Enhancing Cultural Tourism e-Services through Heritage Interpretation

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Abstract

Cultural heritage is a main contributor to tourism development. These two activities heavily rely on the communication process for attracting visitors and to provide them with a satisfactory experience, which can be enhanced through effective heritage interpretation. This paper argues that there are opportunities for the application of e-Services in the delivery of heritage interpretation through the Internet – optimising results for the fulfilment of both marketing and interpretation purposes. This paper investigates visitor satisfaction with museums and explores the use of e-Services for both cultural attraction operators and destination managers over a two-stages empricical research. On one side, this study identifies the contribution of heritage interpretation practices to the overall visitor satisfaction in museums. On the other side, it evaluates the current integration of e-Services in cultural attractions and destination websites. The results are integrated and developed into practical industry implications both for cultural attractions and destination website developmet.

Keywords: eTourism, ICT and heritage interpretation, destination websites, cultural attraction websites.

1 Introduction

Tourism relies on cultural heritage as a source of visitor attractions and for the development of the destination image (Prentice & Duncan, 1994). In turn, cultural heritage needs to be provided with meaning for acquiring its value, meaning which is related not only to the physical attributes of the exhibited artefact, but also to its historical and/or cultural aspects, which require some type of teaching or knowledge

transfer into visitors for their appreciation of the site (Harvey, 2001). This communication process relates to the heritage interpretation – a process which starts as soon as the potential visitor obtains information on the heritage site, frequently taking place before the visit starts and finishing with the last information on the exhibit collected, once the visit is completed.

Information and Communication Technologies (ICT) facilitate the dissemination of information from remote locations, enabling heritage operators to take control on the information their visitors obtain before, during and after their visits take place and extending their provision of heritage interpretation to the three stages of the tourism life cycle. According to MacDonald & Alsford (1991) heritage sites have a duty, intrinsic to their nature, to disseminate information on their exhibits which relates to a responsibility for the adoption of those tools improving the communication.

A wide diversity of ICT tools have been applied to museums for heritage interpretation. There is extant work assessing the opportunities arisen from these applications, looking into both onsite and offsite heritage interpretation as well as onto the devices and their content. However, there is limited research exploring the opportunities for heritage interpretation widen up by e-Services – which here refers to the services offered through the Internet.

This study consists of two stages of empirical research aimed at identifying opportunities for the integration of e-Services for heritage interpretation. On one side, a survey through museum visitors on the role of heritage interpretation to provide satisfactory visits has been developed. And on the other side, both cultural attractions and destination websites have been analysed for identifying current use of e-Services. The results from both stages are integrated and the implications for cultural attraction operators and destination managers are presented.

2 Background

Destination is a construct of personal factors, previous experience and information sources (Baloglu & McCleary, 1999), of the overall destination and its content – accommodation, transport and cultural heritage attractions (Pike, 2002). This relates to Prentice & Duncan's (1994) suggestions on the relevance of heritage tourism going beyond the attraction level, and generating information which helps not only to the generation of visits to the heritage site, but also to frame the destination image and to widen the tourism opportunities for the region.

As opposed to Lowenthal (1998)'s and Hewison (1989)'s concept of heritage, Harvey (2001) considers that the essential attributes of heritage might not be necessarily

linked to its physical and innate characteristics. This author considers heritage as a "value-loaded" term, whose concept changes according to the contemporary contexts of power relationships and national identities, making the bridge between the exhibition and our realities. Therefore, heritage is a construct comprising different dimensions, which include not only the physical attributes of the artefact but also a set of values together with the cultural identity that the artefact represents. The process of interpretation is intrinsic to the term heritage, and the relevance of looking after this communication process, whether this is provided by the heritage operator or sought by the visitor individually and whether this is obtained before the visit, afterwards or onsite. Heritage acquires its value when the asset is provided with meaning, which implies the need for interpretation (Harvey, 2001). By enabling their service delivery online, e-Services widen the opportunities for cultural heritage websites by enabling their operators to extend their interpretation offsite, taking control **of** the offsite information provision, and enable them to integrate other communication activities of the cultural attraction – such as marketing and collection records – within its offsite interpretative plan. Furthermore, their integration within destination websites' content, imply marketing opportunities for the destination.

