

## **RESEARCH ABSTRACTS – (on file 17<sup>th</sup> Feb 07)**

### **Electronic Guidebooks and Visitor Attention**

Allison Woodruff, Paul M. Aoki, Amy Hurst,<sup>1</sup> and Margaret H. Szymanski

#### **ABSTRACT**

We describe an electronic guidebook prototype and report on a study of its use in a historic house. Supported by mechanisms in the guidebook, visitors constructed experiences that had a high degree of interaction with three entities: the guidebook, their companions, and the house and its contents. In this paper, we report a qualitative analysis of how different properties of the guidebook helped or hindered visitors' attempts to balance the competing demands of these attentional entities. Based on the visitors' comments and behavior, we distill a set of design principles.

#### **KEYWORDS:**

Electronic guidebooks, visitor studies, user studies, evaluation

### **Improving Electronic Guidebook Interfaces Using a Task-Oriented Design Approach**

Paul M. Aoki and Allison Woodruff

#### **ABSTRACT**

Item selection is a key problem in electronic guidebook design. Many systems do not apply so-called "context-awareness" technologies to infer user interest, placing the entire burden of election on the user. Conversely, to make selection easier, many systems automatically eliminate information that they infer is not of interest to the user. However, such systems often eliminate too much information, preventing the user from finding what they want. To realize the full potential of electronic guidebooks, designers must strike the right balance between automatic context-based inference and manual selection. In this paper, we introduce a task-oriented model of item election for electronic guidebooks to help designers explore this continuum. We argue that item selection contains three sub-tasks and that these sub-tasks should be considered explicitly in system design. We apply our model to existing systems, demonstrating pitfalls of combining sub-tasks, and discuss how our model has improved the design of our own guidebook prototype.

#### **Keywords**

Electronic guidebooks, museum tour guides

### **The Guidebook, the Friend, and the Room: Visitor Experience in a Historic House**

Allison Woodruff, Paul M. Aoki, Amy Hurst, and Margaret H. Szymanski

#### **ABSTRACT**

In this paper, we describe an electronic guidebook prototype and report on a study of its use in a historic house. Supported by mechanisms in the guidebook, visitors constructed experiences that had a high degree of interaction with three entities: the guidebook, their companions, and the house and its contents. For example, we found that most visitors played audio descriptions through speakers (rather than using headphones or reading textual descriptions) to facilitate communication with their companions.

#### **Keywords**

Electronic guidebooks, historic houses, museums

### **The Conversational Role of Electronic Guidebooks**

Allison Woodruff, Margaret H. Szymanski, Paul M. Aoki, and Amy Hurst<sup>1</sup>

**Abstract.**

We describe an electronic guidebook prototype and report on a study of its use in a historic house. Visitors were given a choice of information delivery modes, and generally preferred audio played through speakers. In this delivery mode, visitors assigned the electronic guidebook a conversational role, e.g., it was granted turns in conversation, it introduced topics of conversation, and visitors responded to it verbally. We illustrate the integration of the guidebook into natural conversation by showing that discourse with the electronic guidebook followed the conversational structure of storytelling. We also demonstrate that visitors coordinated object choice and physical positioning to ensure that the electronic guidebooks played a role in their conversations. Because the visitors integrated the electronic guidebooks in their existing conversations with their companions, they achieved social interactions with each other that were more fulfilling than those that occur with other presentation methods such as traditional headphone audio tours.

**Eavesdropping on Electronic Guidebooks: Observing Learning Resources in Shared Listening Environments**

Allison Woodruff, Paul M. Aoki, Rebecca E. Grinter, Amy Hurst, Margaret H. Szymanski, and James D. Thornton

**ABSTRACT**

We describe an electronic guidebook, *Sotto Voce*, that enables visitors to share audio information by eavesdropping on each other's guidebook activity. We have conducted three studies of visitors using electronic guidebooks in a historic house: one study with open air audio played through speakers and two studies with eavesdropped audio. An analysis of visitor interaction in these studies suggests that eavesdropped audio provides more social and interactive learning resources than open air audio played through speakers.

