

## **Recalling the Ghosts of 9/11: Convergent Memorializing at the Opening of the National 9/11 Memorial**

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This study examines the physical and digital existence of the National 9/11 Memorial located at Ground Zero in New York City as it stood on September 12, 2011. Through a rhetorical analysis of the interplay between the physical memorial and its digital smartphone applications (apps), we argue that the digital apps create a contradictory, paradoxical experience of the physical memorial. Whereas the memorial invites public reflection moving toward a sense of renewal, the digital apps privatize the experience through archives of information and images that suspend the events of 9/11 as a perpetual trauma. Such convergent technologies challenge the memorializing process, providing information in place of imagination.

*The World Trade Center Memorial began with the first flyers of lost loved ones, with the first candlelight vigils at Union Square, with the first candles lit in the doorways of families who had lost someone. It continued with the devastating pile of debris and search and rescue operations. It continued further with the cleanup and salvaging operations, the reconstruction of the site, the void at the heart of Ground Zero. It continued through the highly public arbitration of a new site design and through the public process of the memorial competition. And it hasn't ended yet.* (James E. Young, 2006, p. 214)

September 11, 2011, was not only the tenth anniversary of the terrorist attacks in New York, Washington DC, and Pennsylvania. It also marked the opening of the official National September 11 Memorial in the area of Lower Manhattan now known as "Ground Zero." Since 9/11, Ground Zero has served as the enduring symbolic place of the tragic events of that fateful Tuesday morning. Michael Arad and Peter Walker's *Reflecting Absence* opened to the public on September 12, 2011, on the site where the Twin Towers once stood. Eventually, this installation will be at the center of a much larger complex including a museum dedicated to 9/11, a transportation hub for the business district, and a 1,776-foot skyscraper known as One World Trade Center. The 9/11 memorial, nestled in the "footprints" of two of the most famous fallen buildings in history, is also surrounded by a very active construction site. Meanwhile, the memorial exists in the era of convergence culture (Jenkins, 2006), which often integrates digital

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technology into everyday material activities. Visitors to the memorial can access official digital applications (apps) on their smartphones to engage in a digital experience that is both distinct from and integrated into the space of the physical memorial.

This essay critically examines the physical and digital memorial as it was on the tenth anniversary of the attacks. Taken together, the memorial and its corresponding smartphone apps conjure paradoxical memorializing experiences. We argue that the form of the physical memorial, as the title *Reflecting Absence* would suggest, encourages public reflection on absent bodies and buildings through the dual notions of adjacency and ambiguity. However, the digital existence of the memorial immerses users in ways that other memorials have not. The apps serve as digital archives, repositories where visitors can access information about those who were lost and the changing nature of the memorial itself. As *convergent* public memory, the apps transform visitors into users, offering specific traumatic details of 9/11 that encourage disconnection from the collective interpretive possibilities at the physical site of the memorial. Using smartphone apps works against the imaginative connections of absence and ambiguity experienced at the physical memorial largely because of three paradoxes: connection/disconnection, memory/archive, and presence/absence. Because of these paradoxes, the primary symbolism of the memorial reads as trapped in trauma rather than working toward renewal.

### **September 11 and Digital Public Memory**

Memorials dedicated to September 11 dot the American landscape. While the memorials in Shanksville, PA, and at the Pentagon commemorate sites of terrorist attacks, there is something unique about the National Memorial at Ground Zero. According to Young (2006), "the New World Trade Center will necessarily become part of a national memorial matrix and landscape much larger than itself" (p. 218). Sturken (2007) claims that even the label "'Ground Zero' defines New York as the focal point of 9/11, inscribing the space within a narrative of exceptionalism in which New York is the most important and unique aspect of 9/11" (p. 167). As the site of the "National" 9/11 Memorial, Ground Zero takes on a particular significance separate from other 9/11 memorials, accented especially by its urban context.

Though the memorial at Ground Zero holds special meaning, it also shares certain dimensions of commemoration with all memorials. Young (1993) claimed that "as part of a nation's rites or the objects of a people's national pilgrimage, [monuments] are invested with national soul and memory" (p. 2). Visitors traveling on pilgrimages, Linenthal (1993) asserted, "compete for the ownership of powerful national stories and . . . the significance of preserving the patriotic landscape of the nation" (p. 1). In short, sites of public memory are destinations for public reflection about the consequences of tragedy, war, and history. One striking emphasis in 9/11 memory is that of absence. After the towers fell, voids marred the Manhattan skyline and families hoped the remains of their absent loved ones would be discovered in the dust. As the official memorial was finally built, even its name underscored the loss of buildings, landscapes, and lives. This focus on absence was not uncontroversial (Donofrio, 2010; Haskins & DeRose, 2003; Low, 2004). Instead of foregrounding the death and destruction that occurred at Ground Zero, Young (2006) opined, the memorial should both commemorate the lives of the fallen and allow for public engagement about the lasting international impact of 9/11.

The influential memory of 9/11 cannot be separated from its mediated nature. Countless people the world over recall September 11, 2001, as a day glued to the television screen. Subsequently, the memory of 9/11 lives on through its (re)mediation. "Ground Zero is also a space defined by and experienced through media technologies, a place constantly mediated through images, a place 'visited' via websites and by tourists, a place filled with photographs that is itself relentlessly photographed" (Sturken, 2007, p. 168). Given the mediated dimensions of 9/11 and the longing for a memorial, many turned to digital technology to memorialize, including online memorials for the deceased (Hartelius, 2010; Haskins, 2007; Hess, 2007b). According to Hess (2007b), digital memorials open spaces for complex and contradictory vernacular expression, often mitigated by commercial practices on the Internet. In particular, Hartelius (2010) examined the online offerings for the National September 11 Memorial and Museum, noting that the online forum invites deliberative and interactive practices that collapse the individual authorship of memory into the larger discourse of history.

