



Digital Culture & Heritage Patrimoine & Culture Numérique



Haus der Kulturen der Welt, BERLIN

Aug. 31st - Sept. 2nd, 2004

31 Août - 2 septembre 2004

WHAT CLICKS? ELECTRONIC ACCESS TO MUSEUM RESOURCES IN SCOTLAND AND E-LEARNING OPPORTUNITIES USING MUSEUM RESOURCES

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**Published with the sponsorship of the
French Ministry of Culture and Communication**

Actes publiés avec le soutien de la Mission de la Recherche et de la
Technologie du Ministère de la Culture et de la Communication, France

Interprétation simultanée du colloque et traduction des actes réalisées
avec le soutien de l'Agence Intergouvernementale de la Francophonie

Abstract (EN)

This paper will present research currently underway in Scotland into the use and extent of multimedia resources being employed in the museums community in Scotland and their impact on users at remote locations. The paper will outline the project, present a preview of the findings of the research, and provide an in-focus case study based on a visit and interviews conducted on the Isle of Barra in the Outer Hebridean Islands off the West Coast of Scotland. The "What Clicks?" project is led by Jim Devine, the Hunterian's Head of Multimedia, and will review existing and potential capability, human and technological, within the museum sector in Scotland, in the use of ICT to increase public access and resulting learning opportunities to collections. In addition, the project will produce recommendations outlining how the museum sector in Scotland can best realize the potential of ICT for e-learning. The World Wide Web and other digital means (e.g. CD ROM) offer Scottish museums the opportunity to increase access for a wide range of new audiences and to promote new learning styles. In particular, opportunities are created for study by those physically remote from museum collections - from primary and secondary schools through to community and special needs groups, to self-directed lifelong learners.

Keywords: Distance Learning, e-learning, multimedia, education

Zusammenfassung (DE)

Dieses Referat wird die laufende Forschung zur Nutzung und zum Ausmaß von Multimedia-Ressourcen, die in der Museumsgemeinschaft in Schottland verwendet werden, sowie deren Einfluss auf die Benutzer, die sich an entfernten Orten aufhalten, darstellen. Neben einer Zusammenfassung des Projekts wird eine Vorschau auf die Untersuchungsergebnisse gegeben und eine Fallstudie basierend auf einem Besuch und Interviews vorgelegt, die auf der Isle of Barra in den Äußeren Hebriden an der Westküste Schottlands durchgeführt wurden. Das „What Clicks?“ Projekt wird von Jim Devine geleitet, dem Leiter der Multimedia-Abteilung des Hunterian Museum, und wird das bestehende wie auch das mögliche humane und technologische Potential des Museumssektors in Schottland beleuchten, der Informations- und

Kommunikationstechnologien benutzt um den öffentlichen Zugang und die daraus resultierenden Möglichkeiten des Lernens zu verbessern. Zudem wird das Projekt Empfehlungen hervorbringen, wie der Museumssektor in Schottland das Potential von Informations- und Kommunikationstechnologien für E-Learning am besten realisieren kann. Das World Wide Web und andere digitale Hilfsmittel (wie z. B. CD ROM) ermöglichen es schottischen Museen den Zugang auf eine große Anzahl von neuen Zielgruppen zu erweitern und neue Lernmethoden zu fördern. Möglichkeiten für das Lernen ergeben sich im Besonderen für diejenigen, die physisch von der Sammlung des Museums entfernt sind, angefangen von Grund- und Real- bzw. Mittelschulen über Gemeinwesengruppen und Gruppen mit besonderen Bedürfnissen bis hin zu jenen, die selbstgesteuert, lebenslang lernen wollen.

Schlüsselwörter: Fernstudium, E-Learning, Multimedia, Bildung.

