. Other themes are the principles of rail-guided transport, explained by interactive games; historical developments, illustrated by objects; and the changing nature of human responsibility in railway safety. Both the content and the complex synthesis of different communication media, such as interactive games, videos and labels, represent a development to be emulated in future railway displays.

My predecessor, who created the exhibition, had a hard task ensuring that it would not become a public relations exercise for the financial backer, Swiss Federal Railways, and the suppliers of signalling and safety equipment. The influence of Swiss Federal Railways can still be seen in the omission of accidents as an exhibition topic, despite the fact that they were often the impetus for the introduction of new safety measures, and in the public relations photographs that introduce and close the exhibition. Despite these shortcomings, it is probably the best of the displays in the museum for content, or storytelling, and for the use of inter-relating display media.

Credibility

The credibility of the displays depends on the credibility of the institution as a whole; high-quality displays will enhance the credibility of the museum in the long term. Quality of exhibition content, and objectivity and independence of viewpoint in

dealing with contentious topics, are the factors that define credibility. This is especially so where pressure from sponsors has to be set aside in the interest of objectivity.

Visitors who pay an entrance fee have the right to see something of more integrity than can be seen for free in every railway station and trade fair. In the short term, it may be very enticing to allow a sponsor to use the museum as a public relations vehicle, but the end result may be to damage the museum's reputation for independence. The sponsor may gain in the short term but sponsors who can be persuaded to take a longer-term view will benefit from an association with a high-quality exhibition which is perceived to be both authoritative and objective. Finally, the museum can fulfil its duty of education based on as independent a view as possible which is a core prerequisite if the museum is to be a credible opinion-maker.

The quality of the content of an exhibition depends on the quality and state of the collection. The emphasis of the Swiss Transport Museum collection is on historical vehicles, especially from the beginnings of electrification, and on model locomotives in 1 in 10 scale. The remainder of the collection consists mostly of disparate objects with little background information on inventory. There is rudimentary documentation of the archive collections but the makeshift ordering of the archive for reference use has meant that much of the background information about the documents has been lost.

The museum's original collection management plan was based on many fewer objects, and documentation was largely replaced by the personal knowledge of the founder generation of curators about the artefacts and the notion that the history of a particular object would not be of interest although the fact that the artefact was an example of its type would. The state of the collection and the archive makes efficient use of both difficult when working on the creation of new exhibitions and displays. Although the collection management shortfalls of the last 30 years cannot be made good because of lack of time and financial resources before the anniversary of Swiss railways in 1997, work on a new exhibition for the anniversary will allow some improvements. An inventory can be made of some parts of the collections, and making these parts better known will also enhance the 1997 displays. The work will act as 'capital' for future exhibitions, as well as adding to the knowledge of

Swiss railway history which is the foundation of the very existence of the museum. The partners and sponsors of the 1997 displays want to have as striking and attractive an exhibition as possible. The museum, which depends heavily on entrance and membership fees (in 1992 about 77 per cent of the proceeds), needs an exhibition that will attract as many visitors as possible.

Superficially, the most efficient investment might seem to be in attractive display techniques and in making as many economies as possible in curatorial, conservation and interpretation work on the objects displayed. The case is being put to the sponsors, however, that funding collection management work, research and interpretation is essential to the work of the museum in general and to the anniversary exhibitions in particular.⁷ The issue of funding priorities for sponsors is one which goes to the heart of the question of credibility. In addition, investing in collection management, despite financial constraints, makes good sense for the museum. Knowing one's own collection is a prerequisite of preservation and interpretation which are both part of the goal of a museum. Efforts in preservation will enhance the chances of new applications for public funding which is necessary if the Swiss Transport Museum is to survive in the long term. If sponsors can be shown to have supported such investment, it helps the museum in its applications for regular public funding.

Instead of presenting an analysis, a new exhibition has to tell a thrilling story. Exhibition planning must be holistic, must concentrate on content and must ensure that the presentation and interpretation of each artefact is subordinated to the main messages of the exhibition as a whole. Particular artefacts may have to serve as examples which stand for the general message and there must be a formal structure within the exhibition which encompasses the topics chosen. This seems obvious, but the museum committee which provides the connection between the railway companies in Switzerland and the museum itself consists mainly of *Pufferküssers* who are fascinated by interesting details that are not necessarily important to the general public. Nevertheless, the railway enthusiast committee members do represent a core audience. For them, the best exhibitions possible are the most comprehensive, especially if their favourite artefacts are on display. Railway enthusiasts need little interpretation because they have the background knowledge to see the single artefact in a contextual perspective. For

them the artefacts evoke images that provoke an immediate emotional and intellectual reaction.

