The Museum of the Infinite Scroll: Assessing the Effectiveness of Google Arts and Culture as a Virtual Tool for Museum Accessibility

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Assessing the Effectiveness of Google Arts and Culture
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by
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the Degree of Master of Arts in Museum Studies

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Abstract

As technology evolves, the concept of the virtual museum continues to come into focus. Google Arts and Culture (formerly the Google Art Project) has been a leading platform in virtual exhibitions and digital collections since 2011. Arts and Culture presents itself as a democratic platform that allows any museum, regardless of size or resources, access to the same new digital technologies. However, its model tends to favor institutions with more staff time to spend on their virtual presence. By analyzing Google Arts and Culture within the context of larger museum trends in virtuality and interviewing museum professionals responsible for their institutions’ virtual presence, this capstone describes the current state of the platform from a museological standpoint, how it fits into the history of museum virtuality, and how museums are using the platform. This project proposes several ways Google Arts and Culture can change their collaboration protocol better serve museums and go beyond merely providing access to their technologies.
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Nathalie Figueroa  Meghan E. Reed
Anna Goss          Tricia Robson
Tina Martinez      Peggy Speir
Cate Mills         Trevor Tutt
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Chapter One

Introduction

I took off my glasses, snapped a photograph of myself, and stared at my phone in anticipation. My museum doppelgänger was out there, somewhere. Who would she be? A blushing Flemish milkmaid, a 19th-century American debutant, a sun-dappled Rococo lady-in-waiting? I had seen the striking similarities between Twitter users and the portraits they had been matched with—computer programmers who could be twins with dukes from centuries prior and retail managers who bore an uncanny resemblance to a famous Impressionist’s mistress. I eagerly waited for the page to load until I saw, to my dismay...an etching of Karl von Biorn Bonde by Pieter Schenk. A 70% match. A Rijksmuseum gem, surely, but not exactly a flattering comparison. Crestfallen, I navigated to another page within the Google Arts and Culture application. What I found was even more intriguing than the Art Selfie portrait-matching feature: beautiful, detailed images of paintings, sculptures, and artifacts. I found tours of a thousand museums and a feature allowing me to view paintings twenty times closer than any guard would ever allow in a gallery. I deleted the application from my phone within a month, but it had left an impression. A year later, while interning at a historical society, I was asked to make an exhibit on the platform. I scrolled through the pages of museums and objects wondering, who is this application for? The content seemed so broad and disparate that I felt lost in its seemingly infinite scroll.

The idea of a virtual museum has existed since at least the 1940s, when André Malraux published “Le Musée Imaginaire,” imagining what the personal museum of the future might look like. Since then, technology has evolved at an unforeseeable rate, resulting in digital platforms for the exploration of art and artifacts that can be held in the palm of one’s hand. Google’s Arts
and Culture platform is one of the most popular to emerge in the past decade, currently boasting over six million digitized objects from over 1,200 museums. As with most new technologies, the platform has its critics. From concerns regarding the ethics of a technology conglomerate being so closely associated with the display of cultural objects, to fears voiced by museums concerning the conversion of online users to in-person ticketholders, Arts and Culture has its fair share of controversy within the art world and the museum sector. However, there is little written about the platform as a whole, especially in academia. Much has been opined about the Art Selfie feature that gained viral popularity several years ago; the platform’s predecessor, the Google Art Project, was written about frequently in the early 2010s, but contemporary information about the project from a museum perspective is visibly absent. This capstone aims to present the state of Google Arts and Culture today from a museological standpoint: how it fits into the history of museum virtuality, how it works, how museums are using the platform, and how it can be improved to better serve its partner museums.

The purpose of this paper is to give museum professionals an overview of this digital platform, to identify its use within the museum sector, and to recommend improvements to make the collaboration more beneficial for the museums Google seeks to assist with these technologies. Arts and Culture is touted as a way for museums to have more visibility and better engage with their publics online, providing access to collections and scholarship. Museums interested in partnering with Google deserve to know whether the investment of their limited resources in the project will be beneficial to their mission and their audience. This paper aims to help museums better understand whether the platform is right for their goals of broadening public virtual access to the museum. By analyzing Google Arts and Culture within the context of larger museum trends in virtuality, as well as interviewing museum professionals responsible for
their institutions’ virtual presence, this overview will give museums more insight into what the platform can reasonably accomplish within their specific institutions. Google Arts and Culture is not a magical virtuality machine. Museums must invest time and staff resources into creating their digital presence on the platform—two precious commodities within the nonprofit sector. Some museums have more of these resources to invest than others and Arts and Culture’s model tends to favor institutions with more staff time to spend on their virtual presence. By weighing the features and potential for accessibility against the resources needed to see value emerge from a museum’s virtual presence, museums (particularly smaller institutions) will be able to better understand the partnership between the Arts and Culture team and their staff.

In order to learn more about Arts and Culture and how it is used in museums, I interviewed a program manager on the Arts and Culture team, as well as ten museum professionals from a variety of museums in various stages of collaboration with Arts and Culture. The interviews were guided by the following research questions:

1. What function does Google Arts and Culture serve for museums and cultural institutions?

2. Is Arts and Culture fulfilling its intended function in the museum?

3. How can the collaboration between museums and Arts and Culture be improved?

These questions are intended to provide answers to the question I asked myself while scrolling through my phone last summer: who is this application for? These interviews, combined with a studied observation of the platform’s features, will hopefully make clearer the platform’s use within the museum sector for both museum professionals and patrons.
Chapter Two

Literature Review

Virtual museums have not always been virtual. Today, digital presence and access on the World Wide Web are requisites for virtuality, but the lineage of the virtual museum is not widely known. Virtual museums exist to establish access to cultural objects, photographs, contextual information, and related documentation that are digitally recorded and digitally accessed. The virtual museum is often associated virtual reality gallery tours or augmented reality experiences, or the concept is limited to the technology available at the present moment. As such, contributions made to the virtual museum before the advent of the World Wide Web are largely ignored, despite their importance in developing the foundational ideas on which today’s virtual museums are built. In fact, the virtual museum is less about technology and more about forming narratives and connections between objects and work from museums around the world.

Technology is important to this cause, yes. It is the primary means with which to fully realize the concept of the virtual museum and make these connections, but the technology itself does not make a museum virtual. As technologies and ideologies have progressed over the past hundred years, we inch closer to true virtuality in the museum. By accessing what has been written about the development of virtual exhibition technologies, this literature review will trace the seminal ideas which are foundational to today’s virtual museums.

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The museum field has been grappling with the ambiguity of the term “virtual museum” for more than thirty years. The definition of “virtual museum” is still being written. As yet, the term encompasses a number of different concepts, including digitized collections, museum websites, and virtual tours. Some insist that the museum can never be truly virtual, since museum, by definition, requires physical objects. This is not held as a requirement by everyone who comments on the development of the virtual museum, however. Since the mid-1990s, the virtual museum has been considered as having the same mission, means, and end result as the brick-and-mortar museum, with the exception that visitors and employees interact with objects, documentation, and museum spaces digitally.

As early as the 1920s, artists were thinking about how to best display objects in an increasingly modern and technologically driven world. In 1925, Hungarian artist László Moholy-Nagy wrote in *Painting, Photography, Film* about turning the home into a gallery, what he called a “Domestic Pinacoteca,” the name for the picture galleries of ancient Greece and Rome. He imagined home filing systems for reproductions of masterpieces, hologram-like viewing systems, and devices for receiving radio transmissions of broadcast images to be projected in the home.

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5 Keene (1996), 299.
year later, architect Frederick Kiesler showed a button-activated progression of projected masterpieces in a New York gallery.\textsuperscript{7} Moholy-Nagy began work on \textit{Raum der Gegenwart} (The Room of the Present) in 1930, the installation having been commissioned for the Landesmuseum in Hanover.\textsuperscript{8} The room was never fully realized during Moholy-Nagy’s lifetime but was recreated for the Guggenheim Museum in 2009. The gallery included fresh and ground-breaking art for the time: photography, architectural models, film, and a machine called \textit{Lichtrequisit, or Light-Raum Modulator} (Light Prop, or Light-Space Modulator). This machine was a novel exhibition technology, taking art off of the walls; just by pressing a button, the viewer could activate a grid of metal rods and plates, and the Light Prop would project photographs and films on the walls and ceilings of the room.\textsuperscript{9} This innovation in exhibition design and the incorporation of media in lieu of “authentic” objects was completely new and representative of the new forms of art emerging at the beginning of the twentieth century.

Image reproduction technologies such as photography and film developed rapidly in the first decades of the twentieth century. Published in 1935, philosopher and art critic Walter Benjamin’s seminal work on the nature of art since the advent of photography, “The Work of Art in the Age of Mechanical Reproduction,” addressed the philosophical concerns arising alongside the proliferation of photographic reproduction and mass media. This essay introduced the concept of an object’s “aura,” its “presence in time and space,” which, Benjamin claimed, is lost during the process of mechanical reproduction.\textsuperscript{10} This concept remains popular to this day and has been the source of much opposition to new ideas in digital exhibition. The cult of the original

\textsuperscript{7} Ibid., 128–129.  
\textsuperscript{8} Ibid., 126.  
\textsuperscript{9} Ibid.  
and the preservation of objects’ auras have long been primary concerns of museums, but since being framed by Benjamin as anti-Fascist resistance, they became nearly unchallenged tenants of museum practice. Benjamin’s fear that politicized aesthetics would lead only to war was not unfounded, after all—his essay was written during the rise of Adolf Hitler and shortly before the outbreak of the Second World War. In some ways, the ethical imperative constructed by this view slowed the development of the virtual museum outside of the creation of digital image repositories.