Résumé (FR)

Cet article présente une recherche en cours sur l'ampleur des ressources multimédias utilisées par la communauté des musées Ecossais, et sur leur impact pour des utilisateurs éloignés. Le papier trace les grandes lignes du projet, présente une prévisualisation des résultats obtenus à ce jour, et propose une étude de cas basée sur une enquête et des entretiens conduits sur l'île de Barra dans les *Outer Hebridean Islands*, au large de la côte occidentale d'Ecosse.

Conduit par Jim Devine, chef du multimédia au musée *Hunterian*, le projet "*What Clicks?*" ("Quels (Dé)clics?") passera en revue l'existant ainsi que le potentiel humain et technologique du secteur muséal écossais, dans l'utilisation des Technologies d'Information et de Communication (ICT) pour le développement de l'accès public aux collections, ainsi que des applications éducatives qui en découlent. Des recommandations stratégiques seront proposées aux musées afin qu'ils puissent tirer le meilleur parti du web et des autres médias numériques pour atteindre de nouveaux publics et promouvoir des applications scolaires et éducatives.

Mots-clés : Étude à distance, enseignement assisté par ordinateur, multimédia, éducation.



www.hunterian.gla.ac.uk/what_clicks/index.shtml

Introduction

The Scottish Museums Council (SMC) and the Scottish Executive recently announced an award of almost £100,000 to the Hunterian in the second round of museum projects to benefit from the Strategic Change Fund. The Fund has been developed to bring strategic change to the Museum sector in Scotland and produce exemplar projects for potential wider application. Managed by SMC, and funded by the Scottish Executive, the Strategic Change Fund was launched in May 2002 to deliver over £1.5 million to successful projects throughout Scotland over two years.

The Scottish "What Clicks?" project is led by Jim Devine, the Hunterian's Head of Education and Digital Media Resources, and is reviewing existing and potential capability, human and technological, within the museum sector in Scotland, in the use of ICT to increase public access and resulting learning opportunities to collections. In addition, the project will produce recommendations outlining how the museum sector in Scotland can best realise the potential of ICT for e-learning. The World Wide Web and other digital means (e.g. CD ROM) offer Scottish museums the opportunity to increase access for a wide range of new audiences and to promote new learning styles. In particular, opportunities are created for study by those physically remote from museum collections - from primary and secondary schools through to community and special needs groups, to self-directed lifelong learners.

The Hunterian is working with a number of partners in Scotland and overseas, both within the museum sector and in education. Small, independent museums will also play an important part

including the Scottish Fisheries Museum in Anstruther. School and community partners will be drawn from local and remote areas including Dumbarton Academy, Cumbernauld Primary School, Castlebay Secondary School, Barra, Soroba Young Families Centre, Oban, and T.C. Williams High School, Alexandria, Va. The project will benefit from peer review, and input on the US K-12 curriculum and reviews of best practice in the US, provided through the Hunterian's links with the Smithsonian Institution and Harvard University.

Background

The Hunterian, working in collaboration with the Department of Computing Science at the University of Glasgow, has been at the forefront of digital delivery of educational resources, having launched the first museum web site in Scotland in 1995, and developing leading edge techniques for the digital presentation of cultural resources. Schools in Scotland and overseas regularly use the Hunterian's web resources, and email enquiries are dealt with from schoolchildren from as far afield as Barra to Brooklyn. This international aspect of the Hunterian's distance-learning activity has also led to a highly successful skills-sharing partnership with the Smithsonian Institution in Washington D.C.

Since first sharing a platform at the first Museums and The Web conference in Los Angeles in 1997, The Smithsonian Institution and The Hunterian Museum and Art Gallery, on their respective sides of the Atlantic, have worked collaboratively to establish leading edge practices in the field of digital imaging and multimedia presentation techniques for the scientific and cultural heritage sector. This collaboration was formalised as SHADE (Smithsonian-Hunterian Advanced Digital Experiments), This partnership has also developed examples of best practice in skills-sharing through bilateral exchange of ideas and innovation, and staff exchange visits between the Education and Digital Media Service at the Hunterian Museum and Art Gallery, University of Glasgow, <http://www.hunterian.gla.ac.uk> and the Center for Scientific Imaging and Photography at the National Museum of Natural History at the Smithsonian. <http://www.nmnh.si.edu>