Unlike the *Safety on the Railways* exhibition, the 1997 display space of about 8000 sq m cannot be densely furnished with display material without creating too much of the same, even if the resources to do so were available. Various points, such as the fact that railway enthusiasts form a core audience, the fact that a large number of visitors have no specialist knowledge, the financial situation and the need to equate sponsors' wishes with museum requirements, suggested a division of the new exhibition into three parts. In the first part, the sponsors (the railway companies) have space to present the current railway and its future. The second part will deal with a topic of critical importance for Swiss railways and Switzerland – the conquering of the physical barrier of the Alps. It will be presented with the most up-to-date display techniques possible in order to attract a broad audience and to change public perceptions of the museum and its exhibitions. In the third part, the museum will create a structured study collection with the vehicles as the central feature to satisfy the wishes of the core audience of enthusiasts. The study collection, arranged under headings such as steam locomotives, the beginning of electrification, tramways, rack railways and promotion of tourism, may also satisfy members of the general public who have been interested by the exciting experience of the second part of the exhibition – the heart of the whole display.

The section of the exhibition presenting the railways of today and of the future will promote railway transport, and such relatively overt promotion reflects the close relationship between the museum and Swiss Federal Railways and the private railway companies. The museum is seen, especially by Swiss Federal Railways, as its shop window, presenting the past, present and future of railways in Switzerland. The historic vehicles are mainly owned by Swiss Federal Railways and are on loan to the museum. The railway companies support the museum with a substantial annual contribution and are responsible for considerable investments such as the 1997 exhibition (they are providing three million out of a total of eight million francs). In addition, through their direct involvement in the subject matter, the railway companies have a particular interest in presenting their own story.

The study collection section of the exhibition

needs to have a clear layout and intellectual framework which is readily comprehensible if it is to serve both a general and an enthusiast public. The presentation should not go into technical details but should include a technology assessment to explain how the development of railways shaped the structures of society, and *vice versa*. The displays will put the vehicles in their historical context by adding artefacts and documents to complement the large objects, and highlights of the collection will be indicated as such. Such a method of presenting a study collection offers new possibilities to the railway enthusiast and gives to the general public an introduction to the history of Swiss railways with the option of more detailed study if required. The financial and space savings resulting from this type of presentation allow for further development, especially in the year 2002, on the 100th anniversary of Swiss Federal Railways. If by then the company has not been re-privatised, there will be an opportunity to update parts of the study collection.

The central and most dramatic part of the 1997 exhibition will be the presentation of the role the railways played and still play in conquering the physical barrier of the Alps, with special emphasis on the St Gotthard railway line with its 14.6 km long tunnel. A particular highlight for the visitor will be the interpretation of the construction of the tunnel from 1872 to 1882. Visitors will travel in small time cars through a reconstruction of the tunnel as it was being built and they will experience (as far as is practicable) the conditions endured by the workers drilling the tunnel. At the beginning and end of the story there will be animated reconstructions of the process of deciding the route of the tunnel; the negotiations between the director of the St Gotthard Railway Company, Alfred Escher, and the building contractor, Louis Favre; life in the construction camps; and discussions by engineers about the development of drilling machines. At the end of the visitors' journey, the museum will create, to substantiate the validity of the reconstruction, a display of significant artefacts relating to the building of the tunnel. The overall theme of this section of the exhibition will be 'routes through the Alps yesterday, today and tomorrow', and will embrace topics such as 'locomotives of the St Gotthard railway', 'the consequences of building the St Gotthard tunnel' and 'the new railway Alpine base tunnels for the year 2000'.

On an emotional level, the story will allow the

audience to identify with the people who built the tunnel. On an intellectual and political level, the topic will touch on several aspects of relevance to modern life in Switzerland, such as the difference between languages. Louis Favre, the French-Swiss building contractor, and Alfred Escher, the German-Swiss Director of the St Gotthard Railway Company, had to deal with each other and stood for both cultures. More complex is the question of foreign immigrants, especially Italians, who were mainly responsible for building the tunnel, and who have settled in large numbers ever since.

The relevance of an historical exhibition to the current situation is illustrated by the consent of Swiss voters in 1992 to the building of two new railways through the Alps in two main tunnels (Lötschberg and St Gotthard) up to 50 km long. On the level of national identity, the St Gotthard story means dealing with one of the core themes of Swiss national identity since the thirteenth century. There is no opportunity to deal with this subject in depth in this paper but of direct importance for the new exhibition is the fact that during World War Two the St Gotthard was seen as part of a physical and symbolic fortification against negative foreign influences: keeping open the railway line provided a talisman and a bargaining counter in negotiations to prevent Germany from attacking Switzerland.

The growth in international and political interrelations since World War Two has called into question the 'splendid isolation' of Switzerland and thus the mythical significance of the St Gotthard. These changes make it possible to review and re-present the history of the St Gotthard as a transit line servicing the continent: a door to Europe instead of a fortification. The notion of the St Gotthard railway as a transit line through the Alps is a theme which appeals to foreign visitors who make up a significant part of the museum's visitor profile.⁸ A final and important theme of the new exhibition is that of historical progress in a nineteenth-century context. The history of the St Gotthard project covers an important period in the shaping of Swiss society in political, economic and social terms.

Conclusion

Effective communication through the medium of an exhibition should reinforce the visitors' existing knowledge and, by introducing new concepts and knowledge, offer new meanings which are appropriate to present perspectives. Besides an

