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Evaluation Strategy for the re-development of the displays and visitor facilities at the Museum and Art Gallery, Kelvingrove

Studying the visitors …

Prepared for Glasgow Museums by the
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1   INTRODUCTION

This documents outlines the strategy for evaluating the re-development of the displays and visitor facilities of the Museum and Art Gallery, Kelvingrove ('the Museum' or 'Kelvingrove') from July 1999 to July 2004.

It identifies a number of strategic goals that support the Museum's overall mission and aims, and particularly the objectives of the re-display and developments taking place over the next years. The evaluation of the new displays and the study of the visitors will play a crucial part in achieving these aims.

This evaluation strategy outlines the main principles, approaches, and methods for assessing the use and effect of the Museum's new displays and facilities, as well as key actions that should be implemented in the Museum's everyday practice.

The aim of this strategy document is to:

> ➢ set out the overall vision and context for the development of evaluation work in the Museum

> ➢ ensure that the Museum staff understand the aims of the evaluation and how it can be incorporated in their everyday work

> ➢ inform visitors and interested bodies how the Museum intends to implement evaluation to improve communication with its audience (both current and targeted) and the provision of services

> ➢ assist in the communication and potential collaboration with external evaluation and other related consultants and researchers

The design of this strategy is set in the wider context of the cultural heritage community, where there is increasing recognition of the importance of evaluation, particularly when new technologies are used in displays and services (e.g. Department for Culture, Media and Sport 1999; Stiff 1998). Despite this increased awareness however, remarkably few institutions carry out systematic evaluation, even though they spend considerable resources in developing new exhibitions and applications. Even when evaluation studies are undertaken, they tend to be individual efforts of limited scope, without forming part of an overall plan or strategy. In most cases, evaluation work continues to be brought in at the last stages of projects, rather than be carefully thought out at the beginning and be integrated in the development process. The Museum recognises the important role that evaluation and audience consultation have to play in all its activities, and in this project in particular, where they are seen as an integral part of the re-development, to be employed at all its stages.

2 BACKGROUND AND CONTEXT

2.1 The Museum and Art Gallery, Kelvingrove

The Museum and Art Gallery, Kelvingrove is run by the Culture and Leisure Services Department of Glasgow City Council. Together with another eight museums and the Open Museum (a community outreach service), it forms part of Glasgow Museums. Like all Glasgow Museums, entry to the Kelvingrove is free.

2.1.1 The collections

The Museum holds wide-ranging high quality collections of art, history, and science which are of national and in some cases, international importance. Examples of the Art holdings include the fine collection of Old Master oil paintings (e.g. 'The Adulteress brought before Christ' attributed to Giorgione), important seventeenth century Dutch paintings, such as Rembrandt's 'Man in Armour', popular nineteenth and early twentieth century French paintings covering all the major art movements from Realism to Cubism, and a representative collection of Scottish artists. The History collections include archaeological material from ancient Egypt (e.g. the wooden coffin and mummy from the late Dynastic or early Ptolemaic period), Cyprus, and Lipari, anthropological material from around the world, objects from Scotland's prehistoric past until today, and the best collections of arms and armour in the country after the Tower of London (such as the Greenwich armour for man and horse, the only extant example of its type). The Museum holds the premier science, technology, and natural history collections relating to the West of Scotland, with 'Sir Roger the Elephant' mentioned indicatively here as only one of the most popular exhibits.

2.1.2 The building

The Museum is housed in a magnificent grade A listed building which was first opened in 1901 as part of the International Exhibition and is one of Glasgow's landmarks.

2.1.3 The visitors

Kelvingrove is the most visited museum outside London, receiving over 1,100,000 visitors in 1998 (over 1,000,000 in the last three years) (Scottish Tourist Board). It was the sixth most visited museum and gallery in the country in 1998, ahead of the V&A and the National Portrait Gallery in London (English Tourist Board), and the second most visited tourist attraction in Scotland after Edinburgh Castle.

The 1998/99 Visitor Survey carried out by Lowland Market Research for Glasgow Museums showed that almost a third of visitors to the Kelvingrove (30%) come from Glasgow, with another 19% from areas around Glasgow (local authority areas having a boundary with the city), and 25% from the rest of Scotland. The strong popularity of the Museum among the local community is also demonstrated by the high number of repeat visits of Glasgow visitors (respondents from Glasgow mentioned that they visited the

Museum six times per year on average) (Lowland Market Research Comparative Report Interviewing Programme 1998/99).

2.2 The re-development of displays and visitor facilities

Glasgow Museums are proposing a large project for the development of new displays and visitor facilities at the Kelvingrove Museum and Art Gallery. This will run from July 1999 to July 2004. The project will:

> **make changes to the building to improve its accessibility and functionality**
> (e.g. new ground level public entrance, improvement of vertical access through the building, removal of all non-original features, increase of display space)

> **improve and develop visitor facilities**
> (e.g. development of visitor facilities on all levels of the building)

> **improve and develop the displays**
> (e.g. development of new displays in the basement of the building, increase in the number and range of objects on display, development of new flexible display system that is easy and affordable to change in response to new research and visitors' interests and needs)

Support for this project is sought from the European Regional Development Fund, the Glasgow City Council, the Heritage Lottery Fund, and Historic Scotland.

2.3 Purpose of the evaluation of re-development of displays and visitor facilities

The evaluation strategy outlined here focuses attention on the following areas:

2.3.1 Evaluation of the new displays

The programme of activities in this area will evaluate:
> the effectiveness of the new displays in meeting visitors' needs
> how effectively new displays communicate their intended messages
> the physical and intellectual accessibility of the new displays
> the quality of the experience offered to all visitors

2.3.2 Evaluation of orientation provision

The evaluation programme will also investigate:
> the use and effectiveness of the new Orientation Centre in providing information and orientation
> the effectiveness of various means for providing orientation (e.g. maps, guides, audiovisuals, computer orientation points)
> the effect of the choice and organisation of gallery themes on visitors' orientation and movement around the building

2.3.3 Evaluation of the new / improved facilities

Evaluation of both the new and improved facilities of the Museum will assess:
  ➢ the effectiveness of the facilities in meeting visitors' needs
  ➢ the quality and turnover of the Museum's retail and food and drink outlet

2.3.4 Information to inform policies and plans

The data from properly carried out evaluation should assist the Museum in:
  ➢ developing an appropriate and effective marketing strategy
  ➢ improving customer care
  ➢ taking informed decisions to enhance the connections with areas and institutions outside the Museum building, such as the Kelvingrove Park, other museums, schools, etc.

2.4 Why evaluate museum displays, services, and facilities?

Evaluation can offer valuable information for improving displays and lessons for further development. It can also help the museum to understand better the needs of its visitors. As evaluation should ideally be an on-going process, integrated in the overall function of the museum, it raises questions which affect the role of the whole institution and the ways it fulfils its goals (see Appendix).

For museums, with their usually tight budgets and increased public accountability, it is important to evaluate the success of any major new venture—especially when additional funding is sought for its development.

Among other aspects, such as the emphasis on thematic displays, the Museum's re-display project places great importance on the use of information technology. Despite the miraculous qualities attributed to IT and multimedia by production companies and software developers, there are several areas related to the use of the technology in museums which need to be evaluated and investigated further.

As the pressure on museums increases to use new media and information technology in order to attract new audiences and keep up-to-date with the information society, the need for careful re-assessment and examination of the effect of these applications on visitors becomes imperative.

2.5 Evaluation to date

Although the Museum has recognised the importance of evaluation and communication with the visitors, until recently this was carried out only on a project basis. Evaluation projects were usually undertaken by individual curators on their own initiative, without being part of an overall Museum strategy to better understand visitors, their needs and interests. In most cases this consisted of summative evaluation surveys, with no work being carried out with non-visitors. Despite the limitations, the results from these surveys provided useful information and indicated that further emphasis should be placed in this direction.

The main evaluation surveys carried out in Glasgow Museums in the last ten years were:
- ➢ 'St Kilda Explored' temporary exhibition - this investigated the effect of interdisciplinary displays and discovery learning.
- ➢ 'Salaam Festival of Islamic Art' and 'Chinese Way' - these confirmed the importance of working with the local communities and continuing to strengthen the Museum's links with the community.
- ➢ 'Kids Space' and 'Chinese Way' - these offered valuable lessons on making art and 'difficult' subjects accessible to young visitors (under 8 year olds, in the case of 'Kids Space', and 8 to 12 year olds in the case of 'Chinese Way').
- ➢ Museum of Transport (front end and formative evaluation) and Museum of Religion (summative evaluation) - these provided information for targeting traditionally narrow subjects to families.
- ➢ People's Palace (Phase 1 and 2) - in this case evaluation work affected directly design choices, since the visitors' preferences recorded in the survey formed the basis for the themes selected for display. On a more practical level, this evaluation raised issues of management and maintenance of computer interactives.

2.5.1 Recent evaluation studies carried out at the Kelvingrove

Over the last few years, at a period when the Museum is re-examining its role and communication methods, evaluation has intensified and become more rigorous, with work carried out either in-house or by external researchers contracted by the Museum. The following range of evaluation studies have taken place or are in hand by the Museum in order to learn more about its visitors and help develop more effective displays and visitor facilities:

- ➢ Three large scale quantitative demographic surveys of visitors in Spring, Summer and Winter 1998.
- ➢ Qualitative focus group research with five groups of visitors and non-visitors who were asked to comment on the Museum's current displays and facilities and the new proposals. These were: local visitors (aged 30–60), local non-visitors (30-60), non-Scottish residents (30-60), male teenagers (non-visitors), female teenagers (non-visitors).
- ➢ Education Panel – representatives of different formal and informal educational institutions have been asked to comment on the new displays and facilities. The panel meets four times a year and will continue to meet once the project has been completed.
- ➢ Community Panel – representatives of community groups have been asked to comment on the new displays and facilities. The panel meets about four times a year and will continue to meet once the project is completed.
- ➢ Building usage survey carried out in May 1999 by the Welsh School of Architecture, University of Wales, Cardiff – this used observation combined with interviews to assess how visitors currently use the building and move around it.
- ➢ GAGMA survey and consultation – the voluntary supporters organisation of Glasgow Art Gallery and Museums, GAGMA, have been given a self-completion questionnaire asking their views on a range of issues about the displays and facilities. Additionally, two open meetings have been arranged in February 1999

where GAGMA members were asked to comment on the new displays and facilities.

➢ Object cinema visitor survey – the Museum has been showing an object cinema on the 'Ghost Shirt' for some months to help develop this type of display. A self-completion questionnaire has been available to visitors to evaluate the object cinema type presentation.

➢ Self-completion survey recording visitors' thoughts on the Kelvingrove development. In 1996, a small display in the main hall of the Museum outlined the plans to change the Museum and through comments slips asked visitors to give their comments and suggestions.

➢ Formative evaluation of the prototype display system and gallery – A key part of the project proposals is the development of a flexible display system which can accommodate a wide range of objects and media and be relatively easy to change. A prototype of the display system for the story displays was evaluated with various visitor and non-visitor groups for six weeks in April and May 1999. Two separate stories, 'Introducing Italian Renaissance' and 'St. Kilda: Living with the Land', were displayed in sequence over the six week period. This evaluation is ongoing.

2.5.2 Lessons learned

These evaluation studies have yielded important information at different levels. (A summary of the findings is included in the main submission document to the HLF). They have helped to determine who visits the museum and how the displays are perceived by visitors and non-visitors; they explored the initial reactions to the new display methods and themes; and recorded visitor satisfaction with the existing facilities. A clearer picture of visitors and the experience of their visit has started to emerge which needs to be clarified further by systematic evaluation work in the next few years.

Apart from the findings from these studies, valuable lessons were also learned about the evaluation process itself, the advantages and shortcomings of a variety of methods, the implications of this work for Museum staff, and the relationship with external collaborators and members of the community.

Work with the Education Panel helped to strengthen the links with a range of formal education institutions in the Glasgow area and defined more clearly their needs and those of their students. It stressed the importance of providing lifelong and experience-based learning opportunities in the new displays and facilities. In general, the different types of expertise and experience that were represented in the Panel and the numerous important issues that this raised indicated that it should continue to convene throughout the duration of the project.

The same applies to the Community Panel which helps the Museum to make all aspects of the project relevant to the lives of its multicultural audience. Work with the Panel helped to build further links with the local communities and promote their involvement in the creation of displays and events. The Panel offered advice on several aspects of the project and assisted the Museum staff in recruiting members or clients of the organisations that

they represent for further evaluation. As in most cases the members of their respective organisations represent non-visitors to the Museum, the suggestions of the Community Panel for increasing physical and intellectual access are valuable. For these reasons the the Panel will continue to convene and is seen as an important element of the project.

Consultation with GAGMA provided the Museum with information on how to maintain and expand its group of supporters. Even though the profile of the GAGMA members is not representative of all visitor and non-visitor groups to the Museum, their views and preferences reflect a large and committed section of the audience with good knowledge and understanding of the Museum's character and role. Given that the re-development will change drastically some aspects of the displays, the evaluation with GAGMA members provided a means of consulting and communicating with an important section of visitors who currently visit and support the Museum; it allowed to obtain feedback and support about the proposed changes from a group which feel familiarity and warmth towards the Kelvingrove, a sense of belonging formed over the years.

