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Museums’ User Needs

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ICT in Museums: Some Areas of Application

- Databases for collections management
- Multimedia kiosks for gallery interpretation
- Web sites (visitor information, info about the collections, access to the database, online exhibitions, etc.)
- Publishing (on paper, electronic)
- Administration (salaries, museum shop, ticketing systems, etc.)
- Communication (between staff, outside the museum)
ICT in Museums – trends and context

1990s-2000s:

- Fast and continuous spread in the cultural world
- Pressure from the public for the use of technologies in museums
  - linked with the image of a modern institution which follows the social and technological changes

Promises for great new possibilities and advantages

In some cases technolunacy and uncritical enthusiasm (technology as an end in itself)
New areas of application

- Increasingly, use of ICT to create an ‘experience’
- Virtual reality
- Immersive environments
- Hand-held devices
- Interaction in the gallery with virtual visitors on the Internet
Museum context and trends

- Social inclusion
- ‘Museums are for people’
- Making things personal and relevant
- Importance of social context
- New ways of informal learning (e.g. constructivism)
- Telling stories, revealing secrets, bringing objects to life
- Synergy with libraries, archives, other cultural & educational institutions
- Other partnerships
Museum Information Relationships

- Administer
  - staff
  - schedules
  - collections

- Document
  - manage
  - preserve

- Facilities
  - control

- Collection
  - objects
  - grants
  - markets

- Communicate
  - interpret
  - display
  - loan
  - entertain

- Activities
  - educate

Adapted from John Perkins. 1993. *Planning for Museum Automation Student Workbook*, 1
Special Characteristics of Museum Information

- variety
- lack of uniform procedures
- vagueness in terminology
- multiple interpretations & perspectives
- dynamic nature of information
- complex inter-relationships (people, places, objects, activities)
- keep for ever
Documentation of Collections

Museums - primary sources of information about objects, people, events

- Documentation systems handle the information about the collections and its associations
- Users of museum information: curators, conservators, other museum professionals, visitors, researchers, local government, building planners, auditors
- Museum documentation - dynamic, not static
Example of museum information

About this coin ...

- Where was it found?
- What does it show?
- How old is it?
- How did it arrive at the museum?
- Who owned it before?
- Where else have they found similar ones?
- Does it relate to the national curriculum?
- Does it need cleaning?
- ...

...
‘Digital libraries’ and museum needs

- ability to show context of objects
- users need to choose what they want to see
- ability to combine, compare objects from different galleries, periods, countries, etc.
Museum ‘digital libraries’ and specialist users

- Importance of colour information (e.g. for art historians)
- Metadata on calibration, image processing
- 3D information
- Museum collections: variety of media
- Importance of context (“information about an object is more important than the object itself”)
- Unlike some other cultural institutions: multiple contexts and changing groupings
Museum ‘digital libraries’ and ‘lay’ users

- Again: Importance of context
- Bringing objects to life
- Making collections relevant

- Strong links primary and secondary education (e.g. more education officers in museums than archives or libraries)
- Relevant to National Curriculum
Museum ‘digital libraries’ and schools

- Need to balance of information provided on collections
- Teacher: [In Perseus digital library of classical material, www.tufts.edu,] "…the links to real objects and texts in collections were good - something that museums should always bear in mind. It is easy to be seduced into thinking that games, interactive displays, models etc., can or should replace real objects; but nothing beats knowing that what you can see or even touch is real and old and has a history. I can still remember holding a real Roman sword as a teenager when attending a lecture at the British Museum."

- Balance between lots of object or collection detail & overview of museum's holdings
- Issue: is digital info likely to deter from visiting real thing?

