

# Digitalizing Heritage: The Future of Smart, Open, and Shared Cultural Preservation

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## Abstract

Cultural Memory indisputably rests on the aid of media. Digitalization has only accentuated the way collective memories are reconstructed in sociocultural contexts through permeating the space of the institutions where cultural heritage is authoritatively stored and preserved. It has enabled the use of multimedia to open up channels of communication and interaction between the cultural institutions and their visitors. The knowledge stored inside the walls has moved beyond the boundaries of museums and available on easily accessible platforms which incorporate democratic and collaborative efforts for cultural transmission and safeguard. This paper examines the application of digital technologies like virtual guides, incorporation of sound and video, UI, crowdsourcing, etc. in some museums in India with examples and benefits of development of mobile apps for heritage awareness. It discusses, among other things, the role played by them in changing the experience of museum visit and uplifting the future aspects of personalized connection with the past. The use of digital media in generating museum-related content includes social networking and participatory approach and it is increasingly being deployed for its potential to reach new audiences and engage in life-long learning practices. This paper evaluates the effect of incorporating Web 2.0 capabilities in museums, the concerns arising out of it and its significance for the formation of collective memories.

**Keywords:** Digital Cultural Heritage, Multimedia, Museums, Collective Memory

## Introduction

“Today in the digital age, museums are no longer working *for* their community but *with* their community...” (Bautista 27).

“Information and Communication technologies (ICT) slowly incorporated into the problems of cultural heritage protection have led to a range of activities that may bring the creation of new forms of learning about the past” (Sroczyńska 1309).

The museums have been preoccupied with the collection and storage of information and material items that define cultural heritage of any community or nation since their existence. In the late 18<sup>th</sup> century India, museums were intentionally created and designed as an instrument to both systematically shape and study a linear Indian history. “It was the patrons who created a system of classification which determined what was valuable, that which would be preserved as monuments of the past, that which was collected and placed in museums, that which could be bought and sold, that which would be taken from India as mementoes and souvenirs of their own relationship to India and Indians” (Cohn 22). Hence, museums displayed antique objects and local histories and manuscripts that were found during archaeological surveys and explorations, especially carried out under the supervision of Colonel Colin Mackenzie, the first Surveyor General of India. It depicted an urge to preserve the past and ensure a continuity into the future. Increasingly, the museums are housing objects that define identity of a community, collection of family heirlooms, devotional objects and save a culture that is on the verge of disappearance or faces an impending dissolution.

The study of the museum has in turn focused on the methods of creating this controlled environment which outline how display should be made and visitors should be allowed to gaze on the condition of maintaining safe distance from fragile antique objects. It outlines the stated educative policies, legal duties, perhaps include the interest of the audience and seems to be confined to the concern of museum professionals. But a new age has dawned in the field of

museology and it has embraced every field of human endeavour and thus, it holds importance for everybody. The researchers are now concerned with the purpose with which any museum is created in a society and what associations and meanings it forms in relation to its community members. Sharon Macdonald outlines three major changes that have been embraced by museum studies. These include: contextualizing the meaning of museum objects, admitting the scope of commercialization and entertainment and difference in perception by various visitors. Overall, the major concern “a shift to seeing the museum and the meaning of its contents not as fixed and bounded, but as contextual and contingent” (3).

Digital technology has permeated the sacrosanct space of cultural preservation. Various digital tools have been employed to create interactive virtual platforms using laser scanning, geographical mapping, augmented reality and thus engaging a larger set of audience which perhaps might not have been possible in their absence. New media transforms the existing practices in the manner media-related information is circulated and consumed. “The museum’s capacity to shapeshift and reinvent itself in ways that mirror the local processes of identity politics” (Mathur et al. 3) holds potential to either upgrade the existing order of things or to threaten the status quo of authoritative institutions. “In the case of the museum, advocates of new media see it as a means to modernize, popularize, and increase the efficiency of a rather staid or old-fashioned institution” (Henning 324). It brings about a change in the way heritage is projected and alters the relationship between the museum and its audience. It attracts broad-based visitors from different settings, makes the exhibitions more interactive, introduces multiple perspectives to history and make the process of engagement with history interesting. But there have been doubts regarding the increasing vulgarization and commercialization of institutions that are revered for their authenticity and conclusiveness on any historical point. Either way, new media has been evaluated as an addition, an imposition; something possessing contrasting characteristics when compared to the museum that interrupts the ongoing process

in a positive or negative way. It is time to stop overvaluing technological advances or feel threatened by them and understand them as complimentary means to organize and distribute data and transform the hierarchies of knowledge in a way that reinvents the existing channels of information.