The formative evaluation carried out internally recorded the reactions and views of visitors, non-visitors, staff, and exhibit developers about the first new display methods that the Museum is investigating and testing. It allowed to test both practical and design aspects of the displays, as well as evaluate issues of content and language. It confirmed the importance of testing with the target audience, particularly when new, experimental, and interactive elements are involved. The front-end self-completion survey provided several ideas that were taken on board in the design of the project.

The focus group discussions with visitors and non-visitors helped to explore in depth their preferences and concerns. They highlighted how the Museum, its services and displays are perceived by different visitor groups and provided information on orientation provision, types of displays, content, sequence, and presentation that both visitors and non-visitors prefer. It helped to draw a more vivid and complex picture of visitors' needs and preferences than the one based only on the quantitative demographic data. The focus group survey indicated also that work with non-visitors needs to be expanded further.

The demographic surveys provided important information on the profile of visitors to the Museum. Their large scale and their spread over different seasons, days of the week, and term periods allowed the creation of a reliable pool of data, upon which further work can be built. This information will inform the marketing plan and other important policies of the Museum. Both the focus group discussions and the quantitative demographic survey provided useful experience on the briefing of external collaborators, the need to specify clearly the Museum's particularities and needs, and the time and cost implications of this type of work.

The survey of the building's use offered useful information that had not been available before. This informed the plans for the changes to the building in order to improve its accessibility at all levels and improve visitor movement in all areas.

3   EVALUATION OBJECTIVES AND RELEVANT ACTIONS

GENERAL OBJECTIVES

3.1   Key Objective 1: Maintain an informed picture of the profile of visitors to the Museum

The Museum should record information about its visitors. It is obvious that an institution open to the public would need to know at least some basic facts about that public if there is to be an effective channel of communication between the two. This section refers primarily to quantitative evaluation and the collection of data appropriate for statistical analysis, while the qualitative aspect of visitor's preferences and needs is dealt in the next objective and other sections of the strategy that are related to specific displays. Information on visitor statistics can have a direct and important effect on the Museum's general policy and planning decisions, but also those of Glasgow Museums and the City Council. Furthermore, systematic and accurate information on the Museum's visitors is a valuable source for the Marketing department.

> **ACTION 1.1**: record regularly and systematically information on visitor profile and characteristics of the visit

3.1.1   Frequency of visitor surveys

Visitor surveys should be carried out regularly. This will provide data against which the impact of the Museum's programme of exhibitions and events can be benchmarked effectively. It is self-evident that no visitor survey should be undertaken while the Museum is closed for building work or during major re-development. Once the re-display is underway however, it is important for the Museum to collect data about its visitors in a regular and reliable way.

After the re-opening of the Museum visitor surveys should initially be undertaken every year for the first two or three years to record any changes to the visitor profile that might occur due to the re-development. Once a reliable body of knowledge is built and it can be established that there is no significant variation from year to year, visitor surveys can be carried out in a three-year cycle.

3.1.2   Sample selection and size

Carefully planned sampling for these surveys is very important to ensure the reliability of results and the ability to make inferences based on these about the whole population of Museum visitors. The sample should be proportionally spread over mornings and afternoons, weekdays and weekends, school holidays and term time, and all seasons of the year. If it is not possible to get a well-spread sample, it is important that seasonal or other factors are taken into account when interpreting the results.

Generally, the larger the sample size, the smaller the sampling error and therefore, the greater the accuracy of the survey results. However, the size of the sampling error is not directly proportional to the size of the sample. After a certain point of increasing the sample size, larger increases result in a small decrease in the sampling error (and the precision of the quantity being estimated). Apart from the degree of confidence in statistical terms, other factors which play a role in determining the selection of the sample are time and cost. It is important that the team who will design the sampling method for the Museum surveys (whether carried out internally by staff or commissioned externally) are qualified and experienced in statistical analysis and survey work. All non-respondents and refusals should be systematically recorded together with the reason (if possible) for not being interviewed (e.g. non-English speaker or too young) or for refusing an interview.

Visitors under sixteen are an important audience of museums which is often ignored in surveys. According to the 1999 Lowland headcount, visitors under sixteen represent 31% of visitors to the Museum. The importance of young visitors is not only related to their large proportion among visitors; it also relates to the fact that they are often visiting the Museum at a formative age, often for the first time. A pleasant and memorable experience during their visit can instil a positive attitude towards the Museum that will make them future adult visitors. Additionally, serving young students and children and providing them with an educational and enriching experience is one of the primary missions of the Museum.

However, there are ethical and practical considerations related to including children and young teenagers in surveys. Permission from parents should be sought before interviewing visitors under sixteen. Interviews are more successful when parents or guardians are not present during the interview, as these can influence children's responses or inhibit them. Finally, questionnaires need to be suitably constructed and worded to be appropriate for young visitors.

3.1.3 Information to be collected

Survey sheets should record the time of day, day of the week, time of year, and weather conditions at the time of the interview. A basic set of information recorded should remain the same through all the surveys carried out in order to allow for comparison of results. This would make it possible to identify changes or trends through time.

The visitor surveys should provide information to answer the following questions:
- ➢ Who are the visitors
- ➢ Why they come to the Museum
- ➢ When they visit
- ➢ Where they come from
- ➢ How they travel to the Museum

The surveys should record at least the following information about visitors:

Visitor Profile
    Basic Demographics
- Age Group
- Gender
- Ethnic group
- Disability characteristics

    Socio-economic groupings
- Occupation
- Level of education

    Geo-demographics
- postcode of residence

Apart from the standard socio-economic classification to A, B, C, D, and E broad categories (and sub-groups within these), it is useful to relate the information from surveys to ACORN profiling by asking the postcode of the respondent's residence. The ACORN system is based on census data, according to which every address in the UK is allocated via its post-code to one of 38 neighbourhood classifications; these take account of 40 regularly updated variables, such as housing, car ownership or employment.

Characteristics of visit
- Group composition (e.g. singletons, family group, adult group, children group, etc)
- Organised visit (e.g. school group, organised tourist visit)
- Frequency of visit (repeat visit or not, frequency of repeat visit)
- Means of transport to the Museum
- Entrance to the Museum used
- Advanced planning of the visit and sources used (e.g. consultation of web resources, newspapers, books, etc)
- Specific object/collection as reason for visiting
- Collections/galleries visited

Visitor numbers
- per day (total and also differentiating between time of day, weekend/weekday, school term/holidays, season of year)

Questions related to customer satisfaction with the Museum's shop, café, and visitor facilities are included in the relevant section below (3.13). The survey might also include questions collecting qualitative information on visitors interests and needs.

Visitors' interests and needs
- ➢ Special interests and needs
- ➢ Preferences and needs in presentation/interpretation media

More questions relating to the evaluation of particular exhibition or services can be added to this basic set, depending on particular features that the Museum might want to investigate. However, this has implications of cost and time and it might prove more effective to evaluate particular features or displays with other evaluation tools.

3.1.4 Selection of survey instrument

Simple visitor demographics can be recorded with a headcount survey. This is quicker and less expensive than an interview-based survey using structured questionnaires, but records only a minimum amount of information and is less accurate, as the observer records the assumed age group and ethnic group of visitors. Furthermore, it does not record disabilities which are not visible.

Interviews using a structured questionnaire are the standard method for carrying out visitor surveys. The problems related to this method are outlined in the Appendix (5.5.2). The problem of the 'halo' effect (where respondents are reluctant to be negative or criticise the institution they are visiting during the interviews) is less likely to occur in this case, given that the information outlined above is mainly factual and does not explore the attitude and feelings of visitors towards the Museum and specific displays and services.

With any type of large survey, it is important that a pilot survey is carried out and that the questionnaire is tested.

3.1.5 Carried out by in-house staff or by external researchers

This type of survey work needs to be planned and regulated, rather than being carried out in a haphazard fashion. It can be conducted by in-house staff or contracted to external professional survey or marketing companies. The implications, advantages and disadvantages of both options are outlined below and relate not only to survey work, but to all the evaluation studies described in this strategy.

i) By in-house staff
This requires Museum staff with expertise in designing and carrying out a visitor survey, as well as analysing the results. For a visitor survey of the size recommended here, the staff would need the assistance of volunteers, students, or temporary interviewers. Additional time should be allowed for training and supervising the data collectors. Publication costs for the preparation of interview sheets, questionnaires, final reports, etc. should also be taken into account. Staff training in statistical analysis and survey techniques might be necessary. Specialised software for statistical analysis would also be needed, set up appropriately for the analysis of the survey results. The internal IT staff should be able to offer support in this area if necessary. Collaboration with universities in the area or local authority and tourism agencies might be another way to gain assistance at a nominal cost.

Advantages

This can keep the costs down and allow greater control over the design and execution of the survey. It allows for greater continuity and offers the advantage of being carried out by Museum staff who understand the mission and special characteristics of the Museum. This is particularly important for the qualitative work described later.

Disadvantages

Carrying out evaluation work in-house has considerable implications on staff time. The investment involved in the recruitment, training, and supervision of temporary survey assistants should not be underestimated. This is not a regular and reliable work force and cannot guarantee a high quality, professional result. Time allocated to this type of survey work, would adversely affect the staff time available for other type of evaluation work and the overall supervision of the evaluation activities that will be carried out during the re-display over the next five years.

ii) By external collaborators under contract to the Museum

Visitor survey work can be commissioned externally. It should be highlighted here that even if this were the option chosen by the Museum, in order for this type of work to be carried out successfully, it would still be necessary for the relevant Museum staff to be closely involved in this process.

Advantages

A professional firm can bring its expertise and experience to the project. It can free up valuable staff time and resources and avoid mistakes. The high profile of the Museum provides a strong incentive for private companies to ensure they supply high quality work. If mistakes do occur, it should be the responsibility of the external collaborator to rectify them. An external body provides a way of countering any suggestions of biases by internal staff too closely identified with the Museum.

Disadvantages

Tendering the execution of survey work outside involves substantial costs, especially if an experienced and reputable professional firm is selected. There would be considerable staff time consumed in preparing tender and brief documents, short-listing suitable candidates, auditing the work, and communicating with external contractors to rectify possible shortcomings, as mentioned below.

It might be possible to combine the two approaches, as is the model with the Research Office of the National Museums and Galleries on Merseyside, with a permanent member of staff carrying out regular, but smaller scale visitor surveys with larger external surveys carried out every four to five years.

Issues and criteria for selecting external collaborators

The selection of appropriate external collaborators should take into account:

➢ qualifications and experience in survey work

- experience and understanding of cultural heritage institutions and museums
- profile of staff that they would allocate to the project
- previous experience with the Museum
- familiarity with Glasgow and its area
- client and project history
- review of reference sites
- review of the contractor's published or unpublished work
- suggested methodology (details should be sought e.g. for sampling scheme, pilot testing, questionnaire design, treatment of refusals and non-respondents, treatment of children under 16)
- recommendations from colleagues
- willingness of applicant to communicate and work closely with Museum staff
- restrictions imposed by external collaborator about re-use of the survey material
- cost (for design of the study, data collection, analysis, presentation)

Briefs for external agencies should be carefully prepared, providing all the information that is necessary for them to produce the expected deliverables. The terms of contract with any external collaborator should be carefully examined with quality controls included, specifying monitoring and communication procedures with Museum staff, and the action to be taken if the results are not up to the required standard.

3.2 Key Objective 2: Try to understand what visitors want from a visit, their interests, preferences, and needs (qualitative evaluation)

Apart from recording visitor demographics, it is important for the Museum to try to understand the motivations, aspirations, and needs of its visitors or targeted audience. Understanding about visitors' learning styles, preferences for different presentation and interpretation media, wishes, passions, and dislikes is valuable in the design of new displays and services. Evaluation can explore at different levels the effect of particular displays or activities and assess their cognitive and emotional effect on different visitor groups.

There is no single golden method for studying visitors in depth and understanding the way they experience the museum visit and construct their own personal meaning of the displays. It is usually better to use a combination of different methods recording different aspects of this multifaceted phenomenon.

Action 2.1: Use various evaluation techniques to study visitors' needs, preferences, and needs

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The various ways of carrying this out and the appropriate actions to be taken are mentioned below in the sections related to the specific displays.

3.3 Key Objective 3: Communicate with non-visitors and study their reasons for not visiting the Museum

The project mission statement (prepared by the Museums Section and presented to the Council's Arts and Culture Committee) states as three of the four key aims of the project:

➢ 'We will build on the museum's tradition as a social place, owned by the people of Glasgow

➢ We will work with the strengths of the collection to communicate across time and cultural diversity to inspire people of all ages to learn and understand more about themselves and the word we live in

➢ We will connect to the lives of our multicultural audience by being flexible and inclusive to create a genuinely visitor-centred museum'

In order to ensure that the Museum is open to the whole of the community, it is important to carry out research with non-visitors to study their reasons for *not* visiting the Museum, their interests and needs. The importance of studying non-visitors has been widely recognised in the museum community and research in this area has grown resulting in well-established reasons for visiting and not visiting museums and cultural institutions (e.g. Hood 1983, Merriman 1991; Susie Fisher Group 1990; Trevelyan 1991).

