

The Role of E-Learning in Arts and Cultural Heritage Education

Marion R. Gruber

University of Innsbruck, Institute of Educational Sciences, Austria
Open University of the Netherlands, CELSTEC, Netherlands

Abstract: Arts and cultural heritage education (ACHE) holds great potential for encouraging greater participation, innovation, and creativity in learning. This article analyse how ACHE approach the challenges of the rising information society and utilize the possibilities of information and communication technologies. It outlines the domains of ACHE and e-learning from a theoretical perspective. With this knowledge it investigates the current use of digital media in education, in the exhibition room and on the Internet. Furthermore this article analyses today's ACHE and the role of e-learning in the educational activities from cultural institutions.

Introduction

Arts and cultural heritage education holds great potential for encouraging greater participation, innovation, and creativity in learning. Cultural institutions like museums, galleries, exhibition halls, and archives are a prime context in which access to diverse and vibrant artistic and cultural heritage is provided and can be used both for communication and learning purposes.

Cultural institutions collect, store and exhibit artworks and cultural artefacts. Through targeted educational activities, museums, galleries, exhibition halls, and archives bridge between the past and the present. This creates opportunities for transitions of "old" knowledge to our "modern times" (Gibbs, Sani & Thompson 2007; Keene, Royan & Anderson 1999).

Modern times imply today's ubiquitous information processing. Mobile phones, iPods and MP3 players, computers with broadband Internet connections, DVD players and digital entertainment environments for video games have become present in our daily life and are the most visible artefacts of a far greater development towards a networked information society (Castels 2001). This development affects all levels of society – including government, economy, and cultural life. With respect to these global changes several activities to initiate and strengthen the use of information and knowledge have been initiated within the European Union (CEC 2005), which also imply the need for development of cultural institutions (CEC undated).

1 Defining arts and cultural heritage education

Arts and cultural heritage education is a communication process that grounds on the joyful and intense engagement with artworks, cultural artefacts, cultural values, and symbol systems. Arts and cultural heritage education mainly takes place in museums, galleries, exhibition halls, and archives and is an approach to stimulate the visitors' awareness of foreign ideas, to support accessibility to not so well known domains, and to foster the ability to creative thinking and acting. Through this, visitors are enabled to relate themselves to the artistic or cultural object and to develop their opinion about

it. Therefore, providing access to these objects as well as explaining them are key priorities of arts and cultural heritage education.

These theoretical considerations are easier to exploit by investigating the methods of educational activities in cultural institutions. In this context two methodical approaches can be distinguished: personal and technologically-mediated arts and cultural heritage education.

Personal arts and cultural heritage education is given whenever direct interaction between arts or cultural heritage educators and the audience is possible. Examples for personal approaches are guided tours, museum or archive talks, discussion round-tables, events, workshops, teacher trainings, and presentations.

In contrast, *technologically-mediated* arts and cultural heritage education summarises all facilities that do not involve a human presenter in the communication process between an object and a recipient. This includes the arrangement of artworks and cultural artefacts, information texts in the exhibition room, exhibition and collection catalogues, scientific publications, visitor oriented journals, educational materials (e.g. for teachers), audio guides, multimedia terminals, online accesses to archival databases, and the institutions' web-sites.

2 E-Learning and technology enhanced learning

E-learning is defined as those learning processes that are at least partially supported or facilitated by information and communication technologies (ICT). The term defines a super-set for all approaches that utilise ICT for instruction, training, and education. Although e-learning as a meta-definition is often used to refer to technological solutions that were developed to support (mostly formal) education and training (Bates 2002). This does not reflect applications of ICT that “repurpose” existing solutions for supporting learning. In order to broaden the perspective on the role of ICT for learning processes, the term “technology enhanced learning” (TEL) has been introduced (Heeter 1999; Miller 1998). Moreover, TEL also refers to societal, organisational, procedural, and cognitive dimensions of the relations between learning processes and technology. Having this wider scope of TEL in mind, the term e-learning is continued to be used throughout this article because many applications of ICT in arts and cultural heritage education are particularly developed for educational purposes.

3 The use of ICT in arts and cultural heritage education

Using digital technologies is not new to cultural institutions. Most applications are in the domains of digitisation of collections or of making their digital repositories accessible to the public. These applications are usually independent from the educational activities of these institutions. Additionally, a broad spectrum of digital information and educational tools and services are found. Examples for such tools and services range from digital audio guides, iPods, mobile phones and multi-media terminals in exhibition rooms, via CD-ROMs and educational computer games, to homepages on the Internet, virtual museums or virtual archives, and online courses.