The range of e-Services which have been implemented in tourism websites – including product aggregators, destination websites and individual providers' sites – comprises a wide variety of tools such as recommender systems (Ricci, Fesenmaier, Werthner, & Wöber, 2006; and Zins, Bauerfeind, Del Missier, Mitsche, Ricci, Rumetshofer, & Schaumlechner, 2004); information on "how to get there" (Bernstein & Awe, 1999) or virtual tours (Breitenbach & Van Doren, 1998) and their potential to engage with visitors has been researched over the last decade. Reino, Mitsche, & Frew, (2007) suggest that combined with other interpretative techniques, technology enhances visitor satisfaction in museums. However, their work does not identify the attributes involved in the provision of satisfaction experiences through heritage interpretation. There is extant research looking into ICT for onsite and offsite heritage interpretation. Within onsite interpretation, the work developed by Grinter, Aoki, Hurst, Szymanski, Thornton, & Woodruf (2002), Zancanaro, Stock, & Alfaro (2003) and Rocchi, Stock, Zancanaro, Kruppa, & Krugger (2004) suggest the use of electronic devices for heritage interpretation, such as guidebooks, cinematics or a combination of multimedia applications respectively. On the other side, research into tools applicable for both onsite and offsite interpretation includes Beraldin, Picard, El-Hakim, Godin, Valzano, & Bandiera (2005)'s suggestion on 3D multimedia for cultural heritage interpretation. In terms of content, Raptis, Tselios, & Avouris (2005) highlighted the importance of the content when using electronic devices for heritage interpretation. However, these projects insight into the outcomes of heritage interpretation are very limited. Heritage interpretation approaches and their intended outcomes vary in accordance to museums' and heritage sites' paradigms. If their interpretative provision was originally purely oriented to conservational purposes,

they have progressively evolved towards a more educational curatorship approach (Light, 1995; and West, 1988). Originally considered as incompatible to learning, the enjoyment and experience-related outcomes started to be introduced when assessing heritage interpretation due to the evolution on learning theory which suggested that there is a positive relationship between these two potential outcomes and learning (Moscardo, 1996) and finally introduced a multidimensional concept of learning, by which fun and inspiration are part of the individual development and therefore, of the life-length learning process (Hooper-Greenhill, 2004).

Due to the outcome-driven climate currently dominating cultural attractions led both by accountability and social value (Hooper-Greenhill, 2004) – a demand-driven approach has been adopted here in line with the research carried out by Reino, et al. (2007), in which heritage interpretation effectiveness are measured in terms of visitor satisfaction – enabling visitors to express the relevance they assign to the different attributes of the heritage exhibit and interpretative provision. Therefore, this study analyses visits to museum and the contribution of heritage interpretation for the fulfilment of visitors' expectations, as well as their overall visitor satisfaction with the museum. On the other side, it also explores e-Services which are already provided through cultural and destination websites and combines the results from both studies to suggest implications for the tourism and visitor attraction industries in their use of online resources.

3 Methodology and results

In order to integrate empirical data covering heritage interpretation and web technologies, this study was developed through a two-stage process. The first consisted on a questionnaire which examined visitors' satisfaction with heritage interpretation in two different museums. In order to obtain information on the current use of e-Services for cultural tourism, both cultural attraction and destination websites were examined. The results from both studies have been integrated providing industry implications, not only for cultural attractions' but also for the development of destination websites.