ACTION 3.1: *Study the relevant literature and research findings on the reasons for visiting and for staying away for museums and relate them to the Museum*

Apart from the generally applicable findings and observations, however, there are several aspects of museum visiting that are particular to Glasgow and the Kelvingrove. The recent focus group discussions carried out with five groups of visitors and non-visitors yielded very useful information (indicating for example, there were strong similarities in the preferences from presentation methods between visitors and non-visitors, and highlighting that teenagers feel that the Museum does not make any effort to communicate with them).This work should be expanded to cover more groups, particularly, people from ethnic minority groups, and people living in poverty. At front-end analysis level, work with non-visitors can offer useful feedback about the selection of new story themes, activities, and the approach to the displays.

ACTION 3.2: *Continue to carry out focus group discussions with non-visitors, particularly the targeted groups of the Museum that have not been covered so far (e.g. disabled people, people from ethnic minority groups, people living in poverty)*

The qualitative work carried out so far has already indicated how the Museum is perceived by non-visitors and highlighted areas of improvement. It would be useful to use focus groups for formative evaluation during the development of the first story displays and discovery centres to test the effectiveness and best use of the various presentation media explored by the Museum in the new displays, the language used, level of information provided, etc. Summative evaluation after the installation has been completed can test the reactions of non-visitors to the new displays and centres.

ACTION 3.3: *Involve non-visitors in the selection of exhibition themes, the design and evaluation of displays, and the organisation of activities and events*

For example, similar activities to the 'Shamiana: The Mughal Tent' project organised by the V&A can be organised by the Museum to attract members of the Asian community; despite the location of the Kelvingrove in a neighbourhood with a relative high percentage of Asian families, these are currently underrepresented among visitors to the Museum. The V&A project encouraged groups of women from the Asian community in London to use the museum's extensive Indian collections as inspiration for the creation of hand-made textile panels for a Mogul style tent which was then put up in the museum courtyard.

ACTION 3.4: *Use existing channels of communication (such as the Education and Community Panels, and the Open Museum) and expand these further to actively attract and create links with non-visitors*

The Open Museum is carrying out groundbreaking and important work linking Glasgow Museums with community groups and people in the area. The Education and Community Advisory Panels that have already been set up provide valuable feedback and communication channels with various groups, communities, and institutions in the city and beyond. The project should continue to cultivate these links and use them actively to seek the views and participation of groups that traditionally do not visit the Museum.

As suggested by the Public Access Policy of the Science Museum, London
'[a]n extended approach to audiences requires a more targeted approach to groups (or communities) with particular interests (such as subject specialists) or from particular social backgrounds (e.g. ethnic, cultural, geographic, age, gender or income level), while recognising that treating an audience group as monolithic (e.g. as 'Afro-Caribbean') may not be the most productive way to attract individuals within that group. In most if not all these cases the means of increasing use of the museum lie not simply in removing perceived barriers to visiting but actively seeking the views of, and establishing relationships with, particular individuals and groups' (Science Museum 1999, 3.1)

ACTION 3.5: *Use the information from evaluation and community consultation to inform the outreach programme and the marketing of new activities and exhibitions so that they appeal to non-visitors*

A large number of non-visitors do not cross the Museum's door because of their perception of the displays and the type of exhibitions and events organised (as confirmed by the focus group research undertaken by System 3). Even if these do change to respond directly to the needs of non-visitors, they will remain unnoticed, unless a different marketing approach is used to change the Museum's image and the way its exhibitions are perceived. The results from evaluation and communication with community groups need to inform the Museum's marketing strategy (e.g. publicity and promotion).

ACTION 3.6: *Use annual visitor survey data to monitor the effect of specific activities and access initiatives undertaken*

Specific targets and performance indicators might be set for increasing the proportion of groups that are currently under-represented among visitors. Quantitative measures should be related to qualitative data wherever possible.

3.4 Key Objective 4: Involve all members of curatorial and exhibition development staff with evaluation procedure and communication with the visitors

Evaluation should be an integral part of exhibition development. When designing new exhibitions, evaluation work can help to bring the aspirations of the development team closer to the needs of visitors. It can assist staff to take informed decisions and speed up the development process, avoiding expensive mistakes. For all these reasons, familiarity with evaluation procedures and results should not be limited only to one or two members of staff, but should be extended to all staff that deal with the public, as well as decision-makers.

ACTION 4.1: *Ensure that training on visitor research and exhibition development is provided for Museum staff working in exhibition development and public services*

This can include training on evaluation methodology, such as surveying, observation, and interviewing techniques, as well as more specific aspects of exhibition development, e.g. use of audience feedback for testing exhibition text or the use of multimedia interactives. Apart from helping staff to include evaluation in their everyday practice, training experience can also help them to brief outside contractors more effectively.

ACTION 4.2: *Set up formal procedures ensuring that evaluation information and results are communicated to all relevant Museum staff and discussed at appropriate meetings*

ACTION 4.3: *Provide opportunities for informal discussion of audience research issues that involve as many members of staff as possible*

It is important that evaluation issues and results inform the Museum's strategic decisions and are communicated at all levels of the organisation. At the same time, it is also important to recognise the limitations of time that museum staff face, the large amount of paper work they need to go through, the need for introduction to an unfamiliar subject, and the effectiveness of providing powerful memorable experiences. Creating a positive and friendly environment for the discussions of evaluation issues can help to address these issues. For example, the Visitor Studies team of the Science Museum in London has set up a series of activities that range from the 'Inside the Visitor's Head' training programme in visitor awareness to weekly coffee morning meetings on various aspects of visitor behaviour and exhibit development (Gammon and Graham 1998). Examples of visitor awareness exercises include:

> ➤ 'A Day at the Museum' where a member of the exhibition team joins a visitor group invited to the Museum (usually friends or relatives of staff) and participates in the visit, behaving as much as possible as a member of the group.

> ➤ 'Have a bad day' where members of the exhibition team are asked to recruit a friend or relative with an interest or hobby that they themselves do not share and visit an exhibition or museum on that very topic.

> ➤ 'Insect visitors' forces museum staff to spend at least some time simply watching visitors out in the gallery (45 mins in four locations around the museum at different times of the day). Participants are asked to imagine that they classify visitors like insects, e.g. grasshoppers leaping quickly from one to another, or army ants moving in columns destroying all in their path…

3.5 Key Objective 5: Keep in touch with the latest developments in visitor studies and evaluation research and translate their relevance to the Museum

Museum evaluation has become an area of rapid growth the last few years. Following work at American museums, an increasing number of British institutions are becoming active in this area, looking more closely at their visitors and trying to improve communication. Evaluation research in university departments, research institutes, and tourism and heritage centres is also developing, building up a body of knowledge about museum visitors. All this activity is resulting in a number of publications, reports, conferences, and professional activities that are not easy to keep up with. Yet, keeping up-to-date with developments in the field and sharing experiences with colleagues can help to save time and avoid costly mistakes in the long run.

> **ACTION 5.1**: *Ensure that the members of staff related to evaluation and audience advocacy have the opportunity to attend relevant conferences, to subscribe to professional publications and professional evaluation groups, and to communicate with visitor studies professionals around the world*

OBJECTIVES RELATED TO SPECIFIC ASPECTS OF THE PROJECT

3.6 Key Objective 6: Improve physical and intellectual access to the building

The Museum intends to greatly increase the amount of display space and access into the building, primarily by opening up the basement of the building to the public, creating new street level access into the building via the basement and relocating staff offices and existing facilities. The proposed plans relate to both physical and intellectual access.

3.6.1 Objective 6.1: Make the Museum more accessible to people with disabilities and special needs

It would be very useful to evaluate several aspects of the re-display project that relate to both physical and intellectual accessibility with small focus groups of people with different type of disabilities:

➢ People with mobility difficulties
  ➢ People with visual impairments
  ➢ People with hearing difficulties
  ➢ People with learning difficulties

These groups should include:
  ➢ both people with disabilities as well as their companions/carers
  ➢ both visitors and non-visitors to the Museum

ACTION 6.1.1: *(General) Use focus groups of visitors with disabilities to evaluate several aspects of the project*

This relates to accessibility of both the building and the collections. More detailed actions on how to obtain valuable feedback and advice from these groups are outlined in the sections below that refer to specific aspects of the project.

Apart from setting up the disability focus groups, the Museum should consider creating an Access Advisory Panel to be consulted regularly during the development of the project and biannually after its completion. This can be formed by related members of the existing Education and Community Panels, the Council's Special Needs Arts Officer, and representatives of access and special needs organisations. The Access Panel can help the Museum identify conflicting visitors' needs and establish procedures for resolving them.

Physical Access
3.6.2 Objective 6.2: Improve accessibility of the approach to the building
In order to achieve this objective, the Museum proposes (among others) to upgrade existing entranceways, create a new ground-level main entrance, increase provision of lifts, re-landscape outside areas, and open up access for the disabled.

ACTION 6.2.1: *Commission another access audit of the building after the re-development has been completed*

The May 1999 report from ADAPT Trust provided very useful information about the accessibility of the building for disabled visitors and staff that helped to inform the proposed plans for the re-development of the Museum. Once the building work has been completed, another audit should be carried out, preferably by the same agency to allow for comparability of the results. Subsequent reviews of the audit should be carried out every five years.

3.6.3 Objective 6.3: Open up circulation around the full perimeter of the building (by relocating current facilities and staff rooms)

3.6.4 Objective 6.4: Improve vertical circulation by installing new lifts

The success of these two objectives can be tested with another systematic survey of the building's use after the re-opening of the Museum.

It would be useful to use the same team from the Welsh School of Architecture at Cardiff University that carried out the first survey to allow for comparability of results. Alternatively, any other team undertaking the work should take into account the methodology and results of the first survey.

Apart from a second Access Audit to be commissioned by the Museum, it would be very useful to evaluate several aspects of the re-display project with the disability focus groups

3.6.5 Objective 6.5: Develop a series of pre-visit resources for disabled and special needs visitors that will assist better familiarisation with the building prior to visiting

The best way to ensure that the resources created are useful and effective is to involve the targeted users and stakeholders in their design.

The disability focus groups mentioned above (3.6.1) and the Community Panel can provide useful feedback.

Apart from formative testing, a relatively easy way to get a measure of the resources' success and use is to include an evaluation form in the packs that are sent out. Appropriate procedures will need to be set up about the collection and analysis of the results from the forms.

A quantitative indicator of the resources' use and popularity is the number of requests per month or year, particularly when this is related to the profile of the users. Once more, appropriate procedures would need to be set up for recording and monitoring this information.

For pre-visit resources delivered over the Web, it is possible to get feedback electronically. In this case, it needs to be established who will collect the responses and how will the results be communicated to the rest of the staff.

ACTION 6.5.4: *When designing the pre-visit resources delivered over the World Wide Web, include an electronic response form encouraging the users to communicate with the Museum*

3.6.6 Objective 6.6: Organise a two-year cycle of training in disability awareness for all front of house staff

In order for this training to be successful, it is important to monitor attendance and satisfaction by staff. This ensures that the training will indeed raise awareness and improve provision for disabled visitors, rather than become a policy on paper only.

ACTION 6.6.1: *Monitor attendance of disability awareness training by front of house staff*

ACTION 6.6.2: *Get feedback from staff about satisfaction with disability awareness training*

Intellectual Access
3.6.7 Objective 6.7: Ensure that appropriate signage and labelling is used within and without the building

The project proposes to use large clear print with symbols, logos, and colour coding where appropriate. In order to avoid reinventing the wheel, the exhibition and design team should consult the numerous publications offering guidelines (usually based on lessons from research) on designing clear and understandable signage (e.g. see Blais 1995 or the Museums Association 1999 'Design a Label: Guidelines on labelling for Museums', to mention only one of the most recent examples).

ACTION 6.7.1: *Ensure that the design team consults the extensive literature and research findings that are available on designing appropriate signage and labels*

The use of graphics and symbols can be a very effective way of conveying information, but when not carefully implemented and tested, they can have the opposite results and lead to confusion and misunderstandings. Since the use of images and graphics can be culturally- and time-bound and mean different things to different people, it is important to evaluate their use with a diverse audience (from both sexes, various age groups, cultural backgrounds, and nationalities).

ACTION 6.7.2: *Test visitors' perception of icons, logos, symbols, and graphics (whether they are clear and effective in communicating intended information)*

The use of signage should be tested with the disabilities focus groups, and particularly with visitors with visual impairments and learning difficulties. Among others, the evaluation

and consultation with these groups should investigate the need for Braille signage and the way that this should be implemented.

ACTION 6.7.3: *Carry out formative testing of the effectiveness of orientation information and signage with the visual impairment and learning difficulties focus groups*

Formative evaluation of signage and labelling (and of most of the displays discussed in this strategy) can be carried relatively easily and quickly with simple paper mock-ups and printouts, before it is too expensive to make adjustments to the final resources. This can employ observations and interviews with small samples of 5 to 15 target visitors. The evaluators can ask visitors to select their favourite from different versions of the same sign, explain what they think different symbols mean, indicate their preferred location and size of signs, etc. The evaluation should examine issues of both physical and intellectual access:

Physical Access
  ➢ positioning of labelling and signage
  ➢ size and font of large print
  ➢ layout

Intellectual Access
  ➢ clarity of message
  ➢ comprehension of intended communication
  ➢ text length
  ➢ readability
  ➢ languages used

3.6.8   Objective 6.8: Use visible landmarks (e.g. elephant, Spitfire) to help people to find their way around the building

This appears to be a very good idea, but only evaluation with visitors can ensure that it actually works well in practice.