While online memorials influence how users blend their personal memories with public discourses, locative technology also allows users to integrate digital spaces into public places such as the National 9/11 Memorial, changing how people interact with both. Gumpert and Drucker (2005) cautioned that "communication technologies are not neutral" (p. 369) but can threaten those exchanges by offering "portable public privacy" (Gumpert & Drucker, 2001, p. 26). The use of technologies such as smartphones in physical places paradoxically increases both connection and disconnection. Users are more connected to distant friends and others via social networks while often remaining disconnected from immediate spaces. "As mobile connection beckons, people become immersed or absorbed in media connection, altering their awareness and interaction with the physical environment" (Drucker & Gumpert, 2011, p. 56). In other words, mobile technology alters the physical space and people's connection to it.

The same can be said when digital technologies like smartphone apps are used at the National 9/11 Memorial. Much of the theorizing in locative technology has examined mobile gaming in urban spaces (de Souza e Silva & Sutko, 2009), which informs our analysis below. To call the memorial a "ludic" space is not quite accurate, yet the offerings from this line of research provide insight into the technological relationships complicated by digital apps and augmented reality. De Souza e Silva (2004) noted that within these "enfolding contexts" of the physical and the virtual "it is critical to redefine what presence means" (p. 20). One persistent redefinition is that of co-presence, being simultaneously online and offline, which Hjorth (2011) underscores as paradoxically trying to overcome distance and difference at the expense of closeness: the more we connect, the less powerful each connection becomes, including physical connections. This push and pull of mobile media transforms the notion of presence and place, but has yet to be fully discussed in the context of public memory.

Moreover, considering that memory is a "process that is constantly unfolding, changing, and transforming" (Zelizer, 1995, p. 218), the inclusion of on-site digital apps at places such as the National 9/11 Memorial calls for critical reflection. At the time of this writing, the official September 11 Memorial Museum has yet to be completed, and visitors may rely on digital technology and smartphone apps to access relevant information. The museum will likely alter interpretations of 9/11 memory significantly. For now, the smartphone apps provide a unique experience of actively combining digital and material experiences at the site. The convergent offerings from the 9/11 Memorial underscore the significant

changes in memory-making practice. iPhone and Android apps memorialize 9/11 in augmented reality, altering the absences and ambiguity of the memorial itself with visuals, video, and other elements that reshape the memorial and “fill out” the memory of 9/11.

We discuss the National 9/11 Memorial and related technology by asking three questions. First, we examine the cognitive landscape of the memorial by asking, “In what ways does the symbolic arrangement of the physical 9/11 Memorial invite visitors to interact with the materials on-site?” Next, we examine the convergent technology offered alongside the memorial, asking, “In what ways does the symbolic arrangement of the 9/11 Memorial digital apps invite visitors to interact with the materials on-site?” Finally, we examine the intersection of the two, asking, “What are the consequences of combining digital, locative technology at the site of the physical 9/11 memorial?”

### **Convergent Critical Rhetoric**

To critically examine the memorial and its relevant technology, we undertook a convergent critical rhetorical analysis (Herbig & Hess, 2012). This approach to rhetoric underscores its situated character (Blair, 2001) and parallels a growing trend in rhetorical theory and method that orients the critic within the site of rhetorical expression (Hess, 2011). We follow Aden and his colleagues (2009), who discussed the “emplaced character” of collective memory (p. 312). Such an approach recognizes the contingent character of rhetoric in space and time, especially in a contemporary convergent society. Similarly, Hasian (2004) engaged in a “rhetorical pilgrimage” to the U.S. Holocaust Memorial Museum that allowed him to “explain some of the political and social motivations that were involved in the selection of particular Holocaust narratives and displays” (p. 65). According to Dickinson, Ott, and Aoki (2006), memorials must be contextualized as diffuse texts—as “part of the texture of larger landscapes” and part of a larger cognitive landscape (p. 29)—so that experiencing memorials articulates visitors into particular subject positions via the material and cognitive layout of the site (p. 30). Additionally, memorials and museums often offer other texts and technology at the scene, including docent narratives, pamphlets, and computer stations, that are often included in the critical approach (Hasian, 2004). To explore these positions, the critic is positioned alongside visitors to reflect on the perceptions built by witnessing the commemorative moment.

Even though the museum is unfinished, millions have flocked to the memorial, and many have relied on digital technology as part of their sojourn. Recognizing this complication, we traveled to New York City at the point of the Memorial’s unveiling. The day of the tenth anniversary was reserved for families of the deceased, but the memorial opened to the public the next day. We first observed the memorial on the morning of September 12 as part of the media preview. In that initial visit, we toured the memorial with our camera, capturing the visuals we thought stood out as well as our initial reactions to what we were experiencing. The next day, we returned to the memorial as public visitors, using the online ticket reservation system. Like other visitors, we navigated the memorial website to secure our spot in line, noting that the website invites use of the digital apps on-site. This two-day examination provided a varied perspective of the memorial. To concentrate on the technological aspects of the memorial, we employed convergent techniques, including video recording, photography, and screenshots of smartphone applications, as part of our approach (Herbig & Hess, 2012). September 11 Memorials have a

simultaneously digital and material character (Hartelius, 2010). Our project examines the digital *and* locative technology connected to the physical site of the 9/11 Memorial.

### **Physical and Digital Memory**

Blair, Dickinson, and Ott (2010) contended that public memory is “activated by concerns, issues, or anxieties of the present” (p. 6). Ten years after September 11, 2001, the physical memorial offers a relatively ambiguous account of the events, revealing that the United States struggles with what 9/11 means. However, the digital and technological existence of the memorial tells an entirely different story, underscoring tensions between technology and memory. Through smartphones, visitors at the memorial are granted access to dimensions of the memorial that cannot be touched but can certainly be felt. Having examined the physical and digital 9/11 Memorial texts, we argue that the convergent elements of the memorial remediate the experience of the physical site, leading visitors to comprehend the *public* memorial in *private* ways. This privatized version of the memorial favors individual stories of trauma over those of public reflection, renewal, and a larger historical consciousness of 9/11.

### ***Memory at the Physical 9/11 Memorial***

Even before entering the memorial grounds, visitors quickly recognize that the intended form of the memorial has not been realized. This is not to say that the memorial is meaningless, or that the bronze plates and waterfalls are insignificant, but that the 9/11 Memorial, like many, must be contextualized in time and space. Before entering the site, visitors are required to “check in” with passes and go through a security screening similar to that found in airports. Heavy security surrounds the memorial, and although the security will likely change beyond the tenth anniversary, it serves as a stark reminder of the PATRIOT Act and subsequent changes to civil liberties. The story begins with its end, showing that in the post-9/11 world, security takes precedence over memorializing. The security foregrounds the experience, constantly reminding visitors of 9/11’s lasting impact on liberty and security. After passing through security, visitors walk a short distance through chain-link fences and road guardrails to arrive at the Memorial grounds.