3.1 Visitor Survey

A 168 questionnaire set was distributed in two museums – 81 at the Discovery Museum (http://www.twmuseums.org.uk/discovery/) and 87 at the Bede's World (http://www.bedesworld.co.uk/), collecting quantitative data in relation to visitor satisfaction with heritage interpretation and with their visit overall. The selection of the museums was related to the convenience of their location – both based on the Northeast of the UK – as well as to the variety of interpretative media they provided

in their exhibits, including not only traditional interpretative devices such as posters and labels with information, but also technology-based and live interpretation.

The first part of the questionnaire looks into visitors' experience in the museums in terms of the different outcomes of heritage interpretation which have been identified through the literature review. This is followed by questions examining the best experience of their visit – aiming to identify those physical, emotional and interpretative elements which comprise that experience. Following this, visitors' overall satisfaction with the visit was recorded, as well as information on the demographics – age, gender and place of residence.

3.1.1 Survey Results

In order to identify the different elements which determine visitor satisfaction a crosstabulation with percentages of satisfied visitors with the different attributes of heritage interpretation was produced. Furthermore, for testing the strength of the relationship between paired variables, the Mann Whitney U significance Test was applied.

Table 1: Differences in experience between very satisfied and satisfied-not satisfied visitors

	Strongly agree & agree		
Experience	*Very satisfied*	*Satisfied – not satisfied*	*Sign**
I had fun.	88.7%	71.4%	0.001
This museum inspired me.	89.6%	68%	0.000
I saw the links between the past and our lives today.	87.8%	77.4%	0.020
I found things which were similar to my life.	77.4%	62%	0.016
I understand the past better.	95.5%	87.7%	0.003

* Based on Mann Whitney U Test

The highest rated motivations for the museums visits are related to learning, experiencing stories the museum represents and understanding the past.

The results (see table 1) indicate that the overall satisfaction can also be related to the single experiences. Visitors, who have experienced fun**,** were inspired and were able to appreciate the links between the past and their lives today enabling them to develop a greater understand of the past. The relationship between experience and satisfaction indicate that experience is important and indirectly also show that satisfaction is linked to the other heritage interpretation outcomes.

In terms of the heritage interpretative provision, a high percentage of visitors reported being very satisfied with the information material (64.8%) in both museums and also with one of the games included in the Discovery Museum's interpretative provision (62.1%)). Pictures (52.1%), exhibited objects (48.8%), interactive exhibit parts (42.9%), stories through speakers (39.3%) and videos (35.3%) were also perceived as satisfactory but in a lower percentage. These satisfaction results with the different interpretative media used were linked to the overall degree of satisfaction with the museum ($p<0.05$). The only non significant result was related to the exhibited objects, underlining the fact that the explanation and interpretation of objects is very important for achieving visitor satisfaction, suggesting that the interpretative provision has a key role in the overall museum visit.

The study also showed interesting differences related to the visitor profiles divided by variables such as residents/tourists and age. Residents were more clear on the motivations which brought them to visit the museums, reporting in higher percentages to be motivated by their aim to obtain inspiration (79.4% of the residents as opposed to 66.1% of tourists), to live an experience (87.7% of the residents, 62.1% of tourists), to find links between the past and our lives today (78.5% of the residents, 62.7% of tourists), and to compare with previous experiences (79.2% of the residents and 79.2% of tourists). Furthermore, their experienced outcomes were stronger, reporting higher percentages of achieved inspiration (88.8% residents, 73.3% tourists), learning outcomes (91.3% residents, 85% tourists), finding things familiar to their life (89.7% residents, 75% tourists) and feeling that they understood the past better (81.3% residents, 56.7% tourists). These differences might be based on a different knowledge between residents and tourists, as some parts of the exhibition relate to local history. This indicates the role of cultural identity in motivating visits to heritage sites – more present in residents than in locals and the relevance of knowledge acquisition on the exhibit and importance of interpretation. Age-related differences reveal diverse technology acceptance levels and therefore, different interpretative. Visitors under 40 years showed a higher satisfaction with the interactive exhibits and playing games, whereas visitors over 40 showed higher satisfaction with the information material provided. This reflects the need to customise sites and to consider the different technology acceptance by visitors.