ACTION 6.8.1: *Test the effectiveness of landmarks for assisting orientation with different audience groups*

Formative testing with small groups using models or photographs of possible landmarks might help to test how easily recognisable these are and assist in the selection of the most appropriate ones. Summative evaluation can be carried out after the re-opening of the Museum with observation and tracking of visitors as they circulate in the galleries, followed by simple interviews. The survey of the building's use can examine the function of landmarks as well.

3.6.9 Objective 6.9: Have friendly and helpful staff who will welcome and assist visitors

It is important to evaluate whether this objective is being achieved, since the front house staff are the first that the visitors encounter, affecting their perception of the whole Museum and the experience of the visit.

> **ACTION 6.9.1**: *Evaluate whether visitors perceive the staff as friendly and helpful*

This can be done by including relevant questions in the regular visitor survey or other interview questionnaires. Once performance indicators are agreed by the Museum, these can include standards about turnaround of correspondence and emails, answering of telephone calls, etc.

Training procedures and guidelines about communication with visitors need to be established and communicated to new staff.

> **Action 6.9.2**: *Establish staff training and guidelines about communication with visitors*

3.6.10 Objective 6.10: Provide special displays that will help people find their favourite objects using various learning styles

For a museum with the size and variety of collections that the Kelvingrove holds, it is important to assist visitors in finding quickly and easily the objects they are interested in. The special displays proposed in the project aim to address this issue using a variety of methods. Formative and summative evaluation can establish whether the special displays are successful in achieving this objective.

> **ACTION 6.10.1**: *Conduct formative and summative evaluation to test if the special displays succeed in helping people to find the objects they are interested in*

More details about the methodology to be used for evaluating this objective are mentioned in the section on the Orientation Centre below.

3.7 Key Objective 7: Improve physical access to the collections

3.7.1 Objective 7.1: Enhance physical access to the collections by putting more objects on display (open storage system and new display system)

Careful recording and monitoring of the number of objects on display by the curatorial staff can establish whether this objective has been achieved.

> **ACTION 7.1.1**: *Monitor percentage of the collection on display*

The staff responsible for managing the open storage system should observe and record how this is being used.

ACTION 7.1.2: Monitor use of the open storage system

Additionally, the building's use survey should include use of the open storage area.

ACTION 7.1.3: Include survey of open storage system in the survey to be commissioned for the building's use

3.7.2   Objective 7.2: Create displays that allow visitors to experience the collection through a number of different senses

The Museum proposes to use a variety of presentation methods and activities, such as touch trails, handling of objects, use of broadcast and head-set audio, and presenting material at different levels. Carrying out evaluation with different visitor groups while these are being designed can help to improve them and iron out any problems, especially when new and experimental technologies and ideas are being tested.

ACTION 7.2.1: Carry out formative testing during the design and development of the new multi-sensory displays

After the new displays have been completed, evaluation can establish who is using them and in what way, relating the profile of the users to their preferred method of presentation.

ACTION 7.2.2: Conduct summative evaluation examining who is taking the opportunity to use these displays and in what way

The issues related to both formative and summative evaluation of the displays are outlined in greater detail below in relation to specific displays and presentation methods.

3.8   Key Objective 8: Improve intellectual access to the collections

3.8.1   Objective 8.1: Provide a full range of formal and informal educational programmes and activities

The Education Department should record how its programmes and activities are being used and by whom. This could be related to specific targets that can be established by the Museum (in consultation with the Council, and the Education and Community Panels).

ACTION 8.1.1: Monitor the use of the educational programmes and activities provided and record the profile of the users

An assessment tool that is relatively easy to design and implement is an evaluation form that can be included in the educational material and offered to those participating in the events and activities. Procedures need to be set up for collecting these forms and analysing and communicating the results. This can help the Museum communicate with its audience and ensure that the Education Service meets the needs of the community.

> **ACTION 8.1.2**: *Include evaluation forms in the education packs and ensure that the results are communicated to the relevant staff*

3.8.2 Objective 8.2: Provide schools with support for the national curriculum

Evaluation forms can also be distributed to schoolteachers, enquiring about how the Museum can best support their work at schools. This should be complemented by personal communication with regular meetings organised with teachers who teach at various levels and at schools from different areas. These can give the Museum staff a clearer idea of the teachers' needs and those of their students, the type of activities and material that they would require before, during, and after their visit to the Museum, and of the ways that the Museum's rich collections can be used creatively in the classroom.

> **ACTION 8.2.1**: *Set up a communication and feedback mechanism with schoolteachers about their needs and satisfaction with the support they are getting from the Museum*

A quantitative evaluation measure is the number of National Curriculum areas that the Museum's Education Service supports. Given the wide range of the collections, there are numerous possibilities for development in this area. The Museum can set up targets monitoring its National Curriculum support; these should be combined with qualitative measures.

> **ACTION 8.2.2**: *Monitor the number of National Curriculum areas supported by the Museum*

3.8.3 Objective 8.3: Provide resources for Higher Education and Vocational Training courses

In addition to primary and secondary education, the Museum strives to serve Higher Education and Vocational Training courses. Monitoring can help to ensure that this objective is being met. This should include criteria that relate to both the quantity and quality of the service provided.

> **ACTION 8.3.1**: *Monitor the number and types of resources provided for Higher Education and Vocational Training Courses*

The best way to ensure a high quality service is to consult with the stakeholders. Communication with higher and vocational education staff and students can inform the Museum of their needs and the way that it can best support them. This can take the form of written comments, evaluation forms, individual and group discussions, observation of how the Museum's resources are being used during organised visits, and meetings with education practitioners among others. The work of the Education Panel is valuable in this direction.

3.8.4 Objective 8.4: Cater for different learning styles

People learn in different ways and this should be acknowledged in the Museum's displays and services. The learning of independent visitor groups is examined in the sections relating to specific displays below. For organised group visitors, communication with teachers and group guides is very useful for assessing whether different learning styles have been catered for effectively. These are the people who know best the needs of their group and can observe closely the interaction that takes place during the visit to the Museum. Communication can take the form described above, with the Education and Community Panels offering valuable assistance.

3.8.5 Objective 8.5: Offer visitors the opportunity to participate in their own learning and enhance the experience of the self-directed learner

The Education and Community Panels have already stressed the importance of supporting self-directed learning. Their members' experience and background would be valuable in testing the new displays.

Apart from consultation with the Education and Community Panels, evaluation of the new displays should be carried out with various groups of the target audience. Details of the appropriate evaluation groups and methods to be used (such as observation, interviewing, focus group discussions, concept mapping, etc) will have to be established in relation to the specific displays. In general, formative testing with small groups using display mock-ups, printouts, and prototypes during the design process is very useful for improving the support of self-directed learning in the new displays. Summative evaluation once these have been completed, can measure how self-directed learners actually use them and record the learning outcomes.

3.8.6 Objective 8.6: Provide opportunities for knowledge gain, but also for emotional involvement and aesthetic appreciation

Following Falk and Dierking's (1992) Interactive Experience Model, the experience of visitors in museums can be seen as set in personal, social, and physical contexts. Evaluation in the past focused primarily on the educational aspect of the museum visit, forgetting the personal and social aspects (see Appendix 5.2. and 5.3). These are very

important and can include values, curiosity, duty, motivations, interests, feelings, social interaction, control, and attitudes (Anderson and Cook Roe 1993).

> **ACTION 8.6.1**: Carry out qualitative evaluation with visitor groups of both sexes and different age groups testing the effectiveness of the displays in encouraging emotional involvement and aesthetic appreciation

These important aspects of the museum visit are also the most difficult to record and measure accurately. The methodology used for this type of qualitative evaluation should be flexible and wide ranging, including a variety of methods, such as participant observation (with the evaluator becoming part of the group and participating in their visit), in-depth interviews, analysis of children's drawings that can express their feelings and views of the Museum, the use of concept maps where visitors draw diagrams and write down the words that come to their mind about a topic before and after their visit, etc. There is a need to be creative in the choice of methods and responsive to the characteristics of the particular groups studied. For example, the 'Museum Impact and Evaluation Study', a programme of qualitative evaluation undertaken at the Chicago Museum of Science and Industry, found that the 'instant camera method' worked particularly well. This involved giving visitors an instant camera to take photographs of exhibits that impressed them for one reason or another and interviewing them later, using the photographs as props for discussion (Anderson and Cook Roe 1993).

The particular aspects of emotional involvement, aesthetic appreciation, attitudinal change, and understanding that can be examined in relation to the exhibits, need to be defined in relation to the specific displays. In general qualitative evaluation will examine visitor statements that include things like 'it reminds me of …', 'seems familiar', sense of own heritage, 'special place in heart', sense of wonder, 'having fun', 'would come back', family and group interaction, sense of community, and understanding of others.

3.8.7 Objective 8.7: Use simple language and easy to understand style

The importance of using appropriate language has already been stressed above in the section about signage and labelling (3.6.7). It is worth repeating here the importance of taking advantage of and applying existing research and work in this area. However, since the variables that contribute to the effectiveness of communication vary with different situations and individuals, they often require change and adjustments. Formative evaluation allows to determine which aspects of written text and audio require improvements in order to attract and involve visitors and communicate the intended messages. Formative evaluation provides curators, designers, and writers with more direct knowledge about visitors and how they interact with the text and audio which can have a direct impact on planning decisions.

> **ACTION 8.7.1**: Undertake formative evaluation of language used in displays (both written texts and audio)

A study carried out by the Print and Drawings Department of the Birmingham Museum and Art Gallery in 1998 tested four different styles of labels (descriptive, interactive, speculative, question & answer) for the same painting by Joshua Reynolds. This indicated that different visitors liked different labels and appreciated variety, suggesting that

museums might need to incorporate different styles in their displays to satisfy the needs of different visitor groups.

Staff training with one or more specialists in museum communication and labelling can be very useful and can ensure that the accumulated experience and knowledge in this area is imparted to the staff in an effective and clear way.

> **ACTION 8.7.2**: Offer specialist training to staff involved in writing texts and preparing audio

This can also result in the establishment of some simple house rules and guidelines to be applied in all displays.

3.8.8 Objective 8.8: Duplicate important messages in more than one medium

The development team of each story display and centre should identify a small number of key messages that they wish to impart with the exhibit. Only by clearly identifying these, can evaluation test effectively if they have been communicated successfully.

> **ACTION 8.8.1**: Use formative and summative evaluation to test the effectiveness of communicating intended messages

The methods to be used for this type of evaluation will depend on the type of display and related message studied, but will in most cases employ observation, interviewing, and the 'think aloud' method.

The following range of new displays will apply the key objectives that have been outlined so far in a number of specific ways.

OBJECTIVES RELATED TO SPECIFIC FACILITIES AND DISPLAYS

3.9 Key Objective 9: Create an Orientation Centre to improve the orientation and experience of visitors

This will be an orientation point or points at which visitors will be provided with information to help them find their way around the Museum and the displays. The project proposes that the orientation information will be available in a variety of media: audio-visual presentation, computer terminals, maps, and handouts.

3.9.1 Objective 9.1: Provide visitors with information to help them find their way around the Museum and the displays

Before carrying out extensive work in the design of the orientation media, it is useful to use front-end analysis to determine what type of orientation information different visitor groups require.

> **ACTION 9.1.1**: Carry out front-end evaluation with various visitor groups to record their orientation needs and the type of information that they require when they visit the Museum

This can take the form of interviews with adults, family groups, children, disabled and special needs visitors, first time and repeat visitors, subject specialists, tourists, and non-English speakers. Observing (before the closure of the building) how current visitors behave when they first enter the building, their first reactions and feeling of space and the direction they usually take would also be useful. Interviews with the various visitor groups can establish the kind of information they usually require when they first come to the Museum and their orientation needs.

3.9.2 Objective 9.2: Provide orientation information in a variety of media to accommodate different learning styles and abilities

In order to decide about the choice of the different media to be used in the Orientation Centre and assess their effectiveness in assisting orientation, it is necessary to undertake research at all three stages of evaluation, front-end, formative, and summative.

Front-end analysis would include interviewing the range of visitor groups mentioned above about their preference of various media that could be used for the orientation centre (including computer applications).

ACTION 9.2.1: *Carry out front-end evaluation with various visitor groups testing their preference about various media that can be used for orientation*

This will assist the staff in making their final choices and help them to relate their designs to the profile of specific users when they start the design process. If during the front-end evaluation users express unfamiliarity with certain media or reluctance to use them, the design team will know that they would need to address these issues.

Once the orientation media have been chosen, formative evaluation should inform their design.