The Scottish Executive's role

The Scottish Executive is the devolved government for Scotland. The Executive was established in 1999, following the first elections in nearly 300 years to the Scottish Parliament. At Devolution, the powers and duties exercised by UK Ministers in Scotland, relating to devolved matters, were transferred to the Scottish Ministers. Included in the list of devolved powers was Arts and Culture; and it was under that Ministerial responsibility, that in May 2002, the Scottish Executive launched the "Strategic Change Fund" to deliver over £1.5 million to successful projects throughout Scotland over two years. Awards have been made to new initiatives throughout Scotland, which have been developed to bring strategic change to the Museum sector and produce exemplar projects for potential wider application.

The Scottish Museums Council's role

The Scottish Museums Council is the representative body and membership organisation for Scotland's non-national museums. The Scottish Executive considers SMC to be its "main adviser on local museums and the main channel of Executive support for Scotland's 400 or so local museums and galleries". The 1998 SMC-led "National Strategy for Scotland's Museums" called for a fresh look at museum development and practice in the country, stating, "All museum development should incorporate the principle of sustainability".

Managed by the Scottish Museums Council, support from the Strategic Change Fund has been awarded to 13 new initiatives throughout Scotland. All of the awards are the result of innovative and collaborative partnerships being formed between the lead applicants, other museums, local authority councils and key non-museum sector organisations. This approach is welcomed by SMC as cross sector communication and partnership is crucial to museum sector development at regional level. SMC have said "The Strategic Change Fund has created some exciting initiatives that museums, local authorities and other partners expect to learn from and use as exemplars for the future. It has been a catalyst for introducing museum organisations to new methods of working and has provided them with the opportunity to develop new mechanisms that could be of substantial benefit not just to the applicants but also to the Scottish museum sector as a whole."

Projects receiving funding under the Strategic Change Fund are engaging in one or more of the following criteria:

- building long term learning or marketing partnerships
- establishing a regional centre of excellence and expertise either alone or through a consortium
- leadership and management development programmes
- building new partnerships with non-museum organisations or services including Local Enterprise Company's, tourist agencies, education sector, social work and other Local Authority departments
- developing a comprehensive ICT strategy either alone or as a consortium.

A full listing of the SCF supported projects can be found at:
www.scottishmuseums.org.uk/members_services/grants/SCF/scf_projects.asp

Providing electronic museum resources for remote access.

Electronic Resources and Museums

Museums across Scotland have been producing a wealth of electronic materials and resources and making them available to the public. There are excellent examples of educational resources being developed in many museums, and made available for electronic access through individual museum web sites, CD ROM productions, and inputting to online databases and portals such as SCRAN (Scottish Cultural Resources Access Network) and the NGfL (National Grid for Learning) through the work of LTS (Learning and Teaching Scotland). The wealth of material ranges from simple images and descriptions of objects, to fully interactive virtual museum exhibitions and learning materials that can be used by pupils and teachers in the classroom.

For many of Scotland's museums the benefits of online exposure and access are becoming increasingly apparent. Having an online presence, and putting collections online, are becoming increasingly important to the strategic aims of museums across Scotland. The Internet provides an obvious showcase for making museum's resources and information available to the public, and many museums have developed websites varying from a single page of basic textual information about their whereabouts and opening hours, to extensive, fully interactive virtual exhibitions and targeted educational resources

To allow an up to date assessment of the currently available websites of Scotland's museums, a Website Review survey was carried out by the What Clicks? project. This review used criteria from "Evaluating The Features Of Museum Websites: The Bologna Report", a paper presented at the Museums and the Web Conference 2002. This paper researched the quality and usability of cultural heritage applications and compiled a Contents Schema for Museum Web Sites. This schema was used as a basis for the website reviews to assess what types of website exist at the moment, and the contents and quality of those sites. The results of this review are currently being compiled. some initial findings are outlined below, and the final report will be available at the What Clicks? Website: www.hunterian.gla.ac.uk/what_clicks/index.shtml

Target Audiences

It is apparent that many museums have put in a substantial amount of effort to develop electronic resources. It is interesting, therefore, that not many museums have a clear idea of who is accessing their electronic resources, or who their target audiences are.