Blair and Michel (1999) argued that the contemporary genre of memorial discourse draws heavily upon ambiguity and personal reflection:

Rather than telling us *what* to think, they invite us *to* think, to pose questions, to interrogate our experiences and ourselves in relation to the memorial’s discourse (Blair and Michel). These recent memorials invite critical reflection; they rarely reflect naïve or romanticized visions of nationalism or righteous causes. They typically refuse application of a unitary hermeneutic principle of reading; they are polysemic, often offering competing or contradictory messages. In other words, they summon their audiences to *work* at reading and evaluating them, and continue to reflect on the questions they raise. (p. 37)

In this way, memorials provide vital places for reflection on past events and present concerns, especially one's own place in relation to the memorialized event or person(s). Their polysemic, polyvalent character offers a multitude of possible readings. Ambiguity serves a strategic purpose, inviting myriad personal reflections while eschewing singular interpretations of the past (Blair, Jeppeson, & Pucci, 1991; Foss, 1986; Young, 2006). The National September 11 Memorial achieves ambiguity through depoliticized focus on the dead as a totality. Although the surrounding tenth-anniversary commemorative activities offered reflections on terrorism, the memorial itself lacks such references. The minimal signage directs visitors to the North and South Pools rather than directing the narrative of 9/11, and the form of the memorial offers a somber tone instead of details about Al-Qaeda.

Visitors arriving at either of the two pools are greeted by their immensity and momentousness. Waterfalls flow over each side to pool at the bottom, draining into a mysterious dark pit in the center. Each name on the surrounding bronze plates is punched through, forming an absence in the smooth surface that recalls the absent bodies lost in the terrorist attacks. To accent and to organize, categorical descriptions such as Flight 93 or Ladder 132 are raised in the bronze. Outside of these inscriptions, the memorial is unmarked in its narrative significance. Young's (2006) descriptions of the design process note that the only people who can assuredly understand the lasting impact of 9/11 are friends and families who lost loved ones. The names carved out of the bronze address their memories. The rest are left to contemplate the massive holes and waterfalls that mark where the towers once stood with little detail (see Video 1).



**Video 1. Please click the image or visit [http://www.youtube.com/watch?v=cZ0KbdSQ\\_s](http://www.youtube.com/watch?v=cZ0KbdSQ_s) for a virtual tour of the memorial.**

Because of the presence of absence, the memorial deflects attention from the individual significance of any one name found in the bronze, or the larger terror-oriented narratives of 9/11. The museum, unopened at the time of this writing, and the nearby preview site will likely fill in some of the absent narratives. However, the memorial stands without such references. Similarly, the Vietnam Veterans Memorial presents little information regarding the narrative of the Vietnam War, leading visitors to interpret the memorial through their own political leanings (Foss, 1986). Unlike other 9/11 memorials, such as the Arizona 9/11 Memorial (Smith & McDonald, 2010), the National 9/11 Memorial focuses solely on the dead. It acts as a 16-acre tombstone to those who died in the events of 2001. We see this design as inviting public reflection on the death of *all* who were lost, recognizing the historical magnitude of 9/11.

**Symbolic elements.** Particular elements of the memorial stand out for visitors, including the huge waterfalls that surround each footprint, and the selection of trees. Before arriving at either pool, visitors are struck by the massive *sound* of the memorial (see Video 2). The waterfalls thundering into each of the pools provide cover from the usual sounds of Lower Manhattan. Trees adorning the memorial grounds offer additional cover from sun and sound. Newly planted at the tenth anniversary, they prompt visitors to imagine the memorial area with a vibrant canopy. For a moment, the persistent honking, construction noise, and daily traffic that embody the city are lost, silenced by the memorial. The drowning out of the city noise marks the memorial as a gravesite with the bronze markers serving as tombstones, offering a somber space of reflection within a city that never sleeps.



**Video 2.** Please click the image or visit <https://www.youtube.com/watch?v=GdKEpJRDmoA> for a video of the walkway to the memorial entrance. Note the sound of the waterfalls in the approach to the memorial pools.



The memorial's location among skyscrapers towering over one of the world's busiest metropolitan business districts lends additional significance to the site. The hotels, office buildings, and shopping malls that occupy the area surrounding Ground Zero remind visitors of its inherent urbanity, and even inside the memorial, the sights and sounds of construction confront them on all sides. The memorial rests amidst several other buildings whose completion will fully realize the World Trade Center, including One World Trade Center, also known as the Freedom Tower. Eventually, One World Trade Center will stand 1,776 feet tall, a number that references the birth year of the United States and will also make this skyscraper the tallest building in Lower Manhattan. In lieu of a completed tower, the skeletal frame was decorated with an American flag (see Figure 1) and lit nightly in sections of red, white, and blue. The surrounding area is frequently marked as a site of national memory with signs, placards, and flags.



**Figure 1. The National 9/11 Memorial with the Freedom Tower in the background.**

**Meaningful Adjacency.** One frequently discussed element of the memorial is the concept of *meaningful adjacency*, which helped organizers determine where names would be placed on the memorial. Instead of being ordered chronologically or alphabetically, the names are grouped with reference to three categories: grouping titles (e.g., Flight 93), inscribed in raised lettering; affiliations (such as employment); and personal relationships (such as romance or friendships).<sup>1</sup> Information regarding these

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<sup>1</sup> See "Names Arrangement" (2012) for a discussion of how the names were arranged and a full description of the process.



groupings is available online, but the specific relationships or affiliations are unavailable to the passing visitor, leaving them open to interpretation, which supplements the already ambiguous narrative. Lacking details of the dead, visitors can fill in the gaps, perhaps imagining that two names are adjacent because of a successful collaborative project or a blossoming office romance. Stories invented as visitors pass their hands across the memorial's surface offer a reflective moment about mortality and loss. It is as if merely touching the metal and its absent lettering conjures the ghosts of 9/11, whose lives and deaths require further reflection and interpretation (Kane & Peters, 2010; Peters, 2001). These ghosts remind us of the simultaneous inability and longing to "dialogue with the dead . . . the effort to commune spiritually with beings who can only be read hermeneutically" (Peters, 2001, p. 143). As characters in the Twin Towers narrative, they are "being[s] beyond physical want" (Kane & Peters, 2010, p. 130) who necessarily fulfill an interpretive role within 9/11 memory.

