Digitally Augmented Remembrance:
Public Memory, Mobile Technology and the 9/11 Memorial

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**ABSTRACT**

Mobile technology delivers digital information to users in places where traditional computing hardware would have been inconvenient or cumbersome. This new arrangement has opened up opportunities to design physical spaces that have digital counterparts or tie-ins, making possible unique experiences for the user. A particularly salient example of the marriage of physical and digital space is the new National September 11 Memorial in Lower Manhattan, which features a mobile app designed in relation to the physical memorial. Using the memorial as a site of inquiry, this project will address the following research questions: *How are remembrance and memory impacted by use of mobile technology in conjunction with a designed space at a site of memorialization?* And, *What factors mediate engagement with mobile technology for the purposes of remembrance?* Nineteen New York area residents visited the memorial while using the app, and then participated in a mixed-method study (in-depth focus groups and survey). The results reveal that participants—if they experienced no significant technical troubles—found the app as significantly enhancing the memory and remembrance functions of the memorial. This is largely the result of having access to the curated oral histories or stories available on the app. The paper will discuss the initial quantitative and qualitative findings from this study.

**Introduction**

Use of digital computers for augmenting human memory has grown over the last several decades. From use of CD-ROM-based encyclopedias like Microsoft Encarta in the 1990s, to present day Google or Wikipedia searches on mobile devices, digital technology has proven itself incredibly effective in delivering information to users, often raising questions as to what individuals need to remember, and what can be offloaded onto digital technologies. Studies of uses of information often focus on such utilitarian settings: information needed to complete a task, or fill-in gaps in knowledge of some issue. Less explored is how digital technology can be used for enhancing what one remembers. Such enhancements can include elevating attention to or emotional salience of the memory, improving or augmenting the clarity of the memory, and promoting actions dependent upon the memory.

Also explored less is how computing—used in conjunction with physical space—can affect the memory experience. Mobile computing, combined with cellular Internet capabilities, has made possible the delivery of digital information to the user at nearly any physical location, allowing for the deployment of designed spaces that have both physical and digital counterparts.
One particularly salient example of the marriage of physical and digital space is the National September 11 Memorial. The memorial opened to the public on September 12, 2011, and acts as “tribute of remembrance and honor to the nearly 3,000 people killed in the terror attacks of September 11, 2001 at the World Trade Center site.”¹ The memorial covers 6 acres, with its most prominent feature being two reflecting ponds that occupy the space of the former World Trade Center towers, with the names of those deceased arranged around the ponds (see Figure 1).² In addition to its designed space in Lower Manhattan, the memorial provides users with a mobile app—the 9/11 Memorial Guide—that acts as a digital interface for the memorial. Using the app that is available for iPhone, Android and Windows phones, visitors can find names on the memorial, as well as listen to oral histories. Oral histories are arranged on a graphic representation of the physical memorial, where the placement is in relation to that person’s name on the memorial. A user can click on that location, and see a picture of the named person, and listen to an oral history recorded by StoryCorps (see Figure 2).

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1. [http://www.911memorial.org/about-memorial](http://www.911memorial.org/about-memorial)
2. [http://www.911memorial.org/design-overview](http://www.911memorial.org/design-overview)
This arrangement is interesting for a variety of reasons. It converges a meaningful physical space that has been thoughtfully designed with the familiar mobile phone interface, tacitly acknowledging how these facets can work in tandem to create a unique experience for the visitor. To study this novel convergence, this project is interested in addressing the following research questions:

RQ1 - *How are remembrance and memory impacted by use of mobile technology in conjunction with a designed space at a site of memorialization?*

RQ2 - *What factors mediate engagement with mobile technology for the purposes of remembrance?*

To study this, twenty New Yorkers were selected to participate in a mixed-method study (in-depth focus group and survey) to uncover the impact this multimodal encounter had on the personal experience of remembrance. Before the study will be introduced, relevant literature related to mobile technology for cultural heritage contexts will be introduced, followed by research on critical issues in memorialization.