**Sotto Voce: Exploring the Interplay of Conversation and Mobile Audio Spaces**

Paul M. Aoki, Rebecca E. Grinter, Amy Hurst, Margaret H. Szymanski, James D. Thornton, and Allison Woodruff

**ABSTRACT**

In addition to providing information to individual visitors, electronic guidebooks have the potential to facilitate social interaction between visitors and their companions. However, many systems impede visitor interaction. By contrast, our electronic guidebook, *Sotto Voce*, has social interaction as a primary design goal. The system enables visitors to share audio information – specifically, they can hear each other's guidebook activity using a technologically mediated audio eavesdropping mechanism.

We conducted a study of visitors using *Sotto Voce* while touring a historic house. The results indicate that visitors are able to use the system effectively, both as a conversational resource and as an information appliance. More surprisingly, our results suggest that the technologically mediated audio often cohered the visitors' conversation and activity to a far greater degree than audio delivered through the open air.

**Keywords**

Electronic guidebooks, shared audio, interaction analysis.

## **SOTTO VOCE**

### **Introduction**

Visitors often go to cultural heritage locations, such as historic houses, with companions. Many seek what has sometimes been called a "learning-oriented" experience. To facilitate learning, institutions typically present information through guidebooks and prerecorded audio guides as well as through labeled exhibits and docent-led tours. However, sharing the experience with companions is often a higher priority than learning, particularly for infrequent visitors. Unfortunately, existing presentation methods interfere with the interaction among visitors. For example, visitors frequently complain that audio tours with headphones isolate them from their companions, and visitors have few opportunities to interact effectively with each other while docents "lecture" to them.

We are interested in identifying electronic guidebook designs that facilitate rather than hinder social interaction. (cont)

### **Tap Tips: Lightweight Discovery of Touchscreen Targets**

Paul M. Aoki Amy Hurst Allison Woodruff

#### **ABSTRACT**

We describe tap tips, a technique for providing touchscreen target location hints. Tap tips are lightweight in that they are non-modal, appear only when needed, require a minimal number of user gestures, and do not add to the standard touchscreen gesture vocabulary. We discuss our implementation of tap tips in an electronic guidebook system and some usability test results.

#### **Keywords**

Touchscreen, imagemap, usage tips.

### **Revisiting the Visit: Understanding How Technology Can Shape the Museum Visit**

Rebecca E. Grinter, Paul M. Aoki, Amy Hurst\*, Margaret H. Szymanski, James D. Thornton, and Allison Woodruff

#### **ABSTRACT**

This paper reports findings from a study of how a guidebook was used by pairs of visitors touring a historic house. We describe how the guidebook was incorporated into their visit in four ways: shared listening, independent use, following one another, and checking in on each other. We discuss how individual and groupware features were adopted in support of different visiting experiences, and illustrate how that adoption was influenced by social relationships, the nature of the current visit, and any museum visiting strategies that the couples had. Finally, we describe how the guidebook facilitated awareness between couples, and how awareness of non-guidebook users (strangers) influenced use.

#### **Keywords**

Electronic guidebook, museum, visitor behavior

## **Hellenic Cultural Heritage through Immersive Virtual Archaeology**

Athanasios GAITATZES, Dimitrios CHRISTOPOULOS, Aimilia VOULGARI,  
Maria ROUSSOU

### **Abstract.**

Virtual Reality is a novel and innovative technology which allows us, through its applications, to experience abstract concepts and ideas, visit spaces that are unreachable or no longer exist, and examine e objects from diverse and unique points of view. Virtual archaeology refers to the use of 3D computer models of ancient buildings and artifacts visualized through immersive technologies. In this paper we explore issues involved in creating immersive cultural heritage projects enhancing our perspective and understanding of the environments in which our ancestors lived and worked.