The name inscriptions also offer material experiences for visitors. As at the Vietnam Veterans Memorial (Blair et al., 1991), visitors may make rubbings of the inscriptions so as to take a piece of the memorial away with them (see Figure 2). One striking difference sets the two memorials apart: A visitor without a personal connection to the Vietnam War likely would not take a rubbing but instead experience the Wall in its entirety, perhaps identifying with the fallen in general. The National 9/11 Memorial also invites visitors to find the name of their loved one and take a rubbing, creating a token of remembrance. However, the significant difference between the two appears in the raised inscriptions that group individuals by category. In this case, visitors who did not know a victim can make a rubbing of a grouping title, such as "New York City Police Department," "Engine 207," or "World Trade Center." Here they can establish a symbolic connection to the memorial with a rubbing that does not represent one lost person but the cityscape of lost buildings and damaged institutions, and the emplaced character of the memorial.



**Figure 2. Taking a rubbing at the National 9/11 Memorial.**

**The Cityscape of 9/11.** Taking a rubbing of "World Trade Center" (see Figure 3) positions the memorial as a national place of memory within a larger, symbolic cityscape. Visitors are invited to recall the "things" that were lost on 9/11 and what they represent. This memory is of skylines, buildings, organizations, and streets. The larger social landscape of 9/11 memory encompasses mourning for the buildings themselves as institutions and ingenuities of American identity, inviting consideration of the larger public context. For those memories that are not formed through personal loss, the memorial creates a social meaning that Americans can share more generally. In other words, the memorial commission asks Americans to remember and honor the landscape of America by extending the memorial text into the cityscape and blending it into larger cultural and material contexts "as part of the texture of larger landscapes" (Dickinson, Ott, & Aoki, 2006, p. 29). In conjunction with the site, therefore, a process of personal and cultural reflection guides readings of the memorial that are augmented by invitations to reflect upon the larger cultural significance of buildings, airplanes, and police departments. In this way, the memorial attempts to speak to the experience of every American, as well as those who lost someone on 9/11.



*Figure 3. Raised lettering on the National 9/11 Memorial.*

Read within the larger cityscape, the concept of meaningful adjacency extends the context of 9/11 memory. The buildings and local area of Lower Manhattan, including its focus on tourism and commercial activities, are replete with meaning. The cultural memory formed from the American dreamscape of buildings and skyscrapers that represent large financial institutions, architectural innovations, and ingenuity of design. Read this way, these testaments to American exceptionalism came under threat on 9/11, and memorializing should include homage to them. In other words, the World Trade Center's contribution to the iconic skyline of New York City should be remembered just as much as

individual names. Names of the dead are punched through the bronze, their loss represented by absence. By contrast, the raised lettering of the buildings, flights, and civic institutions is a reminder that they can and should be rebuilt. Visitors who create a rubbing of a building name build personal memories and reflections on the loss of skylines, skyscrapers, and the venerated institutions within them. Ultimately, the memorial invites reflection and renewal of the American spirit.

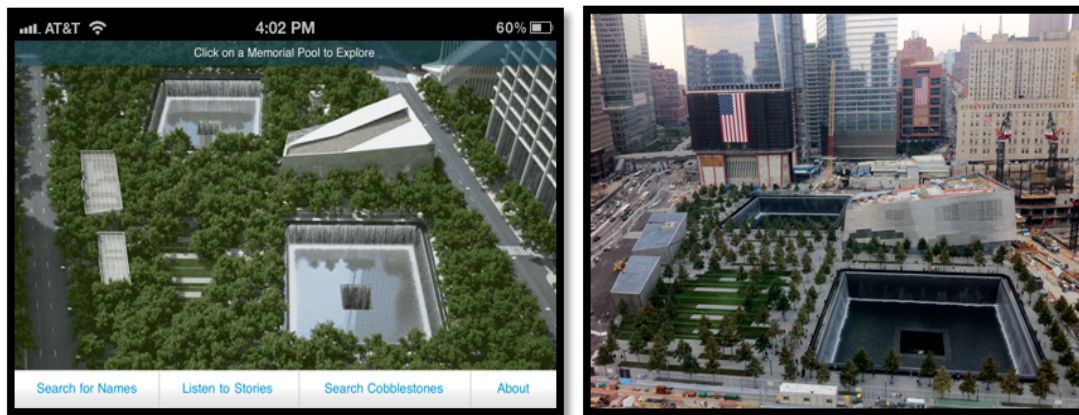
### ***Convergent Public Memory and the 9/11 Memorial Apps***

While an ambiguous, somber tone dominates the physical memorial, the digital apps provided by the National 9/11 Memorial encourage an additional layer of memorializing that visitors cannot experience in the physical spaces alone. Haskins (2007) argued that “rhetoricians would be remiss not to consider the increasing importance of new media in shaping our contemporary remembrance culture” (p. 401). Similarly, smartphone and locative technologies (de Souza e Silva & Sutko, 2009) allow visitors to access a vast array of services and information. In this section, we analyze the intertextual relationship between the memorial and the digital apps, paying close attention to the ways in which the apps change the visitor’s relationship to the “emplaced character” of the memorial. These digital tools, used in conjunction with the physical memorial, capture the past in ways that are both inclusive and exhaustive, meaning that visitors gain a personal connection to those lost through massive amounts of archival data about the events viewed on smartphones. Public *visitors* thereby transform into private *users*, who gain access to informational immediacy and representational authenticity via convergent public memory. This complication is played out in three paradoxes that culminate in the contradictory experience of the physical public memorial in digital private ways.