The "best experience description" showed that these experiences involved "having a friendly or welcoming atmosphere" (92.8%), "listening and/or watching" (92.7%), learning something new (92.1%), actively doing something during this experience (72.8%) and comparing the situation with something known and/or experienced before (69.6%). Less relevant attributes related to "the situation being funny or involving jokes" (48.3%) and feeling passive (44.2%). In terms of the interpretative elements which were involved in these experiences, the following attributes were present in a high percentage of "best experiences": exhibited objects (84.4%),

followed by non technology based interactive objects (76.4%), text (76.6%), pictures (74.9%) and sound (74.3%) and touch – only asked in Bede's World as this attribute was not available in the other museum – and were reported as important part of the experience (67%). On the other side, technology-based interactive objects (55.1%) and games (46.1%) were taking part of the best experience regularly. Surprisingly, live interpretation – a member of staff explaining – were not mentioned as taking part in this "best experience" by a high percentage (only 4.6%) consider seen as very important (only 4.6%) which can be due to the limited availability of this interpretative resource, as well as to other elements of the communication process, such as the visitors' attitude towards the communication (Scott Morton 1991).

3.2 Website Analysis

Interpretative media as described earlier is used often interconnected within e-Services. Some of these e-Services use heritage interpretation combined with different interpretative media, to provide information, but also to engage web users longer on the site, enhancing fun factors, the general experience of the site and increasing knowledge related to the attraction or destination. An expert evaluation of cultural tourism attraction and destination websites was developed for the identification of e-Services which are already integrated on these websites and how they could be used for heritage interpretation. The websites selection responded to their search engine optimisation, and balance between content, technology and e-Services provision. Its selection responds to its special focus on cultural tourism sites. Overall 34 English (not necessarily main and native language of the web site) and 26 German cultural attractions as well 41 English and 20 German destination web sites were evaluated and details of the e-Services provided were collected during this process, afterwards classified, and evaluated on the basis of the e-Services they offer.

Attraction and destination web sites show differences on their focus related to their different nature which is mainly reflected on a more extensive online heritage interpretation at cultural sites. Nevertheless, some of the destination web site make already direct use of heritage interpretation on their web site to enhance their offer, and are also using tools which include heritage interpretation aspects. Typical attraction web sites frequently include interactive maps, 3D applications, virtual tours, online exhibitions, interactive learning resources, games and fun tools, online collections and databases, user communication, community aspects, personalisation and online shops. On the other, destination web sites tend to focus on the provision of a gateway for placing accommodation and events bookings, with e-Services on offer including personalised navigation, interactive maps, travel journey planner, virtual tours, podcast files – offline and online tours – games and fun tools, user communication, and online shops. Interactive maps on attraction web sites display the outline of the attraction – as floor maps or wider areas – including location

information about exhibitions, exhibits, further facilities and sometimes the surrounding environment of the place – public transport, access points. These identified e-Services vary in their technological development, from some simple - interactive – structure to more complex interconnected e-Services, not only using different media, but also linking and displaying the different e-Services together. It shows that it is even possible for organisations with more limited technical resources to apply and interconnect e-Services integrating information provision and the delivery of a pleasant and innovative navigation experience for effective user engagement.