Museum ‘digital libraries’ and schools

- Different models of use
  - Classroom teaching tool
  - Reference tool
  - Teacher resource
  - Computer suite

Museum ‘digital libraries’ and schools

- Presenting content - Teachers’ needs:
  - Special section & resources for education professionals
  - Again, consultation with teachers is important
  - Good short introduction to site
  - Unique and authoritative content
  - Depth rather than breadth of information
  - Information on visiting/links to real thing
  - Keeping it up-to-date and fresh (e.g. ‘Curator’s choice, ‘Website of the week’)
  - Good navigation and usability (effective searching tools, visual searches, avoiding clutter, clear headings and links, good use of icons and buttons)
  - Ability for users to store information
  - Provide abstracts and summaries

Digitisation of museum collections - why create digital libraries?

- Conservation reasons (e.g. reduce wear-and-tear on originals)
- Eases transmission across space & time
- Added value & increased usability (e.g. enlarge segments, cut and compare with material at other locations)
- Faithful copying
- Rapid retrieval
Selecting the material for DLs

- Strategic knowledge of collections (intellectual capital of institutions)
- Need to focus on
  - User needs
  - Collection conservation requirements
  - Institutional objectives
- Based on framework that defines intellectual, historic and cultural value of assets
- Moving from projects to programmes
- Issue: should museums focus on digitisation of core assets or also invest in their interpretation and the creation of resources for different users?

Guidelines for museums considering the creation of DLs

- Collecting the material

  - Don’t underestimate the time and effort involved in collecting the material and researching the content (if using material from outside, don’t forget copyright)
  - This requires involvement of curators & researchers
  - Simple mass of data is not enough; need to reduce information to what is relevant and important
  - Consider carefully the level of information to be provided
Guidelines for museums considering the creation of DLs

- **During the design process**
  - Need to be clear about objectives & target users
  - Even when commissioned outside, the staff need to be closely involved
  - DL design: requires team work (collaboration of content specialists, education officers, & technology experts)
  - It often involves partnerships
  - Need to incorporate users from early stages of design
  - Importance of evaluation
Lessons from user evaluation

- Digital Cultural Heritage Community Project
  - database of historical info from museums, libraries, and archives
  - related to curriculum
  - evaluation with elementary school classrooms in 3 schools in Illinois

- Recommendations:
  - v. important for teachers: link digitized content to curricular standards;
  - ensure the robustness of database;
  - concentrate on enabling teachers to utilize images and metadata off-line in the classroom and for assignments, and on high-quality, rather than high-quantity resources;
  - undertake continuous evaluation of the database use;
  - ensure that information in the database continues to be ‘trustworthy’

Lessons from user evaluation

Museums and the Online Archive of California

- Triangulation, quantitative & qualitative methods
- Evaluation with:
  - K-12 teachers
  - university students
  - academics in the humanities and social sciences
  - museum professionals, librarians, and archivists
- Data sources:
  - transaction logs
  - pre-existing use data
  - feedback forms
  - high-level questionnaires
  - in-depth interviews with participants
- Discover how to make museum digitised content useful, usable & used

Gilliland-Swatland, A., White, L., Chandler, R. 2004, ‘We're Building It, Will They Use It? The MOAC II Evaluation Project’ Museums and the Web 2004
<http://www.archimuse.com/mw2004/papers/g-swatland/g-swatland.html>
Delivery mechanisms

- CD-ROM or via Internet / Intranet

Things to consider:
- Restrict access to particular types of users?
- Registration and security
- Type of use planned / estimated / permitted
- Actions to plan against / discourage
- Start small and expand later?
- Ease of migrating later

- CD-ROMs can generate revenue ... but
- commercial success of cultural CD-ROMs is very rare
Museum DL applications on the Web

- can be a medium for most museum functions (education, collections information, outreach, marketing, publicity, etc)

- interactivity & user involvement still rather low
Interface design & retrieval

- Importance of testing and user evaluation
  - throughout all stages of design
  - with wide range of users

- Provide multiple alternative methods of searching / access

- Search methods
  - browsing (good interface, site map, thumbnails can help)
  - free text (full-text indexing based on all data / database indexing based on metadata) >> importance of standards, e.g. CIMI, Dublin Core
  - Boolean
  - content-based image retrieval (CBIR)
Importance of standards

