Communicating Culture in the 21st Century
The Power of Media-Enhanced Immersive Storytelling

Maggie Burnette Stogner

Abstract  This paper explores the potential of digital media technologies and new storytelling techniques in giving objects an emotional dimension and thus encouraging affective learning. The use of new immersive and participatory techniques is a means of contextualizing real objects, and perhaps a more effective way to reach diverse audiences and create more meaningful learning than the object labels and traditional video experiences still in vogue in many museums.

Every object has a unique story. Where is it from? Who made it? Who used it and for what purpose? The power of communicating culture through storytelling is age-old, from prehistoric cave drawings to books, photographs, and films and, in the oral tradition, from sitting around the campfire to audio recordings. Today’s curators and museum designers have a vast new range of storytelling techniques from which to choose. Digital media technologies and increasingly ubiquitous Internet use are changing how we communicate culture, past and present, in ways that are radically altering the museum experience. Some claim they are changing the very definition of museum. So far, the digital media, internet-driven storytelling of the 21st century is distinguishing itself with several emerging characteristics. It is immersive, multi-sensory, and participatory. Exploring how to engage visitors using these new storytelling techniques is the focus of this paper.

The advantages of implementing 21st-century media technologies are two-fold. First, they can be used to engage a more diverse range of visitors and second, they can expand the range and depth of the museum experience. With Internet, wireless, GPS, and other technologies, today’s visitor engagement may occur on-site, off-site, and virtually. The oft-cited NEA Arts Participation Survey reports a steady decline in arts participation overall, in-
cluding a thirty percent drop from 2002 to 2008 among cultural museums’ core demographic, adults ages 45-54.¹ However, a recent re-interpretation of the survey data found that there has not been, in fact, an extreme decline in arts participation. Rather, there has been a significant shift in how people are participating. Most notably, they are engaging in the arts through the use of new media technologies, such as e-books, smartphones, iPads, podcasts, website tours, and so on. Thomas P. Campbell, director of the Metropolitan Museum of Art describes these new technologies as “stimulating, and we’re giving a lot of thought to the amount of information we provide,” but he cautions, “we’ve got to keep people in a heads-up mode, to make sure they are looking at art.”²

There is increasing acceptance that digital media and web technologies can be used to rejuvenate interest in arts and culture by attracting more diverse demographics in a variety of new ways. But how do cultural institutions ensure they add value, rather than detract, from engaging with the “real thing?” Finding the right balance is challenging. “People want to be immersed,” affirms author Frank Rose. “They want to get involved in a story, to carve out a role for themselves, to make it their own... What if the audience runs away with the story? And how do we handle the blur — not just between fiction and fact, but between author and audience, entertainment and advertising, story and game?”³ Nina Simon suggests a model in which museums provide for “co-produced experiences” where “the institution serves as a ‘platform’ that connects different users who act as content creators, distributors, consumers, critics, and collaborators.”⁴ Many science museums have wholeheartedly embraced such participatory models, and there is substantial data on visitor experience and learning assessment offered by the National Research Council and others.⁵ Cultural institutions also have an opportunity to shape the learning paradigm of the future by shifting from a role of information arbiter to that of cultural mediator. This paper explores a range of examples and approaches, from “additive methods that supplement traditional didactic content presentation,”⁶ as Simon proposes, to those that redefine the concept of museum altogether.

Is the medium becoming the museum? In some ways, it is an age-old discussion. New storytelling techniques and technologies, from cave drawings to printing presses, from photography to YouTube, from tweeting to virtual reality, have constantly helped to redefine how we engage with art and culture. In this nascent stage of the digital era, it is difficult to predict to what extent 21st-century media technologies will ultimately alter the museum experience,
but they are clearly having a considerable impact. The challenge is in determining how they can be used to both broaden and deepen cultural engagement.