Two official smartphone applications concern the 9/11 Memorial: the *9/11 Memorial Guide* (iPhone and Android phones) and *Explore 9/11* (iPhone only). Both free apps are authored by the memorial commission and available through the official memorial website, which promotes them directly in the “Plan Your Visit” section. Reviews of the apps on iTunes have been quite positive. Even though the *Explore 9/11* app’s augmented reality does not work unless the user is on location, many comments suggest that the apps are useful when not on-site at the memorial, and others indicate that users enjoyed using the app at the memorial to enhance their experience. Some reviews of the apps indicated that they were “an excellent addition to our experience there,” that the apps have “value” for a visit to the memorial, that they are “a great tool for knowing what you’re looking at when visiting the memorial,” or simply that it “is a great app if you plan to visit the memorial.” These brief comments indicate that their writers consider the app a significant addition to the memorial experience.

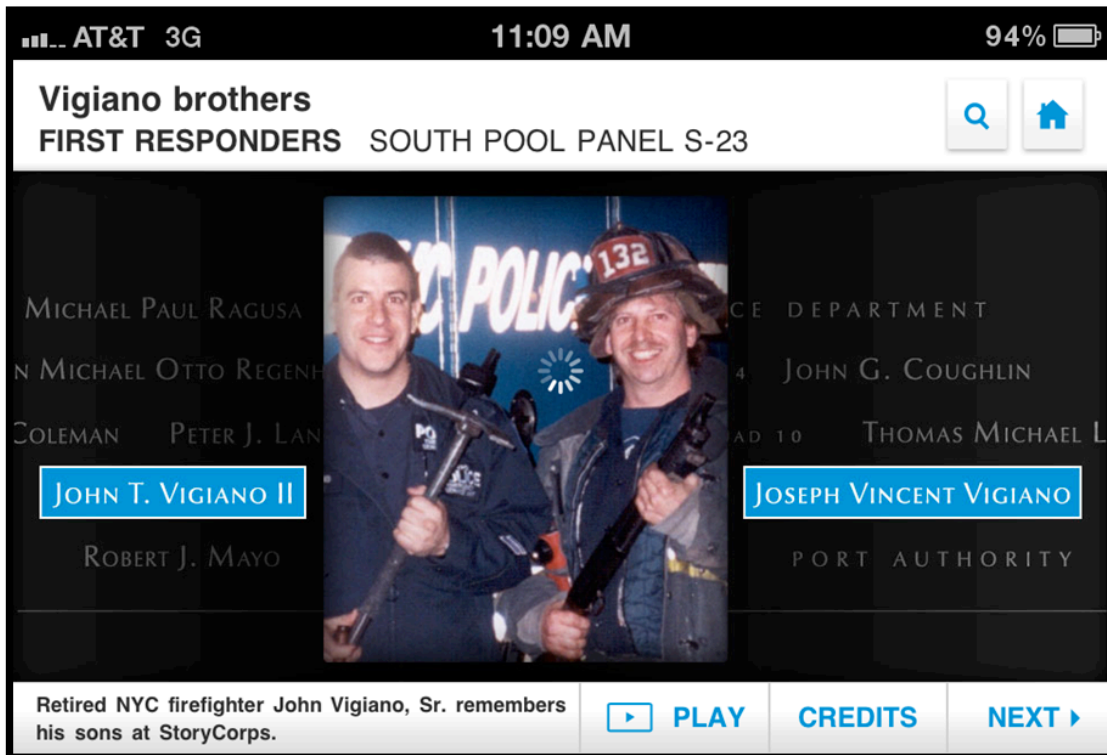
Upon opening the *9/11 Memorial Guide* app, users see a digitally rendered overhead image of both pools and the memorial grounds with the instruction “Click on a Memorial Pool to Explore.” Four buttons at the bottom of the app screen link to additional features, including a name and cobblestone search, stories to listen to, and an “About” section containing information about the memorial. A user who clicks on “Listen to Stories” is presented with 10 different prepackaged stories. Further clicking on a story brings the user to a digital rendering of a specific section of the memorial, including pictures of the individuals featured in the story and audio of friends and/or relatives who reflect on the lives and deaths of those lost.

The *Explore 9/11* app, designed before the memorial was opened, includes a walking tour of an area around Lower Manhattan, a timeline of events leading to the memorial, and an augmented reality section. The tour, while interesting, operates similarly to the Sonic Memorial Project (Cohen & Willis, 2004), providing auditory reflections on 9/11. Most pertinent to this analysis is the augmented reality feature in the "Explore" section of the app. Augmented reality utilizes the device's built-in compass and camera to allow users to examine the locality. Users hold the phone in front of their eyes and "look around" through its camera. On the screen, the area appears much as it would in the camera's normal display, but it includes overlaid "clickable" photographs of what the towers looked like before or as they were hit, images of dust-covered survivors, and posters of the missing.



**Figure 4. Side-by-side comparison of iPhone 9/11 Memorial Guide app image and aerial view of memorial area.**

As visitors arrive with smartphones in hand, the app greets them with details of the attacks that are not otherwise apparent. As discussed above, the physical memorial design features ambiguity, inviting visitors to imagine and reflect upon the sights, sounds, and emotions of 9/11. Seeing names next to each other in the bronze provides an opportunity to narrate the potential details of the relationships between victims. This opportunity is lost, however, when visitors look at their smartphones. As mentioned, the app opens onto a simulated version of the memorial grounds, with construction complete, trees completely filled in, and the West Side Highway oddly traffic free (see Figure 4). From this overhead view, users who click on either pool and search for names find that the memorial app not only recreates all of the memorial names but also provides specific details about relationships between individuals. Each name inscribed in the "digital bronze" links to biographical information, including affiliations and requested adjacencies. On the digital panels, blue highlighting marks names as interconnected, revealing affiliations. The level of detail differs between names, but all cases offer more than the physical memorial, short-circuiting the creative process of remembrance. In some cases, the names include elaborate tributes. For example, the first-responder firefighters the Vigiano brothers are highlighted as one of the stories of 9/11 (see Figure 5). When looking at their story, users can hear the two brothers' father speaking about their love of the job and growing up in a firehouse.