**Literature Review**

*Mobile Technology in Cultural Heritage Contexts*

Mobile computing offers an opportunity to open up the interaction, multimedia and network capabilities of modern computing to any physical location in a convenient format. Because of the wide array of functions and conveniences offered by mobile computing, ownership and interest in ownership of smart phones by adults in the United States is increasing annually. As of February 2012, 46% of adults in the United States owned a smart phone, such as an iPhone, Android, or Blackberry, an 11% increase from the prior year (Smith, 2012). Youth own smart phones at an even higher rate, including 71% of 25-34 year olds, which is a 13% increase from the prior year (Smith, 2012). The widespread interest in mobile computing combined with the yearly growth in ownership indicates new opportunities for cultural heritage institutions to make use of this technology. However, many applications of mobile computing today only add convenience (e.g., getting the current hours for a museum), and do not take full advantage of the opportunities the technology provides.

There is growth both in the number of cultural heritage institutions using mobile technology to enhance their educational offerings and there is growth in the research related to mobile technology in such contexts. In museums particularly, this is well highlighted by the American Association of Museums 2011 Mobile Technology Survey, that found that one-third of all museums plan to introduce some new mobile technology platform in 2011 (AAM, 2011). This is buttressed by Museums and Mobile 2012 survey, which found that 29% of museums are currently using mobile technologies, and 27% are not but have plans to use mobile technologies (Tallon, 2012). In practice, this growth is seen by such actions as Bloomberg Philanthropies donating $15 million to develop mobile technologies for the Art Institute of Chicago, The Metropolitan Museum of Art, The Museum of Modern Art, The New York Botanical Garden,
and Solomon R. Guggenheim Museum (Bloomberg, 2013). However, Tallon (2008) remarks that for “a medium with such an extensive existing usage and wide-reaching potential, there is a distinct lack of rigorous, accessible, and published research” (p. xix). The majority of the research related to mobile technology in cultural heritage contexts describes and studies a specific technology used in a particular context. These include:

- German Traces NYC, a augmented reality walking tour of the history of Germans in New York City, provided by Goethe-Institut Library New York (Cocciolo & Rabina, 2013)
- PhillyHistory.org, which makes accessible digital collections on physical sites via smartphones (Boyer, 2011).
- WolfWalk project from North Carolina State University Library, which makes University archival collections available via an iPhone app (Sierra, 2010)
- iPhone application at Royal Botanic Garden, Kew (Waterson & Saunders, 2012).
- iPad with group tours at the Minneapolis Institute of Arts (Isaacson, McGuire, Sayre & Wetterlund, 2012).
- GPS-enabled mobile phones at archeological site of Locri (Cutrí, Naccarato, Pantano, 2008).
- Mobile game with youth at the Egnathia Archaeological Park, Italy (Costabile, Ardito, Lanzilotti, 2010; Ardito, Buono, Costabile, Lanzilotti, Piccinno, 2009).
- Augmented reality at the Sutton Hoo archeological site (Angelopoulou et al., 2011)
- PDA-based multi-user game used at Marble Museum of Carrara (Laurillau & Paternò, 2005; Dini, Paternò & Santoro, 2007; Ghiani, Paternò, Santoro & Spano, 2009).
- mobile augmented reality with cave paintings in France (Choudary, Charvillat, Grigoras & Grigoras, 2009).
- mobile location search of digital repositories in Amsterdam (van Aart, Wiepinger & van Hage, 2010)
- iPhone application for studying Summer War of Osaka byōbu (Carillo et al., 2010)
- mobile computer vision (object recognition) in two German museums (Föckler et al., 2005).
- iPhone application at the Davis Museum and Cultural Center (Shaer, Olson, Edwards, Valdes, 2011).

Other studies focus on other issues like media authoring tools for cultural heritage contexts, including details on the technical structures and workflows (Economou, Gavalas, Kenteris & Tsekouras, 2008; Kenteris, Gavalas, Economou, 2007). Relatedly, others have produced general platforms or templates for creating mobile experiences. For example, the TAP Into Museums project includes a modeling language for describing mobile museum tours that can be used across contexts and technical platforms (Indianapolis Museum of Art, 2011). Additionally, the project includes a content management system that allows the creation and publication of mobile content.