The rush to update the process of preservation of heritage in the digital age has also ushered in a drastic change in the way people perceive their culture. It has become more accessible, pervasive and participatory. It is affecting our sense of identity and how we view others. Terms like ‘audience’, ‘public’, ‘visitors’ are increasingly being replaced by the word “community” depicting the inclusive character introduced by new breed of museums which help in building cohesiveness and regeneration of communities. “People are increasingly encountering sites and monuments and learning about the past through digital media, in the form of virtual reconstructions, digital representation of artifacts, online videos, and so on. This is particularly the case for younger generations, for which the first experience of cultural heritage is often through a digital surrogate that shapes their understanding and perception” (Economou 215). The experience of heritage viewing has transformed itself from an institutionally-bound, authoritatively-controlled information system behind glass windows to Web 2.0 mode which consists of interactive rebuilding and tracing of cultural roots through application-based individual encounters, virtual reality that stimulates more empathetic response, digital collections which enable a more comfortable viewing and many more new possibilities that are yet in nascent stage. The main aim is the democratization of learning process, interpretations and inviting myriad perspectives from not just one community but people all around the world.

A few questions arise, when the heritage is efficaciously made open and smart, about the skillset and motivations of its diverse users which cannot be classified on any parameters. Also, the difference between theory and practice hinders materialization of many expected

results of increased digitalization of heritage. In some ways, the essence of a physical interaction is lost while a lot more is gained in terms of collection and processing of data, understanding and long-term engagement with heritage. Digital media is classified as “transient,” “virtual” and designed for entertainment and hence inappropriate for cultural institutions that are more permanent in meaning and significance. But it also changes what visitors do, learn and even feel when they come to a museum. The interactive exhibitions make them spend more time and be more emotionally involved with the represented objects and histories. Adding computerized technology is generally understood to lend interactivity to the museum space and thus museums consider only certain items within the category of interactives. It is largely considered as a source to boost entertainment, allowing visitors to have fun while learning, but it is simultaneously a tactic to increase their involvement and activeness within the premises of the museum as well as to pique curiosity in heritage and continue seeking information after one has left it.

### **Virtual Museums Spaces**

The museums are designed to teach the community about their past so that they can have some concrete sense of beginning. The didactic feature of the museum, where it assumes the role of authoritative source of knowledge, can work in two ways: 1) conveying the facts and figures directly to the visitors through exhibiting objects and information. 2) learning through “a process of experiencing the world and making sense of it in one’s own mind within the context of one’s cultural background” (Witcomb 356). The first one does not involve any active analysis or interpretation of the information displayed. It is a mass consumption of intended meanings which are as easily forgotten as learned. The second process, on the other hand, depends on the intellectual and emotional capability of the visitor to actively find meanings and forge relationship with the cultural information. It engages the viewer through providing stimulus and demanding response. It considers value and learning visitors add to the

experience of the museum. The museums are becoming more space-conscious in the face of new media technologies and contemplating the changes it brings to their desired ends. They still struggle with defining their role in creating a socially inclusive space and creating a virtual space provides them with an opportunity to revise their function and position in society.

The concept of virtual museums continues the discussion on space/place where experience is the prime motivation because “they are freely accessible by anyone with a digital device and an Internet connection, regardless of where that visitor may be located” (Bautista 206). Virtual museums exist only on the Internet but they closely simulate the actual museum settings and genuine gallery displays administered by real professionals in real physical office. The panorama mode is usually employed in the virtual tour of the museum, also called circular panorama. “The objects can interact in this kind of panorama. Once the mode of “active source” is chosen, the users can observe and interact with the following objects, zooming them in and out or obtaining extra information about them” (Atamuratov 91). Virtual Museum explores the possibilities of remote visits where the visitor is interested to access information either before or after the visit or in case of inability to do so. It is an easily-navigable, choice-based, interactive education medium where the online user can view the multi-media exhibits at ease to enhance knowledge, understanding and appreciation of one’s culture. Physical museums are often a one-time experience unless you pay and visit again. “Often, there is no opportunity to return to reconsider displays; even in the walk-about representations, the visitor is told when to move, and in which direction to move” (Walsh 177). Virtual museums are free of cost and can be visited multiple times as and when required as long as one has internet connection and a smart device. A survey conducted by Atamuratov also showed that more participants considered the virtual medium more advantageous, influential, engaging, easy to navigate, and more positive in its approach.