Many of the responses to the What Clicks? questionnaire question, "***What is the target audience for your website?***" were simply, "General Public", "Everyone", "No target audience, access for all".

Many of the electronic resources being developed do have a definite audience that they are geared towards, for example primary or secondary level school children, teachers, life-long learners, potential visitors etc.

Some museums have given consideration to the audiences that will access their resources, for example, another response to the above question was, "1. Seasonal Visitors eg. Tourists, Families. 2. Schools. 3. To a lesser degree - study access - to encourage visits from professionals." However, this consideration was in the minority with most museums not being aware of their target audience at all, or not considering it any more than in the most general terms.

The question "***Do you know what use is made of your website?***" was answered by 74% of respondents with the following breakdown of results:

Yes	No	Not Sure
25.5%	38.3%	36.2%

Despite 25.5% of respondents answering “Yes” to this question, only a couple of respondents actually gave details about what activities are being carried out by those who visit the website: “Visitors to area checking opening times etc. Sale of publications. Members for lecture times”. The following seems to be typical of the respondents, “We have not done a proper analysis of users but receive numerous enquiries from throughout the world because of it.” The web developer of the Trimontium Museum’s website considers what use is being made of their website, “there's a website there which is being accessed, not a colossal amount, but it's still being regularly accessed and there's certainly, I would say, a growth in access.”

It can therefore be concluded that museums are not fully aware of what use is currently made of their resources.

Focussing on the *users* of a resource is of great importance in order to ensure that resource meets its aims and objectives and is used effectively and as intended by the producers. Museum resources can better meet the needs of users if they have a more targeted approach in producing resources. It is clear that such resources would be of value to many groups, not least teachers and school pupils, who are constantly searching for new resources.

To try to better understand the needs of a range of target audiences for museum web sites the What Clicks? Team have conducted visits to museum providers and target-audience users across Scotland, and we have conducted interviews in the USA to enable the project to draw comparisons and benefit from best practice examples from the museums and schools communities there. What follows is a case study based on one those visits.