As photography gained legitimacy in the art world, the aura of the object was slowly unbound from the cult of the object. Exhibition design began changing to reflect new artistic and philosophical modes. Though Moholy-Nagy’s Raum der Gegenwart was not realized until a 2009 Guggenheim exhibition, it inspired Frederick Keisler’s exhibition design for the Guggenheim’s 1942 “Art of Our Century” gallery. A similar installation of metal rods were devised for the Surrealism gallery, on which visitors could swivel and flip through unframed paintings. In another gallery, objects were revealed in a viewer-activated “penny-arcade peep show.” These methods of display were interactive, personal, and at times immersive. Viewer-activated displays challenged the passive consumption of art that formed much of the foundation for the modern museum, and which persists as the dominant paradigm of viewer engagement even today. One could evoke an object’s tactile nature by manipulating its position in space and involving the physical self in the experience of viewing.

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11 Ibid., 18.
12 Huhtamo, 123.
13 Ibid., 126.
14 Ibid., 127.
In 1947, André Malraux, French author, art theorist, and later the French Minister of Culture, published what would become the basis for the concept of the virtual museum. Written the year following his appointment as the French Minister of Information, “Le Musée Imaginaire” (“The Museum Without Walls”) presented an updated vision for the midcentury domestic pinacoteca. Malraux challenged Walter Benjamin’s assertion that a work of art loses its “aura” when reproduced mechanically (i.e., when photographed). Instead, he posited that mass broadcasting via mechanical reproduction was the next logical progression for the museum. Although the French connoisseur of the eighteenth and nineteenth centuries may have been able to view masterpieces at the Louvre and memorized the works, this was simply no longer possible in the modern age. With the increased globalization of the art world and the collection and distribution of countless masterpieces across dozens of countries, Malraux believed that a “museum without walls” would serve the twentieth century connoisseur better than a traditional museum could. Rather than seeing reproduction as leading to the devaluation of art, Malraux saw it as a tool for expanding context and for exploring objects in a way that almost removed the human presence from the experience, just as the hand of the artist had been removed by the method of image-making itself. Through photography, the scale of objects had been falsified, effectively shrinking the viewer down to see minute details, making tiny objects seem larger than life. Photographs could make the objects represented on film appear as large or as small as the photographer wished, manipulating the apparent size of the subject by omitting contextual clues within the frame. At the time, color photography prints were still far from being truly

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16 Ibid.
17 Ibid., 24.
representational. The color reproduction merely evoked the original, leaving the viewer yearning for the authentic object.\(^{18}\) Photographic technology today has advanced greatly since this observation. However, the concept of the *musée imaginaire* has far outlasted the technology of that time. Fears concerning the implications of divorcing objects from their context survive as well. Nevertheless, Malraux claimed that since objects are already divorced from their context in the museum, which he claims is the ideal environment for art and cultural objects, it should not be an issue to further divorce the image from the object itself for the purposes of comparison and scholarship.\(^{19}\)

Several years after the publication of *Le Musée Imaginaire*, Malraux’s “museum without walls” came closer to becoming a reality with the premiere of art programming on television. *Sir Gerald Kelly Remembers* aired in May of 1956 by the British Broadcasting Corporation (BBC), one of the first of many art broadcasts.\(^{20}\) In 1957, the National Broadcasting Company (NBC) in the United States aired a visit with Pablo Picasso. Many such broadcasts were produced in the 1950s and 1960s, delivering art, artifacts, criticism, and interpretation straight into the homes of the Western middle class.\(^{21}\) At the time, television seemed a prime medium for mass art education. At last, museum and art professionals were able to bring “the things we want to talk about to people into their homes and into schools, reaching a wider audience than ever before.”\(^{22}\) Even before Sir Gerald Kelly stepped in front of the BBC’s camera, however, there were

\(^{18}\) Ibid., 30.

\(^{19}\) Ibid., 14–18.


concerns about adapting the presentation of art to the small screen. Television was a brand-new medium and treating it as a small film stage or radio with pictures was not going to work. Additionally, the standards of art education and scholarship still needed to be met, from the museum educator’s standpoint.\textsuperscript{23} There are two general categories of the art-centered television program: the artist biography and the critical program. Although it seems intuitive that the biographical adaptation would be better suited to television, by the mid-1960s it was becoming apparent that the critical approach was more engaging to audiences.\textsuperscript{24} Artistic and historical interpretation is what brought the televised museum to life, and for the next several decades the majority of art programs, at least on public broadcast, were of the critical or interpretive variety. Into the early-1990s, major museums were producing and broadcasting films about art, artifacts, and artists. The Getty Trust created 33 such films about its permanent collections over a ten-year period, airing twenty of them on television.

By the mid-1990s, television was no longer the optimal medium for bringing the museum into the home. New art broadcasts were few and far between, despite a steep increase in museum visits across the United States.\textsuperscript{25} The virtual museum’s migration to the personal computer, and eventually the World Wide Web, had begun in the early-1990s. In July of 1991, the National Gallery in London opened the Micro Gallery. In this gallery, visitors could use a computer on a Local Area Network to view detailed photographs of the more than 2,000 paintings in the National Gallery’s collection.\textsuperscript{26} These images were accompanied by contextual information about the objects, and there was even a way to customize a viewer’s own tour of the gallery by printing

\begin{footnotesize}
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\item \textsuperscript{23} Ibid., 297–298.
\item \textsuperscript{24} Billington, 488.
\item \textsuperscript{25} Dobrzynski, 42–43.
\item \textsuperscript{26} Suzanne Keene, “Museums and the Digital: The View from the Micro Gallery,” 2014: 114.
\end{itemize}
\end{footnotesize}
a personalized map. In the following years, many museums moved these features online as personal access to the internet expanded. However, improved internet access would not be available on a much wider scale until the mid-1990s.\footnote{Keene (1996), 299.} In the meantime, museums and computer companies looked toward static virtual museums such as those on physical CD-ROMs.\footnote{Keene (2014), 114.} In 1992, Apple Computer, Inc., created a ground-breaking virtual museum computer program called—what else?—\textit{The Virtual Museum}.\footnote{The Virtual Museum: 1, 1992. Apple Computer, Inc., Cupertino, Ca.} It combined three-dimensional visualization and navigation with multimedia exhibits that included video, sound, and images.\footnote{Sally Applin, “The Virtual Museum: Interactive 3D Navigation of a Multimedia Database,” \textit{Journal of Visualization and Computer Animation} 3 (1992): 183–188.} The program was created, in part, to “prototype the electronic museum of the future” and break ground on interactive online museums.\footnote{Ibid., 185.} The creation of the virtual space, and a museum that did not have a brick-and-mortar counterpart in real space, officially brought the museum into the realm of the virtual. The virtual museum on physical disk persisted even as the online virtual museum gained in popularity. As recently as 2000, Montparnasse Multimedia released a DVD-ROM called \textit{Le Louvre: The Virtual Visit}.\footnote{Le Louvre, The Virtual Visit: 1, 2000. Montparnasse Media, Paris.} The program allowed the virtual visitor to tour more than twenty rooms and view 1000 works of art with supporting analysis, commentaries, historical content, and detailed images. Like \textit{The Virtual Museum}, this software used interactive video as a primary means for user engagement, as well as twenty-five virtual tours with audio commentary.\footnote{Joseph Phelan, “Le Louvre: The Virtual Visit on DVD-ROM,” ArtCylopedia, December 2001, http://www.artcyclopedia.com/featuredarticle-2001-12.html.} The incorporation of these media into the virtual museum experience expanded the number of entry points for virtual visitors to access content in engaging ways that encouraged active learning.
Despite the success of these CD-ROM programs, the virtual museum was about to move almost exclusively to the World Wide Web. Malraux’s vision of the *musée imaginaire* included the ability for the art connoisseur to compare works virtually to one another across time periods, disciplines, and geography.\(^{34}\) The technology that enabled the online virtual museum was developed in the 1960s. The invention of hypertext made it possible to sort, group, and store data non-linearly.\(^{35}\) This, in turn, allowed for the connectivity between institutions and disciplines, which is a primary tenet of the virtual museum.\(^{36}\) Throughout the 1990s, the number of virtual museums on the World Wide Web increased dramatically, exploding from 150 in 1995 to more than 4,000 in 1996.\(^{37}\) In many cases, these “virtual museums” were little more than digital catalogs.\(^{38}\) These early virtual museums stayed very close to the traditional mission of the museum: the physical preservation and exhibition of objects and documentation. It was understood at the time that the digitization of museum objects should be the primary focus of the digital museum. Many were convinced that the virtual museum, and digital technologies in general, would be most useful for documentation and accessibility.\(^{39}\) By 1996, some museum professionals were exploring the possibilities of using digital technologies for exhibition documentation and dissemination. Those in charge of documenting and archiving were encouraged to back up their digital collections but to always keep hard copies of documents,


\(^{35}\) Huhtamo, 121.

\(^{36}\) Schweibenz (1998), 188.

\(^{37}\) Keene (1996), 299.


\(^{39}\) Schweibenz, 185–186.
because it was believed at that time that digital files would only last ten to twenty years at most.\textsuperscript{40}

Concerns about the lifespan of digital data were not the only issues raised regarding the new virtual museum. Some feared that museum websites would cut into ticket sales. This concern was not new—concerns about the broadcast of museum objects had existed since the emergence of art on television in the mid-twentieth century.\textsuperscript{41} Even today, museums may worry about whether visitors will prefer a virtual experience to an authentic museum visit. A 2019 study found that visitors are more likely to be dissuaded from visiting museums and historical sites in person if the virtual reality experience offered to them is perceived as being “too similar” to the “real thing.”\textsuperscript{42} Those who endorse the virtual museum pose a similar question: Will visitors be able to have a “real” experience when visiting a virtual museum, especially as the quality of context varies drastically from one virtual museum to the next?\textsuperscript{43} Despite these concerns, the virtual museum continued to proliferate throughout the 1990s. In the summer of 2000, the Guggenheim launched the Guggenheim Virtual Museum (GVM). Like Apple’s \textit{The Virtual Museum} eight years prior, the GVM did not set out to mimic any singular museum structure. The GVM included digital works of art as well as digitized objects from the museum group’s several international branches.\textsuperscript{44} The virtual space was designed by architectural firm Asympote to be


\textsuperscript{41} Van Weeren-Griek, 297–298.