The official website of Ministry of Culture contains links to the virtual experience of many prominent national museums in India like National Museum, Delhi; Salar Jung Museum, Hyderabad; Victoria Memorial Hall, Kolkata, etc. The links take the user to the official website where a virtual tour of the museum can be taken, virtual exhibitions can be viewed and other associated information can be found. Some museums have uploaded videos describing particular heritage objects so that the user can involve himself with the knowledge contained in the museum while sitting in the comfort of his home. This data is available at a global level and free of cost and thus, it can also attract distant cultural scholars. The digitalization has been realized through high resolution pictures, 3D geospatial navigation within the galleries displayed online and other developed visualization techniques. “The use of digital tools can help specialists and professionals organize the large amount of data involved in the scientific investigation and recording of the past, but they can also make these more understandable to a wide audience” (Economou 217).

At the same time, virtual displays have been introduced within the static architectural spaces of museums. It has revolutionized the way visitors consume knowledge and make connections with their past. The placing of virtual displays, interactive or not, introduce an element of mediated information through digital technology. The entire museum visit elevates the level of expectations for entertainment and learning outcomes. The layered complexity of museum space in terms of representation of content and amount of physical involvement carves a creative space most appealing for an intellectual interpretation and visceral experience. Stephen Greenberg says that in order to create a mediated experience for the visitors “we need to think of spaces in a different way, leaving behind our old habits of monumentalism and permanence, in both buildings and their content, and think instead of dynamic performance spaces” (228). Thus, the barrier created through glass cabinets placed between the audience and object needs to be removed so that both can merge in a more participatory spirit.

How does the virtual visitor relate to the community of physical visitors of a museum? Virtual space offers conditions of anonymity and an individualized experience. They promise a space that is no longer dependent on physical structures and economic funds. Moreover, it is not opposed to reality; in fact, more like a vital forum attached to the concept of museum where people can freely search, discuss, interpret and produce information. It can, in fact, pave the way for third world countries to design virtual state-of-the-art museums where increased accessibility and innovative displays can enhance the identity formation and nation building exercises. In the same vein, physical museums most often are directed towards the interest of a particular community. It is, in fact, an instrument of communication eliciting emotions and triggering memories that bring together a group of people with common interests. The motivations to join and participate and have interpersonal interactions on virtual platform necessitate identification with a common group. It dissolves hierarchical, centralized and restrictive relationship between channels of information and receivers. It remains to be seen how museums negotiate this changing relationship with its visitors in particular and community in general.

### **Heritage Mobile Apps**

Just like virtual museum spaces have taken the function and purpose of museum experience out of the physical structure, new media also consists of developing mobile apps that enforce a revision of the relationship between community and heritage. The usefulness of such apps is a widely researched topic and definitely its benefits are unsurpassed in heritage-learning process by any other devices since the spread of mobile devices, such as tablets and smartphones, has ensured a never before imagined accessibility among the masses. The researchers are increasingly moving on from the concerns about the “digital divide” which means the unavailability of internet services to the deprived and under-developed section of people to “participation gap” which means that all those who have an internet connectivity are

not actively participating and contributing to digital platforms. Heritage Apps offer this particular opportunity to build a platform for desired subject matter and appeal to the audience in a manner that makes them interested. These Apps can employ a variety of features such as: “suggest a route or a self-guided route through a heritage area or museum, show a heritage object or objects, and finally, apps that offer a game. Within this final category, [there can be further] distinctions between games, such as contests/quizzes, serious games, role-playing games, simulation games, and action/adventure games” (Luna 6).