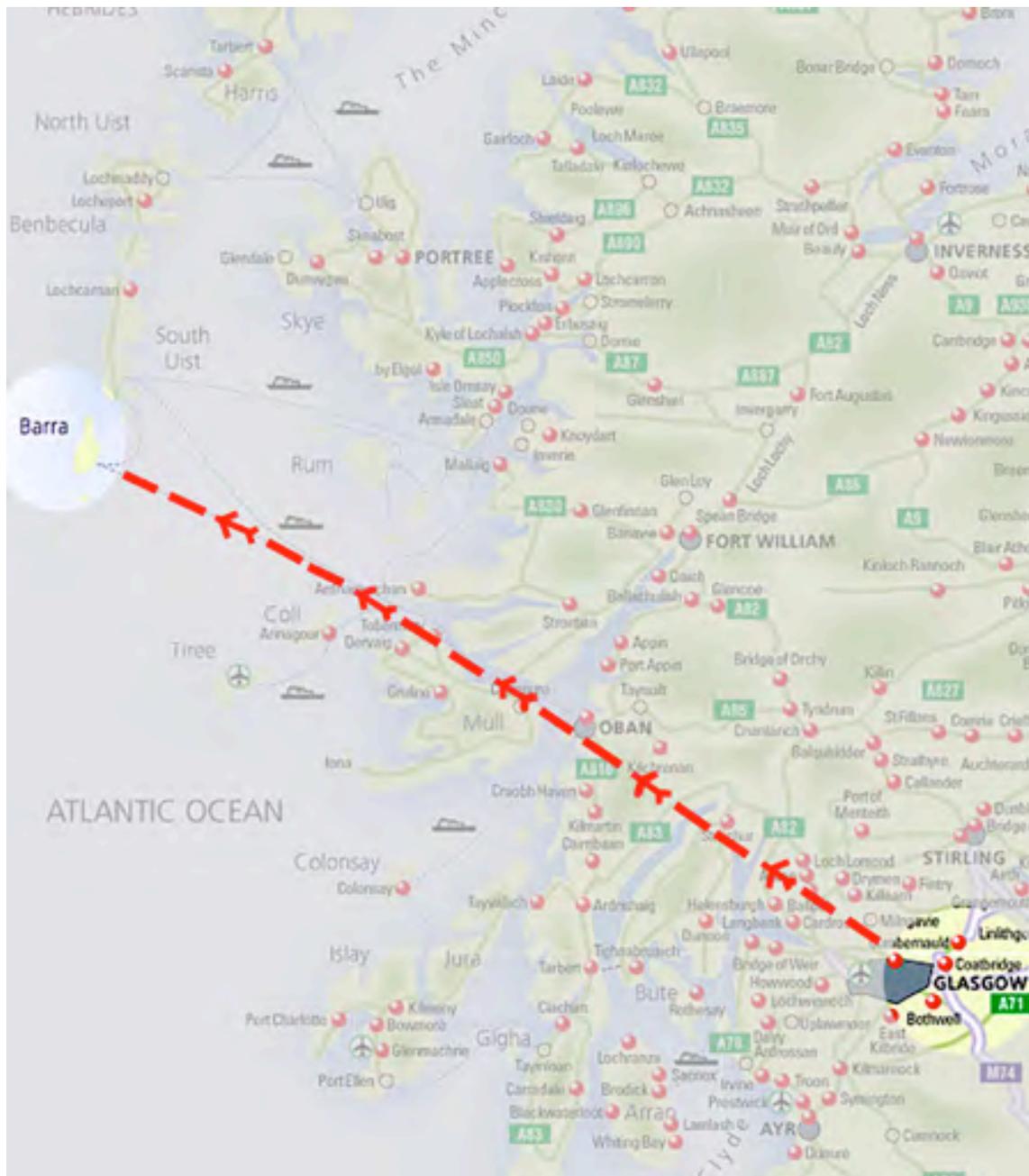
What Clicks in Scotland?

Case Study – Isle of Barra.

The Isle of Barra is situated on the West Coast of Scotland, approximately eight by four miles in area. Its population is

around 1200-1300, with many of the population aged over forty or under sixteen. Castlebay School, which encompasses both a Primary and a Secondary School, is part of the What Clicks? Project Advisory Group, through the Principal Teacher of Art, Mr Bill Blacker. Barra was chosen for an initial visit due to its geographical location, distant from many of the physical museum resources available in Scotland, which are mostly concentrated in the Central Belt of the mainland between Glasgow in the west and Edinburgh in the east. In addition, the presence of the Barra Heritage Centre, next door to the school provided an opportunity to assess the interaction between the school and a local heritage resource. It was an excellent candidate for an initial review of resources and to be used as a case study illustration of the partnerships and collaborations the What Clicks? project is investigating and hopes to encourage.

Fig. : Map of the west of Scotland showing the Outer Hebridean island of Barra.



Aims:

Review the existing resources in terms of ICT provision, and use as a learning resource in the school.

Uncover some of the barriers that dissuade teachers and others from using ICT as a learning tool.

Review the existing resources and investigate the possibility of making more of the Heritage Centre’s resources available electronically.

Assess the potential for possible collaborations with other organisations, for example between the Heritage Centre and the school.

Undertake a series of interviews with interested parties and individuals to determine all of the above.

Findings:

Castlebay School.

“We will be able to offer education as a community resource and will be able to use IT in order to allow people to share it.”

Jim McKeeman, Deputy Head Teacher
Castlebay School, Barra.