**Figure 5. The Vigiano brothers' information on the iPhone 9/11 Memorial Guide app.**

The convergent inscriptions become even more pronounced in other areas of the app. Not only does the “augmented reality” function of the app reinscribe the memorial; it also completely reimagines the surrounding area to be “seen” as it was on September 11. Zelizer (2004) argued that “remember[ing] through images remains powerfully different from how we might remember the same event were images not involved” (p. 158), explaining that “the force of the photographic image is derived from its powerful capacity to represent the real” (p. 160). The convergent practices certainly provide visitors with thorough representations of Lower Manhattan and the memorial, but they also interfere with the memorial’s ambiguous symbolism by “concretizing and externalizing events in an accessible and visible fashion” (p. 160). Rather than silently reflecting while immersed in the meditative sound of the waterfalls, users can access the smartphone app to answer questions about “what it must have been like” or “what it felt like to lose someone,” thereby interrupting the imaginative authorship and agency visitors exercise as they trace their hands over the names. Moreover, the app’s pictures carry more weight than those found in books or on walls, for they are visually layered onto the very location of the event, altering the physical and cognitive landscape of Lower Manhattan.

Before we discuss the paradoxes that arise from use of the digital apps, let us be clear: we believe that sharing stories and pictures from 9/11 is vitally important. The details of the lives of thousands should be remembered. However, we also believe that the use of digital technology to access those personal details at the site of memory has consequences for *public* reflection. Using the smartphone apps at the memorial leads to three paradoxes. First, locative technology paradoxically increases connection to non-present individuals—in this case, those who died in the attacks—while disconnecting users from other people at the memorial. This experience is complicated by the private experience of the app within the public setting of the memorial. Second, accessing digital archival documentation limits the social imaginary and historical consciousness of 9/11. Underscoring the paradox of memory/archive or history, users ask the *history* question “What happened here?” and quickly receive factual answers, rather than asking the *memory* question “What does this place mean?” which requires public reflection and pause. Finally, the digital apps create a paradox of absence/presence. The physical memorial encourages visitors to reflect on absences by being present at the place of 9/11, yet the app offers a digital presence through a wealth of information, images, and auditory experiences that divert attention from the physical place of the memorial. Depreciation of the inscribed absences on the memorial ensues. Taken together, these paradoxes complicate the reflective nature of the physical memorial and the publicness of its form.

**Connection/Disconnection.** De Souza e Silva and Sutko (2009) contended that the “double articulation of *physical location to digital information* and *digital information to physical location* facilitated by [locative] media plays with time, space, and social boundaries, resulting in unexpected connections with physically non-present (but socially co-present) others” (p. 9). Likewise, use of the 9/11 Memorial apps at the site of the memorial fundamentally alters time, space, and the social. The digital overlay in augmented reality transports the visitor-user back in time to “see” what the landscape looked like at the time of the attacks. The audio tour in the *Explore 9/11* app auditorily recreates the day as first responders share intimate tales of death and remembrance. De Souza e Silva (2006) also argued that cell phones create “social interfaces” between present and co-present others. However, co-presence through the Memorial apps, in contrast to Foursquare, Facebook, or other social, locative media, does not make connections to physically non-present individuals—at least, not living individuals. And while these apps increase connection to those who were lost and their families, they also disconnect visitors from each other at the site. Through a digital transformation of the physical space, visitor-users become co-present with the dead of 9/11, who are summoned out of archives and photographs from 2001. As Peters (in Kane & Peters, 2010) understood, archives and digitization—devices attempting “full documentation”—are “ghost busters” (p. 131) that select pertinent details of the dead to inform the living, eschewing the infinite interpretive possibilities otherwise found at the site.

The augmented reality attempts a “perfected” simulation of the sights of 9/11. Time is compressed as users gaze into their phone screens, viewing exact images of 9/11. Streets are once again covered in carcinogenic dust. Buildings return to rubble. “Missing” posters reappear on walls and fences. The landscape, recalled in its institutional and architectural form by the physical memorial, reverts digitally to a wasteland. These images freeze this memory of these institutions and buildings in time, leaving their wounds open and unhealed. One image at the memorial (Figure 6) shows one of the Twin Towers burning after the impact of an airplane. One of many haunting images of 9/11, this photograph traps the building in flames, focusing users’ gaze backward to trauma, not forward toward healing. De Souza e Silva and



Sutko's (2009) comments on the unexpected connections found by playing with time and space may have unintended consequences in the context of digital memorials. By accessing smartphones, users do not only "become disengaged from the real world and more caught up with media. Rather, our sensations, how we experience the world, get quantified and organized into specific information processing systems. This informationalization objectifies and limits sensate experience by focusing attention on specific phenomena as opposed to others and situates them as measurable qualities within a spectrum of relative acceptability" (Packer & Oswald, 2010, p. 310). Accessing these images at the site without critical reflection muddles viewers' memory-making sensibility regarding Lower Manhattan. It limits their sensate experience of the memorial to specific pictures, details of chosen individuals, and prepackaged emotional experiences.