My research, design, and production focus on creating narratives and contextualization of objects using a variety of new media technologies. At times, it has involved a simple mode, such as creating a 3-D computer generated model of an ancient temple that reveals the original setting of an ancient statue of King Tut, the artifact and media combining to convey a fuller story. At other times, it has involved a full range of media technology techniques including multi-screen videos, integrated media, 2D and 3D computer animation, environmental dialog, sound effects and music, and other, more theatrical elements, such as in the National Geographic traveling exhibition, Real Pirates: The Untold Story of the Whydah, from Slave Ship to Pirate Ship.7

These new forms of object contextualization can enrich the visitor experience far beyond the traditional object label and introductory video. Their immersive, multi-sensory, and participatory attributes enrich and extend the visitor experience. Immersive technologies, particularly when combined with powerful narrative, can be used to fully engage visitors in the same way that a great book engrosses a reader and a successful film creates the “suspension of disbelief” that absorbs viewers into the world on the screen. No matter the medium, successful storytelling touches the core of our humanity, engages our brains and our hearts, and leaves a lasting impression. One study of the interconnection between emotion and reason observes, “Although cognitive processes were long considered to be separate from emotion, current research has indicated that these processes are inextricably intertwined.” This study goes on to state that emotions are “… impacting the experiences with which visitors choose to engage, the memories they make, and ultimately the learning that takes place.”8 A more recent study showed that “… elevated emotional arousal positively affected cognition and memory.”9 Multi-sensory and participatory immersion can increase both cognitive and emotional engagement, leading to deeper, more memorable experiences. As immersive technologies become better understood, their implementation will become increasingly meaningful in providing art, history and cultural experiences to people from all demographics.

DEFINING AND ASSESSING IMMERSIVE STORYTELLING

In a previous paper, I categorized immersive storytelling for museums in the following ways:10
1. Experiential Immersion
2. Narrative Immersion
3. Theater Immersion
4. Interactive Immersion
5. Virtual Immersion

Experiential immersion is sensory or aesthetic in nature with no narrative thread to guide visitors through the exhibition. Examples include the highly contemplative experience of sitting in the Rothko Chapel in Houston, walking through an old cemetery, or absorbing the atmosphere inside an historic building. If the immersion truly shuts out the present, it enables the past to permeate visitors’ imagination and senses, and can stimulate an emotional connection with extensive retention value.

Narrative immersion brings history to life using story and character to contextualize objects and guide visitors through a narrative experience. Digital video and audio media techniques are frequently integrated with set and lighting design to create a sense of time, place, and lifestyle. Multi-screen videos, soundscapes, music, 2D and 3D animations, interactives, all combine to take visitors on a rich cultural journey. In Real Pirates: the Untold Story of the Whydah, from Slave Ship to Pirate Ship, immersive, integrated media technologies contextualize an exceptional collection of artifacts recovered from the wreck site of the Whydah Galley, the first pirate ship ever discovered in North America. As visitors walk through the galleries, the Whydah’s story comes alive through life-like figures representing the historic figure Captain Sam Bellamy and several crew members; surround-sound voice, music, sound effects, high-definition videos, and integrated computer animations. Visitors are immersed in life aboard the ship, while learning about early 1700s slave trade and piracy. The quality of narrative immersion is fully dependent on the veracity of the research and data provided to create the contextual story around the artifacts. In the case of Real Pirates, a team of curators and scholars lent their expertise to ensure representational authenticity.

Theater Immersion is evolving from big screen films to 3D and 4D, with multi-sensory environmental elements such as wind, mist, snow, as well as touch and smell. These have gained popularity at science centers, aquariums, and visitor centers, but most cultural museum staff still perceive them as more suited to thrill seekers and theme parks. By contrast, dome theaters, which immerse visitors in a 360-degree experience, are being adopted more readily by cultural institutions. For example, the Smithsonian’s National
Museum of the American Indian uses a dome theater to immerse visitors in a virtual outdoor environment around a digital-generated fire pit, above which traditional storytellers are projected on four screens. A new generation of dome theaters offers 3D, interactive, and participatory characteristics as well.

Combining historical artifacts with constructed sets and integrated media is a highly effective and affective mode of engaging visitors. In *Tutankhamun: the Golden King and the Great Pharaohs*, visitors step into a re-creation of archaeologist Howard Carter’s tent overlooking the Valley of the Kings and experience the excitement of Carter’s discovery of King Tut’s tomb in the 1920s. In *Minnesota’s Greatest Generation* at the Minnesota Historical Society, visitors sit in the fuselage of a real World War II era Douglas C-47, on the same bench paratroopers would have occupied during major invasions in the war and listen to true stories about paratroopers preparing for battle on D-Day. With authentic content, today’s sophisticated visual and audio equipment can fully immerse visitors in the real stories and emotional context of another era.