While some projects focus on authoring tools, one research approach is to study specific gestures, movements, and interactions, and how the technology makes use of this activity. For example, Rukzio et al. (2007) look at four types of mobile interaction styles, and the extent to which it worked well and was enjoyed by museum-goers. The four types are pointing (uses camera to aim at something), touching (RFID tag), scanning (Bluetooth connection), and user-
mediated object interaction (typing in data into a mobile phone like a URL). In a mobile tourist
guide situation, users found the user-mediated object interaction to be the most simple and
reliable, but the least enjoyable; however, they found pointing and scanning to be most
enjoyable. In a museum guide context, users found touching to be the preferred method of
pulling up mobile content; however, user-mediated object interaction as the most reliable.
Further studies have explored other interaction techniques, such as Mantyjarvi et al. (2006),
who discuss their “scan and tilt” approach, where a museum visitor scans a RFID tag and can
“tilt [the device] to identify/select different artworks in the room” (p. 192).

Lastly, some studies have taken a more expansive approach to the study of mobile technology in
cultural heritage contexts. One such example is Raptis et al. (2005) who created a theoretical
framework, which consists of four contexts that should be considered in assembling a mobile
cultural heritage application. Other researchers have similarly focused on models for
conceptualizing mobile applications in cultural heritage contexts. For example, Falk & Dierking
(2008) put forth twelve factors to consider in thinking through what can be learned by a mobile
application. Likewise, Gammon & Burch (2008) suggest developers think about user mental
models and to consider interaction between multiple users, devices, and objects.

**Mobile Technology for Memorialization**

Currently, there are no known studies that address how mobile technology is used for
remembrance, and what impact it may have on user experience. This is likely because there are
few memorials that explicitly make use of mobile technology, and the ones that do are quite new.
Recent mobile technology sites at memorials include the mobile website for Flight 93 National
Memorial,3 provided by the National Parks Service, and the mobile application at the Mount
Rushmore National Memorial.4 With respect to new national memorials, the National 9/11
Pentagon Memorial does not make use of mobile technology, nor does the Oklahoma City
National Memorial (although it does have a podcast).

The most relevant related literature is the related to the “growing importance of media
technologies to the construction of personal remembrance…” (van Dijck, 2007, p. 2). Van Dijck
(2007) studies the personal shoeboxes people create, which includes digital assets, to understand
how media technologies affect the process of remembrance, and how the needs of remembrance
affects the way media devices are used. Other relevant literature include the use of the World
Wide Web for memorialization. This literature acknowledges the affordances of the WWW that
can be taken advantage of in memorialization contexts (e.g., ability to share information), and
leave out the potentials of mobile technology (e.g., ability to combine use of physical place and
digital information through GPS). This omission is understandable because these studies are
interested in the web-based artifacts and how they are shared, and not necessarily what the user
may experience engaging this material in physically relevant settings. These studies of the use of
the WWW for memorialization include Haskins’ (2007) study of the the September 11 Digital
Archive, Marschall’s study of web-based memorials in South Africa (2013), and Hess’s (2007)
study of web memorials.

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Critical approaches to Memorialization

Scholars taking a critical perspective on memorialization would question not so much the use of mobile technology for memorialization, but the apparatus of memorialization in general. Haskins (2007) traces the growth of memorialization in the modern nation-state, and observes that “institutions of memory have tended to promulgate official ideologies of the ruling elites while claiming to speak on behalf of the people” (p. 402). Doss (2012) reaches a similar conclusion in tracing representational memorials (e.g., the heroic soldier), to more contemporary minimalist designs. In her extensive review of what she calls “memorial mania,” she notes how “both monuments and memorials are memory aids: materialist modes of privileging particular histories and values,” and the minimalist design “adopted by many contemporary terrorism memorials helps to manage… security narratives by simultaneously expressing and containing affective conditions of fear” (p. 38; 123). She studies the 9/11 Memorial and notes how extensively trauma is employed in its narrative, and trauma’s “representation is often superficial and mostly oriented towards the restoration of social order and the revitalization of presumably shared social norms” (p. 133). She concludes that “terrorism memorials reproduce the rapid assertion, or reassertion, of national authority following the extremist acts that threaten that authority” (p. 168).