- Use of widely accepted standards can assist the retrieval, migration, interchange of museum information

  e.g. standards for structuring data:

  - CIMI (Consortium for the Computer Interchange of Museum Information)  http://www.cimi.org
  - Dublin Core  http://dublincore.org
Terminology Control

Using standardized terminology when documenting museum collections allows:

- complete retrieval of information
- consistent records which give reliable answers
- successful communication with other museums and researchers
- record of hierarchical relationships & related terms

From Leonard Will "Thesaurus principles and practice"
New developments in retrieval

- Cross-collection searching
- Translation of results into different languages
- Analysis of content
- Visual representation of relationships among information
Digital libraries and museum learning

- Influence of museological & learning theories
- Constructivism
  - learner-centred, active learning based on prior experience and knowledge; educators to facilitate learning by providing ‘scaffolding’ of activities, strategies, etc
- For users of digital libraries:
  - Ability to explore at their own pace, follow their own choices
  - Facilitate multiple voices & exchange of stories
  - Provide wide range of learning approaches, entry points & points of view
  - Invite people to ask questions about content
  - Help users search for meaning

Constructivist online learning example

- Virtual Museum Canada exhibit *Horizons*: Canadian and Russian Landscape Painting (1860-1940)
  - Thematic browsing
  - Facilitate comparisons of landscape art by artists in Canada and Russia
  - Enable users to build on experiences of natural environment
  - Coherent approach to organise large amount of information
  - Alternative entry points

http://www.virtualmuseum.ca/Exhibitions/Horizons/
Virtual Museum Canada *Horizons* exhibit

Learning and exploration tools at each painting (e.g. zoom-in, map, change surrounding background colour, audio tour, music, related photographs) / Flash site (not HTML)

http://www.virtualmuseum.ca/Exhibitions/Horizons/

Vasiliy Kandisky ‘Moscow, Red Square’ 1916
Museum Digital Libraries: some examples

thinker ImageBase, Fine Arts Museums of San Francisco - launced as website in 1996

Images indexed by descriptive keywords by non-specialists - "word soup" with simple visual terms (up to 60 words) by volunteers.

Info on artist, title, date and medium (about 80% of the collection)
Thinker – Fine Arts Museums of San Francisco

Each image appr 30 KB, 3,000 x 2,000 TIFFs. Ability to scroll and zoom in high-resolution images using GridPix technology developed at the Computer Science division, University of California, Berkeley (storage system and special software, larger images with tile-based approach).
Thinker – Fine Arts Museums of San Francisco

Old version of the site – example of CBIR application of IBM’s QBIC

Searching for red hearts…
COLLAGE – Corporation of London Libraries & Guildhall Art Gallery

iBase image database containing over 30,000 works of art (at Print Room / over 20,000 available on web) (London topography & life from 15th C. to present day)
collage.cityoflondon.gov.uk/

Search by:
- Keyword
- Artists, Engravers & Publishers
- People
- Places
- (refine by date, medium, picture type)

Thematic browsing:
- Abstract ideas
- Archaeology & architecture
- History
- Leisure
- Military & War
- Natural World
- Politics
- Religion & Belief
- Society
- Trade & Industry
Multiple ways of browsing and searching for casual and specialised users.
COLLAGE – CBIR test

Test site for content-based image retrieval software application and evaluation developed by the Institute for Image Data Research, University of Northumbria, UK

Retrieval based on colour, texture, and shape, located visually similar matches for a selected painting, print, drawing, or other object.