\textsuperscript{43} Schweibenz, 190.

immersive while evoking a high-tech, real-world environment. As Wired reported in 2000, “The purpose isn't only to transform paintings and videos into digital objects, but to house works that can only be viewed on computers.”45 The GVM was an important step from the virtual museum as repository of digitized items to a fully-fledged virtual museum of the twenty-first century.

Just as distinctions were drawn between the two types of art and museum-driven television programs in the 1950s and 1960s, so too did different types of online museums emerge in the late 1990s and early 2000s. These emergent categories are the content museum, the learning museum, and the virtual museum.46 These types of online museum stand in contrast to the typical museum website of the 1990s, sometimes called the “brochure museum.”47 The content museum is an online presentation of museum collections without much in the way of supporting or expository information. The learning museum is more in line with the function of a brick-and-mortar museum today, offering more to the online visitor in terms of access, didactic information, and context for objects. The virtual museum goes a step further, not only providing access to collections and interpretation, but linking to other museums and collections.48 Rather than emerging as a wholly new concept, the virtual museum is a digital extension of the museum’s mission, an outgrowth from and accompaniment to the other forms of online museum. Virtuality is a form of interpretation that requires the museum and the virtual visitor to think critically about how we record and share cultural history.49

45 “Guggenheim Going Virtual.”
49 Müller, 30-1.
If the virtual museum supplements the traditional museum, then what approaches are most effective for this task? Since the virtual museum lacks authentic objects, storytelling and interactivity are key to engaging the viewer and avoiding the strictly didactic means that prevent an online museum from being truly virtual.\textsuperscript{50} Digital storytelling is an invaluable tool to disseminating virtual museum content since stories are a primary way in which people learn.\textsuperscript{51} Storytelling is a form of interpretation that engages people at their very core. Storytelling introduces “personal interpretation and multiple perspectives” to museum narratives and creates an environment that encourages self-reflection and meaning-making in visitors.\textsuperscript{52} Educational psychologist Jerome Bruner identifies the ways in storytelling is used in museums, writing that people naturally make sense of their surroundings and cultures through narrative.\textsuperscript{53} Narratives and stories have a specific point of view and tend to take a moral stance, helping the audience make sense of their own moral stances on the issues presented in the story. Leslie Bedford points toward the work of philosopher Kieran Egan to support Bruner’s claim. Egan writes that this form of meaning-making develops in childhood as a binary “good versus evil” structure for understanding and is built upon through adolescence and adulthood.\textsuperscript{54} These ways of thinking “will later be controlled by more sophisticated ‘paradigms’ but they will remain absolutely basic

\textsuperscript{50} Ibid., 23-5.
\textsuperscript{54} Bedford, 29.
and essential” to understanding history, and likely culture, through adulthood.\

Storytelling, when used in conjunction with museum scholarship, relies on the assumption that audiences do not require that their interest be engaged by prior interests or relevance to personal experience, but by the relevance of narrative as a basic component of human learning and meaning-making.\

Although the virtual museum may not possess authentic objects, nevertheless it can still present authentic stories and scholarship as agents of transformative experiences in virtual space. Virtual museums, in their many forms, are an environment where the usual limits to storytelling in the museum—the curatorial voice, the expense of changing or editing exhibitions—are somewhat suspended. Because data and content presented in a digital context are less expensive to publish and edit than physical exhibitions, museums can incorporate feedback into their stories and exhibitions in almost real time. Additionally, that feedback has the opportunity to generate new content and new ways of presenting the stories offered to visitors. These features, difficult to implement in the traditional museum model, establish the virtual museum as a truly interactive form.

In the past decade, “media-enhanced immersive storytelling” has become popular for its ability to lend context to objects and evoke the emotional dimension in museum exhibitions. In a page of the same name, Maggie Burnette Stogner identifies five different categories for immersion in the museum: experiential, narrative, theater, interactive, and virtual. The realm of virtual immersion includes web-based virtual tours, software, video games, websites with

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56 Ibid., 77.
58 Caspani, 114.
60 Ibid., 189–198.
personalized virtual collections, and virtual reality technology. Despite the popularity and draw of technology in exhibitions, the success of these platforms depends on the authenticity and academic rigor of the content exhibited.\textsuperscript{61} It could be said that museums should focus on developing a story and then presenting it digitally, rather than on the digital storytelling technologies themselves.\textsuperscript{62} It may be more productive to experiment with the “narrative capacities of digital media” by exploring audiences’ expectations of digital media and how the interactivity of these platforms affects meaning-making.\textsuperscript{63} Though the appropriate use of these technologies in the digital museum is far from decided, it seems that interactivity and authenticity are the keys to engagement and learning in the virtual museum.

In 2011, web and technology giant Google made its foray into the world of culture with the launch of the Google Art Project. It began as a partnership with seventeen different museums across the United States and Europe.\textsuperscript{64} The primary focus of the project was to acquire high definition gigapixel scans of museum objects, giving the viewer the access to detail one would not be able to see in a gallery. Google also brought its Google Street View roving cameras inside museum galleries to give online viewers context for the works they saw on the digital platform. The website also offered a “Create a Collection” feature, giving users the opportunity to create

\textsuperscript{61} Ibid., 197.
their own galleries of favorite museum objects (selected from the then-slight collection of
scans).\textsuperscript{65}

Despite the novelty and promise of the platform, Google Art Project had its fair share of
criticism. For example, because of copyright laws, much modern and contemporary work was
excluded from the initial launch. Those within the museum field also voiced concern about the
lack of scholarship and the lack of context an exhibited object would have outside the museum.
It was thought that without the museum walls and physical proximity to the objects themselves,
curators could not facilitate the meaningful connections between works that occur when objects
are displayed near one another—even with the Google Street View visualizations.\textsuperscript{66} Although the
high-quality images of art and artifacts, and the information that accompanied them on the Art
Project website met the expectations of virtual visitors, many people noted that the virtual tour
experience was restrictive and did not allow for the freedom of choice that a brick-and-mortar
museum or even a museum in an open-world simulation offered.\textsuperscript{67} Despite the high quality of
images on the platform, the presentation and interface of the exhibition were strictly two-
dimensional. Even the virtual tours were limited to a predetermined progression of images
guiding the viewer through the gallery. Sculpture and architectural details in the galleries were
presented in two dimensions, and the space itself was not interactive. Even so, Google Art
Project had the advantage over other similar products intended to give the online visitor a virtual
museum experience, primarily due to the high-quality representation of the galleries and their

\textsuperscript{65} Ibid., 220.
\textsuperscript{66} Ibid., 221.
\textsuperscript{67} Spyros Vosinakis and Yannis Tsakonas, “Visitor Experience in Google Art Project and in
Second Life-Based Virtual Museums: A Comparative Study,” \textit{Mediterranean Archaeology and
Currently, the Google Art Project hosts images of objects from more than 290 museums around the world. It remains foremost a repository of images, more of a “content museum” than a virtual one. The walk-through function of the virtual tours and the “Create a Collection” feature hinted at what could be implemented in future iterations of the project. These features still attempted to imitate the brick-and-mortar museum rather than create a new virtual architecture for the platform. The images and video incorporated into the Google Art Project website did a much better job of acting as a complement to their partner museums, encouraging an emotional or virtual encounter with the objects displayed.

The Google Art Project has evolved since 2011. It was rebranded as Google Arts and Culture in 2016 and relaunched as an in-browser website and a mobile application. Arts and Culture continues the mission of the Google Art Project and expands the concept to encompass more areas of world culture. Arts and Culture is a nonprofit Google initiative focused on providing access to world culture through technology. This new mission to make various cultures of the world accessible online has made it possible for Arts and Culture to showcase more than just high-resolution scans of paintings. In 2017, Arts and Culture partnered with cultural institutions such as the Victoria and Albert Museum, the Kyoto Costume Institute, and the British Fashion Council to present an initiative called We Wear Culture, aimed at reaching those interested in fashion and dress. In 2018, the focus was on the performing arts. Currently,
the website highlights thematic groupings of digital exhibitions about science, invention, and world gastronomy. These digital exhibitions are created by 127 partners including the National Air and Space Museum, the de Young Museum, and The Henry Ford, and displayed with an emphasis on storytelling. Although storytelling was reportedly central to the mission of the Google Art Project from the beginning, the original project’s focus seemed to be more about the ways in which Google’s technologies could enhance or “activate” the art experience.

There has been much conversation surrounding Google’s involvement in the nonprofit arts world, as well as the reason why Google would get involved with culture at all. Providing accessibility and forming partnerships with museums could be used as political or business leverage in the future, and the data associated with the project could be used commercially (although this would challenge the project’s nonprofit status). It has also been noted that although museums are concerned with authenticity as a marker of their legitimacy, Google is more concerned with issues of accessibility. With this focus on access in mind, where does Google Arts and Culture fit into the context of the virtual museum? Of the three primary categories preceding the virtual museum—the brochure museum, the content museum, and the learning museum—Arts and Culture is increasingly positioning itself as a learning museum with virtual connectivity.