The vision of senior education staff like Jim McKeeman and his colleagues at Castlebay has helped to create an environment where the potential of new technology is recognised and widely embraced to enhance learning, both in the School, and in the wider community.

The Internet is used by teachers and pupils on a daily basis for classroom-based study. Pupils and teachers will regularly browse the web to find out a particular piece of information relating to a classroom topic being pursued. However they often found that finding teaching resources can be difficult and time consuming and would like to see some more curriculum focussed resources. For example, they suggested that having a database of Scottish literature designed for educational use that was clearly curriculum based would be really useful. Otherwise they tend to use the Internet for specific pieces of information. In the case of pupils, they use “Google” to search for information, then use “Ask Jeeves” if they can’t find what they want using Google. They use educational games which develop literacy and numeracy skills in the Learning Base that all pupils have access to. They had heard of SCRAN but don’t use it. It would appear that they haven’t yet realised the extent of the information available on SCRAN, or that it could be viewed as curriculum based. Other CD ROMs had been used, for example for studying Macbeth and Tam O’Shanter in English courses produced by Learning and Teaching Scotland. The CD ROMs had quizzes, audio excerpts, text excerpts, animations, and character development information and were described as very good. The pupils enjoy using these resources, however they felt that few such resources as effective as this were available. They found many of the CD ROMs they purchased to be “disappointing” and this put them off using limited department funds to purchase any more, considering the often significant cost of each educational CD ROM.

Specific websites are recommended by teachers to pupils for research and assignments, for example the BBC News site is recommended, as well as other tabloid and broadsheet newspaper sites, for comparisons of the type and style of information available, and as part of research for argumentative or discursive essays and presentations.

Web worksheets are used to supplement the books they use. Many books have related Internet sites with downloadable worksheets and quizzes directly related to the books they already use.

The Learning Support Department at the school also runs a scheme to allow pupils to borrow simple word processing equipment, if they don't have a computer at home, or if their handwriting skills are poor. They are used for typing up reports and other schoolwork and for pupils to use during class if their handwriting is poor. The machines used for this purpose are Alpha Smart 3000's and users are assigned a file number where everything they type is automatically stored; no user saving of work is required so they are simple to use. Usually the document is uploaded to a computer in the Learning Base to allow pupils to format their work before printing it out. This scheme is used a lot at the end of term and at exam time.



Fig. : A pupil at Castlebay School, Isle of Barra, accesses the Hunterian Museum's web site on her classroom computer.

The school uses digital camera equipment a great deal. Following a recent UK Government initiative to allow individual school Head Teachers greater control of locally-devolved school

budgets Castlebay School's Headmaster decided that ICT should be a priority for development within the school, and used the devolved funding to buy extra computers over and above what they would be getting through the governments provision to schools through the NGfL (National Grid for Learning) and other organisations. The staff decided that something they really needed in the school was a digital camera and digital video recording equipment – where quality was a big factor. Digital photographic equipment was purchased and was soon in regular use. Staff and pupils were able to record school events and to produce higher quality teaching resources. Images are used to support classroom project work and for pupil displays on art and other subject materials. They have even ventured into the area of school business enterprise, taking digital photos of all class groups and other school groups and producing prints that are sold to parents. Probably the most successful thing they've done with the Internet was an exchange with Irish school pupils where one of the staff kept a photo diary of what was happening on a daily basis. Each day a gallery was built up and put on the web for parents and pupils back in Ireland to see what went on each day. This reinforced the concept of digital technology providing “electronic bridges” between physically remote communities of learners. The direction now, strategically, is moving towards a similar thing but with digital video rather than just still images. After the initial success of the digital camera and the digital video camcorder, when more funding became available, further equipment was purchased, improving on resolution quality and increasing availability of the resources.