## **Visitors' use of interpretive media at heritage sites**

Duncan Light

### **Abstract:**

Although heritage interpretation is a central component of the modern heritage industry there has been relatively little concern with how visitors to heritage sites make use of interpretive media. This paper reports a study of visitors' use of three interpretive media — exhibitions, outdoor panels, and stereo-audio tours — commonly employed at one type of heritage site, namely ancient monuments. Interpretation is an important component of the visit for many people, although visitors differ in the interest and attention they display to the interpretive media. This is greatest for audio media and less for visual media. This was attributed both to qualities of the interpretive media themselves (e.g. subject matter, readability), and also to characteristics of visitors, particularly their motive for visiting. This supports the notion that the 'effectiveness' of interpretation is the result of an interaction between visitor and interpretive medium, rather than depending solely on the interpretive medium.

## **TOURIST SATISFACTION WITH CULTURAL / HERITAGE SITES:**

### **The Virginia Historic Triangle**

By Jin Huh

### **ABSTRACT**

Cultural/heritage tourism is the fastest growing segment of the tourism industry because there is a trend toward an increased specialization among tourists. This trend is evident in the rise in the volume of tourists who seek adventure, culture, history, archaeology and interaction with local people (Hollinshead, 1993). Especially, Americans' interest in traveling to cultural/ heritage destinations has increased recently and is expected to continue. For example, cultural/heritage sites are among the most preferred tourism experiences in America. (Virginia Department of Historic Resources, 1998)

The recent studies about cultural/heritage tourism focused on the characteristics of tourists who visited cultural/heritage destinations. The study attempts to investigate the relationship between cultural/heritage destination attributes and tourist satisfaction, and to identify the relationship between cultural/heritage destination attributes and tourist satisfaction in terms of selected tourists' demographic characteristics and travel behavior characteristics.

The expectancy-disconfirmation theory provided a conceptual framework for this study. The expectancy-disconfirmation theory holds that consumers first form expectations of products or service performance prior to purchasing or use. Subsequently, purchasing and use convey to the

consumer beliefs about the actual or perceived performance of the product(s) or service(s). The consumer then compares the perceived performance to prior expectations. Consumer satisfaction is seen as the outcome of this comparison (Clemons & Woodruff, 1992).

The study area for this study was Virginia Historic Triangle (Williamsburg, Jamestown, and Yorktown). Virginia Historic Triangle has been called the 'largest living museum in the world'. Furthermore, it is one of America's popular vacation destinations, attracting more than 4 million tourists each year. The data of this study were collected from the on-site survey method. The sample population for this study was composed of tourists who visited Virginia Historic Triangle between June and August in 2001. The survey was conducted at five different sites in the Virginia Historic Triangle. Out of 300 questionnaires, 251 were usable. Therefore, the data from 251 respondents were analyzed in this study.

Appropriate statistical analyses such as frequencies, descriptive, factor analysis, correlation analysis, multiple regressions, Multivariate Analysis of Variance (MANOVA), Analysis of Variance (ANOVA), and Multivariate Analysis of Covariance (MANCOVA) were used according to respective objectives and descriptors.

The factor analysis was conducted to create correlated variable composites from the original 25 attributes. Using factor analysis, 25 destination attributes resulted to four dimensions: General Tour Attraction, Heritage Attraction, Maintenance Factors, and Culture Attraction. These four factors then were related with overall satisfaction. Correlation analysis revealed that four factors were correlated with tourists' overall satisfaction. The multiple regression analysis revealed that there was relationship between cultural/heritage destination attributes and tourists' overall satisfaction. MANOVA revealed that there was significant difference between derived factors in relation to only total household income and the length of stay among 10 demographic and travel behavior characteristics. ANOVA revealed that there is a significant difference in the overall satisfaction of tourists by gender, past experience, and decision time to travel. Finally, MANCOVA revealed that only one of the control variables (past experience) controlled the relationship between the overall satisfaction of tourists and derived factors.

Based upon the results of this study, several recommendations can be made to increase tourists' satisfaction with the Virginia Historic Triangle. First, comprehending what tourists seek at cultural/heritage attractions will help tourism marketers better understand their customers. Second, identifying which attributes satisfy the tourist who visit cultural/heritage destinations will help tourism planners develop appropriate strategies to attract their customers and serve them effectively. Third, knowing who the satisfied tourists are may help reduce marketing costs and maintain cultural/heritage destinations' sustainability.