As the platform continues to embrace and promote forms of culture outside of collected
museum objects, the potential for providing points of access to virtually anyone increases immensely. At the heart of the contemporary virtual museum is the attempt to connect objects and scholarship from museums around the world and to provide access to widely dispersed collections through exhibitions driven by storytelling. As technology progresses, the museum and technological fields are developing new ways of sharing museum information with the public. From images projected in an exhibition, to television and the World Wide Web, the virtual museum has taken many forms over the last one hundred years. The emergence of the internet has pushed the virtual museum to evolve in recent years, incorporating new technologies like virtual and augmented reality. Most recently, Google Arts and Culture has put the virtual museum in our pockets, connecting us to museums and collections all over the world. With such new technologies, however, and with the platform coming from the technology sector rather than the museum field, both museum professionals and virtual museum users are beginning to question the effectiveness of the platform to help museums accomplish their missions. In the next chapter, I will delve into Google Arts and Culture’s goals, intent, how museums are using the technology, and how the collaboration between the technology and museum sectors can be improved.
Google launched the Google Art Project in 2011. Originally a partnership with seventeen high-profile international museums, it focused on creating high definition gigapixel images of objects and conducting virtual tours using Google Street View technology. The Art Project was rebranded as Google Arts and Culture in 2015 and today continues the mission of the Google Art Project while expanding the concept to encompass more areas of culture. Since its debut, the Art Project and Arts and Culture have been nonprofit and non-commercial, despite being owned and funded by one of the world’s largest technology companies. The goal of the project is to make world culture accessible through new technologies—in particular, Google’s technologies. At the project’s launch in 2011, this included the “Museum View,” a modified Google Maps Street View technology, and the gigapixel “Art Camera” which creates detailed digital images of objects which can then be viewed in extreme detail on the Arts and Culture website. With these tools, Google began to bring museum collections to their online platform. Arts and Culture is accessible as a website and as a mobile application. Both the browser and mobile sites are clean and image-driven with no advertisements (as the project is nonprofit and non-commercial), floating in a white space reminiscent of the “white cube” of the Modernist gallery. The front page displays stories and digital exhibits relevant to current events, anniversaries, and news stories.79 This front page is managed by an editorial team who, in addition to updating the landing page daily with timely content, attempt to “surface” content from all partnering institutions.80 This

80 Ibid.
homepage attempts to capture visitors by surfacing a broad range of content, providing entry points for people with many different interests.

More entry points exist in the sidebar navigation panel. By clicking the three parallel lines in the upper left corner, one can access more collections, objects, and stories. The categories in this navigation panel are Explore, Nearby, Collections, Themes, and Experiments. By clicking Explore, the online visitor can access the Art Camera and Street View features, as well as Virtual Reality Tours and 360° Videos. The Explore tab is also where visitors can sort objects and content using hypertext data. Arts and Culture sorts objects into categories by artist, medium, art movement, historic events, historical figures, and places (fig. 3). One can also sort objects by time and color. In the Nearby tab, the user has the opportunity to turn their online visit into a “real” visit. Museums and cultural sites appear on an interactive map, regardless of whether they are Arts and Culture partners. These institutions are linked to their own websites, as well as to their Arts and Culture profiles and uploaded collections, if applicable. Collections are also accessible through their own navigation tab. These can be browsed by institution alphabetically or geographically but, strangely, not by type of museum nor type of collection. Once the visitor has chosen a collection, objects can be browsed by “story” (digital exhibition), by date, or by color.

The Themes tab provides more in terms of exploring collections by topic or type of object. Themes contain groupings of digital exhibits that explore certain topics, media, and areas of culture. Highlighted themes at time of writing include, “Books: From Scrolls to Screens,”

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“Crafted in India,” and, “Meshiagere! Flavors of Japan.” Each theme page contains stories and objects from across the Arts and Culture site and from many different partner institutions.

“Books: From Scrolls to Screens,” includes stories about the oldest cookbook written by a woman in Asia, medieval European manuscript marginalia, online archives, and tours of libraries. The Experiments tab opens an offsite Google webpage detailing the many technological “experiments” the Arts and Culture Lab in Paris develops to incorporate into the Arts and Culture platform. These include virtual reality tours, artist residencies, interactive digital art experiences, augmented reality visualizations, and more. Some of these experiments later get added to the Arts and Culture platform proper, such as the Art Selfie feature, but many remain on this outside webpage. While these features offer many points of access to partner museums’ collections, the user interface perhaps limits the uses of the browser website and mobile application. The design of the website and mobile application cater more toward exploration and discovery by the casual user than to academic research. While the high-resolution images of artworks and information provided by museums could be helpful to the researcher, the website is designed for exhibition and the search functions are not as detailed as they would need to be for research use.

Additionally, not all of a museum’s collection will be uploaded to the platform. Unless one searches for the most prolific or popular artists, art movements, or historical events, the search results will be limited. Regardless, the site offers much to explore for the casual lover of culture and a myriad of ways to do so.

Of all features accessible in the website and mobile application, several stand out as signature features of Google Arts and Culture: the Art Camera, Museum View, and the Art Selfie.

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83 Ibid.
The Art Camera has been a feature since the 2011 launch. Originally, only one artwork per museum was digitized using Google’s gigapixel-resolution camera. Since then, Arts and Culture has scaled the technology and focused on digitizing more objects from more museums and cultural organizations. Today, more than twenty Art Cameras are in use by Arts and Culture worldwide. The images captured with the Art Camera are available on the platform for users to use with the zoom feature. By “zooming in” on the images, one can view the high-definition images in fine detail, at times viewing brushstrokes and other details one could not clearly see with the naked eye (fig. 4.1 and 4.2). Some of the museum representatives interviewed mentioned this zoom feature as one of the most useful that Arts and Culture offers, encouraging viewer engagement and offering access to detail for research. The Museum View feature has also been supported since the project’s launch. Museum View is a modification of Google’s Street View technology, used to show progression down streets and roads, documenting the surroundings in a 360° camera capture (fig. 5). Arts and Culture brought Street View indoors, off the car, and onto a wheeled mount or backpack to document a 360° image mimicking a visitor’s progression through a gallery or museum space. The most widely recognizable of Arts and Culture’s features, having gained viral popularity in January 2018, is the Art Selfie. Available only on the mobile application, the Art Selfie allows the user to upload a photographic

85 Simon Delacroix, video interview with author, New York City/San Francisco, October 9, 2019.
86 “Scenes from Life of Krishna,” Google Arts & Culture, accessed October 30, 2019, https://artsandculture.google.com/asset/scenes-from-life-of-krishna/7gER8Tr3-jXwbga
self-portrait (a “selfie”) to the application, which then uses machine learning technology to match the photograph to a portrait from one of Arts and Culture’s partner museums (fig. 6.1-2). In addition to being an interactive entry point for people who might not normally use Arts and Culture, the Art Selfie is also a way to surface objects from partner museums and give access to more obscure works that users might not be able to visit in reality. Arts and Culture is also currently integrating their offerings and collaborating with other Google departments such as Google Books and Google Search. The “Books: From Scrolls to Screens” digital exhibition was created in collaboration with Google Books. If one searches for “Vincent van Gogh” or “Starry Night” on Google Search, for example, a sidebar panel is included in the search results surfacing information and high-resolution images from Arts and Culture, increasing access to these objects and, “the most authoritative information” about the topic. In theory, this integration of Arts and Culture content across Google’s web presence will help share partner museums’ objects and content to even more people.

Over the past eight years, this project has evolved significantly. Besides changing the name of the project from Art Project to Arts and Culture, the project has expanded its definition of culture and changed the way it presents cultural objects and stories. As previously mentioned, the Art Project began with seventeen partner museums, all of which were art museums, as the project’s original name reflects. After the pilot launched, the scope broadened somewhat to include art, history, and “world wonders” such as the Taj Mahal and Angkor Wat. These “world wonders” were more heavily reliant on the Museum View technology than they were on the Art

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90 Delacroix, 2019.
91 Ibid.
92 Ibid.
Camera. The world culture presented by Google has been limited to these three categories until the last two years, when Arts and Culture expanded their definition of culture even further. The platform now showcases science, gastronomy, music, and sports as elements of world culture alongside art, dance, history, cultural monuments, and historical sites.

This expansion required a shift in how culture was presented on the platform. While Arts and Culture is still very much a visually driven website, an increased importance has been placed on storytelling in recent years. In order to incorporate storytelling on the website, the editorial team have begun to enforce their own set of best practices concerning digital storytelling. Program managers and representatives have begun recommending these guidelines in their collaborations with partner institutions. They recommend exhibits contain ten to fifteen images and very little text in order to cater to the faster browsing styles of online visitors and capture more views. The “Themes” and “Experiments” tabs are other ways in which Arts and Culture has changed its mode of presentation in the wake of the platform’s expansion. “Themes” allow the viewer to explore relevant topics in bite-sized, image-driven portions. Instead of supporting the individual images and exhibitions with paragraphs of contextual information, users can dive deeper into a topic by choosing an adjacent or more detailed exhibition, available on the same screen as the exhibition link they previously viewed. These themes allow for a level of collaboration and expansion on a topic which is not as well-supported in the architecture of a single digital exhibit. These themes are, however, curated by Arts and Culture itself, though usually in collaboration with a specific institution. While exhibits by partner museums may be shared within these themes, the context in which they are presented is dictated by Arts and Culture itself. The “Experiments” page also expands the presentation of culture by encouraging interactivity and

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93 Ibid.
giving users a peek behind the curtain at the Cultural Institute’s Lab. While, in a traditional museum, the visitor can usually only see an exhibition once it has been finished and polished, the experiments featured on Arts and Culture allow for the development of features and collaborations with feedback from viewers and museums. Although not all of these experimental features reach the general public or are integrated into the Arts and Culture application, the opportunity for interactivity and real-time user feedback is a tantalizing look into what the virtual museum could look like in the future, as well as how Arts and Culture could continue to evolve in the coming years.

One concern about Google’s investment in the field of culture and the arts is that of longevity. Museums function with the long-term in mind, planning for the care and preservation of objects and the scholarship surrounding them in terms of hundreds of years—often with something approaching eternity in mind. This contrasts starkly with the quick, on-the-pulse, and often reactionary pace of the technology industry. Google’s interest in the arts has only manifested in the past decade and already the project has been through several name changes and shifts in focus. This difference in approach leaves many museum professionals wondering, is Google in this for the long haul? Museums, especially smaller institutions, have limited resources. Those in charge of assigning precious time and money toward projects want to be assured that these resources are being spent wisely and on something that will have an increasing return in value for the public.