It appears that ICT is well established in museums. Application of ICT within arts and cultural heritage education is to be expected, because of the relevance of educational activities in these institutions (Gruber, Walter & Zeindl 2006; Keene, Royan & Anderson 1999; Hawkey 2004). In this section I cluster the use of ICT in

arts and cultural heritage education. These groups reflect e-learning solutions which are used by museums and archives. The first group of e-learning solutions are acoustic guiding systems, the second group computer based visitor information systems, and the third group Internet presentations.

3.1 Acoustic guiding systems

Guided tours are the most popular education services in museums, galleries, exhibition halls, and archives. Scientific personnel, specially trained guides or museum educators are usually responsible for guiding visitors through the institution. In addition to this personal mediation, many institutions have access to acoustic guiding systems. In most institutions is the old fashioned portable CD player replaced by the digital audio guide for guiding visitors through the exhibition room. This device can be integrated with other services and provides new opportunities for visitors. Examples of such extended uses are integrated merchandising facilities¹ and audio-visual environments². Integrated merchandising facilities utilise the users' visiting behaviour in order to provide special and personalised offers in the museum's shop, like catalogues or posters that can be printed on demand. In audio-visual environment the audio guide provides contextualised information (Oppermann & Specht 2000; Diehl & Hagenberg 2004).

Currently, Apple's iPod is used in some institutions. In this case, visitors can download the audio information for the guided tour from the Internet to their personal device instead of using devices that are provided by the institution.³ Even mobile phones are used for guided tours.⁴

3.2 Computer based visitor information systems

Visitor information systems extend information that is already present in the exhibition room. These systems are used similarly as printed information material or information texts displayed at the exhibition room's walls. Unlike acoustic guiding systems, these systems give access to multi-media. Three different types of such systems were found: a) mobile computing devices, b) multi-media terminals, and c) virtual spaces.

Mobile computing devices

Providing contextualised information on a personal digital assistant (PDA) combines the embedded contents of multi-media terminals with the personalisation of audio guides. These systems use the multi-media and communication capabilities of small portable computer devices. These devices can present multi-media content related to objects on display in the exhibition room and provide visitors with instant access to additional information via a wireless connection to a larger content repository or the

¹ E.g. MyCollection: Mein Katalog, Mein Poster, Kunsthistorisches Museum Wien.

² E.g. Macke Labor, LISTEN - Audiovisuelles Environment, Kunstmuseum Bonn.

³ E.g. BA-CA Kunstforum Wien; Museum Moderner Kunst, Stiftung Ludwig, Wien; Hirschhorn Museum and Sculpture Garden; Mori Art Museum; Château de Chenonceau; Museum of Modern Art New York.

⁴ E.g. Boca Raton Museum of Art; Wexner Center for the Arts; Texas Memorial Museum.

institution's website.⁵ Some institutions use the iPod touch for their educational services.⁶

Multi-media terminals

In many institutions, various interactive systems can be found in the exhibition room.⁷ These systems extend the visitors' experience by making it more active. The systems are collected as multi-media terminals, although the specific hardware and software of these systems varies. What all these systems have in common is that they provide additional information to visitors within the context of the exhibition. Such information can be as simple as hypertext but it can also entail quizzes for children and adults, 2D and 3D visualisations, or even simulations.

Virtual spaces

A special case of multi-media terminals are virtual spaces. Visitors can explore virtual 3D spaces as if they were real.⁸ This application is used for presenting not yet existing or irrecoverable rooms⁹, buildings, and places, but also to explore abstract and very complex information.

3.3 Internet presentations

Cultural Institutions use the internet for presenting themselves and their activities through websites. With respect to arts and cultural heritage education, three main tendencies were identified: a) virtual museums and virtual archives, b) e-learning environments, and c) games and quizzes.

Virtual museums and virtual archives

Virtual museums are often extensions of real museums. In their simplest form, virtual museums just present information and pictures of objects displayed in the exhibition. In some cases, even virtual exhibitions are available.¹⁰ More complex solutions provide tours through graphical museum models. The different approaches of virtual museums have in common that they are closely related to the exhibition activities of the hosting institution. Additionally, there are also entirely virtual museums that have no real counter parts.¹¹

Virtual archives provide in most cases online access to digitised data in online databases through online search forms and online indexes. They are usually implemented as information repositories that can give open access to the collections.¹²

⁵ E.g. CoolMuseum or Scalex.

⁶ The Nous Company develops special information offers for museum exhibitions for the iPod touch.

⁷ E.g. in the Wallraf-Richartz-Museum - Fondation Corboud.