**Keywords:**

Cultural/heritage tourism, Virginia Historic Triangle, Expectancy-satisfaction theory, Tourists' expectation, Tourists' satisfaction

## **Museums: Dynamic Learning Centers**

Historic house museums are dynamic learning centers for students. They provide an evocative setting that stimulates imaginations, actively engages students in learning, and inspires further investigation. Whether a local historic site or a national historic landmark, these museums have unique programming and resources that greatly enhance the student learning experience.

A planned visit to an historic house museum places the student in a rich contextual environment that encourages sensory investigation and promotes experiential learning. At its very simplest, the museum provides opportunities for learning and/or reinforcement of ideas, facts and concepts that are part of the students' curriculum. The historic house environment of the museum fosters an aesthetic understanding as students investigate their surroundings by looking, listening, smelling and touching. Students interact with buildings, objects, people, landscapes and documents. As students explore familiar settings, the homes of "people of the past," they make social and cultural discoveries about themselves and others. Through exhibitions and

interpretation, the museum presents shifts in attitudes, values and beliefs. Programs emphasize imaginative and creative thought and action. These diverse learning experiences encourage and refine students' critical thinking skills. (cont.)

## **Jennie Fordham : English Heritage / HHA Education Project Manager**

### **HHA seminar introduction**

#### **What is learning all about - why does it matter?**

When the word education or learning is used in conjunction with historic sites everyone automatically thinks this = school visits. Sometimes this is just a slip of the tongue - a kind of shorthand, but more often it reflects a view that education happens in a box, clearly defined and restricted to formal education - ie that which happens in led groups, with a curriculum to follow, either at schools or in further and higher education. (cont)

## **OPENING DOORS - EDUCATION AND THE HISTORIC HOUSE TALK FOR HISTORIC HOUSES ASSOCIATION, 15 November 2005**

Giles Waterfield

The title for my talk derives from a report called Opening Doors: Learning and the Historic Environment, which I edited and which was published in 2004. This was an ambitious project to survey educational activities at all levels in Britain and in Ireland today. It was originally intended to focus on country houses but the project steadily expanded to include a wide variety of historic sites. In addition to the survey it made a number of recommendations. (cont)

## **Preserving listed buildings - on computer**

**Charlie Gates and Robert Booth**

**Thursday March 24, 2005**

[The Guardian](#)

Listed buildings could be demolished and preserved in virtual form to make way for fresh architecture from the country's best designers, according to the culture secretary, Tessa Jowell.

Ms Jowell believes some preservation orders on historic buildings stand in the way of development and is proposing a system which records "a perfect virtual moving image" of some listed buildings before they are pulled down.

In a speech at a Heritage Lottery Fund dinner in London last night she suggested using walk-through computer visualisations of the kind increasingly used by estate agents to replace historic buildings facing demolition.

Her proposal, outlined in a pamphlet on the future of the historic environment, *Better Places to Live*, has caused consternation among campaigners for historic buildings. (cont)

## **Creative Partnerships Publish new Research Monographs**

Arts Hub

Thursday, February 15, 2007

Creative Partnerships is to release a new series of four research monographs exploring key issues in current literature and summarising the latest developments in the fields of creativity and learning.

The four monographs are:

\* *Rhetorics of Creativity* (Shakuntala Banaji & Andrew Burn, Institute of Education, University of London)

An important and original report that surveys the core concept of creativity.

\* *Youth Voice* (Sara Bragg, The Open University)

Highlights some of the reasons why young learners should be listened to, in a way that unleashes their creativity and generates genuine dialogue and collaboration.

\* *Whole School Change* (Pat Thomson, University of Nottingham)

Considers the reasons why people engage in school change and the main processes describing how such change occurs.

\* *Creative and Cultural Industries* (Justin O'Connor, University of Leeds)

The monographs will be available as free downloadable pdf documents from the Creative Partnerships [website](#)

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