India Story App has been founded by a 16 years old girl who thought that credible information and appropriate curation was missing from the Indian heritage landscape. The app lists only six major cities and twenty-four heritage sites with less than 10 minutes narration on each site. The data available on the app can be resourceful in planning a visit to the described heritage place or it can act as a virtual guide to accompany the visitor along her visit. Apart from guide, the mobile apps also involve the use of multimedia resources to display virtual exhibitions linked through common theme. The Indian Culture App is a more extensive and detailed portal and is a part of the National Virtual Library of India project, funded by the Ministry of Culture, Government of India. It provides digital resources under various categories like Intangible Cultural Heritage, Paintings, Forts of India, Textile and Fabrics of India, Museum Collections and many more. It can prove to be a quite useful learning tool for students and other audience alike. It offers a personalized space where online users can search, analyse and interpret cultural heritage resulting in a lifelong relationship with it. “By providing different types of interaction with heritage material, it is hoped that digital applications promote an understanding of heritage, as well as encouraging users to value and appreciate heritage” (Economou 217). Thus, heritage mobile apps offer the freedom to search topics according to preferences, to return in leisure time, to save and to reproduce the knowledge gathered from the digital source.

## **Virtual and Augmented Reality**

The digital technology has shifted from browsing the internet to wearable devices and creation of virtual reality. The Indian Digital Heritage (IDH) Hampi project, sponsored by the Department of Science & Technology (DST), Government of India, aims to reconstruct damaged parts of the site to their original construction virtually in high resolution so that they can be understood in finer details. It provides a rich visual experience through digital creation of heritage walkthrough. Another very young Project Dastaan based on the 1947 Partition of India was founded by three Oxford University students and since 2018, it has reconnected Partition refugees from India and Pakistan to their home villages. It is trying to overcome physical borders through virtual travel and though the places are not identical to the ones they grew up in, they are able to recognize a mosque or a temple here and there along with some other material evidences which have stood the test of the time. It is not just an opportunity for these veterans to relive their childhood experiences but also a medium for the younger generation to trace their roots. The experience is ecstatic and often emotional on the brink of unbelievability because the political borders are often the hurdle in humanitarian friendships. The use of augmented reality in heritage landscape implies superimposing cultural images on the existing aspects of the physical world. “These digital supplementary elements can take various forms, such as sound, video, graphics, or data related to geographical positioning, often combined to enhance users’ perception of their surrounding reality” (Economou 218). It offers stimuli that makes the setting feel more real such as superimposing 3D model of town plan on Harappan archaeological sites or the ruins of Tughlaqabad Fort could be reconstructed. “A digitally reconstructed heritage site could diminish further harm by using immersive navigation or walkthrough systems for virtual environments” (Dasgupta). But does the screen between the

visitor and the site used for viewing creates impediment in the connection or enhances the experience through digital magic? AR is yet an immature technology and reaping its full benefits for heritage preservation have a wide range of possibilities. Augtraveler is a mobile app based on this concept which the visitor can use on his visit to the selected monuments in Delhi, Agra, Jaipur and Bikaner. The AR can be experienced through purchase for some sites, while the others can be downloaded. The digitized heritage models appear on the small personal screens which can also be photographed, establishing a deeper level of association and enhanced visitor's experience. "This allows site staff to put scenes into context and highlight areas of interest with minimal requirements" (Char). Some fear that it might be a distraction; others believe that the use of AR in heritage settings can lead to more integrated and seamless adaptation to traditional heritage sites and museum experiences and make it more interesting and relevant to future generations. "Augmented reality is also dynamic and attractive, a fact that leads to more people visiting such spaces to learn about what new tools and technologies have to offer" (Luna 9).

### **Social Media**

Nowhere is the participatory culture more apparent and observable than social media. Social media has tremendously changed the way we interact, communicate and identify as a community member. It is a platform for diversified views, cultural expressions and content generation, also keeping in view the heritage preservation. It demands continuous activity and presence on the internet and can adapt according to the interests of any particular user. It offers a crucial platform that is oriented towards community and holds a holistic approach towards heritage conservation. Online communities are emerging that form around an area of interest and functions on active participation of the members. It could be in terms of general discussion, virtual support and encouragement or providing essential information to sustain the interest of its members. It can also include increasing the reachability to the more learned experts of the

topic who can guide the users to a more guided research endeavour. Liang et al. state that “following with technological progress, the integration of digitized presentation and crowdsourcing technology in terms of communication and collaboration for cultural heritage has become a necessary trend” (2). It empowers the ordinary netizens to create their own digital landscape, museums and archive through sharing photos, Audio/Video records, narratives and designing the purpose of the online community and thus, facilitating a wide-based meaning-making process which is unrestricted and open-ended.