⁸ E.g. the CAVE virtualization of the Lentos art museum, Ars Electronica Futurelab.

⁹ E.g. the visualization of the *Millionenzimmer*, Schloss Schönbrunn, Ars Electronica Futurelab.

¹⁰ E.g. Karlsruher Türkenbeute, Badisches Landesmuseum Karlsruhe, <http://www.tuerkenbeute.de/>; Virtual Museum of Canada, <http://www.virtualmuseum.ca/>.

¹¹ E.g. MUVA, Museo Virtual de Artes, El Pais, <http://muva.elpais.com.uy/>.

¹² E.g. Bildarchiv Foto Marburg, <http://www.fotomarburg.de/>; Tennessee Virtual Archive, <http://tsla-teva.state.tn.us/index.php>; Beethoven-Haus Bonn, Digital Archives, <http://www.beethoven-haus-bonn.de/>; Portal zur Zwangsarbeit im NS-Staat, Bundesarchiv, <http://www.bundesarchiv.de/zwangsarbeit/index.html>.

Some archives encourage user contributions on the archive's topic and allow their users to participate in the virtual archive.¹³

E-learning environments

Some institutions offer special learning solutions to their online visitors. These e-learning environments offer learning opportunities for different topics and target groups.¹⁴ Visitors are guided through didactically prepared multi-media content. Such content offers prepared learning paths for the visitor. E-learning environments often aim at ongoing learning processes and repeated visits in order to create a better understanding on a topic.¹⁵ Few institutions integrate web2.0 services in their educational activities. This allows the users to participate, interact, work creatively, collaborate with other users, or create new contents.¹⁶

Games and quizzes

A range of learning games and quizzes can be found on museum websites. This approach combines arts and cultural heritage education and game structures through which visitors can explore information. Most solutions are suited to children as primary target group. The storytelling approach of these games is almost always linear and provides little freedom in changing pathways.¹⁷

Some institutions offer special services for creative work, especially as games for children. These services use ICT for printing, painting, or adapting digital pictures that encourage users to find new and creative ways to art and cultural heritage.¹⁸

4 Analysing the status quo

Like personal arts and cultural heritage education, its digital forms are limited by the constraints of the exhibition and the surrounding facilities. Digitalisation allows cultural institutions to develop more flexible approaches for their educational activities within and beyond the institution's physical boundaries. In line with the results of Hawkey (2004), I have found that e-learning in arts and cultural heritage education is used to support visitor's learning processes in the exhibition room and remotely on the Internet. Currently, mostly large institutions with educational departments offer complex e-learning spaces.

-
- ¹³ E.g. AUT. Architektur und Tirol, <http://www.aut.cc/>; Kunstkataster: Online, Tiroler Kulturgüter-Datenbank, Tiroler Kunstkataster, Land Tirol, <http://www.tirol.gv.at/themen/kultur/abteilung-kultur/kunstkataster/kunstkataster/>; MACE (Metadata for Architectural Contents in Europe), <http://portal.mace-project.eu/Home>.
- ¹⁴ E.g. Museum of Modern Art New York, <http://www.moma.org/learn/activities/>; The British Museum, http://www.britishmuseum.org/learning/schools_and_teachers/web_resources.aspx; Tate Online, Learn Online, <http://www.tate.org.uk/learnonline/>.
- ¹⁵ E.g. Ad fonts, <http://www.adfontes.unizh.ch>.
- ¹⁶ E.g. Creative Spaces, <http://bm.nmolp.org/creativespaces/>.
- ¹⁷ E.g. National Maritim Museum, <http://www.nmm.ac.uk/explore/games-and-activities/>; Powerhouse Museum, <http://www.nmm.ac.uk/explore/games-and-activities/quizzes-and-games/>; Zentrum Paul Klee Bern, Kindermuseum Creaviva, http://www.paulkleezentrum.ch/w/de/pub/web_root/kindermuseum_creaviva/onlie_umf.cfm.
- ¹⁸ E.g. Tate Kids, Games, <http://kids.tate.org.uk/games/>; Destination Modern Art, <http://www.moma.org/interactives/destination/>; ZOOM Kinder Museum, <http://www.kindermuseum.at/kinder/zoom.html>.

Personalisation of learning is relevant for using ICT in arts and cultural heritage education (Hawkey 2004). Most acoustic guiding systems enable personalised pathways through an exhibition, while e-learning environments allow personalised learning experiences on the Internet. Giving visitors the freedom of choice, makes it easier for them to explore objects, information, and knowledge that are provided by the institution. Several cases of supporting explorative learning were found. According to Hawkey (2004), personalisation and exploration are central for developing and using ICT in arts and cultural heritage education. These two aspects can also be found in game-like learning. Further, games and quizzes refer to the non-formal nature of arts and cultural heritage education. The number of computer games and quizzes indicates that the institutions are aware of the need for creative approaches of communicating arts and culture.