ACTION 9.2.2: *Carry out formative evaluation of the orientation media with various visitor groups testing their clarity and usefulness*

Observation and interviewing with small visitor groups of different type are the most appropriate methods for this type of evaluation. This will involve showing them initial designs for the maps, handouts, and prototypes of audio-visual presentations, observing how these are used, and testing how clear, readable, attractive, and understandable they are. The information from this formative testing will help to design the orientation media in an effective and clear way.

After the displays have been completed, observation can establish who uses the orientation centre and in what way. Following the observation with brief interviews immediately afterwards can explore whether visitors actually succeeded in finding the object they wanted and assess the contribution of the orientation displays.

3.9.3   Objective 9.3: Provide electronic visitor orientation points at key circulation points around the museum

Providing orientation information in electronic form can be easier and quicker for the Museum to update, by networking the terminals distributed around the building and maintaining the information they display on a single computer network. Evaluation can help to determine whether this medium is also effective from the visitors' point of view. The front end analysis of orientation media recommended above would help to determine the reaction, experience, and preconception of different visitor groups towards computer terminals in museums in general. Formative evaluation can then help to make optimum use of the medium for assisting orientation at the Museum.

ACTION 9.3.1: *Carry out formative evaluation of the design, user interface, and content of the electronic orientation applications*

This is best carried out with small groups of one or two users testing the prototype. A laptop computer might be used at this stage for easier portability. Users are asked to explore the application at their own pace while being observed. They are encouraged to 'think aloud' speaking freely about what they see and what they think different features of the program do, while the evaluator records their reactions (see Appendix 5.5.2). Apart from pinpointing programming errors, this type of evaluation can also highlight problems in the user interface, the structure, and navigation of the application at an early stage in the design process and help make the final product more user friendly.

After the design of the computer application has been completed, observation can be used to test (i) whether the positioning and location of the electronic orientation points is appropriate, (ii) whether they are being used, and (iii) how they are being used. This can be carried out at a formative stage, with one or two terminals installed experimentally to observe their use with a relatively small sample. This information can help to correct problems that the electronic kiosk might cause, such as bottlenecks in visitor flow because of its location, or indicate adjustments that might be necessary to the height of the screen. It can also allow staff to get familiar with practical and maintenance issues and establish a routine.

ACTION 9.3.2: *Test the positioning and use of the electronic orientation points at a formative stage*

After all electronic points have been installed, summative evaluation can explore in depth whether they are an effective and successful orientation medium.

ACTION 9.3.3: *Carry out summative evaluation of the effectiveness of the electronic orientation points once they have been installed in the Museum*

This can be carried out with observation of visitors using the electronic points, but also of visitors who pass by the kiosks and choose not to use them (non-users), a group that surveys often ignore. Information that it would be useful to record about users includes:

➢ Time or day/week/term/year that observation is made
➢ Name of observer
➢ Location of electronic orientation point observed
➢ Number of users observed
➢ Time spent at the electronic points
➢ Gender and age of users
➢ Group composition of users (using it on their own or in a group)
➢ Visible and audible reactions during interaction with the program (appropriate codes can be established for the quick recording of these)
➢ (if visible) type of interaction followed (e.g. choice of screens, navigation buttons, etc)

An observation sheet can be prepared for recording this information consistently and efficiently. After using the orientation points, users can be tracked as they go around the galleries with their route recorded on the observation sheet. Interviewing them at the end of the observation period can establish whether using the orientation electronic program helped them locate what they were looking for. The brief interview can also ascertain whether they found the application useful and easy to use.

Non-users should be approached and asked the reason for not using the computer. This should be recorded together with the relevant visitor profile information mentioned for users above.

Another method for monitoring use of the electronic orientation points is computer interactive logging (see Appendix 5.5.6). Setting up the computer so that it records user interaction should be incorporated in the design of the ICT system at an early stage. The interactive logs should be scripted to differentiate between different terminals and record their position. If the computer is not being used for two or three minutes, it can be set up to return to the opening screen, establishing the end of interaction in the previous user log. Each logs should be stored as a separate file and should record:
➢ computer terminal
➢ date and time
➢ interaction start time
➢ end time
➢ screens visited
➢ selections made

The data should be stored in a form that can be fed to a statistical analysis package. Appropriate procedures should be set up about who will download and analyse the data and how frequently this should done. Information about the use of the electronic orientation points should be circulated to the appropriate members of staff.

This information from the interaction logs can show how long visitors spend using the application, the most popular and least popular choices and type of interaction, and the frequency of use. In combination with the information from the observation and interviews, it can illuminate the effect of these applications on visitors and the way they are being used.

Finally, another way to get feedback about the use of the electronic orientation points is to include electronic feedback forms on screen that users can fill in.

ACTION 9.3.4: *Include an online visitor feedback form in the electronic orientation applications*

If touch screens are used for the orientation points, the feedback form should have multiple choice questions with large 'buttons' that the visitors can touch to select their answers. Once more, appropriate procedures should be established about who will collect these comments and how the findings will be communicated to the rest of the staff.

Most of the methodological issues raised here about the evaluation of the electronic orientation points apply also to the evaluation of the touch screen applications in the story displays.

3.10 Key Objective 10: Create discovery, event, and display study centres to enhance visitors' experience

The project proposes four hands-on discovery areas, two dealing with People and the Environment and two for Expressive Arts, mirroring the broad themes of the displays. These are the History and Technology, Environment, Art, and Performance discovery centres whose target audiences are school groups and families with children.

3.10.1 Objective 10.1: Encourage the public to find out about the world around them, past and present, through hands-on activities and experiencing objects

Recognising the benefits of active visitor participation and hands-on experience, an increasing number of museums have been designing discovery centres. Research in this area has also started building up. Good starting points include the work at the Discovery Room of the National Museum of Scotland (Stevenson and Bryden 1991), the Liverpool Museum Discovery Centre (Sudbury and Russell 1995), and the Conservation Centre, Liverpool (Susie Fisher Group 1995; Pennington 1995). The lessons learned in other museums are particularly useful for the design of the two centres on History and Technology and the Environment.

ACTION 10.1.1: *Apply the lessons from existing research in the design of the discovery centres*

Work on Expressive Arts discovery centres is not as well documented and it is on this area where formative evaluation should focus. The experience from the use of the Modern Art discovery centre at the Gallery of Modern Art will be very useful here. Formative evaluation with families and school groups can start with small groups testing the prototypes, with the evaluator observing how young children use the displays and asking parents, and guardians their views. As more parts of the displays are built, larger groups can be invited to test the use of the centre and help to identify circulation, layout, and installation problems.

> **ACTION 10.1.2**: Carry out formative evaluation of the discovery centres, particularly the Art one, with the targeted groups

After the discovery centres have been opened, their use should be monitored. The staff working at the discovery centres will have first-hand experience about how they are being used and a good impression of the profile of the users. They will be able to identify problematic areas and make suggestions on how to improve the displays. These should be discussed at regular meetings with the other relevant Museum staff.

> **ACTION 10.1.3**: Monitor the use of the discovery centres through the facilitators who should regularly report on the profile of the users and the way the centres are being used

> **ACTION 10.1.4**: Ensure that the discovery centre staff are familiar with evaluation methods or receive relevant training and briefing

Although the feedback from the discovery centre facilitators will be valuable, they will be too busy to be able to record systematically quantitative information. A more formal summative evaluation could be carried out by a university team with research interests in this area, or commissioned to external contractors (although formative evaluation is a higher priority for the effective design and organisation of the discovery centres).

The Performance Centre will be an area for staged performances, dance, musical recitals, video conferencing, lectures and will provide the opportunity to visitors, schools, and community groups to participate in performances, play musical instruments, or dress in costume inspired by the themes of the display. It aims to be open to the whole of the community and draw people that normally do not visit the Museum. Monitoring the bookings and the use of the Centre can help to assess whether it is being used by a wide range of people. Specific policies could be drawn for offering the space to groups and individuals, where a pro-active policy of encouraging use by under-represented groups might be considered.

> **ACTION 10.1.5**: Monitor the bookings and use of the Performance Centre

The marketing and publicity about all the discovery centres needs to be carefully thought out, since knowledge of these centres and their features can help to attract non-visitors to the Museum.

3.10.2 Objective 10.2: Provide special facilities for the aurally and visually impaired and accommodate physically handicapped visitors in the centres

Advice from disability and special needs groups should inform the design of all centres. Furthermore, these (particularly the performance centre) should be tested with the disability focus groups examining whether the facilities provided are sufficient and suitable.

> **ACTION 10.2.1**: Evaluate the use of the discovery centres with the disability focus groups

After the design of the performance and discovery centres has been completed, they should be included in next Access Audit of the building.

ACTION 10.2.2: *Ensure that the next Access Audit carried out for the building includes a careful examination of the new discovery centres*

3.10.3 Objective 10.3: Increase access to collections information by providing a Display Study Centre staffed with a duty curator and equipped with reference books and access to the computer network

The Display Centre will provide the opportunity for more in depth study of the collections. This will support students carrying out assignments, life-long learners, people investigating their special interests, etc. Once the Display Centre has been set up, it would be possible to examine who is making use of the opportunities it offers and how it is being used.

ACTION 10.3.1: *Monitor the use of the Display Study centre and record the queries to the duty curator*

Duty curators should keep a log of the queries they receive, ideally in electronic form. This can indicate areas of particular interest and highlight priorities for the staff.

Another way to evaluate the use of the Study Centre is by designing a form to be completed by the people using it. Although this is of limited statistical validity, since the sample would be self-selected (see Appendix 5.5.5), it would nevertheless provide a means of communication with the visitors and an opportunity for useful feedback about the needs and satisfaction of the Centre's users.

ACTION 10.3.2: *Include self-completion evaluation and comment forms for users of the Display Study Centre*

These should be carefully designed, attractive, and short, starting with a friendly and carefully worded message explaining why user feedback is important to the Museum. They should be positioned at strategic points, close to the reading and computer terminals areas. At the end of the forms, it should be clearly stated where they should be returned once completed. Collection boxes should be visible and clearly marked. These should be regularly collected and analysed with relevant procedures set up.

3.10.4 Objective 10.4: Provide workstations with specially designed public interface, offering restricted access to information about the collections

As was mentioned about the design of the electronic orientation points, the public interface of the collections information system should be tested extensively at the formative stage to ensure it is useful and easy to use. This would use the same methods, observation and 'think aloud' procedures with subject specialists, self-learners, school children, students, people with disabilities, non-native speakers using a prototype or different versions of the system. The evaluation would help to identify the user profile and needs of these groups and their preference of different design choices.

Once the collections information system has been set up, automatic logging of user's interaction and queries would help to evaluate how it is being used, in the same way that was described for the orientation system. This is already mentioned in the ICT strategy and should be planned at an early stage.

3.11 Key Objective 11: Create Object Cinemas to enhance visitors' experience

These presentations integrate objects from the collections into an audio-visual show for about thirty visitors at a time. They are a way of telling in-depth stories about important objects to a wide range of audiences. Two object cinema facilities are envisaged in the new building. A prototype of the object cinema on the 'Ghost shirt' is currently up and running and has been positively received by visitors.

3.11.1 Objective 11.1: Provide a rich context for objects from the collections

3.11.2 Objective 11.2: Use a variety of media to impart information, but also address visitors' emotions, attitudes, understanding, aesthetic appreciation

Front-end analysis can provide useful feedback about the choice of objects for the object cinema and the approach to be followed. Interviews of various visitor and non-visitor groups might be assisted by photographs of objects from the collection that can act as aide-memoires triggering respondents' reactions. These can also be used in focus group discussions that can explore how visitors and non-visitors would like to see these objects presented in the cinema stories.

The in-house evaluation carried out on the 'Ghost Shirt' object cinema has already highlighted visitors' reaction to specific aspects of the display, for example the use of actors with Scottish accents for the Indians. Various aspects of the production can be tested in this way with small groups of visitors during the design of the cinema stories.

After the installation of the object cinemas in the gallery, observation can record visitor flow, participation, and the level of use of the cinemas by visitors. It can also provide feedback about the placement of the cinemas in relation to the rest of the displays.

Observation should also record whether visitors go and look at the objects after watching the cinema. Interviews with visitors after watching the show can study their reaction to the content and style of presentation and determine whether any change of attitude occurred. In order to avoid overly positive comments, the interviewer would need to encourage a critical approach and stress that the Museum would appreciate visitors' feedback on how to 'get things right'. Interview questionnaires should be pilot tested first. A sample of one hundred or less should be sufficient for drawing useful information about visitors' reaction to the object cinemas.

ACTION 11.2.3: Carry out summative evaluation about the effect of the object cinemas on visitors

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3.12 Key Objective 12: Create Story displays to enhance visitors' experience

These form the basis of the displays in the galleries of the re-designed museum. Instead of trying to summarize entire subjects, such as anthropology or geology, as in traditional displays, the re-developed exhibits will tell discrete and focused stories based around a small number of objects and aimed at specific audiences. Visitor interest, curatorial knowledge and advisory groups will shape the subject matter of the stories which are broadly divided into two main themes: (i) Expressive Arts and (ii) People and the Environment.

The story displays are further grouped under twenty-nine sub-themes, following the results from front-end analysis about visitors' and non-visitors' preferences. As was mentioned above (3.2, 3.3) work in this direction should continue in the future and the choice of themes should follow consultation with the audience.