With this in mind, what does the future of Arts and Culture look like? Google management assures us that, foremost, the initiative will focus on improving the project’s current work and relationships in the future. By listening to museums, visitors, and artists, Arts and Culture aims to improve on their current model and to base future decisions on the needs of their partners and
users. “A lot of that is just to be flexible and responsive, because things are going so quickly that you always need to adjust what's happening, especially with new technologies,” says Simon Delacroix, a Program Manager at Arts and Culture. Because Arts and Culture is Google’s attempt to serve museums through the development of new technologies, the secondary focus in the near future is the further development of technologies such as augmented and virtual reality. Advancements in machine learning technologies have improved the development and use of augmented reality (AR) and virtual reality (VR) significantly in the past few years. Most smartphones now have AR and photogrammetry capabilities now, democratizing technologies that were in their infancy mere years ago. Arts and Culture currently has a feature which enables the mobile user to view objects at their relative size to the visitor’s real-life surroundings. By clicking the cube icon on an artwork’s page, the mobile user can virtually hang a work of art in their living room at the proper scale (fig. 7). This novel visualization of scale takes advantage of the photogrammetry technology in our pockets and uses it to inform the viewer in a meaningful way. Instead of bringing objects into the home, VR applications can digitally take the viewer to explore cultural sites and museums thousands of miles away. The recently launched VERSAILLESVR “experiment” may serve as a model for future virtual tours that go beyond the Museum View format. The tour allows viewers to “look around” the Palace of Versailles in $360^\circ$ as well as up and down. Contextual information about objects is available as an informational card or as a label; one can even view the rooms in the dark, lit by fires and candlelight as they might have looked centuries ago. Many of these virtual reality exhibits are viewable with

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94 Ibid.
95 Ibid.
Google Cardboard, the technology company’s attempt at democratizing VR. By putting one’s mobile phone in a folded cardboard viewer, one can experience stereoscopic virtual reality presentations for much less money than a traditional VR headset. These features give a glimpse into what Arts and Culture may provide more of in the future.

As the project and Google’s definition of “culture” has expanded, so too has the project’s intended user. According to Simon Delacroix, the project’s target audience is “everybody.” From the casual art lover to the connoisseur and the professional, Arts and Culture is attempting to reach everyone with the same platform—an ambitious goal, even for Google. An interesting distinction Delacroix makes is that Arts and Culture, from Google’s point of view at least, is not a virtual museum. Arts and Culture, he says, was conceived as a way to serve museums, never to compete with the brick-and-mortar museum. Because of this, the partner museums and cultural institutions should be the ones dictating the end user of the platform. With thousands of partner institutions, the platform has to serve thousands of different groups of users. “If our goal is to serve everybody, how do we reach everybody?” asks Delacroix. It’s a question museums grapple with as well. Can one application truly serve museums, casual art lovers, students, teachers, art professionals, and everyone in between? The following chapter will explore how museums are using Arts and Culture and how the platform is—and is not—serving its partner institutions and their publics.

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98 Delacroix, 2019.
Integrating Virtual Presence in the Museum

If Arts and Culture’s mission is to help museums by making new technologies available to partner institutions, how are these museums using the platform and its features? Despite Arts and Culture’s many features, the majority of museums are primarily using the platform for its most basic capabilities; to improve access to collections and exhibit objects digitally. In fact, the features which partner museums report as most useful today are the same features the platform launched with in 2011: Museum View and the gigapixel Art Camera’s zoom feature. The exhibition design feature is also popular with museums. The process of collaboration with Arts and Culture begins with the digitization and uploading of collections. Some institutions upload entire collections, such as the Amon Carter Museum of American Art in Fort Worth, Texas. Their collection of the platform totals over 1,500 objects and includes almost the entirety of their painting and photography collections. The online platform allows the museum the ability to display much more than could possibly fit on the walls of the museum and the ability to digitally display objects that have special conservation needs and cannot be on view for long periods of time. Other collections may be represented on the platform by a few key pieces, perhaps integrated into a digital exhibit. Some museums—smaller institutions in particular—have found the uploading process troublesome and, as such, have far fewer objects in their collections. Some of these issues are workflow related, as in the case of one curator of a historical archive. As the institution digitizes their collections, they upload high-resolution images to their own collections management database. In order to add these same images to Arts and Culture, however, much time had to go into editing these images for display on the website. This was a strain for such a small institution with limited staff and, after some time, did not seem worth the

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99 Peggy Speir, email interview with author, October 29, 2019.
effort. Other museums have had trouble integrating their collections into the platform because of their content or format. One curator of a group of museums found that their institutions’ artifact-heavy collections did not mesh as well with the tools available on the platform. As such, some institutions have all but abandoned the platform in favor of developing their own online collections portals. Others use the platform as a stopgap in order to give their visitors access to collections while updating or developing their own museum websites and collections portals.

The digital exhibit platform is another primary way in which museums use the Arts and Culture platform. Many smaller institutions do not have an easy, attractive way of producing virtual exhibits or do not have the staff required to design digital exhibits of the caliber they wish to display. The ways these exhibits relate to the brick-and-mortar museum vary widely. “We use Google Arts and Culture to create virtual exhibits that are then imbedded into our organizational website. It functions as a virtual online gallery of photos/information to supplement the exhibits that we create in-house,” says the director of one historical society. ¹⁰⁰ Other museums use the exhibits similarly to how they share collections on the platform, to showcase items and information that cannot be physically viewed at the museum. The exhibits also function as a sample of what a museum or cultural institution has to offer the visitor. “The virtual exhibit galleries allow us to have supplemental materials available, even if it is just a few exhibits, for the public to see what kinds of collections we hold. It functions both as an education tool and also a means to promote research requests for our archival material.”¹⁰¹ Some digital exhibits are later translated into exhibits in the brick-and-mortar museum, fully integrating the institution’s digital presence into the museum’s physical presence. Equally, museums also tie-in their exhibits

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¹⁰⁰ Meghan E. Reed, email interview with author, October 21, 2019.
¹⁰¹ Ibid.
on Arts and Culture to the exhibition currently on view in their physical museum space or create online exhibits that connect their collections to the larger themes promoted on the platform.\textsuperscript{102}

At their simplest, Arts and Culture’s digital exhibits combine images and text to tell a story surrounding a selection of objects. The display and design can vary. The simplest are displayed vertically down a webpage, much like a blog post. Others are more image-heavy, incorporating visual effects, the ability to enhance or zoom an image, short descriptions overlaid on images, video, Google Street View navigation, and more. Arts and Culture stresses that partner institutions, “have full editorial control, they decide what goes on the platform, they curate the online exhibitions.”\textsuperscript{103} However, as mentioned above, their representatives encourage partners to follow Arts and Culture’s editorial guidelines. “It's a conversation around how to best curate your collection online, but ultimately they have the final say and they do what they want to do.”\textsuperscript{104} However, employees of some institutions feel that they have less curatorial and editorial control in the process of creating an exhibit. Long-time partners have found that, after several years of free reign in creating exhibits, Arts and Culture seems to be enforcing these editorial guidelines more strictly than before. Museums receive feedback and notes from their representatives, encouraging them to make edits that may not make sense to the seasoned curator. Despite this change, many museums still find the Exhibits feature to be beneficial in providing access to collections and information and expanding the institution’s influence. An employee of a museum associated with a state capital notes, “We are mainly using [Arts and Culture] to showcase items and information that cannot be physically viewed at our museum. Even more so, we want a

\textsuperscript{102} Speir, 2019.
\textsuperscript{103} Delacroix, 2019.
\textsuperscript{104} Ibid.
wider range of visitors to find our institution. Whether that is by chance or choice, this site will aid in reaching more people.”

Despite the wide variety of cultural institutions partnering with Google for this project, as well as the broad scope of the many collections these institutions house, the collaboration process between Arts and Culture and museums remains the same for all partnerships. The collaboration model is based off of the early pilot program for the Google Art Project. Since that project’s launch, the template for collaboration has been edited and fine-tuned, but remains largely the same. Each relationship begins with a partnership agreement, explaining the division of responsibilities between the Arts and Culture team and the museum: Google supplies the technology while the cultural institutions bring the content and curatorial expertise. Then a representative will help the museum with digitizing objects and uploading their collection (if assistance is needed), set up a Museum View tour, and assist with the creation of digital exhibits. This “template” is the same for every institution, from the Louvre to the smallest local historical society.

This one-size-fits-all approach, however, may not be as successful or democratic as the Google team might hope or assume. Larger museums seem to have had a better experience with this process. This may be because the model is based off of the interaction with and the needs of the very prominent museums that served as the test cases for the pilot program. An employee from a larger American art museum said that Google was helpful in the beginning, explaining the process and checking in on the museum, as well as encouraging more participation. Though the contact has become less frequent in recent years, the Arts and Culture team did reach out to troubleshoot some issues concerning the Art Selfie feature, helping the museum continue to

105 Primeau, 2019.
surface objects in other states despite local privacy laws. Of the museum professionals I interviewed, however, several expressed the need for improvement in the collaboration process. “We had a tough time at first, understanding the different approval processes that they have in place,” noted one Director. “It would have been easier to know the process from the beginning.” The specific image-quality requirements and the metadata attached to each upload must be precisely to Google’s specifications in order to make the content uploaded from thousands of museums display and search seamlessly. The effort to meet these specifications takes time and can be taxing on institutions that are already stretched thin.

The time required of museum staff for the upkeep of their Google Arts and Culture presence plays a large role in whether an institution will continue to actively use the platform. As mentioned above, the time it takes to digitize the images and upload them to a collection on Arts and Culture is one drain on resources, especially at smaller institutions. The interest in using the Exhibits and Collections tools is there, but the staff hours are not. “I have heard many people say that have seen [our exhibits on Google Arts and Culture] and that the online exhibits interest them, but I do think it would be better if we had the resources (i.e., staffing) to do more than just the three that are up now.” Similarly, some museums wonder if there is enough returned value on the hours spent uploading content. “When I looked at stats for exhibits, people just kind of dipped in and out. They don't really spend a lot of time looking at the whole exhibit or reading every label. I think if we were a big museum that was working with them, like the Louvre or MoMA, there would probably be higher expectations for that.” Another element of the collaboration process that can factor into the time and energy spent on maintaining a partnership

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106 Reed, 2019.
107 Ibid.
108 Cate Mills, email interview with author, October 28, 2019.
is the time spent communicating with Google staff. One interviewee from a museum in Arizona reported that their assigned Arts and Culture representative was located in Italy. This eight-hour time difference made it difficult and time-consuming to communicate. Collaboration, the interviewee said, was meager due to the time difference. These issues with collaboration can discourage smaller institutions from continued use of Arts and Culture. If the expectations on return are not high, a museum may stop using the platform or be uninterested in using it in the first place. The needs and capabilities of small museums and cultural institutions must be considered by Arts and Culture if they truly want to reach everyone and support all museums.