Interactive maps lend themselves to illustrate this complex and layered information, making it more accessible for the user. They are commonly used as a starting and central navigation point, where different layers are interconnected, enabling the user to continue through virtual tours, fun activities, more factual and interpretative information, databases, and further multimedia tools such as sound and video files. Curating the city – Wilshire Blvd in Los Angeles (www.curatingthecity.org) uses an interactive map, displaying historic photographs, textual information and linking this to a memory book (user-generated content), collecting memories related to local history and (memorable) places. Symbolic and 3D presentation of these maps further enhances the virtual experience. The Alhambra, Spain (www.arsvirtual.com/visitas/visitas/Alhambra) connecting the interactive 3D map to virtual tours, exhibited objects and their stories. Similarly the Cologne Cathedral (www.koelner-dom.de) uses an interactive map as an interpretative tool for further information – e.g. by clicking on certain parts of the cathedral, places on a map of Germany are shown indicating where certain stones originate. In particular, the technology adoption from the Heineken Experience (www.heinekenexperience.com) and Alhambra, are excellent examples for experiential design. Probably the best example identified for interactively combining e-Services through a central map, is the THEBAN Mapping project (www.thebanmappingproject.com). Its web site shows the Valley of the Kings, and the Theban Necropolis. It allows users to explore the place interactively, allowing entrance to the tombs through a 3D virtual tour. This tour enables the user to pause the tour at any point, so that the user can click on items mentioned and pointed out by the storyteller, allowing the user to explore interpretive material in more detail (e.g. closer image and more textual information). Whenever the user desires, the tour can be resumed. It provides further links to the archaeological developments on site. This example shows the potential cultural attraction web sites have, overcoming accessibility restrictions for users not able to visit the place, and also enabling users to access as much information and explanations as they prefer to have. These generic experiences users can have on the web site, already support other heritage interpretation aims as learning and entertainment.

More focused on learning are online exhibitions, collections and databases which are a core e-service provided by many museums. Top museums with large collections as the Rijskmuseum in Amsterdam (www.rijksmuseum.nl/meesterwerken?lang=en) and the Tate Gallery (www.tate.org.uk/learning/schools) provide interconnected services, as virtual tours, searchable databases, including pictures and textual information. They also link from their exhibitions to further more focused fun tools. Information is not only connected via maps, but related to artists, themes and as other examples as the Musee Suisse (http://www.musee-suisse.com/) show, also through a time line. Many attractions and museums are providing learning material for the use offline and online. Offline material is most commonly targeted for educators to be used, within classrooms or linked to a museum visit. Online material either links to databases to support educators, or focuses more on making learning fun targeting younger audiences, and those who still feel young. These can be achieved through sub web sites especially designed for kids and young people, or through games and fun tools. These vary from crossword puzzles, quizzes (www.virtualcityleipzig.de/start) to game environments (www.kindermuseum.at/jart/prj3/zoom/index.html). These game environments can be also linked to online exhibitions (www.thetech.org/nmot/index.cfm), or be introduced and connected to the places' mascot, as Poldi, (www.schoenbrunn.at/kinder/publicdir/0107000000_2a6.php) the castle's ghost. But not all learning activities are focused on the younger market. Despite online databases and collection access some examples exist which provide adult learners with interactive learning tools (http://www.musee-suisse.com/, http://www.nationalarchives.gov.uk/gettingstarted/in_depth_guides.htm).

Two examples on German destination web sites were identified which strongly used heritage interpretation, integrating stories and legends about the place by using a variety of interpretative media as sound, videos, and pictures. Bremen presents the famous fairy tale from the Brothers Grimm related to its city, the "Bremer city musicians" (www.bremen-tourism.de/bremen.cfm?menu=Stadtmusikanten-Casting), portraying them in a casting situation for musicians' positions, and connecting this to different stories and factual information. The Stuttgarter Staeffele (staircases) (mw.hdm-stuttgart.de/staeffele/index2.html) is a tool independent from the main web site, telling stories related to each staircase, shows pictures and provides audio files where stories and facts are told. This is presented on an interactive abstract map, connecting the staircases. An increasing number of destinations are developing podcasts, to be used either virtually or during the visit of the city. These sound files can be downloaded mostly free of charge, although e.g. Brussels (www.brusselsinternational.be/wabxlint/visitor/eshop/category.jsp?cid=81) charges a small fee for them. Dublin's iWalks are supported through printouts (www.visitdublin.com/multimedia/DublinPodcast.aspx?id=275) including a map.