Other critical approaches look to issues like what gets memorialized and what does not, as well as how politics and attitudes get expressed in memorials. One notable critique of a memorial that has failed to materialize is observed by Schulman (2012):

81,542 people have died of AIDS in New York City as of August 16, 2008. These people, our friends, are rarely mentioned. Their absence is not computed and the meaning of their loss is not considered.

2,752 people died in New York City on 9/11. These human beings have been highly individuated. The recognition of their loss and suffering is a national ritual, and the consequences of their aborted potential are assessed annually in public. […]

Where is our permanent memorial? Not the AIDS quilt, now locked up in storage somewhere, but the government-sponsored invitation to mourn and understand, equal to Maya Lin’s memorial to the dead in Vietnam? (p. 46, p. 48).

Schulman’s argument is not on the particulars of the 9/11 Memorial, but rather the memorials that have failed to materialize—in particular one to those who have died of AIDS. This argument draws attention to issues of power and representation, and raises issues as to who gets remembered through official government structures and for what purpose. A reading of Schulman’s argument could conclude that there is a political utility in remembering those who were terrorist victims, but not those who have died of AIDS. Following Doss’s argument, memorialization of 9/11 allows for a “rapid assertion, or reassertion of national authority,” whereas there is not such political or national utility for remembering those who died of disease most often contracted through non-normative sexual relations. On the contrary, the AIDS
narrative—given its particularly negative view of government response to the epidemic—would only act to diminish heroic national narratives. Given these tensions, Schulman’s desire for a “government-sponsored” memorial is wishful at best.

Rivard (2012) finds related conflicts in her analysis of the September 11 Digital Archive in relation to the Hurricane Digital Memory Bank. She notes that:

The physical and digital components of the September 11th disaster archive rely on principles of whiteness to render the September 11th victims heroic citizens, whose deaths deserve national mourning. Whereas the Hurricane Katrina disaster archive activates notions of Blackness equated with poverty, disposability, and criminality to disassociate the victims of Hurricane Katrina from US national identity, thereby granting them only distant sympathy. Therefore, taken together, the first two instances of disaster archive demonstrate the powerful roles of emotion and race in shaping notions of national belonging within the space of the archive. (p. 7).

Rivard’s analysis concludes, similarly to Shulman’s analysis, that the mobilization of memorials is shaped by power, race, and class. These analyses give rise to a need for critical reflection on the role of mobile technology at sites of remembrance. For example, how might mobile technology be used for further reasserting the authority of the state, or to further reify problems of race, class and power? If a memory can be enhanced through the use of digital information delivered to a mobile device, can that memory be manipulated to serve some ends? This paper will explore some of these critical issues using study participant feedback.

Research Method

To address the aforementioned research questions, a mixed method research design was employed which is composed of in-depth focus groups and a survey. The goal of the research design is to elicit feedback on how mobile technology impacts the remembrance and memory functions of a memorial, with a concerted effort in creating a comfortable environment for participants to share their views and for garnering the feedback from a diverse group of people. This study uses a grounded theory perspective, where the research data will shape any theory developed rather than the researcher applying some preexisting theoretical model (Glaser & Strauss, 1967). The procedure for the study is as follows. First, the study is advertised on flyers in Manhattan and Brooklyn, New York, as well as on Facebook, and interested participants sign-up to participate online at http://911study.org. Participants were notified via the flyers that by participating in the focus group, they would receive fifty US dollars cash upon completing it. Additionally, the study is advertised on the School’s listserv. To maintain diversity of occupation and education, the researcher asked that students not apply to participate, but if they know someone who might be interested, then to please forward along the opportunity. This snowball method—used in combination with flyers—was thought to be an effective way to bring together a diverse body of participants. One prerequisite is that the participant already owns an Apple iPhone, Android phone, or Windows phone that has an Internet data provider.
Upon visiting the website, applicants filled-out a demographic survey online, which asked basic demographic questions\(^5\). To maintain a diverse participant group, the list of applicants were separated into groups based on demographic factors (e.g., age, education level, gender, and ethnicity), and the researcher randomly selected a participant from those groups. After selection, an invitation to participate in the focus group was sent to the applicant, with a request that they pick a date for the focus group (which were Tuesdays at 7 pm in June 2013, and would last approximately one hour). Evening focus groups during the work week were chosen so that working adults could visit the memorial on the weekend or on Monday after work, and attend the focus group on Tuesday on their way home from work. The focus group is held at Pratt Institute Manhattan Campus (7\(^{th}\) Ave. and 14\(^{th}\) St.), which is a short subway ride from the memorial. Additional applicants were contacted if no response was received until twenty persons had committed to participating, distributed over four focus groups. Participants were informed via email that they should request a ticket online for visiting the 9/11 Memorial, download the 9/11 Memorial Guide, and they should bring their smartphone with headphones to listen to the stories available onsite.