A museum’s presence on Arts and Culture generally relates to the their “brick and mortar” presence in two ways. Its digital presence can be supplementary, providing additional information to supplement in-house exhibits, or disseminatory, providing access to collections and broadcasting scholarship. Both of these approaches to using Arts and Culture are generally central to the museum’s mission, helping to reach a broader audience and spread the museum’s mission. “It functions both as an education tool and also a means to promote research requests for our archival material,” said one Director.109 Another curator noted, “I think it was just another avenue for people to be able to access what's in the building.”110 These approaches echo the use of virtual museums since the 1990s and the later distinctions between the content museum, the learning museum, and the virtual museum.111 Today there seems to be more integration of the museum’s virtual presence and the brick-and-mortar museum than was possible in the mid-2000s when these three categories were determined. Arts and Culture exhibits can be embedded into official museum websites and, as mentioned previously, digital exhibits can be

109 Reed, 2019.
110 Mills, 2019.
tied into—or even turned into—exhibitions in the physical museum. In some online exhibit templates, much more text can accompany an image than could normally be displayed in a gallery, making it easier to supply contextual and supplementary information to online viewers. Hypertext links can expand the information available in a virtual exhibit even more. The ability for museums to upload archival documentation and supplemental materials, as well as the ability to digitally exhibit objects which may be difficult to display, increases access to museum collections. Additionally, the searchable metadata uploaded with these images makes it easier for the casual browser to stumble upon this information than when documents are only available through a museum-specific archives portal.

A 2013 presentation of research by Arup Foresight identified several trends in museums grappling with reaching diverse groups of people in the digital age. One of these trends, content diversification, deals with ways to reach those younger generations who are digitally literate from a young age and expect digital interfaces as a part of their visitor experience.112 This report included collaborative curation and shifting cultural expectations as facets of content diversification, as well as the development of platforms for cultural exploration and brand expansion outside of traditional exhibitions. Arup highlights the need for museums to, “invent new ways to tell stories, engaging visitors themselves in the creation and curation of content.”113 Arts and Culture provides a platform for museums to experiment with these concepts and it seems like this is one of the major draws to the project, besides Google’s resources and name recognition. As museums pursue ways to reach a broader audience and collaborate with other

113 Ibid.
museums, it would not be surprising if platforms like Arts and Culture continue to develop and attract participants.
Bridging the Gap

Arts and Culture’s partner museums seem to fully understand the scope, purpose, and limitations of the platform. There do not appear to be any major differences between the way Arts and Culture is being used by museums and the platform’s intended applications as developed by Google. There have been no reports of differences in the use of Arts and Culture over the course of my interviews, as I had assumed there would be. The question remains, however: is Google Arts and Culture fulfilling its intended function in the museum? Though the scope of my research is rather limited, there does not appear to be a clear answer as to whether the platform is accomplishing what museums need it to. The primary determinant as to whether an institution is happy with the program is whether a museum or cultural organization can allocate staff toward the management of their Arts and Culture presence. The size of an institution is a somewhat reliable determinant of satisfaction with Google Arts and Culture. When comparing the net assets and the yearly expenses of a museum with whether the representative interviewed considers Arts and Culture to be fulfilling its function in their museum, there is a positive correlation between financial assets and satisfaction. Out of the museums I interviewed, only the three museums with yearly expenses of over $10,000,000 definitively reported satisfaction with Arts and Culture’s function in their museum. Similarly, the number of staff has a positive correlation with satisfaction with the platform. However, this relationship is weaker than that between finances and satisfaction (fig. 1-2).

Overall, it seems that smaller institutions do not report as much satisfaction with Arts and Culture and cannot sustain the partnership for extended periods of time because of the strain on museum resources. The current one-size-fits-all model based on Google’s prior collaboration with larger institutions at the project’s conception does not take these crucial differences into
account. As such, smaller cultural organizations often reduce their participation in the process or abandon it altogether. This is unfortunate, as ceasing the collaboration does not benefit either party; certainly not the end user of the Arts and Culture platform. If Google wishes to retain partners and increase participation amongst smaller museums, historical societies, and other cultural institutions, they must address two roadblocks: lack of museum resources and lack of collaboration.

Addressing smaller museums’ lack of resources, including staffing and funding, may be the most difficult hurdle for Arts and Culture to overcome. Employees of a technology conglomerate with the size and resources of Google may simply not recognize the struggles of a mid- to small-sized museum: budget cuts, staffing issues, and the fact that there just aren’t enough hours in a day to do all the work of a museum to the standards required. Increased emphasis on communication with partner museums may help, as may putting Google technology to use in surveying the needs of partner institutions. In the spirit of Google’s “Twenty Percent Time” policy, 114 Arts and Culture could put employee hours toward the assessment of partner museums’ needs by applying the same data science principles and code to analyze and address needs in other departments. Arts and Culture team members could also volunteer some of their time to further assisting partner institutions.115 One model for this approach can be found in Salesforce’s Pro Bono program, wherein Salesforce staff use their time to help nonprofits and higher education institutions to “to maximize their Salesforce implementation.”116 Nonprofits

114 The “Twenty Percent Time” policy allows Google engineers to use twenty percent of their time at work to develop new ideas into projects. This policy was utilized by the Arts and Culture developer, Amit Sood, to create the Google Art Project.
115 Delacroix, 2019.
can have their specific needs met while Google can deduct expenses incurred during the donation of services to a tax-deductible institution. Similarly, the Arts and Culture website could function as a catalyst for museum volunteer opportunities, connecting volunteers to museums through the platform. Love a work of art or a historical artifact at your local historical society? Volunteer your time or money in just a click from your smartphone! The user interface for this approach is already built into the browser site and platform. Just as there is a link to the museum’s website, there could be a link to volunteer. By facilitating volunteer work for partner institutions, Google would not only be able to strengthen ties to partners and encourage continued participation from them but would also have a hand in supporting and preserving the culture the platform wishes to share.

Improving the collaboration process for smaller cultural organizations should already be a priority for Arts and Culture. Although altering their streamlined collaboration “template” may not be the most efficient move for the team, it will allow them to better serve the smaller institutions that make up the majority of the world’s museums. This includes restructuring the project manager position to make representatives more available to partners and clarifying the process and Google’s expectations from the beginning of the partnership. Currently, the team members interfacing with museums can be anywhere in the world and are not necessarily local to the museums they are assigned. As mentioned previously, one Arizona museum was working with a representative working in Italy, making collaboration more difficult because of the difference in time zones.\textsuperscript{117} While it may be difficult to anticipate which museums will be next to need help with their Arts and Culture presence, increased coordination between team members would help immensely. Those responsible for recruiting and on-boarding museums to the

\textsuperscript{117} Primeau, 2019.
platform must be in conversation with those assigning representatives to cases. This way, Arts and Culture can better help match museums to program managers who will be able to help them most, either due to skill set or geographic location. Not only will this make it easier for museums to get in touch with their representatives, but it may also improve the Arts and Culture team’s workflow, allowing program managers to address issues as they arise rather than address a backlog of requests from different time zones.

Another improvement which would benefit both the Arts and Culture team and museums alike is that of clarity in the process and expectations of the collaboration. The collaboration process is somewhat difficult to find information about for those contemplating collaboration or for those interested in how the platform works in general. Even the step-by-step overview of the project leaves the reader with many questions. As mentioned previously, the approvals process for images and metadata is more involved for the museum staff working on digitizing and uploading their collection. The back-and-forth with Arts and Culture staff concerning editing images and exhibits according to their own best practices takes time and resources. Pressure from Google staff to upload more images—again restarting the approvals process—uses even more resources. Combined with the work they are required to do for the brick-and-mortar museum, the time spent on Arts and Culture can easily become an issue, especially for museums with a smaller staff. “For smaller organizations, it can be difficult to maintain both an online presence and continue to update our local exhibits. With more staffing and a focus on the digital aspect, hopefully in the future we can work towards these types of projects once more, but our current funding and staffing constraints make that difficult to maintain.”

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119 Trevor Tutt, email interview with author, October 17, 2019.
The last potential improvement identified in this project’s interviews is increased flexibility in exhibition design. One interviewee expressed the impression that exhibit functionality and freedom in exhibit design has decreased over the course of their museum’s involvement with Arts and Culture. The exhibit format displays art, photographs, and video very well but poses some challenges when displaying other kinds of objects. Institutions that do not fall into a more classic “art museum” model, such as historical societies and history museums, express some difficulty with exhibiting their objects on the platform. “I put together a couple of projects within the Art and Culture project,” says Trevor Tutt, curator at St. Joseph Museums, Inc., “but since we are more of an artifact-heavy museum rather than an art museum, it was difficult to integrate our collections to the format and utilize it towards its original intent.”