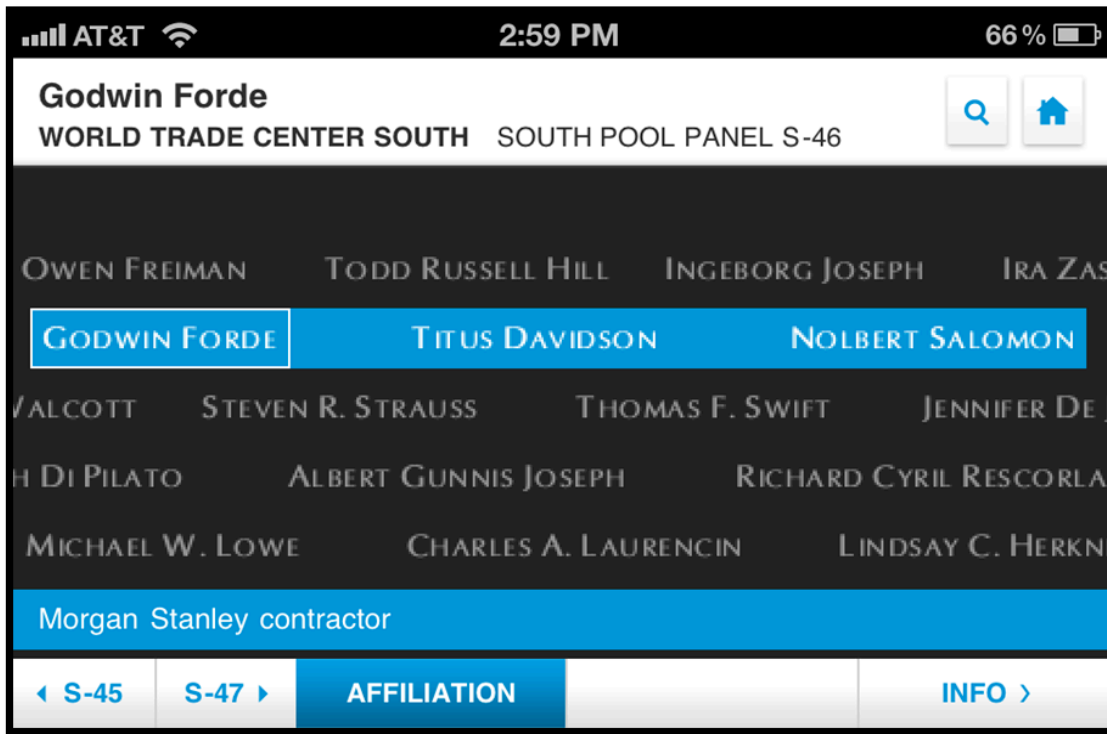


**Figure 6. Augmented Reality on the iPhone Explore 9/11 app.**



In an effort to foster connections to relatives and first responders, the smartphone app creators have also disrupted the public nature of the memorial. Drucker and Gumpert (2011) warned that “presence online or in phone space reduces physical presence even though one may be simultaneously interacting with co-present people (Rettie, p. 21)” (p. 54). Smartphone apps, by design, are private experiences. Each user interacts with the technology in his or her particular way for a profoundly individualized experience (Hess, 2007a) of the memory of 9/11. Users who load the same app may hear different stories and examine different names in the bronze. Consequently, the technology creates specific, unambiguous experiences of the memorial that are different for different people rather than a larger, ambiguous frame for the public to experience as a whole. While the physical memorial invites Americans to commemorate 9/11 *as* publics and *in* public, the apps direct users to memorialize in private. The apps limit interaction between individuals to share cultural memories and reflections of 9/11. Visitors may arrive, insert earbuds to become users, and allow the app to connect them to non-present others, thereby limiting public engagement at the National 9/11 Memorial.

**Memory/Archive.** Haskins (2007) concluded that digital memory “collapses the assumed distinction between modern ‘archival’ memory and traditional ‘lived’ memory by combining the function of storage and ordering” (p. 401). But whereas the preference for online archiving of the details of the attacks does indeed extend to the smartphone apps, locating such technology at the site of remembrance complicates the discussion. The apps offer massive amounts of information about the memorial, sometimes in overwhelming ways. In the *9/11 Memorial Guide* app, each name on the memorial links to information that includes biographical details and insight into meaningful adjacencies (see Figure 7). It would be impossible to take in every single name on the memorial using the app to guide the experience. Furthermore, the physical memorial invites creative interpretations of meaningful adjacencies, incorporating the visitor’s imagination and providing opportunities to see connections between memorial names and visitors. The smartphone apps, however, lay bare how infrequent the adjacencies are. For example, a number of affiliated individuals on panel N-72 worked at General Telecommunications in the North Tower. Of the thirteen employees listed on this panel, only two (Curtis Terrance Noel and Aisha Ann Harris) show meaningful adjacencies to each other. Other panels hold scant meaningful adjacencies, a detail that damages the inventive possibilities of the physical memorial.



**Figure 7. Adjacencies found on the iPhone 9/11 Memorial Guide app.**

Overall, the listing of individual biographical information speaks to the democratizing function of digital memory via the massive inclusion of voice. Augmenting the voices of those bereaved by 9/11 is a parallel project of the 9/11 Museum and preview site to convey the living's story of 9/11 via digital kiosks that record short videos of remembrance. Reflecting on digital memory, Savoie (2010) fears that the "privileging of the individual within collective memory, to the point of the loss of the very nature of collectivity," threatens the "collective nature of memory" (p. 10). Collective memory "appears to disintegrate into individual memory, which, too, becomes unstable, fragmentary, and fleeting" (p. 10). Pushed even further, this archiving of personal detail and experience affects the larger, social function of memory. "One cannot ignore that today's memorializing occurs in a climate of rapid obsolescence and the disappearance of historical consciousness, that much of computer-mediated communication serves commercial and entertainment purposes, and that interactivity can nurture narcissistic amnesia no less than communal exchange" (Haskins, 2007, p. 407). In other words, the individualized experience of personal narrative deflects attention from the nationalized narrative of 9/11. Rather than grapple the overall historical weight of the attacks, users are invited to consider the personal traumas of the bereaved. Such details, though important, do not encourage a sense of reflection and renewal. The historical consciousness that memorials aim to inspire is built instead through on-site interaction at the memorial, especially with the volunteer docents or other visitors who reflect upon the memorial rather than the archive offered through the memorial apps.

**Absence/Presence.** The final paradox experienced through the digital app is the interplay between absence and presence. Memory is intricately tied to presence within places. Aden et al. (2009) characterized the act of re-collection through the relationship of people to place as "*persons-with/in-places*" (p. 313), including the ways "the site's characteristics, sociocultural contexts, and the individual's experiences intersect" (p. 313). The physical space at the National 9/11 Memorial plays with the notion of presence and absence. As discussed above, it invites the public to reflect upon the absent bodies and buildings via names punched through the bronze and gaping holes in the cityscape. Absence is underscored by physical presence. The absence of names invites a presence of mind for those at the memorial. When physical spaces are connected to digital technologies, the presence of new information and social connections alters those spaces fundamentally. De Souza e Silva (2006) suggests that mobile/locative technology can foster a sense of connection and community, especially in mobile games. Yet in the case of the 9/11 Memorial, where the physical space is one of personal and public reflection, digital technologies detract from the sense of physical presence. In short, the presence of digital technology invites an absent mind.