*Interactive Immersion* is expanding rapidly both on-site and off-site. Internet connectivity, social networks, and today’s latest wireless devices combined with GPS locators, are giving rise to myriad new ways to actively engage visitors. Italy’s Museo Archeologico Virtuale has over 70 multimedia installations, but no artifacts. Interactive computer-generated media immerses visitors in the life and times of nearby Pompeii and Herculaneum nearly 2,000 years ago. MAV’s website boasts that visitors can “channel [their] inner Indiana Jones. . . You do the discovering here: Your footsteps scatter virtual dust along the floor to expose intricate mosaics from Pompeii’s House of the Faun . . . .” It remains to be seen if this venue replaces or enhances the visitors’ desire to visit the ruins *in situ*.

Audio-based tours are giving way to self-guided, multi-media tours both within the museum walls and off-site. Historical sites are beginning to offer interactive, content-rich tours using smart phones with GPS locator apps. Imagine walking through the historic districts of a city and accessing archive video and photos of specific locations at different time periods. Wireless and Internet technologies are combining to radically change how visitors engage with museums, providing ways in which visitors can shape exhibitions, share their thoughts, and extend an exhibit’s reach via social networks. In the above example, visitors might add to a museum’s curatorial content by contributing their own family stories, reactions to, and videos about a particular historic site.
Virtual Immersion is evolving in several directions. Web-based virtual
tours allow visitors to navigate through representations of a museum’s gal-
leries. Some, such as the Dresden Museum of Art, are replicating their gal-
leries in great detail and to scale, using software programs such as Second Life,
an online virtual world where users can interact with each other using digital
avatars of their own making. An increasing number of museum websites
allow virtual visitors to tag favorite objects, create collections, share their fa-
vorites with others, and so on. The upward trend of participatory character-
istics is addressed below. Another growing, yet less accessible form of virtual
immersion involves software-enhanced goggles, helmets, and other forms of
augmented virtual reality that enable people to explore a place from afar. The
VirtuSphere, for example, enables a person wearing a wireless head device to
step into a suspended 8.5-foot hollow ball, and physically move in any di-
rection through a virtual environment. Highly detailed, 360-degree, digital
content enables a person to walk through the galleries of a remote museum,
or to explore the ruins of an archaeological site. These technologies hold
great potential in providing cultural experiences to those who cannot travel
to museums on-site. They also provide a means to exploring sites and ar-
tifacts that are too fragile to accommodate visitors at all.

As additional forms and modes of immersive engagement develop, I
continue to re-examine and expand the above list. Several new forms are
emerging:

Participatory Immersion

Author Frank Rose suggests that the nonlinear act of exploring information
on the Internet is “inherently participatory — not just interactive, in the sense
that it responds to your commands, but an instigator constantly encouraging
you to comment, to contribute, to join in. And it is immersive — meaning that
you can use it to drill down as deeply as you like about anything you want to
know about.”13 Creating richer content experiences by providing means of ex-
ploring nonlinear, hyperlinked information is further enhanced when users
are able to share that information with others, both on site and virtually. For
example, in its recent exhibition, From Memory to Action, the US Holocaust
Memorial Museum in Washington DC installed a multi-user touch table with
video screens overhead projecting testimonials and eyewitness accounts of
genocide. Visitors can use the Eyewitness Interactive table to explore deeper
and, if desired, to save selected stories which they can then send to the museum
website to be accessed and shared at a later time. Visitors are participating in the living history of these important eyewitness accounts.

It is interesting to note that interactive suggests action and reaction. Participatory, on the other hand, suggests a fuller, more self-directed exploration. It also implies a contributory aspect, a taking part in something larger than oneself. The rise of participatory interaction and immersion is evidenced by the widespread digital solicitation of personal stories to extend (and democratize) exhibition content. In today’s parlance, such participatory contribution across demographics is described as crowd-sourcing. How and whether these stories should be mediated, archived, and made searchable raises many new issues.

**Video Gaming Immersion**

Video gaming has immersive components as well, perhaps most notably in its addictive lure. The mobile video game app *Angry Birds* has engaged tens of millions of users around the globe. *Angry Birds* simple interaction model is easy to learn because it allows the user to quickly develop a mental model of the game’s interaction methodology, core strategy and scoring processes. It is engaging, in fact addictive, due to the carefully scripted expansion of the user’s mental model of the strategy component and incremental increases in problem/solution methodology.¹⁴

A game such as *Angry Birds* may not offer in-depth learning, but imagine a similar game in which stolen paintings or artifacts are recovered. The message is simple but broadly disseminated and deeply reinforced, immersing users over and over again in the idea that world heritage objects need to be rescued.