Restoring flexibility of the exhibition platform would come at the cost of relinquishing editorial control over the exhibits featured on Arts and Culture. Google needs to make a decision: is it more important to them that their platform support the work and scholarship of museum professionals, or that Google become the premier purveyor of Arts and Culture on the internet? Given the power to publish quality work and exhibit it in the way they see fit, museums could become the driving force behind becoming a central online cultural destination. Google has to decide whether to trust the museums they partner with, or to continue to dictate the lease through which culture is viewed on their platform. By sticking more closely to the relationship they claim to be central to this collaboration—that the museums are the experts and Google is simply bringing new technologies to the relationship—Arts and Culture may be able to better serve their partner museums and continue to grow the platform.

\[120\] Ibid.
Chapter Four

Conclusion

Where does Google Arts and Culture fit into the museum field? Arts and Culture, while adamant they are not a virtual museum, is clearly a useful tool for museum virtuality and exhibition of digital collections. The platform serves several functions within the museum: a means of providing access to collections, exhibits, and scholarship, as well as offering the public information that supplements their in-house exhibits. Museums take full advantage of the technology available on the platform, but the features museums use the most are the technologies the platform launched with eight years ago. Whether museums are satisfied with their partnership with Arts and Culture seems to depend on the size, budget, and staff resources of the museum. Smaller museums tend to struggle with the staff time and effort it takes to meet requirements for uploading collections and exhibits to the website. However, for museums with enough staff hours to allocate to the project, Arts and Culture is reported to be a successful and fulfilling project. There is room for improvement, though, especially when it comes to collaboration between Arts and Culture and museum partners. The project’s one-size-fits-all approach to collaboration does not take into consideration the special needs of smaller museums, nor their limited resources. Hopefully, in the coming years this gap in services can be filled by addressing smaller museums’ lack of resources and changing collaboration protocol to help them participate and thrive on the platform just as much as larger institutions. Likewise, by improving communications with partner museums, being clearer about partner expectations, and restructuring the Arts and Culture team to allow for more timely collaboration, Google can better serve the museums they are trying to help beyond simply providing the access to their technologies.
As Arts and Culture grows in popularity amongst museums and their audiences, questions as to the ethics of alternative modes of curation arise.Traditionally, museum curation and exhibition rely on the expertise of people specialized in their fields. What happens when, in this new form of exhibition, the expert takes a back seat to machine-learning algorithms and technology developers? In the realm of Arts and Culture, who are the experts and who decides who creates, edits, and fact-checks content? While, for the time being, museum professionals still hold a prominent role in creating content for the platform, the Arts and Culture editorial team holds more control over content than they once did. This shift could be seen as an advantage—as it certainly is by Google—but it does bring into question what the role of peer-reviewed scholarship will be on the platform going forward. The technology behind the features on the mobile application also needs to be considered from an ethical point of view. A 2018 New Yorker article published soon after the Art Selfie’s viral moment ponders the concept of the *coded gaze* in relation to the consumption of objects on Arts and Culture.¹²¹ The commission of art, and especially portraiture, was once for the pursuit of vanity and to, “[turn] consumption into a substitute for democracy” by means of publicity, curated and exhibited for the purposes of furthering a specific message. Today, through the use of these new exhibition technologies, the consumption and even the creation of images through “the coded gaze” may just be a cleverly disguised substitution for real democracy in the consumption of art. It is important to look critically at how and why Arts and Culture’s technology and editorial team present museum objects in this specific way.

We cannot yet, in 2019, say we have arrived at the twenty-first century’s *musée imaginaire*, but we are closer than we ever have been. All the pieces are here: the technology to provide access to world culture and the entirety of museum collections, the willingness of museums to participate in a digital pinacoteca, the professionals who are working hard to share objects, scholarship, knowledge, and exhibitions with the public, and a public who is hungry to connect with art in a way that is both dynamic and quotidian. What is missing is the infrastructure to hold it together: enough resources for museums and cultural institutions to participate in a project on a grand scale, the communicational underpinnings to support collaboration, and the user interface to allow virtual visitors to experience culture in an organic and memorable way. Google Arts and Culture may not be the perfect virtual museum, but it brings the cultural realm and the museum field ever closer to realizing the virtual museum of the future.
Appendix A

Annotated Bibliography


Allan’s commentary on Malraux’s “Museum Without Walls” comes from a presentation of his paper at an Australian symposium on identity in art. He contends that Malraux’s theory of art, and the concept of the “musée imaginaire” in particular, is more relevant today than ever before. Allan’s conjectures that Malraux would have been enthusiastic about the internet and digital reproduction that is making a museum without walls a reality in the twenty-first century. He highlights Malraux’s reminder that the museum as we know it today, as the “first universal world of art,” is only about two centuries old, and his oh-so-Modernist opinion that art’s “ideal” home is in the museum. This case for the recontextualization of art and objects in a universal or virtual museum setting informs the conversations surrounding the virtual museum today.


Bedford addresses the ways in which storytelling can be incorporated into museum exhibition practices in order to facilitate learning and “transformative experiences.” She primarily addresses curators and public programs staff, evaluating the nature and uses of narrative from the perspective of the roles of the academic and storyteller. Bedford stresses two main advantages of using storytelling in the museum: firstly, it’s
participatory, and secondly, narrative is central to how we learn in informal settings. As such, she positions storytelling as an indispensable tool in the constructivism museum.


Benjamin’s seminal work on the nature of art in the age of photography informs many of the sources included here. Originally published in 1935, this essay takes a philosophical look at how the perception of art changes with the introduction of mass media—photography and film in particular. Benjamin’s primary points include that the “aura,” it’s “presence in time and space” (3), of an artwork or cultural artifact is lost in our bombardment with photography and film has changed the way we consume art. “[T]he distracted mass absorbs the work of art” (18), rather than be absorbed by it. This focus on politicized aesthetics and thoughtless absorption, Benjamin warns, will only be seized by Fascists as a tool for mobilization and inevitably lead to war.


The authors’ position the virtual museum as a supplement to the traditional museum, highlighting the importance of digital storytelling as a tool to disseminating curatorial and collections-related content. They point out that the definition of “virtual museum” is still being written, and as yet, the term encompasses a number of different concepts. The authors explore how virtual museum technology can give visitors context through
visualizing landscape and geography through a case study of the Virtual Museum of Como Lake in Italy. Through this case study ventures outside the scope of my capstone project, their analyses of virtual storytelling through maps and virtual reality are useful context.


Similar to the above annotation, the same authors explain the ambiguity of the term “virtual museum” at present and extoll the virtues of using digital storytelling in the museum. They reference André Malraux’s “musée imaginaire” as well as the v-must (Virtual Museum Transnational Network) as foundational works in defining the virtual museum. Virtual museums, they posit, can be environments free from many of the limitations and biases of traditional museums. The authors define “digital storytelling” and offer several models and tools for using it effectively in the museum. In conjunction with their later paper, “Virtual Museums and Built Environment,” “Virtual Museums as Digital Storytellers” is a timely overview of the current state of virtual museum technology and pedagogy.


Commenting on Benjamin’s essay, listed above, Davis asserts that in the age of digital reproduction, there is virtually no distinction between an original and a copy, and that the
aura of an object now stretches beyond the limitations which Benjamin recognized in the
1930s. Because digital copies do not degrade as analog reproductions do, Davis says, the
aura persists regardless of how many copies are made. He notes that 60 years after the
publication of Benjamin’s essay, the art market only continues to climb in value despite
the many reproductions made of the artworks at auction. Davis concludes by declaring
that the age of mass telecommunication has finally arrived to liberate the masses to do or
create something that he could not identify at the time of publishing—perhaps a new kind
of authenticity based on creation, revision, and sharing.

Deng, Xiaoyan, H. Rao Unnava, and Hyojin Lee. “‘Too True to Be Good?’ When Virtual Reality
Decreases Interest in Actual Reality.” *Journal of Business Research* 100 (July 1, 2019):

Contributing a word of caution to the excitement surrounding virtual reality in museums,
the authors argue that visitors are more likely to be dissuaded from visiting museums and
historical sites in person if the virtual reality experience offered to them is perceived as
being “too similar” to the “real thing.” They used Google Art Project VR-style websites
to simulate the VR experience in their study. For the purposes of my research, their
analysis of Google Art Project pages (the predecessor to Google Arts and Culture) and
their perception by subjects is a useful consideration when considering how museums
wish to use products like Google Arts and Culture.

by Ross Parry. Leicester Readers in Museum Studies. London; New York: Routledge,
2010.
Huhtamo, like Caspani et al, remarks upon the vagueness of the “virtual museum” as a concept. Huhtamo traces the technology supporting the virtual museum back to the invention of hypertext in the 1960s, which made it possible to sort, group, and store data non-linearly. Citing Water Benjamin’s “A Work of Art in the Age of Mechanical Reproduction” and Malraux’s *musée imaginaire*, the author traces the origins of the virtual museum to even earlier in the twentieth century. He notes the effects of the rise of photography on the “aura” of the object and how, unbound from the cult of the object, exhibition design began to change to reflect new artistic and philosophical modes. He emphasizes in particular the Dadaists and Herbert Bayer’s integrated exhibition spaces. Particularly relevant to my research, Huhtamo writes about a lesser-known forerunner to the virtual museum: Frederick Keisler’s 1920s immersive exhibition room of three-dimensional grids and his *Lichtrequisit* which projected art onto the walls.


Hylland goes even more in-depth that Huhtamo on the topic of digital copies, especially within the context of the Google Art Project, the precursor to Google Arts and Culture. He discusses the shift from authenticity being the primary legitimimizer of a museum object to accessibility taking center stage. After all, this is the information age! Holland cites the mid-1990s as being the time when virtual museums rose to prominence, primarily as digital repositories as described by Suzanne Keene in 1996. He goes on to present digitization as a “re-distribution of power,” illustrated by the Norwegian DigitaltMuseum and the Google Art Project. Regarding the Google Art Project, Hylland notes that,
although generally well-received, the people he interviewed saw the platform as a way to redirect people to the museum’s own websites. He ends by reiterating that authenticity is a core tenet of the museum and can never be replaced. As such, the fear of the digital must be overcome.


Keene’s enthusiastic embrace of the virtual museum in 1997 is incredible context for understanding the evolution of the virtual museum over the past twenty years. Her description of the birth of the online museum exposes the fears of the time, as well as the perceived limits on technology—many of which we have now surpassed. It also exposes that the field has been grappling with the ambiguity and vagueness of the term “virtual museum” for nearly a quarter of a century. It seems that as technology and our perception of reality advances, so too does the elusive concept of virtuality. Keene’s predictions about the “future” of collecting, conservation, research, and exhibition are sometimes eerie and sometimes laughable, looking back from 2019. However, her evaluation of the early days of the online museum provides a framework with which to approach the topic which stands the test of time.