At the beginning of the focus group, the researcher first had participants fill-out a survey on a computer in the classroom where the focus group was held.\(^6\) The rationale for doing this was to help solidify a participants view on the mobile-app enabled memorial experience so as to not be easily swayed by a dominant voice in the focus group. Also, this ensured that the survey would be completed. Once everyone in the group had completed the survey, the focus group would begin, which was recorded with a HD camcorder, and a digital audio recorder was used as backup. The focus group protocol is included in the appendix. As a way of making the group feel comfortable, the researcher would have everyone go around and say their name, and what they were doing on the morning of September 11, 2011. Since nearly everyone remembers what they were doing on that morning—and usually feel free to tell it—this was thought by the researcher to be a good way to get the focus groups feeling comfortable. The researcher also was the first to recount his morning, which was done to model openness about past experience.

Since this paper represents early work from this study, focus group data will not be formally analyzed using coding techniques. Instead, particularly insights quotes from the focus group will be used instead. To most directly address the first research question, responses to the survey questions will be used:

- **How do you think the mobile app impacts the remembrance and memory functions of the memorial? (Very much enhances to very much detracts)**
- **If you listened to stories using the mobile app, how do you think it impacted your memorial visiting experience? (Very much enhances to very much detracts)**
- **Overall, do you feel like the mobile app impacted your memorial visiting experience? (Very much enhances to very much detracts)**

To further augment the survey results, quotes pulled from the focus groups, as well as free-form responses in the survey, will be used. Future work related to this project will more formally address the focus group content.

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\(^5\) Survey available at [http://911study.org](http://911study.org)

\(^6\) Survey available at [http://911study.org/prefocus](http://911study.org/prefocus)
To address the second research question (or the factors that mediate engagement with the mobile technology), statistically significant correlations between demographic background, usages of mobile technology at the memorial, and mobile technology use in everyday life, as correlated to overall satisfaction with the mobile app, will be reported upon. This will also be augmented by quotes pilled from the focus groups, as well as free-form responses from the survey.

Forty-nine individuals applied to participate in the study, and twenty individuals were selected to participate in the study, and nineteen actually participated (one individual did not show-up for the focus group). The participants ranged in age from 22 to 63 years of age (Mean = 36.4, SD = 12.4), with 10 female, and 9 male. Participants came from a variety of ethnic and religious backgrounds, and a wide variety of professions (e.g., psychologist, photographer, account manager, registered nurse, attorney, physician, consultant, social worker, art director, and unemployed). A group not well represented in the sample is those working in traditional “blue collar” careers (e.g., construction worker, police, firemen, etc.), or those careers that require less educational attainment. Hence, this sample best represents a college-educated group of residents living in the New York City area. Figure 2 shows map of participant residences based on zip code, which illustrates that participants come from all five boroughs of the City of New York (Manhattan, Queens, Bronx, Staten Island, and Brooklyn), as well as New Jersey. In terms of mileage, participants lived an average of 6.6 miles from the World Trade Center site (SD = 6.4).