The visit to Barra raised our awareness to a number of important issues for resource providers from the users point of view, which we have encountered repeatedly on subsequent visits around Scotland and in the USA. In addition to the comments noted above, it also became clear that carefully thought through electronic resources development projects could help meet the requirements and aspirations of a number of areas of museum operations. In addition to the learning-support role that museum web sites and CD ROM's can deliver, there is also the potential for significant marketing opportunities for Scotland's museums.

Marketing

The web is an invaluable tool for providing information and allowing access to users regardless of where they are located and what they are looking for. Many of the museums that took part in this research use their website to raise the profile of the museum, for tourism and to and provide

information about the museum facilities. However, many websites provide much more than just information about the museum, providing online collections and educational resources. Potential audiences for these resources are not being made aware enough that these resources exist. Although 34% of teachers responded that they had used museum websites in the What Clicks? Teacher Questionnaire, during face-to-face interviews on visits the actual usage of museum websites seemed much lower. The marketing to this constituent of potential audience could be considerably improved. Responses to the Teacher Questionnaire question, “*If you do not use any museum websites, why not?*” focused on lack of awareness about museum websites and lack of time to find out more about them. One teacher from Stranraer Academy made the point that teachers don’t know what museum resources exist on the Internet. She didn’t think her department had received any publications or marketing materials from museums. Even if such publications arrive in the school, they are not getting to teachers and departments who would benefit and make use of those materials. In visiting schools and community and learning centres as part of this research, it became obvious that audiences are simply not aware of the electronic resources that are available to them. Current techniques of attracting educational users and making them aware of the resources available are not effectively getting through to audiences who would benefit most.

Marketing in general may only be a small consideration for many museums, especially smaller museums. The marketing of the museum in general and in particular the marketing of museum websites can often be overlooked in favour of what are considered to be more pressing priorities. This approach however, is often a false economic measure, as there is little point in producing resources, whether online or in the physical museum, if there is no sound marketing strategy to raise the target audience’s awareness of the existence of those resources.

Museums and Accessibility

With the final stage of the **Disability Discrimination Act** coming into force in the UK on the **1st October 2004**, it is the responsibility of museums to be aware of the issues facing people with disabilities in accessing collections and encourage good practice in the preparation and presentation of museum resources for all users including those with disabilities and disadvantages.

The Disability Rights Task Force encourages the participation of disabled people in all roles of arts and culture including museums, galleries and archives. The Task Force promotes a commitment to best practice in relation to disabled people and that venues must demonstrate proactive access policies.

Many museums are already making provision for visitors with disabilities to access their collections and displays, for example lowering the height of display cases to allow wheelchair users to view the displays comfortably and making “reasonable alternatives” (e.g. multimedia kiosk installations) if physical alterations to buildings and gallery spaces cannot easily be made.

This provision of access is not only restricted to the physical building and physical displays. More and more museum resources are being made available electronically and therefore consideration should be taken in making these resources just as accessible to users with disabilities and disadvantages.

Museum resources are already in use by disabled user groups. The What Clicks? Project visited one such group at Stranraer Academy's Special Needs Unit, in Dumfries and Galloway, Scotland. Stranraer Academy integrates some of its Special Needs pupils with mainstream pupils, with additional support provided by dedicated teachers. One of the pupils the project team met there there was a fourth year (15 year old) pupil called William. William has cerebral palsy, which is a chronic condition affecting body movement and muscle coordination. William uses a laptop provided by Dumfries and Galloway Council that has special software to support his needs, for example, speech synthesis software so that he can participate in the class activity of giving a presentation. William was very interested in electronic resources and took the opportunity to look at an example of an electronic resource created by a museum - a Scottish Ballads CD that was produced by the Hunterian Museum in collaboration with the University of Glasgow's Department of Scottish History, and SCRAN.



Fig. : Electronic resources supporting special needs at Stranraer Academy.

William enjoyed using the CD, and also mentioned using the Internet as part of his studies. His support teacher made the point that museums could do so much to support the needs of pupils like William through resources available on the Internet and CD ROM. The teacher feels that more and more electronic resources are being brought into the classroom and emphasised making the resources easy for pupils to access and the importance of targeting materials to different ages and abilities.