**Group/Social Immersion**

New experiments with social networking, Twitter, on-site dynamic feedback, multi-user installations, and smart phone apps are creating methods for engaging visitors in both group and social interaction. A simple example is to encourage visitors to sign onto the museum Twitter account so visitors can share thoughts and comments with one another while exploring an exhibition. A more complex example is the use of ambient displays that dynamically amass visitor information and provide opportunities for visitors to act on that information. Affective presence researchers Boehner, Sengers, and Gay designed and tested two such displays at Cornell University’s Asia
One played bird songs in a less visited part of the galleries, drawing visitors into that area. When a certain number of visitors came into the area, the bird songs stopped. When they left, the bird songs resumed. Another example that illustrates the globalization of social immersion is the Solomon R. Guggenheim Museums’ ambitious YouTube Play global video project. In an open call, people from around the world were invited to create and upload videos for its 2010 Video-Art Biennal. The result was over 23,300 submissions from 91 countries with over 24 million YouTube viewers. If video is the art of the 21st century, then does YouTube qualify as an accepted museum venue? If so, then what is the role of museum staff in engaging viewers in and mediating meaningful content?

**CONCLUSION**

Immersive storytelling techniques can connect visitors to different cultural experiences and to each other in meaningful ways. “Affective presence incorporates the ineffable but inescapable qualities of lived experience including emotions, spirituality, social communion, and creative inspiration.” Each visitor has a role in formulating an object’s story based on his or her life experiences. The perspectives and biases that visitors bring to the museum experience affect not only how they absorb and interpret information, but the extent to which they participate at all. Recognizing the importance of affective presence will aid museums in understanding how to reach a broad spectrum of visitors, both on and off-site, and how to encourage significant visitor engagement over time.

In the past decade, participatory and networked technologies have increased visitors’ role in contributing to and, in some instances forming, the narrative of an exhibition. A study on future trends by the year 2035 predicts that museums will see a rising visitor demand for “immersive interactive programming” and an “emerging you-as-the-protagonist concept.” In many ways, we are already there.

The concept of multi-sensory, affective immersion has been in existence for centuries, from oral tradition to religious ceremony. The use of immersive techniques to contextualize objects and enhance cultural museum experiences gained popularity over a hundred and fifty years ago. This is the first time, however, there has been such an explosion of media technologies available to such a wide range of users. It is revolutionizing how we represent history and culture, who creates and disperses cultural stories, and who...
engages in them. The Digital/Internet Age has contributed greatly to the democratization of information and, for the first time, many demographics will have unprecedented access to cultural institutions and world heritage.

New immersive and participatory storytelling techniques are a welcome catalyst for engaging a broader range of people in deeper and richer ways.

But, a note of caution. The success of these new techniques depends very much on the authenticity and profundity of the content. Best practices, particularly regarding representation, comprehensive research, and veracity of data, are absolutely essential to providing meaningful experiences rather than simply joy rides. Best practices must also address the “digital divide.” Appropriate design models that embed diversity and accessibility are critical or technology could “create a new cultural elite — and a new cultural underclass.”

Henry Jenkins points out three areas of concern: a participation gap, a transparency problem, and an ethics challenge, all of which point out the necessity for educators to work together to develop “cultural competencies.”

Today’s museums have unprecedented opportunities to play a key role in building culturally engaged communities, through the use of new technologies and techniques that ensure inclusivity, meaningful content, and relevant cultural experiences.

Notes
7. For more information or to view some of the media associated with the exhibition, see the exhibit’s website. “Real Pirates: The Untold Story of the Whydah, from Slave Ship to Pirate Ship,” (National Geographic and Arts and Exhibitions International, 2011), http://www.piratesexhibit.com/.
17. Boehner, 81.

Maggie Burnette Stogner is a Professor of Film and Media Arts at American University in Washington DC and founder of Blue Bear Films, a media design and production company for museum exhibitions and documentary films. She produced the films, animations, and other contextual media for “Tutankhamun: The Golden King and the Great Pharaohs,” “Afghanistan: Hidden Treasures,” and “Real Pirates: the Untold Story of the Whydah from Slave Ship to Pirate Ship.” For nine years she produced National Geographic’s documentary series “Explorer.” Her graduate degree is from Stanford University.

Special thanks to my excellent research assistant Christopher Richmond, American University School of Communication MFA candidate.