Figure 2. Participant residences based on zip code. Map © Google, Inc.

Quantitative Results

RQ1 - How are remembrance and memory impacted by use of mobile technology in conjunction with a designed space at a site of memorialization?

To address this question, survey response will be broken down by phone type because phone type proved instrumental in satisfaction with smartphone use at the memorial site. Some users of
the Android phone reported problems accessing the stories and the app crashing, and Apple iPhone users generally reported less technical problems. There were no Windows phone users. Table 1 indicates that iPhone users generally had a very positive experience with the mobile app, indicating that overall it enhanced to very much enhanced the remembrance and memory functions of the memorial. Android phone users were still somewhat enthusiastic, but quite a bit less than the iPhone users (with an average score between neutral to enhancing the memorial experience). Also evident is Android respondents have a higher standard deviation, indicating that the app worked for some users and not for others.

Table 1. Participant response to survey of mobile app impact on memorial experience. Scale: 5 = Very Much Enhances, 4= Enhances, 3 = Neutral, 2 = Detracts, 1 = Detracts very much

<table>
<thead>
<tr>
<th>Survey question</th>
<th>Apple iPhone</th>
<th>Android Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>App impact on remembrance and memory function of memorial</td>
<td>4.31</td>
<td>3.17</td>
</tr>
<tr>
<td>Impact of stories on memorial visiting experience?</td>
<td>4.23</td>
<td>3.33</td>
</tr>
<tr>
<td>Overall, mobile app impact on memorial visiting experience?</td>
<td>4.08</td>
<td>3.33</td>
</tr>
</tbody>
</table>

RQ2 – *What factors mediate engagement with mobile technology for the purposes of remembrance?*

The number of stories listened to is significantly correlated to perceived enhancement of the experience from the stories available on the app. Additionally, the number of stories listened to is significantly correlated to the perceived enhancement of the remembrance and memory functions of the memorial, as well as its overall enhancement of the memorial. This means that the more stories listened to via the mobile phone correlates with higher levels of enhanced experience the user perceived the app produced.

There were not any clear demographic factors that mediated engagement with the app. For example, age was not a factor in how participants regarded the app. However, the one exclusion being that there was a significant negative correlation between age and overall satisfaction with the memorial, meaning older people were generally less satisfied with the memorial than the young. Also, age was significantly correlated with likelihood of living in the NYC area during the events of 9/11. This makes sense, since many younger people move to New York City during college or immediately after college, and would not be living in New York during September 2011.

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7. $r = 0.53, N = 19, p < .05$ (2 tailed)
8. $r = 0.48, N = 19, p < .05$ (2 tailed)
9. $r = 0.48, N = 19, p < .05$ (2 tailed)
10. $r = -0.50, N = 19, p < .05$ (2 tailed)
11. $r = -0.51, N = 19, p < .05$ (2 tailed)
Also, the frequency with which users play games on their phones was positively correlated with number of stories listened to\textsuperscript{12} as well perceived enhancement to their experience from the stories available on the app.\textsuperscript{13} This may indicate that people who regularly use their mobile phone for affective experiences (e.g., gaming) are more likely to be engaged by the affective experience provided by a memorial’s app.

**Discussion and Qualitative Feedback**

The results reveal that participants—if they experienced no significant technical troubles—found the app as enhancing the memory and remembrance functions of the memorial. This is largely the result of having access to the curated oral histories or stories available on the app. For example, one female participant in her twenties noted in the survey that “listening to the stories made the experience much more ‘real’ and personal…. I was left experiencing a wide range of emotions.” Several participants noted that the stories were “powerful” or “moving” and made the experience more “personal,” more “real” or made the “experience hit closer to home.” One female participant in her thirties noted that listening to the stories via the app made the experience more “intimate” and brought her to tears. A female participant in her twenties noted that “although I felt frustrated at the mobile app at times, it really brought [the] engraved names back to life.”