The What Clicks? project has found from the museum questionnaire returns and interviews with museum representatives that accessibility was often not a primary consideration for museums when developing electronic resources, with several museums not considering accessibility at all. Lack of knowledge about issues such as accessibility and lack of funds to develop the website were often cited, as well as other considerations taking priority. Museums were found to be more concerned with creating the content and getting it live online, rather than considering issues of accessibility. Some museums, like the Scottish Fisheries Museum, considered very basic levels of accessibility, for example taking into account the point size of text - in the same way as they

do with labels in the museum. Other museums, like the Hunterian Museum, considered accessibility a priority and employed a visually impaired student under a scholarship to research and make the website more accessible for users with visual impairments.

Accessibility is clearly an area where the provision of guidelines and recommendations for best practice in addressing disability awareness issues for museums developing electronic resources could have a disproportionately high return in terms of the benefits to users for a comparatively low outlay in terms of implementation of accessibility best practice standards.

Recommendations

Firstly, it is important to make clear to museums professionals basically what electronic resources are, and the benefits online collections for education, recreation, marketing and research can bring. The Internet is a different way of presenting the museum's collections and should be viewed as another means for communication with a museum's audience. As such, developing resources for the Internet is a different task to developing resources for display in a physical space. The experience of visiting a museum online is very different to actually visiting a museum, so resources for the web should not try to recreate the traditional museum experience. Electronic resources should be developed to exploit the medium where they are presented, in a different way to the sights, sounds, smells and ambience of a physical museum.

Museums online provide another method for visitors to access collections, to increase museum audiences and provide access for those in remote areas, or otherwise unable to make a physical visit to the museum. 82% of Questionnaire respondents confirmed that it would be useful to have more museum resources available electronically and none of the respondents thought that it would not be useful to have more electronic museum resources. The majority of those who took part in this research echoed this view. Some museum staff still hold the belief that increasing the virtual presence of the museum will reduce the number of actual visitors. Rather than discouraging actual visits, museums professionals should be aware that electronic resources could provide a sampling of what collections museums hold, and encourage actual visits to the museum. For example, staff at the Royal Highland Fusiliers Museum, a small army regimental museum in Glasgow, feel that the website has been "excellent" for the museum itself, bringing more visitors through the door, and emails from the website have now overtaken the number of

letters they receive through the post – a typical consequence of developing resources for the Internet for many museums.

Another attitude about the development of electronic resources is that many museum staff view developing electronic resources as totally separate from core museum functions. Museums should be encouraged to consider developing electronic resources as part of the museum's core functions.

Funding is one of the major concerns for the continuation of a museum's activity and, after "time", is the biggest barrier to the development of electronic resources.

To alleviate the funding issue some possible steps might be taken:

- Informing museums of what funding already exists, what type of funding is available, and how to apply for funding.
- Funding available over longer periods of time to allow the sustained development of electronic resources.
- More core funding for museums who incorporate development of electronic resources as part of the museums central activities rather than an optional extra.
- Funding for museums professionals to realise the potential of electronic resources, for example following the method of distributing NoF Teacher ICT training specifically for the development of electronic resources, administered by a central body for example the SMC.
- Museums planning for the funding they have: using planning techniques like using content management systems for maintenance rather than paying for a maintenance contract,
- Make the most of existing partnerships, for example using skilled students for short-term projects to cut down on labour costs.
- Utilising project management skills to assess projects fully to minimise risk and wasted funds.
- Corporate sponsorship of electronic resources: "Museums increasingly look to private companies to sponsor short term exhibitions or gallery spaces - why not websites and other electronic resources?"

The issues highlighted here and the possible responses are only some of the steps that might be taken. The final report of the What Clicks? Research Project (due at the end of September 2004) will contain recommendations, suggestions and exemplars of best practice which will seek to inform the Scottish Museums Council, and through them the Scottish Executive, and the wider Museums Community in Scotland and beyond.