There is a trend of integrating existing services through ICT. Guiding devices, multi-media terminals, merchandising, databases, and homepages become part of an integrated infrastructure. This may provide richer experiences to the visitors, but it also adds complexity to the systems. Not only technical problems may arise, as the tighter integration of different parts of a system also requires more attention to the educational agenda.

Finally, it seems that cultural institutions are more likely to adopt technologies that are efficient with regard to the institutions' financial and personnel situation. Low threshold technologies like podcasting have been rapidly adopted, while other approaches remain niche solutions that are used by large institutions.

5 Conclusion

Existing ICT solutions in arts and cultural heritage education are mainly supportive to the needs and demands of cultural institutions. The analysed examples provide an overview of how ICT are used for educational activities. This extends the perception of cultural institutions in the information society. The institutions are well aware of the shifting expectations regarding their services. Simply applying ICT in arts and cultural heritage education appears to be not sufficient enough to meet the existing demands. ICT are highly dependent on their final application. This includes the users and the social practice of the cultural institutions that apply the technologies. Today's e-learning applications in cultural institutions indicate that it is desirable to use ICT whenever communication between experts and visitors is difficult or impossible. If ICT should support arts and cultural heritage education within and beyond the institutional boundaries, their use has to be aligned with the different stakeholder perspectives as well as the institutional context.

References

Bates, A.M. (2002). National strategies for e-learning in post secondary education and training. Paris: UNESCO.

Castells, M. (2001). The internet-galaxy, reflections on the internet, business, and society. Oxford: Oxford University Press.

Commission of the European Communities (CEC) (2005). Final report on the public consultation on the new information society strategy beyond 2005. Brussels: Commission of the European Communities.

Commission of the European Communities (CEC) (undated). TeLearn-DigiCULT, Learning and Cultural Heritage. Online: <http://cordis.europa.eu/ist/telearn-digicult/index.html> [2009-03-03].

Diehl, R. & Hagenberg, J. (2004). LISTEN - ein neues audiovisuelles Medium. In Commandeur, B. & Dennert, D. (Eds.), *Event zieht - Inhalt bindet, Besucherorientierung auf neuen Wegen*. Bielefeld: Transcript, pp. 139-141.

Gibbs, K., Sani, M. & Thompson, J. (2007). *Lifelong Learning in Museums, a European Handbook*. Ferrara, Italy: EDISAI.

Gruber, M.R., Walter, K. & Zeindl, G. (2006). *KUKUK - Kunst, Kultur, Kommunikation. Auswertung der Online-Umfrage*. Innsbruck: University of Innsbruck.

Hawkey, R. (2004). *Learning with digital technologies in museums, science centres and galleries*. Research report, FutureLab, London.

Heeter, C. (1999). *Technology Enhanced Learning*. White paper for the Internet 2 Sociotechnical Summit. Michigan State University Department of Telecommunication. Online: <http://commtechlab.msu.edu/publications/files/TenhancedLearning.pdf> [2009-03-03].

Keene, S., Royan, B. & Anderson, D. (Eds.) (1999). *A netful of jewels; new museums in the learning age*. London: National Museum Directors' Conference.

Miller, M.D. & Padgett, T.C. (1998). *Redesigning the Learning Environment for Distance Education: An Integrative Model of Technologically Supported Learning Environments*. In *Online Journal of Distance Learning Administration*, 1(1). Online: <http://www.westga.edu/~distance/miller11.html> [2009-03-03].

Oppermann, R. & Specht, M., (2000). *A context-sensitive nomadic exhibition guide*. In Thomas, P. & Gellersen, H.W. (Eds.), *Handheld and ubiquitous computing, Lecture Notes in Computer Science*. Heidelberg: Springer Verlag.

Curriculum vitae:

Mag. Dr. Marion R. Gruber, guest lecturer at the University of Innsbruck (AT) and researcher at CELSTEC (Centre for Learning Sciences and Technologies), Open University of the Netherlands (NL). Studies in art history and educational sciences, Ph.D. in media pedagogy at the University of Innsbruck. Research interests are applications of ICT in non-formal learning and arts and cultural heritage education. Initiator of *KUKUK – Kunst, Kultur, Kommunikation* (<http://kukuk.lo-f.at/>). Worked as arts educator in museums and exhibition halls, and as archivist for archiving and digital acquisition of artworks and cultural artefacts.