ACTION 12.1: Carry out front-end analysis about the choice of stories and themes with different groups

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3.12.1 Objective 12.1: Use a flexible display system that will allow the Museum to respond promptly and effectively to the needs of different groups at appropriate times

The specially designed new display system will allow the displays to be easily changed to respond to changing visitor interests, curatorial knowledge and perspectives. This is already being evaluated testing the two experimental displays on 'Italian Renaissance Art' and 'St Kilda: Leaving with the Land' with staff, visitors and non-visitors. Formative evaluation of these and other story displays should continue further and is one of the most important parts of the evaluation of the project. This should include interviews and observation of how different visitor, non-visitor, and disability groups use the displays, to be defined more closely according to the targeted audience of each story. Testing with small groups would probably be more effective, especially in the first stages, with larger groups brought in later to test issues of circulation, robustness, security, etc. The specific aspects to be tested would also depend on the specific stories. The general areas to be examined are:
  ➢ physical accessibility of the display (e.g. space between different elements, hard edges and corners)

> ➤ intellectual accessibility of the story display (e.g. quality and length of text and audio used, understanding of messages presented)
>
> ➤ attractiveness of design (e.g. co-ordination of colours, use of materials and images)

ACTION 12.1.1: *Carry out formative evaluation of the story displays with different groups*

The Museum aims to change eight displays per year. It would be useful to monitor how this is actually carried out and the practicalities involved.

ACTION 12.1.2: *Monitor time required to put displays up, time that they are on display, number of displays that change through time*

3.12.2 Objective 12.2: Provide opportunities for structured, but flexible learning

Apart from testing understanding and learning outcomes during formative evaluation, summative evaluation after the displays have been installed can explore this in greater depth. What is summative evaluation of one story display, can actually function as front-end or formative evaluation for the next story.

ACTION 12.2.1: *Carry out summative evaluation to test the learning outcomes and effect of the stories on visitors*

Learning in the museum environment should be interpreted in a wide context, not focusing only in the acquisition of factual information, but including the complex set of experiences that occur during the visit to the museum, such as the change of attitude, the triggering of curiosity, the understanding of other cultures, and aesthetic appreciation.

As with the object cinemas, carefully designed questionnaires can be used for interviews at the end of the visit. Participant observation with visitor groups might be more effective in this case, helping to identify honest responses to the displays.

ACTION 12.2.2: *Communicate with teachers and guides of organised groups about the learning outcomes of the stories on their groups*

As was mentioned above (3.8.4), teachers and group guides can offer valuable comments about the learning outcomes of the displays, since they are familiar with the learning needs and characteristics of their groups. Their feedback can be sought both informally (with discussions after their visit) or formally with evaluation forms included in the information pack sent by the Museum (if they have booked their visit). The problem with the latter is the low response rate that mail surveys usually elicit. An incentive (like a book token or a small gift from the Museum shop) might help to raise the response rate.

Another issue that very few museum evaluation studies address is the long-term effect of the displays. If interviews do take place, visitors can be asked at the end if they would mind giving their address to be contacted later by the Museum for a similar type of evaluation. Alternatively, the addresses from organised bookings can also be used. A mail

survey can then be designed, sending letters to the visitors a few weeks or months after their visit asking them about their memories of the Museum and the displays. A museum studies student doing a placement at the Museum or a research team from one of the Universities in the area might be able to assist in a survey of this type. Experience with this method has shown that although it is not without its shortcomings (e.g. response rate, administration and mail costs), if it is managed well, it can often provide valuable information about visitors' memories, impressions, understanding of the displays and feelings from their visit (Peirson Jones 1993; Economou 1999). Uninhibited by the presence of an interviewer, visitors can be very detailed and honest in their responses.

3.12.3 Objective 12.3: Provide touch screen points incorporated into object displays offering a variety of information (e.g. quizzes, video, visitor questionnaires) about the displays

As was mentioned about the electronic orientation points and the collections information system (3.9.3, 3.10.4), formative evaluation of the design of these applications with the targeted audience is very important to ensure that they are easy to use. Using a computer in the gallery can have a powerful effect. In order to ensure that this is positive and that the computer program supplements effectively the rest of the displays, extensive testing should be carried out.

ACTION 12.3.1: Carry out formative testing of user interface, structure, navigation, language, and content of computer applications incorporated in the story displays with targeted groups

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Following the methods described in these sections (observation, 'think aloud' method, interviewing), evaluation of the computer applications incorporated in the stories should additionally test:

- ➢ Satisfaction with level of information provided & way it is presented
- ➢ Ease of use
- ➢ Use by different visitor groups
- ➢ Relationship with surrounding objects and rest of the display

Participant observation, with the evaluator being part of the visitor group using the computer application, might help to record their first reactions more accurately.

3.12.4 Objective 12. 4: Use the touch screen facility to offer information in layers and provide the opportunity to explore further

The initial formative testing of the display system in April-May 1999 indicated that the reaction of visitors was overall positive about the computer application. However, when prompted, a significant minority thought that there could be better uses of the medium rather than simply acting as 'an electronic page-turner' as one person put it.

ACTION 12.4.1: The formative evaluation should test whether the medium is put to best use

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For example, the small prototype computer applications designed for the prototype displays of 'Italian Renaissance Art' and 'St Kilda: Living with the Land' consisted of a

couple of screens per topic with text and images. It might be more effective to use the computer application to highlight features of the objects, zoom in details, provide an idea of their original context, show how people made and used them, actively encourage users to take the virtual objects apart, observe them carefully to answer quiz questions, etc., rather than present encyclopaedic information in a traditional book-based form. Different ideas of this type would need to be explored with the users during the evaluation sessions.

Analysis of the interaction logs, in the manner described above in relation to the orientation and the collection information applications, would help to study the way visitors used the touch screen applications.

3.12.5 Objective 12.5: Make 'highlight' information on key stories available for schools, colleges, and the general public via the World Wide Web and other information networks

The choice of stories to be presented in the web and the way of presenting them should be identified in consultation with stakeholders including the Education Advisory Panel and the Community Forum. This will help to identify the special needs and interests that need to be reflected on the site.

ACTION 12.5.1: Consult with stakeholders about the information and stories to be made available on the Museum's web site.

When the web site is being set up, procedures should be established for recording automatically and analysing web access statistics and for regularly communicating the results to the relevant members of staff. Despite the limitations of this method, it does provide a useful measure of the web site's use. The web site should allow visitors to communicate electronically and give their views. This could be simply in the form of an e-mail or using a specially designed electronic visitors book.

ACTION 12.5.2: Record access statistics and visitor feedback

Audio guides to the displays (audio handsets and broadcast sound)

3.12.6 Objective12.6: Provide regularly updated audio guides in the main community and tourist languages spoken by the Museum's visitors

Formative evaluation of the audio guides will help to ensure that these function as an effective communication and presentation medium. The evaluation with small groups of the targeted audience should test the following features:

- ➤ quality of content (factual errors, depth of information, provision of contextual information about objects)
- ➤ quality of sound
- ➤ choice of narrators (e.g. research suggests that children react better to voices from their own age group; choice of accents)
- ➤ choice of language
- ➤ use of sound effects
- ➤ length of audio

> ➢ use of controls and buttons

These should be related to visitor profile recording the preferences and needs of particular groups.

ACTION 12.6.1: *Carry out formative testing of the audio guides*

Computers controlling the lighting and audio-visual effects in display story-lines

3.12.7 Objective 12.7: Use a dedicated computer to control the synchronisation of lighting and audio-visual effects with the audio soundtrack

This can be used to assist the evaluation of the story displays. It can be set up to log visitor take up of specific stories and establish how long visitors spend at each story, giving an indication of their popularity. This information can help to inform the design of future audio effects and soundtracks.

ACTION 12.7.1: *Design scripts that will log the frequency and pattern of use of the audio-visual effects in the story displays*

3.12.8 Objective 12.8: Provide information in alternative forms for people with visual or audio impairments

Although the use of lighting and audio-visual effects can make the displays attractive and interesting to a large number of visitors, they will also exclude a section of the public with visual or audio impairments. The design team should always strive to use a variety of different media, including those that are suitable for people with visual and audio disabilities. Consultation and testing of different media with the disability focus groups will be valuable in this direction.

ACTION 12.8.1: *Carry out consultation and formative testing with the disability and special needs groups*

3.13 Key Objective 13: Improve visitor facilities

The project involves relocating staff offices and existing visitor facilities. The Museum already has a retail outlet, a café and toilets.

3.13.1 Objective 13.1: Improve customer care and extend visitor facilities

Visitor facilities (including refreshments and washroom facilities for disabled visitors) will be extended to all three levels of the building. The location of the new facilities needs to be carefully examined, taking into account visitor flow and the needs of disabled visitors. The survey of the building's use to be commissioned after the re-opening of the Museum should include an examination of the new and relocated facilities.

ACTION 13.1.1: *Include survey of new facilities in the Access Audit and the survey of the building's use to be commissioned*

The feedback from gallery attendants and staff working at the Museum café and shop about the use of the facilities would be very useful. The Museum can set up specific indicators and targets to monitor performance of these facilities.

ACTION 13.1.2: *Monitor the use of the new facilities and turnover of the Museum's retail and food and drink outlet*

The visitor survey to be undertaken regularly should include questions about customer satisfaction and the quality of the service provided at the Museum shop and café and the Museum facilities. These can include:

- ➢ did you visit the Museum shop / café
- ➢ how would you rate them
- ➢ did you purchase anything
- ➢ how much did you spend

ACTION 13.1.3: *Monitor visitors' satisfaction with new services and quality of service*

MUSEUM SHOP AND CAFÉ

The Museum shop and café could include suggestion forms for types of merchandise that visitors would like to see. Apart from the themes of special exhibitions, the stocking of merchandise should also take into account the profile of the visitors as portrayed in the visitor survey. As is suggested in the Marketing Plan, a detailed and critical review of the shop and café could be commission to experts or advice sought by external bodies, such as the Association of Visitor Attractions.

VENUE HIRE

Members of the public or organisations can book the Museum's Main Hall, upper galleries and conference room for events. An evaluation form can be included in the information packs sent to parties hiring venues at the Museum. Apart from level of satisfaction with the service and venue, this should ask some basic information about the profile of the person or organisation making the booking. Generally, this information should be recorded with all bookings made. This will allow to maintain an informed picture of the users and improve the quality of service provided.

ACTION 13.1.4: *Monitor requests for venue hire and record the profile of users*

NOTE ABOUT PERFORMANCE INDICATORS AND TARGETS

As part of its commitment to Best Value, Glasgow City Council plans to review all its activities on a regular basis. It has agreed to review Museums, Heritage and Visual Art Services as part of its year two (1999/2000) Service Review Programme. This is being developed around a number of key themes that include: 'the requirement for the Council to be clear about what it wants each service to achieve; the need to assess the service effectiveness thoroughly, to search for improvements and where necessary better methods of delivery' (Glasgow City Council 1999).

Work and research is currently underway to collect information for the Best Value Service Review. The Review group will submit its recommendations to the Council in January 2000 and these will form the basis for a long term strategy for the Culture and Leisure Services and for Glasgow Museums in particular. These will have serious implications for the Museum's evaluation procedures and will affect the definition of specific performance indicators and targets. As the Review has not been completed yet, this evaluation strategy did not make any specific suggestions about performance indicators.

Performance indicators will be directed by the Council objectives and will be negotiated with the City Council, the Education Panel, the Community Panel, and Museum staff. Once targets have been established, they can be combined with the set of principles and guidelines outlined in this strategy to inform the Museum's evaluation practice.

4 EVALUATION TIMESCALE AND COSTS

The following figures are an approximate estimation for evaluation studies commissioned externally, with the existing Museum staff overseeing the procedure. Given the size of this project and the important role that evaluation plays in it however, it is recommended that a full-time evaluator/audience advocate is hired for the three-year period of the re-development (and a temporary contract from October 1999 until the project starts) with an annual salary between £20-25,000 depending on experience and qualifications. In this case, a lot of the evaluation work will be carried out internally and the figures shown here will be lower.