For users who experienced trouble with app—especially those using the Android phone which was prone to technical trouble—the app detracted from the experience. For example, one male Android user in his twenties noted “the mobile app is… the source of my annoyance.” A female participant in her thirties noted that “Unfortunately, I was never able to get the app to work on my Samsung phone (android). It just kept crashing.”

There were a small number of users who did not experience significant technical trouble using the Android phone, but did feel like the mobile app was a detractor. For example, a male participant in his forties noted that “the site itself [the mobile app] detracted and was actually difficult to hear over the water and crowds.”

An issue that came up repeatedly in the focus groups as a detractor from the remembrance and memory functions of the memorial was not related to the app, but to other visitors at the site. A male participant in his twenties noted “There was also annoyance at about 80 percent of the people who were there. The site was different for them. Something on a checklist.” Participants in this study were annoyed at seeing memorial visitors posing for pictures, especially for posing for pictures in a way that was not appropriate for a memorial (e.g., “posing like Superman”). Participants intuited that these visitors may have been international visitors who did not comprehend the gravity of the memorial, but rather viewed it as another site on a tourist “checklist.”

A further issue that was discussed by some participants was how slightly awkward they felt using their mobile phone with headphones at a memorial site. They worried about what others would think about them: were they listening to music? Were they doing something other than

\textsuperscript{12} r = 0.48, N = 19, p < .05 (2 tailed)

\textsuperscript{13} r = 0.47, N = 19, p < .05 (2 tailed)
memorial-appropriate behavior? These users experienced some hesitation putting on the headphones, but went ahead and felt more comfortable after a few moments. One female participant in her twenties noted that although she had on her headphones, it was clear from her demeanor that she was engaging in memorial-appropriate behavior. A few participants in the focus group insisted that they did not care about what others thought, and felt perfectly comfortable putting on the headphones and using the memorial-sanctioned app.

Following the work of scholars who critique memorialization, the researcher asked the focus group participants about any perceived connections they made between the memorial and the political contexts in which the memorial is situated, and if the app played a role in this process. By this, the researcher asked if the memorial made them think about the two wars that were an outgrowth of the events of 9/11. Most participants indicated that they did not think at all about politics. However, the intense security screening process to enter into the memorial (one participant noted it was “worse than an airport”) made some participants think about how 9/11 brought about—in the words of a 50 year old female participant—“a new normal.” A male participant in his twenties concurred, expressing that “the security to get in there is so tight that process is distracting and highlights how we still live differently because of what happened, and it highlights that in an uncomfortable way.” The security process—where one participant noted that they were “herded like cattle” through—was in strong relief to the more relaxed atmosphere of the memorial itself.

In discussing how the memorial and politics might be involved, one female participant in her thirties remarked how the names of the deceased imprinted on metal seemed to be artificially cooled (she was visiting on a very hot day). She remarked that this was an amazing technical feat. For her, she seemed to make a nascent connection—although not a fully fleshed out one—between the politics, and the technical and financial resources required to make such an edifice possible. However, for the most part, participants did not perceive the memorial nor the app as having any overly political dimension.

There was one case where a male participant in his sixties made connections between the memorial and a larger political context. He mentioned that he was not thinking about this while at the memorial, but once asked the question expressed:

Before was the World Trade Center, which was this square monumental ugly building, but from a distance it was this huge statement of global economic world domination and power. And there it is, coming right back, we built this beautiful memorial for the people who died, and who is going to surround it, more of the same, the people who helped create the problem to begin with, and killed these people indirectly…. that is one of the reasons there is so much hatred for this country.

This statement indicates that the participant doesn’t necessarily see the state as asserting itself through the creation of memorial, but rather as a reassertion by corporations that will occupy the airspace around the memorial in new office towers. This statement shows a relationship in how participants perceive place (the memorial) and space (office towers for Fortune 500 companies), and how they can be used to symbolize ideologies and provoke animosity.
Limitations

As noted earlier, this paper is early work from this project, and does not include a systematic, coded analysis of the focus group data. Instead, it relies on insightful quotes from the focus groups, as well as quantitative results from the survey. Future work stemming from this project will include this systematic, qualitative analysis.