4 Conclusions and Industry Implications

In an attempt to widen the opportunities for the development of cultural attraction and destination websites' capabilities, this paper provides an insight into the potential application of e-Services for heritage interpretation. The two-stage study developed here provided a demand-driven approach to the assessment of satisfactory heritage interpretation and its contribution to the overall experience, as well as a compilation of e-Services currently in use at tourism websites and provides suggestions for the development of online heritage interpretation, and the associated opportunities for cultural heritage and destination websites.

The results have highlighted the direct influence that the heritage interpretive provision has on the overall satisfaction with the visitor experience. The content of the heritage interpretative provision seemed to be more important than the exhibited objects in terms of visitor satisfaction, and best experiences at museums involve interaction and the use of the senses. These senses in the online world are restricted to visual senses through motioned images and sound, as well as their combination and content development to emulate touch and smell. This underlines the focus on the content, making it the centrepiece. But enabling improved access and understanding through the use of interactive interpretative media is valuable and stimulating senses appropriate to the media applied is likely to enhance also online visitor's satisfaction.

Differences related to the visitor profile underline the need to cater for different target groups – i.e. knowledge levels, whether they access the heritage interpretation on site or online and to satisfy both residents and tourists. They also need to take the different motivation of visitors with children into account, not only onsite but also online. Interpretative media applied can support these aspects, but the selection of the media used depends as well on age as on purpose. Messages aimed for visitors with children, and interpretative media used in this context need to be fun, as well as supporting the learning aspect. Visitors with children are an important target market, which needs to be considered by introducing fun ore more playful elements. It might be that the same content is delivered through different interpretative media to reach the different markets, making it more accessible. Many attraction web sites already cater for different groups, partly also enabling visitors accessing similar information on different levels. But this area still has a creative potential to exploit the opportunities technology provides for the virtual experience.

Results related to the best experience indicate that a welcoming atmosphere, listening and/or watching, learning something new, actively doing something during this experience and comparing the situation with something known and/or experienced before, as well as stories, both personal and about the time the museum represents are important for a good experience. This shows also the importance of interpretation in enabling visitors to experience material cultural heritage, enabling them to connect

with their own stories to remember or to share. This can be supported online through the use of integrated e-Services, enabling people to listen, watch and experience stories as well as share them online and could be encouraged by interaction and a welcoming pleasant appeal of the web site and e-Service. On the other side, the compilation of e-Services encountered through tourism websites, comprise the suitable attributes for the emulation of satisfactory heritage interpretation designs - e.g. integrative navigation experience, the provision of interactive tools, virtual visit and the introduction of different navigation paths for the diverse target groups or customised visit, suggesting the industry technical capability for the implementation of e-Service supporting online heritage interpretation.

e-Services for heritage interpretation can fulfil a double functionality for both cultural attractions and destination websites. On one side, they can enhance the user's experience of their virtual visit helping them to engage into an interpretative navigation through the exhibit, and on the other side, it provides operators with the tools for the development of a unique and distinctive online experience and subsequent stronger brand image differentiation. Further studies should focus on the attributes of effective communication for online heritage interpretation.

References

Baloglu, S., & McCleary, K. W. (1999). A Model of Destination Image Formation. *Annals of Tourism Research*, 26(4): 868-897.

Beraldin, J.A., Picard, M., El-Hakim, S., Godin, G., Valzano, V., & Bandiera, A. (2005). Combining 3D technologies for cultural heritage interpretation and entertainment. In SPIE Proc. 5665 [Videometrics VIII], 108-118. San Jose, CA.

Bernstein, J. R., & Awe, S. C. (1999). Wired travelers: travel and tourism Web sites. Reference Services Review, 27(4): 364-375.

Breitenbach, C. S., & Van Doren, D. C. (1998). Value-added marketing in the digital domain: enhancing the utility of the Internet. *Journal of Consumer Marketing*, 15(6): 558-575.