There are various Instagram handles that are based on this objective of creating a community oriented towards various cultural interests. These are handled both individually and through a verified organization. The institutions engaged in the area of heritage preservation specifically seek the social media in order to diversify its audience and to sustain their relevance in the society. Approaches to social media include both short-term comments and blogs, through popular social media apps, such as Facebook, Twitter, and collective memory websites. “The eagerness of people to obtain relevant real-time information and take part in the planning inspires a lot of potential for involvement both in the use of social media and in addressing them to cultural heritage” (Liang 3). Interestingly, there have been incidents when people have reconnected with things and people from their past and it holds a great emotional benefit for the entire society.

### **Potential of Crowdsourcing in Cultural Preservation**

The web has enabled a culture of increased social interaction and participation. It has been designed in a way which allows constant/compulsive sharing and content creation. It includes an open and universal space for media sharing sites and devolving information channels. Crowdsourcing on online platform would mean delegating some aspect of work to online users. Wiki-style platforms are embracing content created by the public and putting their knowledge to use, at the same time cataloguing the successive changes made by them. “Various

organizations are currently exploring ways of engaging the wisdom of the crowd for creating and editing of content, solving problems or the organization of knowledge structures” (Oomen & Aroyo 139). One such example is The Museum of Material Memory, co-founded by Aanchal Malhotra and Navdha Malhotra in 2017. It is a “digital repository of material culture of the Indian subcontinent, tracing family history and social ethnography through heirlooms, collectibles and objects of antiquity” (Malhotra & Malhotra, About). The aim of the project is to collect pictures of antique objects older than 1970s, which have survived through generations and it largely relies on the contribution by people who visit the website. The information about the object, narrative around it and its pictures are uploaded through a submission form. The data is then carefully curated and put on public display which would here mean that anyone who visits the website can browse through the pictures and read the associated information. “Once digital and once part of an open network, cultural artifacts can be shared, recommended, remixed, mashed, embedded and cited” (Oomen& Aroyo 139).

Another case of example is The 1947 Partition Archive, a contributory project, founded by Guneeta Bhalla in 2010, with its office in Berkeley, California. It seeks to collect, document and preserve the personal oral histories of partition witnesses and other material data. “Nearly 9,500 oral histories have been preserved on digital video, making The Archive the largest documentation effort focused on Partition” (Bhalla). It does so by involving common citizens and training them to become Citizen Historians who work with a remote team, easily accessible over web-based platforms. It ensures long time preservation for any future research endeavours since the information is stored in a digital cloud and not necessarily located in any particular country. Both organizations devoted to the preservation of cultural heritage are based on the concept of crowdsourcing and allow greater participation of the web-based users instilling in them a sense of responsibility towards cultural awareness and preservation. These

initiatives explore new paradigms of participation, reduction of operational cost and deeper level of involvement in shared information space.

The utilization of potential of crowdsourcing in the domain of heritage preservation is on the precipice of new innovations and change in the institutional practices for longer sustainability and relevance. It will have a long-term effect on the relationship between community and its culture and the collaboration can result in an impact on the way knowledge is created, stored and distributed under the aegis of cultural heritage content. Thus, a breed of cultural institutions is emerging which is for the people and by the people and it holds bright prospects for an enthusiastic engagement with cultural questions and knowledge. It is important here to seek an optimal balance between the authenticity and increased sources of information.

### **Conclusion**

Digital media has changed the way cultural memory functions in a positive manner. It rests on the increasing participation of the community members and their active involvement. Undoubtedly, museums have contributed to an informed and systematic rationalization of past. But the new technologies should not be considered as superficial additions to the museum culture but an inherent and innovative new aspect which has enabled discourse on a more open and shared cultural past. It bears consequences for its long-time sustainability, relevance and adaptability to changed circumstances. This inter-disciplinary approach is the key to explore varied possibilities that can also bring about a change in the way heritage is preserved and valued. The educative policies of the museum and other-related institutions should focus more on learning through experience rather than passive consumption of knowledge. The advances in the field of technology as they are increasingly being applied to cultural themes are in very early stages but only a deeper understanding of power dynamics created through this transformation can lead to more reliable utilization of such sources. New media has irrevocably changed the way we associate with society and culture and hence, it is necessary that we

approach this new development with sensitivity, understand its survivability options and perhaps proceed with a little caution only to make sure that the physical world is not lost in the chase after glamorous virtual heritage. Technology should be a means to accentuate the beauty of the real world and not the end goal to replace everything else. It is enthralling to see how many people still care and invest their time and effort in engaging in preservation of something so significant that it affects the present and future generations. And it has been possible to achieve this level of involvement only through the compatibility between culture and technology explored.