An additional limitation of this project is that it uses statistical analysis on a fairly small sample (19 individuals). However, there is no reason to expect that other populations of users (from New York or more generally from the United States) would have different experiences using the app while at the 9/11 memorial. As focus group participants indicated, some international visitors may regard the memorial in a different light.

A further limitation of this study is that it is selective in that it only includes participants who already own a smartphone, and does not include the thoughts of those who generally forsake or forgo this technology.

Conclusion

For the individual, the memorial visiting experience is a complex social performance rife with negotiations of belonging, enactment of manners and opportunity for personal, affective experience. In the social setting of the memorial, attendees perform deference to the site (e.g., quiet, contemplative) and witness those who don’t (e.g., treating the memorial as another tourist destination), which acts to codify those who belong and highlight those who are guests. The memorial experience provokes a range of emotions, from the feeling of frustration and diminishment of personal movement (through obtrusive security screenings), to feelings of deep sadness while viewing the voids, which are brought “closer to home” through the use of a mobile app that make possible an increased “intimacy.” Users who use their phone for affective experiences, such as gaming, are more likely to be open to an affective experience delivered via their smartphone at a memorial site. However, technical problems, such as crashing apps, will annoy and detract from the experience.

In the minds of users, the memorial experience is divorced from the politics—such as relationship to wars or bolstering of national narratives—yet sometimes politics become more readily perceptible through subtle bodily experiences (e.g., being “wanded” in a security screening line, or the feeling of artificially cooled metal to the touch of the hand). Thus, no user reported that the memorial represented a “reassertion of national authority,” however, the technical and security prowess required to construct such a memorial raised this issue to some participants in nascent form. One participant perceived an assertion of power more from corporations than from the state, although the researcher did not interrogate the participant’s perception of the relationship between those two entities.

For developers of mobile technology for cultural heritage contexts, the use of curated oral histories appears to be highly effective. Participants in this study were interested in getting more stories and more contextual information about each oral history. In general, participants wanted
further information available at the site and through the app, and were hopeful that this would be achieved through the opening of Museum, which is expected in 2014. However, this study also highlights how any technical problem can detract from the visiting experience. Thus, regular maintenance of apps to ensure they still function as designed—even years after they are initially deployed—is necessary.

References


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**Appendix**

*Protocol for focus group*

[Have participant sign informed consent form online, and take pre-focus group survey online]
[Once group is assembled, begin video recording]

[Brief introduction from focus group facilitator]: Thank you to everyone for agreeing to participate in this focus group. The intention of this interview is to collect your feedback on the experience of the 9/11 Memorial. We will each have a chance to talk about our experiences at the memorial site. Your responses will be anonymous, and will be used for enhancing our understanding the use of mobile technology at cultural heritage sites. We are being audio and video taped. Please note that these recordings will only be used for creating a transcript, which will omit names, and will be destroyed after the study is complete. Only myself and my assistant will have access to the recordings for the meantime.

Maybe before we get started, perhaps we could go around in a circle and say our name, and what were you doing on the morning of September 11, 2001? I will go first.

1) Tell us about your experience visiting the memorial? What feeling did it provoke? Can any of these feelings be attributed to the use of the mobile app?

2) Do you think the mobile app enhances or detracts from the remembrance and memory functions of the memorial?

3) I was wondering if anyone wanted to make any connections to the political contexts in which the memorial is situated. I think it would be safe to say the events of 9/11 brought about or at least escalated what is often called the “war on terror.” For you, does the memorial impact your view of the war? Or does it help you refocus on the reason for the war? Does the app in anyway influence this process?
4) Some critics have found problems not so much with the 9/11 Memorial, but rather the memorials that have never materialized. For example, some critics have pointed to the lack of a memorial for the tens of thousands of New Yorkers who died of AIDS, especially during the 1980s and 1990s. What is your feeling with regard to this issue of what gets memorialized, and what does not?

5) Do you have any specific ways the app or the memorial could be improved upon?

Thank you to everyone for your participation.

[Turn off video camera]
[Provide participant with $50 incentive. Have them sign-off a form that they have received it.]