Grinter, R.E., P.M. Aoki, A. Hurst, M.H. Szymanski, J.D. Thornton & A. Woodruff. (2002). Revisiting the Visit: Understanding How Technology Can Shape the Museum Visit. In proceedings of *ACM Conference on Computer Supported Cooperative Work.* New Orleans, Louisiana, USA: November 16-20, 2002.

Harvey, D. C. (2001). Heritage Pasts and Heritage Presents: temporality, meaning and the scope o heritage studies. *International Journal of Heritage Studies*, 7(4): 319-338.

Hewison, R. (1989). Heritage: an interpretation. In D. L. Uzzel (Ed.) *Heritage interpretation.* London: Belhaven.

Hooper-Greenhill, E. (2004). Measuring Learning Outcomes in Museums, Archives and Libraries: The Learning Impact Research Project (LIRP). *International Journal of Heritage Studies*, 10(2): 151-174.

Light, D. (1995). Heritage as informal education. In D. T. Herbert (Ed.) *Heritage, Tourism and Society* (pp. 117-145). London: Mansell.

Lowenthal, D. (1998). *The heritage crusade and the spoils of history.* Cambridge: Cambridge University Press.

MacDonald, G.F. & S. Alsford (1991). The Museum as Information Utility. *Museum Management and Curatorship* 10: 305-311.

Moscardo, G. (1996). Mindful Visitors - Heritage and Tourism. *Annals of Tourism Research* 23(2): 376-397.

Pike, S. (2002). Destination image analysis – a review of 142 papers from 1973 to 2000. *Tourism Management*, 23(5): 541-549.

Prentice, R., & Duncan, L. (1994). Market-based Product Development in Heritage Tourism. *Tourism Management*, 15(1): 27-36.

Raptis, D., Tselios, N., & Avouris, N. (2005). Context-based design of mobile applications for museums: a survey of existing practices. In *ACM International Conference Proceeding Series*, vol. 111.

Reino, S., Mitsche, N., & Frew, A. (2007). The Contribution of Technology-Based Heritage Interpretation to the Visitors' Satisfaction in Museums. In M. Sigala, J. Murphy, & L. Mich (Eds.). In M. Sigala, L. Mich & J. Murphy. *Information and Communication Technologies in Tourism 2007*. Vienna: Springer Verlag.

Ricci, F., Fesenmaier, D. R., Mirzadeh, N., Rumetshofer, H., Schaumlechner, E., Venturini, A. Wöber, K., & Zins, A. (2006). DIETORECS: a Case-Based Travel Advisory System. In D. R. Fesenmaier, H. Werthner and K. Wöber (Eds.). Travel Destination Recommendation Systems: Behavioral Foundations and Applications (pp. 227-239). CABI Publishing.

Rocchi, C., O. Stock, M. Zancanaro, M. Kruppa & A. Kruger (2004). The Museum Visit: Generating Seamless Personalized Presentations on Multiple Devices. In proceedings of *Intelligent User Interfaces IUI 2004*. Madeira, PT: January 2004.

Scott Morton, M. S. (1991). *The Corporation of the 1990s: Information Technology and Organisational Transformation.* Oxford: Oxford University Press.

West, R. (1988). The Making of the English Working Past: a critical view of the Ironbridge Gorge museum. In R. Lumley (Ed.). *The Museum Time Machine: Putting Cultures on Display* (pp. 36-62). London: Routledge.

Zancanaro, M., Stock, O., & Alfaro, I. (2003). Using Cinematic Techniques in a Multimedia Museum Guide. Proceedings of Museums and the Web.

Zins, A. H., Bauernfeind, U., Missier, F. Del, Mitsche, N., Ricci, F., Rumetshofer, H., & Schaumlechner, E. (2004). Prototype testing for a destination recommender system: steps, procedures and implications. In A. J. Frew (Ed.). *Information and Communication Technologies in Tourism 2004*. Vienna: Springer Verlag.