The ability to reflect on places of public memory relies on the sense of materiality and vision of that place (Aden et al., 2009). Looking through the apps considered here alters the user's vision in two ways. First, the screen mediates the physical space of the memorial. To see the memorial and its surroundings in augmented reality, the user must literally hold up the phone to view the area through the camera lens. Reading the memorial through the phone renders the user absent from the physical presence of the memorial and other visitors, limiting the physical memorial's ability to foster public reflection. Second, the mediation of the screen is remediated through photographs that cover over the physical space. These two levels of remediation pull the user into a "hybrid space" (de Souza e Silva, 2006). While potentially enhancing the memorial experience through social networking, the archival and biographical nature of the available information deemphasizes the physical memorial and its framing of absence. That is, the presence of digital archival information fills in the contemplative absence offered by the memorial. Absent buildings, digitally reconstituted by photographs in augmented reality, become present once again yet suspended in time as wounded by planes. The digital presence of the wounds of 9/11 affirms trauma as the primary meaning of the memorial experience.

These paradoxes of connection/disconnection, memory/archive, and presence/absence obscure the public and ambiguous nature of the National 9/11 Memorial. On the individual level, the apps provide an incredible level of detail that hampers creative invention. Speaking of memory in the digital age, Vaidhyanathan (2011) cautioned that "digital information storage and retrieval have made remembering the default state of knowledge and forgetting the accident or exception" (p. 178). Memories of September 11, 2001, etched in digital bytes, uphold trauma as the primary meaning of 9/11. Why spend time imagining 9/11 and its commemorative significance, when smartphones can plainly display a vivid image of the day? The use of public memorials as places to come together and share stories of the events is subsumed into the digital memory offered by the apps, which supplants the need to share by offering exact stories from loved ones. Haskins (2007) commented on this problem regarding Web memorials: "If archival preservation and retrieval are not balanced by mechanisms that stimulate participatory engagement, electronic memory may lead to self-congratulatory amnesia" (p. 407). Relying on such

technologies, instead of possibly interacting with strangers, limits the vital sociability inherent in urban space in general (Gumpert & Drucker, 2001) and memorials in particular.

### **Implications and Conclusion**

Reading the physical place and digital rendering of the National 9/11 Memorial together leads to paradoxical understandings of 9/11 memory. Nora (1989) believed that memorials offer a form of unburdening, and that devoting a material space to memory assures people that a particular memory has its place and can be visited and reflected upon, but not always carried with them. Similarly, the National 9/11 Memorial, as it exists today, marks the site of tragedy and invites public reflection and interpretation, assuring visitors that the dead will not be forgotten. The burden of trauma returns, however, as visitors engage with the technology of security and use smartphone apps. The smartphone technology accompanying the memorial site dislocates users into a hybrid space, drawing them out of the public and into a private experience of the history of 9/11 in which details of the events, offered in archival form, diminish imagination and reflection at the public memorial. In augmented reality, visuals overlaid across the memorial space give users direct access to images, which “[aid] the recall of things and events past so effectively that photographs become the primary markers of memory itself” (Zelizer, 2004, p. 160). Upon use of the app, reflections morph into directed memories of the trauma of 9/11. Vivian (2010) observed that being directed to remember “can breed ignorance about, or sponsor distortions of, the past—both of which resemble forgetting in its more undesirable, unconscious forms” (p. 63). Ironically, the inclusion of more details of 9/11 limits both the inventive possibilities built into the memorial and its fostering of public renewal. Trauma, as a primary understanding of 9/11, disallows new understandings of the events. This is not to say that 9/11 was not traumatic. Yet suspending 9/11 in trauma through images and stories does not rhetorically inspire a sense of recovery and rebirth. Traumatic events “produce severe ruptures in social cohesion and threaten the stability of . . . cultural narratives” (Grey, 2007, pp. 174–175), ultimately leading to possible “reconfigurations in the symbolic codes” (p. 212). In other words, trauma invites reinterpretation of self and society. The apps, however, keep the public from stepping away from trauma because they maintain the fresh wounds of 9/11 in text and image.

Sturken (2007) points out that the use of the name Ground Zero as a rhetorical place may be temporary. When the new buildings and museum are completed, a new moniker may designate that area of Lower Manhattan. It is important then, noting that the memorial was still “Ground Zero” on the tenth anniversary of 9/11, to try to understand its relationship to our public understandings of the role of 9/11 in our public lives. Significantly, although designers expressed apprehension about controversy and the reception of the memorial (Young, 2006), such concerns are fundamentally changed by digital technology as it is accessed at the site of the memorial. In the case of the National 9/11 Memorial, smartphone apps provide visual context for the events of 9/11 and concrete details about the lives of those lost. These details of 9/11 are important, but they exist as personalized traumas. Narratives of family members and images of falling buildings are the open wounds of 9/11. If the memorial is conceived as the tombstone of the individual dead and Ground Zero as a graveyard, then these details are appropriate, as individuals traveling to a graveyard to visit one grave do not necessarily reflect on the deaths of all buried there. But if the site is to serve a memorializing function for all who died—if it exists to invite public reflection toward

a sense of renewal—then the digital technology does not support that role. In a sense, the digital apps and the physical memorial have different audiences. The physical memorial targets a public audience, including the multitudes who suffered no personal loss in 9/11. The digital apps, by contrast, offer details that are likely most important to those who have a personal relationship with the dead. Otherwise, the sheer size of the app makes appreciation of all of those lost nearly impossible.

Convergent, digital, and locative technologies have only just begun to impact our memorial sites. Certainly, museums have used interactive technologies such as walking tour headsets for some time; however, the convergence of technologies found in tourists' pockets at the exact site of tragedy alters the sense of presence and place. Use of these devices necessarily changes the rhetorical expression offered by memorials and they should be considered inherent to memorial practices. Convergent media alter the content and form of rhetoric and therefore require further consideration. We have argued that the use of such technology interrupts critical reflection on 9/11; however, this may be partly due to the current nature of these technologies. Today's versions of the apps offer archival understandings of memory that may not fully embrace the cultural elements of memory making. At the very least, it is unknown whether the memorial was conceptualized with these technologies in mind. Future memorials may be able to incorporate such technologies more effectively to foster public participation and profound reflection. For now, more than 10 years on, the memorial apps used at Ground Zero provide a contradictory and paradoxical experience of 9/11 memory.

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