User evaluation with online questionnaire


<http://www.archimuse.com/mw2001/papers/ward/ward.html>
Pitt Rivers Museum online catalogues

- Objects Catalogue & Historic Field Photographs Catalogue
- All original accession registers
- In some cases, terminology outdated or even offensive
- Information about some objects considered sacred or secret by local community
- Currently no images

http://www.prm.ox.ac.uk/databases.html
- Front-end to working collections databases
- Mainly an internal tool
- Usability and accessibility issues
Pitt Rivers Museum online catalogues

Special character and history of PRM reflected in documentation and online catalogue (e.g. typological displays)
Tate Online

http://www.tate.org.uk/

All collections - 65,000 works of art online

|-----------------|-------------|--------------|------------------------------|---------|-----------|----------------------|------------------------|--------|---------|--------|--------|----------------------|---------|------------------------|---------------------|

Tate Collection

Tate holds the national collections of British art and of international modern art. All works can be found on this site, each with its own information page.

- **Artist A-Z**
  - Alphabetical listing of all artists in the Collection

- **Subject Search**
  - Browse and search the Collection by subject matter

- **Glossary**
  - New illustrated resources to illuminate the Collection

- **New Acquisitions**
  - Alphabetic listing of works recently acquired by Tate

- **Recent Texts**
  - Browse newly available texts about artists and works

Technology from BT

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<th>About the Collection</th>
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Tate Online

Subject search

- Interiors
  - places of entertainment
  - dance hall
  - workspaces
  - dance studio
- Leisure and pastimes
  - music and entertainment
  - dance
- Literature and fiction
  - film, music and ballet
- Objects
  - reading, writing, printed matter
  - book, *The Red Dancer of Moscow*
- People
  - portraits: female
    - Dance, Hester
  - portraits: male
    - Dance, Nathaniel, Sir
- Work and occupations
  - arts and entertainment
    - dancer

Light Box

List Works

161 Works Displaying 1 to 4

- Henry Andersson: Dance, 1839-1866
  - Mountain Landscape with Dancing Shepherds
  - painting
- Michael Andrews: Dance, 1828-1895
  - The Door Fink, 1942
  - painting
- Parkinson: Dance, 1805
  - Dance amorous
  - painting
- James Barry: Dance, 1741-1806
  - A Scottish Harvest Dance first published 1792
  - painting
Tate Online

Different ways of exploring, searching

The selection of works featured below gives an introduction to the nature of Tate’s collection. Over time, this section will be expanded to feature different views on the collection from both Tate and wider perspectives.

General Highlights
The Tate has almost 60,000 works in its collection, including British works from 1500 to the present day and twentieth century works by both British and international artists. This selection has been assembled by Tate curators to give you a flavour of the collection as well as showing off some of the key works.
Rijksmuseum, Amsterdam

- Interface design
- Selection criteria of 1250 of 1 million objects?
- Access through artists’ names, themes, encyclopaedic terms and systematic catalogue
Rijksmuseum, Amsterdam

With quiet concentration a woman pours milk into a bowl. With her left hand she supports the can she is pouring from. Around her are various objects: a loaf of bread, a stoneware jug, a basket and a brass bucket. The woman is standing near the window so she can see what she is doing. The light falls on her hands, her silhouette is dark against the white wall. There is a fascinating play of light and shadow in this painting. This is one of Johannes Vermeer’s genre pieces in which he establishes an intensely intimate atmosphere. Although the artist observes his model from nearby, she continues with her work, totally unperturbed.
Rijksmuseum, Amsterdam

- Focus on story rather than traditional cataloguing information
- Multiple ways of linking information and works
Rijksmuseum, Amsterdam

Virtual Tour
(Quicktime)
Museum Web tours & exhibitions: some technical tools

- VRML - immersive environment, virtual reality on the web
- QTVR - Apple’s Quick Time VR tool

ability to reconstruct 3-D space (e.g. Egyptian tombs, Greek temples, museum displays, Mongolian tents)
Concluding thoughts

- DLs and ICT can support changing role of museums
  - Moving from repositories to resource centres
  - For and with the community

- In order to do this:
  - Importance of professional good practice in creating and managing DLs (also keeping up to date & learning from others)
  - Working with users from early stages
    - Allowing multiple perspectives & layers of interpretation
  - For public access projects, *using* it as important as *building* it