Many of my sources directed me to this essay, originally published in French in 1947 as “Le Musée Imaginaire”. André Malraux was a cultural theorist and France’s Minister of Cultural Affairs. In this essay, he challenges Walter Benjamin’s assertion that a work of art loses its “aura” when reproduced mechanically (i.e. when photographed). While he
agrees with Benjamin on some points, he posits that mass broadcasting via mechanical reproduction is the next logical progression for the museum. Since objects are already divorced from their context in the museum, which he claims is the ideal environment for art and cultural objects, it should not be an issue to further divorce the image from the object itself for the purposes of scholarship. He puts forth this idea of a reproduced “museum without walls” or “imaginary museum” as a way of making culture accessible to the average person.


Mansfield leads the reader through the emergence of the Google Art Project and its implications for digital scholarship. She describes the platform as a “repository of images” and notes the complications which copyright posed for the exhibition of Modern and contemporary art at the time. Mansfield discusses how the project can be useful to scholars, and how an ideal image repository should be designed, with special attention to search functions. She points out that the Google Art Project was conceived as an entertainment website and not specifically for scholarship, and also mentions that Google’s sponsorship muddles the waters of scholarship vis à vis the use of Google Art Project for academic research.


Müller explores the ways in which the virtual museum can be a digital extension of the museum’s mission, rather than a wholly new animal. How can museums connect an
object’s “aura” to its virtual representation? Virtuality, to Müller, is interpretation that requires the museum and the virtual visitor to think critically about how we record and share cultural history. Objects and experiences must be simulated in virtual space, not just replicated. In order to accomplish this, he says, the museum must build a virtual framework that enables artifacts to tell a story as well as they do within the framework of the traditional museum. He, like Malraux, asserts that reproduction is not the enemy of the museum. However, this ideal virtual framework must rely more heavily on storytelling and interactivity in lieu of authentic objects.


In this early article on virtual museums, O’Connor explores the possibilities of digital technologies on exhibition documentation and dissemination. This seems forward-thinking for the time, as many of the other articles published in the same year tend to focus on the digital or virtual museum as a repository of images of objects in the museum collections. O’Connor urges those in charge of documenting and archiving to back up their digital collections and always keep hard copies, as files at that time, she says, could only last ten to twenty years at most. Of course, this has changed over the past 23 years, but nonetheless interesting to read about the technological limitations at the time.


This article, published only two months after the launch of the Google Art Project, takes a somewhat critical view of the fledgling platform. After giving an overview of the
project’s high-resolution digital images of artworks, Proctor notes the drawbacks of the project. She, like Elizabeth C. Mansfield, notes that because of copyright, much Modern and contemporary work would be excluded. Proctor also voices concern about the lack of scholarship and the lack of context an exhibited object would have outside the museum. She asserts that without the museum walls and physical proximity, curators cannot facilitate the meaningful connections between works which occurs when objects are displayed near one another—an interesting counterpoint to Malraux.


Though much of this source is out of the scope of my research, Riegels Melchior gives a fantastic, succinct explanation of the Google Cultural Institute and Google Arts and Culture. She also conducted an interview with Kate Lauterbach, a Project Manager at the Google Cultural Institute, which provides a great deal of insight into the inner workings of the Google Cultural Institute, their goals, and vision for the Google Arts and Culture Platform. Riegels Melchior also describes how storytelling plays into the exhibition approach of the Google Cultural Institute, particularly in the case of their recent *We Wear Culture* exhibition.


Responding to hesitations about virtual museums and whether they will cause engagement to decline in brick-and-mortar museums, Rostamian and Barkeshli look at
the practical functions of the virtual museum. They find that virtual museums are perceived as being more about entertainment than preservation. They cite Schweibenz (below) and his distinctions between the different kinds of web museums, as described by function. The authors discuss the Google Art Project and where it fits within Schweibenz’s framework.


As noted above, the Schweibenz draws distinctions between the different types of web museums in the early 21st century. These categories are the content museum, the learning museum, and the virtual museum. The distinction, the author says, between the learning museum and the virtual museum is that the virtual museum links to other museums and collections rather than existing in isolation. He also asserts that the virtual museum will never be a replacement for the brick-and-mortar museum because it cannot offer museum-goers authentic objects—essential to the definition of the museum, as explained below.


At the outset, Schweibenz declares the term “virtual museum” an oxymoron as the museum, he says, *requires* physical objects. In terms of the opportunities afforded by virtual museums, he is convinced that the virtual museum, and digital technologies in general, will be most useful for documentation and accessibility. He cites Falk and Dierking, saying that visitor experiences are most positive when they bend to the visitor’s expectations and agenda. Schweibenz poses the question, will visitors be able to have a
‘real’ experience when visiting a virtual museum, especially as the quality of context varies drastically from one virtual museum to the next.


In this extremely recent article, Stogner gives an up-to-date analysis of how “media-enhanced immersive storytelling” can lend context to objects and evoke the emotional dimension, aiding in deep-learning. She puts storytelling at the center of exhibition and education. Stogner identifies five different categories for immersion in the museum: experiential, narrative, theater, interactive, and virtual. The realm of virtual immersion includes web-based virtual tours, software, video games, websites with personalized virtual collections, and virtual reality technology. She concludes by noting that the success of the technologies she overviews depends on the authenticity and academic rigor of the content exhibited, and that cultural competency must be approached holistically when it comes digital storytelling.


Wong asserts that pursuing “digital storytelling” is futile, and that instead museums should focus on developing a story, and then presenting it digitally. “Digital storytelling” as a term is ambiguous to Wong, just as the phrase “virtual museum” is vague to Brumana, Caspani, and Keene. It is more productive, she reasons, to experiment with the
“narrative capacities of digital media” by exploring audiences’ expectations of digital media and how the interactivity of these platforms affects meaning-making. The focus on the aspect of interactivity persist throughout the article, and the author concludes by saying that while digital storytelling offers the museum incentive to explore the potential of narrative, this is best approached by cultivating narrative storytelling skills and creativity at a staff level, rather than leading with any specific digital storytelling technology.
Appendix B

Data

Figure 1: The figure above demonstrates the relationship between the monetary resources of interviewed museums and their satisfaction with Google Arts and Culture. Each museum’s last year’s expenses are shown, and color-coded to correspond with their answer to the question, “Is Google Arts and Culture fulfilling its intended function in your museum?”

Other correlations discovered include net assets and the number of staff and volunteers as compared to overall satisfaction.
<table>
<thead>
<tr>
<th>Name</th>
<th># Staff</th>
<th># Volunteers</th>
<th># objects on GA&amp;C</th>
<th>Last Year’s Expenses</th>
<th>Net assets</th>
<th>Fulfillment</th>
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</thead>
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<td>10</td>
<td>522</td>
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<td>324,543,502</td>
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<td>1540</td>
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<td>65,993,060</td>
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<td>8</td>
<td>68</td>
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<td></td>
<td>Yes</td>
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<td>250</td>
<td>676</td>
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<td>730,270</td>
<td>Undecided</td>
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<td>87</td>
<td>152</td>
<td>80,030</td>
<td>395,488</td>
<td>Undecided</td>
</tr>
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<td>132</td>
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<td>4,164,217</td>
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<tr>
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<td>124</td>
<td>792,373</td>
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<td>No</td>
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</table>

Figure 2: This second figure examines the size of the museums interviewed in terms of a variety of variables. This table was the source of data for the graph above. Information was gathered from the museums’ Forms 990 and from interviewees.
Appendix C

User Interface

Figure 3: “Google Arts & Culture,” Google Arts & Culture, accessed October 30, 2019, https://artsandculture.google.com/. This screen capture shows the navigation sidebar and the “Explore” page. Note the features at the top of the webpage and the artworks and historical photographs below.

Figure 4.1: “Scenes from Life of Krishna,” Google Arts & Culture, accessed October 30, 2019, https://artsandculture.google.com/asset/scenes-from-life-of-krishna/7gER8Tr3-jXwbg.
Figure 4.2: “Scenes from Life of Krishna,” Google Arts & Culture, accessed October 30, 2019, https://artsandculture.google.com/asset/scenes-from-life-of-krishna/7gER8Tr3-jXwbg. These screen captures illustrate the “Zoom” feature available on gigapixel images. The user can enhance images and view minute details. Figure 4.2 shows the zoom navigation in the upper right of the image.

Figure 5: “Uffizi Gallery, Florence, Italy,” Google Arts & Culture, accessed November 22, 2019, https://artsandculture.google.com/streetview/uffizi-gallery/1AEhLnfyQCV-DQ?sv_h=-14.488531279946535&sv_p=7.667082700672097&sv_pid=BVLiSIIAILP0xHA5-yERqw&sv_lid=11445198885088425697&sv_lng=11.25589130000003&sv_lat=43.768841. An example of the “Museum View” tours, showing the progression of the viewer through the Uffizi Gallery. Note the thumbnails of the rest of the tour at bottom.
An example of the “Art Selfie” feature. The launch screen is at left with Google’s description of the feature. Figure 6.2 shows a match obtained by the author. Note the percentage of the accuracy of the match displayed by the portrait title.

An example of the augmented reality features available in the mobile application.
Figure 8 (Left) and 9 (Right): Google LLC. “Google Arts & Culture.” Apple App Store, Vers. 7.3.5 (2019). https://apps.apple.com/us/app/google-arts-culture/id1050970557 (accessed on 28 October 2019).

Figure 8 shows a screen capture of Museum of Modern Art collections sorted by color. Figure 9 illustrates the “Collections” page on the mobile application. The user can view collections by “all”, alphabetically, and on a world map.
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https://store.steampowered.com/app/1098190/VersaillesVR__the_Palace_is_yours/.