> **Action 4.1:** *Consider hiring an evaluator/audience advocate (on a short-term contract before the re-development project starts, and on a three-year contract once this is underway)*

Type of evaluation	Action[1]	Time (in relation to project)	Duration[2] and frequency	Indicative Costs	Priority[3]
Consultation about overall project					
Meeting with Education Panel	3.4	During & after project	Half day meeting every 3 months		***
Meeting with Community Panel	3.4	During & after project	Half day meeting every 3 months		***
Evaluate Accessibility of Building					
Test understanding of signage and use of landmarks	6.7.2 & 6.8.1	During design of signage & after positioning of landmarks	1,5 hour with each group/ different groups over 1 month	£7,500	*
Visual impairment & learning difficulties groups testing	6.7.3			£3,000	**
Front-end analysis of orientation needs	9.1.1, 9.2.1	Before design of orientation centre	Incorporate in testing of signage above		*
Disability Focus Groups	6.1.1 6.4.2	Physical accessibility: After re-opening of Museum	4 groups - half day	£6,000	***
Access Audit of Building	6.2.1, 13.1.1	After re-opening of Museum	1 day	£4,000	***
Survey of Building's Use	6.4.1, 13.1.1	After re-opening of the Museum	1-2 days	£4,000	**
Front end analysis of stories, centres, object cinema					
Non-Visitors Focus Groups	3.2, 3.3	During and after completion of project - (front end about future stories and themes to be developed)	3 groups during (1,5 hrs each) 3 groups after	£9,000	***
Various visitor groups	11.2.1. 12.1	Before development of new obj. cinemas & stories	Interviews / focus groups	£5,000	**
Formative ev. of obj. cinemas, story displays, centres					
Non-Visitors Focus Groups	3.2, 3.3, 12.1.1	During design of Arts & Perf. Centre, Stories	5 groups (1,5 hrs each)	£7,500	**
Disability Focus Groups	10.2.1, 12.8.1, 12.1.1	During design of displays & centres	4 group sessions	£6,000	***
Observation, interviewing, focus group discussions, etc with different visitor groups	8.5.2, 8.6.1, 8.7.1, 8.8.1, 10.1.2,10.4.2, 11.2.2, 12.1.1, 12.6.1	During design displays & centres	Regularly over 2 years - Observation 8,000 - Interviewing 10,000 - Focus groups 11,000 - other qual. eval. 11,000	£40,000	***
Evaluate interface and content of touch screen displays	12.3.1, 12.4.1	During design of touch screen programs	1 month for each application	£9,000	***

Formative evaluation of web page design	12.5	During design of web page	1-2 months	£4,000	***
Formative Evaluation of Orientation Centre and Media					
Develop/test pre-visit resources for disabled visitors with: Disability focus groups Community panel	6.5.1	During the design of pre-visit resources	1-2 months	£6,000	***
Visual impairment & learning difficulties focus groups	6.7.3	During design of orientation information	1-2 months	£3,000	***
Test orientation. media with various groups	9.2.2, 6.10.1	During design of orientation media	1-2 months	£6,000	**
Test interface, content, location of electronic vis. points	9.3.1, 9.3.2	During design of elec. orientation applications	1-2 months	£4,000	**
Summative Ev. of Story displays, Obj. Cinema & Centres				0	
Non-Visitors Focus Groups	3.2	After completion of project	1,5 hour with each group	£7,500	**
Observation, interviewing, focus groups, log analysis etc with different visitor groups	8.5.2, 8.6.1, 8.8.1, 11.2.3, 12.2.1, 12.4.1	After completion of displays & centres	Throughout the year	£10,000	**
Summative Evaluation of Orientation Centre and Media					
Evaluate effectiveness of orientation displays and aids for finding favourite objects	6.10.1, 9.2.3	After orientation displays & aids have been completed	1-2 weeks	£4,000	*
Evaluate use, location, effectiveness of electronic visitor points	9.3.3, 9.3.4	After re-opening of museum & installation of elec. points	1-2 weeks observation continuous logging and analysis of use	£4,000 £2,000	*
Visitor Survey (none until Oct 2002, 1 demographic survey annually first 2 years after re-opening of museum, then every 3 years)	1.1, 13.1.3	After re-opening of museum	Spread throughout the year (2002/3 & 2003/4) £6,000 each	£12,000	***
Membership to professional organisations, subscription to journals, purchase of ev. books	3.1 5.1	Throughout & after project	£400 a year (x 5 yrs)	£2,000	***
Training of staff (not from eval. budget)	4.1	Throughout and after project	will vary from few hours to few days		***
Monitoring of use and performance (e.g. requests for pre-visit resources, use of educ. Programmes, disability awareness training, Perform. Centre)	6.5.3, 6.5.4, 8.1.1, 10.1.5	Throughout the Museum's operation	Incorporated in day to day work of staff	Staff time, software recourses, consu-mables	***
TOTAL				**£165,500**	

[1] The objective related to each action is indicated by the first digit or the first two (e.g. Action 3.1 refers to Objective 3, and Action 3.4.1 refers to Objective 3.4).

[2] Time shown does not include the time spent in preparation of briefs and tender documents

[3] Evaluation acitivities of high priority are marked with three stars (***), of medium priority with two (**) and of low priority with one (*).

ANNUAL EVALUATION BUDGET 1999-2004

July 1999 - January 2001	£15,500
January 2001 - October 2002	£100,000
October 2002 - October 2003	£25,000
October 2003 - October 2004	£25,000
Total	**£165,500**

5 APPENDIX: INTRODUCTION TO MUSEUM EVALUATION AND VISITOR STUDIES

5.1 Definitions and aims of museum evaluation

Evaluation in the museum environment refers to the systematic examination and assessment of exhibitions, concepts, and programmes, or of specific components (such as museum labels or orientation leaflets). It is also, the procedure by which museum professionals learn about their audiences understanding of and responses to exhibitions and programs. Most evaluators make a distinction between museum visitor research and other evaluation procedures.

'Research' involves the exploration of hypotheses and results in the generation of new knowledge. It provides material for the development of theories on human behaviour and communication. 'Evaluation' or 'assessment studies', on the other hand, refer to the systematic collection of data for making decisions about the continuation of improvement of the exhibit or activity under study. More pragmatic in nature, they provide feedback to designers and administrators about the successes and failures of the exhibit. Similar methodological tools are used in both evaluative and research efforts (such as questionnaires, interviews, observations, and focus group discussions), but with different objectives. The aim of evaluation is to provide information for specific action in the short term, while research is driven by the need to increase professional awareness and develop conceptual frameworks. In most cases, the Kelvingrove Evaluation Strategy refers to evaluation for specific action, without however, excluding evaluation research.

5.2 Short history and theoretical approaches to evaluation

Until recently, very little evaluation work (practical assessments or research studies) was carried out in museums in Britain, and even less in the rest of Europe. Apart from a few early papers, it was the pioneering work of the Natural History Museum in London in the 1970s and 80s that made visitor studies more widely known and accepted in the UK. This was the first museum to adapt an internal systematic approach to visitor evaluation (until then conducted mainly by outside researchers).

Given the strong emphasis on public accountability and customer satisfaction in the USA, the leading role of that country in museum evaluation is to be expected. The main movement in American exhibition evaluation in the 1960s and 70s was based on behavioural psychology. This focused on the study of visitor behaviour in relation to quantifiable targets and viewed exhibitions as an instruction medium which needed to teach specific facts. Some of the common methods used were the observation and timing of visitors by an 'objective' evaluator, the great emphasis placed in the 'attracting' and 'holding' power of exhibits, and the pre- and post-visit tests examining the knowledge gained from the exhibition. This approach was most often applied to science and technology centres and natural history museums, since most art museum educators did not feel comfortable with 'learning' as the only goal of an art exhibition.

However, this approach has been criticized, because, among others, 'visitors are, on the whole, observed rather than talked to'. Simply observing visitors does not explain why they stopped at the specific exhibit, while the emphasis on cognitive gain ignores the complexity of the museum visit and the ways in which exhibition messages are

communicated to different visitors. It also ignores the affective outcomes of exhibitions, visitors' feelings, and moods, as well as the role of visitors' interests.

Over the last fifteen years there has been a 'shift in focus from what exhibits do to what visitors make out of exhibits' (Miles 1993, 28), how they construct meaning. The research of McManus at the Natural History Museum drew attention to the importance of social aspects in museum visiting (McManus 1987; McManus 1988; McManus 1989). Falk and Dierking summarize work in the same direction carried out mainly in the United States (1992). The increased awareness of the social function of museums brought also an interest in non-visitors and the reasons why people stay away from museums (Hood 1983; Merriman 1991; Susie Fisher Group 1990; Trevelyan 1991; Du Bery 1991).

Moving away from the behavioural model, other approaches to visitor studies started to emerge: naturalistic, anthropological, sociological, psychological, although no single approach has proved to be pre-eminently successful yet. These have shifted the emphasis from laboratory testing based on 'scientific' methods, to the study of visitors as individuals in their natural surroundings. These approaches are usually based on qualitative, rather than quantitative data, which are gathered with in-depth interviews, documentation, unstructured observation, and focus groups discussions, and involve the evaluator in the setting as both an observer and a participant. The relevant reports, usually case studies, often include quotes from the interviewees' responses and narratives, rather than statistical tables. The field-based methods often provide descriptive information and document unanticipated outcomes, rather than measure pre-determined objectives. They emphasize the uniqueness of a situation rather than its ability to be generalized. Because of these characteristics, the critics of qualitative studies dispute their validity and reliability.

Although the scientific and the naturalistic paradigms have a different theoretical basis and approach, they can both be useful forms of evaluation and need not be mutually exclusive. The dichotomy between the different approaches and the relevant methods can be sterile, since the choice of methodological tools should primarily be guided by the specific questions and problems posed by the study at hand. In fact, in most cases, a combination of methodologies from both paradigms is more effective.

This strategy supports the use of a variety of methods in the evaluation of different aspects of the Kelvingrove re-development combining, where appropriate, tools used by both approaches. The suggestion of specific methods in the strategy is dictated by the specific objectives and issues investigated. The use of a variety of methods provides layers of information, but also helps to identify inconsistencies.

5.3   Problems and difficulties

Despite the need for museum evaluation, published reports of projects are unfortunately very limited in number, and most presentations focus only on positive outcomes. One of the reasons is that properly designed and conducted evaluation surveys are a demanding task, requiring specialized knowledge and expert advice, which many museums do not possess and cannot afford. Besides, many institutions are unwilling to share unsuccessful experiences and unpredictable or negative results. The application of new display systems and experimental technology often creates as many problems as it solves and first efforts may not be well received.

Additionally, as the evaluation findings often recommend changes in the way the institution operates, it is difficult for audience research and evaluation to gain institutional acceptance. These activities often appear threatening to museum staff, who feel that their work is criticized. This is even more likely to happen when evaluation is not integrated in all the functions of the museum and the staff are not involved in the project from the beginning.

Furthermore, museum professionals are often sceptical of the methodology and results of visitor surveys and of the effectiveness of evaluation in general. Evaluating the effect of museum exhibitions has been seen by some as a trivializing exercise which is incapable of recording the subtle and unmeasurable experiences which visitors have in a gallery. Kenneth Hudson believes that visitor surveys 'can be helpful, provided that they confine themselves to simple facts which can be processed and classified without too much distortion' (1993, 35), but questions their usefulness in general: 'Because I believe that museum-going is such a personal affair and its results so subtle and so unpredictable, I consider that a high proportion of visitor surveys are useless, impertinent and a waste of money' (ibid., 38).

On the other hand, this sceptical attitude is sometimes considered as a hiding place for those who fear unpleasant facts or changes (Shettel 1989, 134). Over the last few years, recording of the responses and satisfaction of the public has begun to develop into a proper science, borrowing research techniques and methodology from a variety of disciplines, as was described above.

> For the moment, with the subject in what may be judged to be its formative years, there is the excitement of watching visitor studies emerge as a coherent discipline whose results and findings could be of enormous benefit to museums and their patrons (Bicknell & Farmelo 1993, 7).

Another criticism voiced about museum evaluation studies is directed to the behavioural model prevailing until recently and its focus on testing cognitive gain. 'Too often, criteria better suited to more formal learning environments have been applied to the museum, and given such an inappropriate comparison, museums have not fared well' (Munley 1986, 20). But the museum visit includes a wide range of other experiences and types of learning that are often ignored: social and aesthetic learning, development of new interests, consolidation of previous knowledge, awareness of issues, change of perceptions. Although these are experienced by many visitors in museums, they are usually elusive and difficult to record and quantify. This demanding task is made even more complex by the diversity and heterogeneity of the museum audience.

5.4   Types of evaluation

Evaluation is usually divided into three main categories: front-end, formative, and summative. These are also the terms used in this strategy.

Front-end analysis refers to the evaluation carried out before an exhibit is developed. (Exhibit in this case indicates the components which form part of an exhibition, from an interactive program to an interpretative label or a museum case). Front-end evaluation provides a 'mechanism for testing one's assumptions about people—either assumptions about what people know or feel or understand about a topic or what they are interested in

finding out more about and even assumptions of the best way to organize material within an exhibition' (Dierking 1997).

This type of evaluation can gauge the reactions of users to the subject matter of the application and the appropriateness of the chosen medium or media for communicating the intended messages. Simpler and more affordable solutions can sometimes be substituted.

Formative evaluation takes place while the application is being developed and its results help refine and change the application. It can illustrate the appropriateness and intuitiveness of the user interface and pinpoint problematic areas and programming errors. Both steps are vital exercises for the design of new displays, ensuring that even if the final result is not perfect, it is at least better than one that has not been tested at all.

For museum multimedia applications in particular, it is never too early to test the application and incorporate the final users in the design process. Even handmade paper mock screens and testing with cheap and simple prototypes can offer valuable feedback and suggest changes before it is too late. In most cases even a brief survey with a small sample, if a large one can not be administered, will offer a wealth of information.

Summative evaluation tests the effect and impact of the exhibit once it has been completed. This is often the first time that evaluators can test interpretative exhibits and exhibitions in greater depth in relation to the surrounding space, examine their relationship with the rest of the museum, and explore the dynamics between objects, visitors, and interpretative media. The term *remedial evaluation* has been proposed by some researchers as a separate type of evaluation which focuses on improving the completed exhibit.