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### Works Cited

- Atamuratov, Rasuljon Kadirjonovich. "The Importance of the Virtual Museums in the Educational Process." *European Journal of Research and Reflection in Educational Sciences*, vol. 8, no. 2, Part II, Progressive Academic Publishing, 2020, pp. 89-93, [www.researchgate.net/publication/339644328](http://www.researchgate.net/publication/339644328).
- Bautista, Susana Smith. *Museums in the Digital Age: Changing Meanings of Place, Community, and Culture*. AltaMira Press, 2014.
- Bhalla, Guneeta. *The 1947 Partition Archive*. [www.1947partitionarchive.org/](http://www.1947partitionarchive.org/).
- Charr, Manuel. "What can AR do to bring heritage sites to life?" *Museum Next*, 27 May, 2020. [www.museumnext.com/article/what-can-ar-do-to-bring-heritage-sites-to-life/](http://www.museumnext.com/article/what-can-ar-do-to-bring-heritage-sites-to-life/).
- Cohn, Bernard. "The Transformation of Objects into Artefacts, Antiquities, and Art in 19<sup>th</sup> century India." Mathur, *No Touching*, pp. 21-44.
- Dasgupta, Kanupriya. "Where History Comes Alive: Augmented Reality in Indian Heritage." *DA-IICT Blog*, 10 Jan. 2020, [medium.com/@daiictweb/where-history-comes-alive-augmented-reality-in-indian-heritage-db15f6224bad](https://medium.com/@daiictweb/where-history-comes-alive-augmented-reality-in-indian-heritage-db15f6224bad).
- Economou, Maria. "Heritage in the Digital Age." *A Companion to Heritage Studies*, edited by William Logan, et. al., Wiley Blackwell, 2015, pp. 215-28. doi: 10.1002/9781118486634.ch15.
- Greenberg, Stephen. "The Vital Museum." *Reshaping Museum Space: Architecture, Designs, Exhibitions*, edited by Suzanne MacLeod, Routledge, 2005, pp. 226-37.
- Henning, Michelle. "New Media." Macdonald, *Companion to Museum*, pp. 302-18.
- Liang, Xiaoxu, et al. "A Review of the Role of Social Media for the Cultural Heritage Sustainability." *Sustainability*, vol. 13. no. 1055, MDPI, 2021, pp. 1-17. doi: <https://doi.org/10.3390/su13031055>.

Luna, Ursula et al. "Augmented Reality in Heritage Apps: Current Trends in Europe." *Applied Sciences*, vol. 9, no. 2756, MDPI, 8 July 2019, pp. 1-15.

Macdonald, Sharon, editor. *A Companion to Museum Studies*. Blackwell Publishing, 2006.

..., editor. "Expanding Museum Studies: An Introduction." Macdonald, *Companion to Museum*, pp. 1-13.

Malhotra, Aanchal and Navdha Malhotra. *The Museum of Material Memory*.  
[www.museumofmaterialmemory.com](http://www.museumofmaterialmemory.com).

Mathur, Saloni and Kavita Singh, editors. Introduction. *No Touching, No Spitting, No Praying: The Museum in South Asia*, Routledge, 2015, pp. 1-18.

Oomen, Johan & Aroyo, Lora. "Crowdsourcing in the cultural heritage domain: Opportunities and challenges." June 2011, pg.138-149. doi: 10.1145/2103354.2103373.

Sroczyńska, Jolanta. "Role of ICT Technologies in the Conservation of Building Monuments." *Structural Analysis of Historical Constructions*, 2012, pp.1309-1316.

Walsh, Kevin. *The Representation of the Past: Museums and Heritage in the Post-Modern World*. Routledge, 1992.

Witcomb, Andrea. "Interactivity: Thinking Beyond." Macdonald, *Companion to Museum*, pp. 353-61.