5.5   Evaluation methods and tools

There is no single golden method for evaluating museum displays. It is usually necessary to combine several methodological tools in order to have a better chance to verify and combine data. Some of the most commonly used methods are briefly mentioned here.

5.5.1 Observation

Observations of visitor behaviour (stops made at exhibits, tracks followed through the gallery) can be recorded on data collection sheets with the floor plan of the exhibition space or with checklists of specific behaviour categories, together with personal notes. Additionally, tape- and video-recording of visitors' discussions and interaction can also provide a wealth of data, although these often take longer to analyse and raise ethical questions about the invasion of visitors' privacy. Some researchers use participant observation (becoming members of the museum activity), which can offer rich, qualitative data, but this poses its own problems, since the researcher's presence might affect visitor behaviour.

5.5.2 Interviewing

This can be unstructured and open-ended, with the interviewer discussing freely with visitors, or structured, following a standardized questionnaire. When testing a prototype, interviewing can take the form of cued and uncued testing. *Cued testing* involves explaining to users what the exhibit is about and asking them to perform specific tasks or to answer questions. It might also entail engaging users in conversation and encouraging them to 'think aloud' as they go through the display, while recording their responses. This

method is of particular use during the formative testing of computer interactives. With *uncued testing*, users are observed unobtrusively going through a display or using a computer program and are then asked questions about their experience. Interviews can provide a large quantity of useful and meaningful data, but are time consuming to conduct and analyse and demanding on the interviewer. Also, one of their most important disadvantages is that interviewees usually offer socially acceptable answers, biasing the results.

5.5.3 Focus group discussions

Discussions with focus groups are often held during front-end analysis, but also during the other forms of evaluation. These are participatory sessions with small groups of people, often a particular targeted audience, who are encouraged to express their opinions and perceptions of the topics being studied.

Focus group discussions can be particularly useful for exploring how and what the targeted audience thinks about a topic before beginning project development. They often help outline a list of questions for more formal interviewing. They can provide a lot of qualitative data about people's views and feelings, but are difficult to analyse and categorize and require a specially trained and skilled moderator.

5.5.4 Electronic questionnaires on screen

Electronic questionnaires provide an easy way to record feedback from end users of computer applications in museums. Users of the program are encouraged to answer questions or to click on multiple choice answers after using the program. The National Museums of Scotland used electronic questionnaires in their Western Isles National Database Evaluation Exercise (WINDEE) project to record basic information about the users, like their age, sex, and place of residence (Buchanan & Morrison 1995). With World Wide Web virtual exhibitions and on-line applications this is often the only way to acquire some information about the users, but has the disadvantages of using a self-selected and not random sample.

5.5.5 Self-administered questionnaires and visitors' comments books

Attractive and clearly laid out printed questionnaires placed next to the display that is being evaluated can encourage visitors to leave their impressions and comments about it. Again, this method is not statistically valid, since it provides answers from a self-selected sample, but it is inexpensive and easy to carry out and can often provide useful information.

5.5.6 Computer logging of user interaction

This is a reliable way of recording the choices of users of museum computer applications, the path they selected through the program, the time they spent with the application, and the level of information they reached. Once the scripting has been set up, it is an easy and objective way of obtaining a large set of data, which can be analysed statistically. One problem with this method is that although it reveals the most popular visitor choices, it does not explain why they were chosen. The results are more meaningful when combined for example, with interviews and observation.

5.5.7 Methodological limitations and issues

With most of the methods described above, it is important to use a rigorous sampling methodology in order to acquire results from the sample that can be generalized about most museum visitors. Random sampling ensures that every person in the population (the museum audience in this case) has an equal chance of being selected to complete a questionnaire or offer information. Even when the study is primarily qualitative, employing for example, open-ended questionnaires, careful and systematic sample selection can control the evaluator's biases. In quantitative studies, a random sample of appropriate size can ensure that the results are representative of all the population of museum visitors. Generally, the larger the sample selected for a study, the smaller the possibility of error is. When the survey intends to examine sub-groups of visitors, it is important to ensure that a large enough sample has been drawn from each group. The size of the sample, the related margins of error, and the degree of precision required must be decided according to the purpose of the study.

In general, a good understanding of the statistical and mathematical principles related to evaluation surveys is important even for the evaluator who specializes in qualitative methods. However, it is the evaluator's sensitivity, experience, and understanding of the circumstances that will make sense of the statistical results. It is very rare that museum evaluation can be based solely on statistical inferences.

One of the methodological limitations of surveys is that conclusions and inferences often have to be drawn based on the study of only a small part of the population. In museum evaluation work in particular, this becomes even more complex by the heterogeneity of museum audiences and the fact that these are often hypothetical. It is impossible, for example, to estimate the exact size of all visitors to an exhibition before it opens. Furthermore, due to the unique and diverse character of museums and exhibitions, it is difficult to generalize the results from an evaluation study. It is mainly the extensive research studies (usually carried out over a long period of time and employing a combination of methodologies) that generate results which are generally applicable, illuminating aspects of museum visiting.

5.5.8 Findings from evaluation studies of museum multimedia

The few published evaluation studies of computer interactives give us some indication of how interactive multimedia applications have been used in museum settings.

Users of museum interactives tend in most cases to be young and male (Doering et al. 1989; Giusti 1994a; McManus 1993d; Menninger 1991; Morrissey 1991; Sharpe 1983). In their study of the use of the 'Information Age' exhibit at the National Museum of American History, Allison and Gwaltney (1991) have also found that visitors over 45 in age were underrepresented, while those under 25 were over-represented. However, their study did not show any imbalance linked to sex. Few studies seem to contradict this pattern (Hilke et al. 1988; Economou 1999).

The study of the program 'The Caribou connection' at the National Museum of Natural History in Washington, DC recorded both direct and indirect users, the latter being those who observed without participating. The results showed that while over 60 percent of the direct users of the computer system were male, the indirect users were divided equally between the sexes. Although we need to be careful to take into account the special characteristics of every case, when interpreting these data, it would seem that visitors who

voluntarily approach a computer or compete for its use in a busy gallery, are generally those who are already comfortable and familiar with using the technology (McNamara 1986). Until recently, these were more likely to be young and male.

In most cases visitors use the multimedia interactives in groups (Doering et al. 1989; Giusti 1994b; McManus 1993d; Menninger 1991; Morrissey 1991). Many adults make use of their attractive presentation and educational content to explain and discuss with children issues related to the objects and the exhibition.

As many museum professionals and educators suspect, visitors seem to like the process of using the computer (Serrell & Raphling 1992) and comment in many surveys on the attractiveness of the medium (Doering et al. 1989; Giusti 1993a; McManus 1993d; Menninger 1991). Computers are often more popular than any other exhibit in the display (Hilke et al. 1988; Economou 1999) and have a strong holding power (McManus 1993d; Menninger 1991). One exception is the example of the Hall of Human Biology and Evolution in the American Museum of Natural History, New York, where visitors seem to have appreciated the dioramas and artefacts much more than the computer interactives (Giusti 1994b). These observations cause uneasy feelings to many educators and curators who fear that state-of-the-art machinery and dazzling programs are going to destroy the special atmosphere of many galleries and steal attention away from the objects.

Interactive applications can indeed have a powerful impact in public exhibitions, isolating the users from the surrounding environment and distracting them from looking at the displays. On the other hand, research so far on the use of computers in the galleries suggests that, when thoughtfully designed and carefully positioned, interactive systems can actually complement and increase the enjoyment of the exhibits by acting as supplements and enhancements, rather than replacing them (Allison & Gwaltney 1991; Hilke et al. 1988; Mellor 1993; Menninger 1991; Morrissey 1991; Wanning 1991a; Worts 1990).

The above studies report that after having used interactives interpreting the museum's collections, visitors spent more time viewing the galleries. Although time spent viewing the galleries is not always an accurate measure of learning or attention, it has been used in numerous studies on museum audiences (Falk 1983; Koran et al. 1989), as it is an easily measurable factor which suggests increased interest and can be an indication of exhibit effectiveness. Allison and Gwaltney observed that 'visitors are clearly still spending most of their time looking at the traditional displays in the exhibition. The availability of interactives does not diminish interest in seeing artifacts or period settings. In Information Age at least, the time visitors spend with interactives seems to increase the normal amount of time they would have spent in the gallery if the interactives were not present' (1991, 70).

The presence of computer interactives in most galleries does indeed have a strong influence, but it seems to be a positive one, creating a lively and positive atmosphere and increasing the interest in the subject. Evaluators in many cases tried switching the machines off for certain periods to observe the differences in visitors' behaviour. In the Ontario Gallery of Art, conversations were more animated when the computers were on. Visitors were pointing to works of art and calling to friends to look at details (Worts 1990). In the 'Laser at 25' travelling exhibition '... visitors read, questioned, and discussed exhibit topics more frequently when the computer was on. Surprisingly, there were more reading and looking behaviors not only at the computer but also for visitors to all parts of the exhibition' (Hilke et al. 1988, 48). Interestingly, in the same exhibition, but also at the

evaluation of the interactive videodisc program 'Birds in trouble in Michigan' at the Michigan State University Museum, non-computer users also spent more time in the gallery than when the computer was off (Morrissey 1991). Modelling after the behaviour of other visitors is probably an important factor in this situation.

The observation of the use of museum interactives and the pattern of exploration showed that visitors appreciate the initiative and flexibility that these applications offer. Users prefer to have more control over their choices and create unique paths through the program (Morrissey 1991), rather than explore in a linear fashion (Diamond et al. 1989). The evaluation of the 'Electronic Newspaper' program in the American Museum of Natural History showed that the things visitors learned and remembered more vividly were the more active, discovery-based parts of the application (Giusti 1994a). Developers of multimedia interactives should therefore, not forget to make full use of the powerful interactive elements of these applications.

Several studies included cognitive tests to investigate what people learn from multimedia interactives. Knowledge acquisition is a common evaluation criterion, although it is worth remembering that the museum visit is different from the classroom experience. The evaluation studies of the Getty Museum videodiscs on Greek vases and Illuminated Manuscripts tested cognitive gain by comparing answers given by users of the interactive application with those of a control group which had only visited the gallery without viewing the application. The results indicated that the score of the users of the interactives was significantly higher (Menninger 1991). At the studies of the 'Caribou Connection' and the 'Electronic Newspaper' at least two thirds of those interviewed mentioned that they had learned something specific (Doering et al. 1989; Giusti 1994a).

The visitor study of Birmingham Museums' 'Gallery 33' also offered some interesting indications about the impact of computer interactives. The permanent exhibition about cultural relativism, entitled 'Gallery 33: a Meeting Ground of Cultures', was organized by the Archaeology and Ethnography Department and includes the interactive video 'Collectors in the South Pacific'. Although the study pointed out that the majority of visitors did not associate the interactive videodisc with the adjacent exhibit that the designers had intended it to be paired, it also reported that the application 'had aroused (visitors) to think of matters related to the collection of artefacts which had never occurred to them previously' (McManus 1993d, 79). Almost a third of those interviewed said that the interactive video had influenced their views on the repatriation of artefacts and on museums (McManus 1993d). The interactive videos in Gallery 33 seem to have been influential in stimulating qualitative learning (Peirson Jones 1995).

The summative evaluation of Gallery 33, one of the most extensive carried out, included an exit questionnaire, a tracking study of visitor use of the gallery, an analysis of the memories of the gallery based on a postal survey, a questionnaire to test the reactions to the interactive video, a statistical analysis of hit counts and choices in the program, a study of schools' use of the interactive video, and an analysis of visitors' written comments. It was possible to track down a number of visitors about seven months after their visit to the exhibition, thanks to the addresses that they were encouraged to leave at the visitors' book. From those who responded to questions about what they remembered from their visit to the gallery, it was evident that the range and depth of memories from the exhibition was remarkable. The study showed that the interaction with the multimedia applications had clearly been a memorable experience for the visitors. From the total of memories related to

objects or things, the largest proportion (a quarter) was related to the interactive videos (McManus 1993c, 60).

Summing up, it seems that museum interactives are used mainly by young males, who visit the exhibition in groups. The applications are often the most popular, visitors use them for a long time, enjoy the novelty of the technology, and have a memorable experience. The use and presence of the computers affects the way they behave in the museum, often encouraging them to stay longer and pay closer attention to the objects and exhibition themes. In some cases, the application raises new issues and encourages visitors to challenge their perceptions.

Further research, experimentation, and communication is necessary to confirm these findings and increase our knowledge and understanding of the role of interactive multimedia in museums.

It is difficult to find a uniform answer among the museum community to the question of what constitutes a successful exhibit, and consequently to measure its effectiveness. Attracting a large portion of the audience; contributing to visitors' entertainment and enjoyment; facilitating learning; stimulating curiosity and interest; raising issues; or encouraging self-exploration, whatever objectives the team has set, one can only find out if they have actually been achieved by studying the visitors. The effort and resources expended in observation, interviews, and analysis should be seen as an investment which will increase understanding, enable the museum to improve its exhibitions, and offer valuable insights for future ventures.

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