Addressing Issues of Audience, Accessibility and Appreciation with Ohio State's Andean and
Amazonian Cultural Artifact Collection

Research Thesis

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by

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Abstract

In this thesis I explore how everyday digital technology that is accessible and familiar to students, such as smartphones, can be an entry point into cultural appreciation, and how beyond audience engagement, digital mediums can also be conducive to a different approach to learning. Three major points guide my research inquiry: 1). how to understand the interests and attention of the general audience, 2). how to identify and effectively use interactive technology that engages a new generation of students, while 3). also providing content depth that can lead to an overall sense of audience appreciation and broader cultural insight. My research stems from my work as student curator of Ohio State's Andean and Amazonian Cultural Artifact Collection.

Ohio State's Andean and Amazonian Cultural Artifact Collection was acquired by the Center for Latin American Studies in Autumn of 2015 through a series of donations and purchases supported by Title VI Federal Funds. The collection supports curriculum and programming on the Andes and Amazonia connected to the Quechua Language Program and the Andean and Amazonian Studies Minor at The Ohio State University. The collection revolves around the ways indigenous communities maintain storytelling, cultural production and oral traditions.

My research approach has relied on applied methods: curating the exhibit, delivering talks and exhibit tours, co-teaching classroom workshops on Andean and Amazonian material culture with my mentor, Dr. Michelle Wibbelsman, and collaborating with various departments on campus to gain technical skills and ultimately develop SoundCloud recordings, 3D digital models, and a digital storytelling map. Each step of the way, I have considered how the interactive digital features allow students to access information that communicates key concepts and/or aesthetics of Andean and Amazonian culture. This has required targeted reading on Andean and Amazonian cultures and Museum Studies. I have also collected audience feedback from exhibit tours, classroom interventions and open houses.

My efforts have focused on ensuring ease of accessibility by way of QR codes that students scan with their smartphones using popular apps like Snapchat or the camera feature. The question that motivated me was whether familiar technology and frequent use of devices perhaps had the potential to bring Andean and Amazonian culture into the realm of the familiar by association. Preliminary observations indicate that use of this interactive tech resulted in longer and more focused attention on items in the collection. At minimum, this allocation of time indicates sustained audience engagement. Beyond that, it possibly suggests deeper audience appreciation and understanding of the artifacts. These observations provide a foothold for conceiving of and creating dynamic new learning environments for audiences of all ages and levels of expertise.

While my work with the collection has been more about production and implementation of exhibit features, in this thesis I present information on audience feedback I collected and analyzed to address questions of effectiveness, audience appreciation, and understanding. These research insights can, in turn, help to adapt existing exhibit features for better effectiveness, or inform development of new ones.

<u>**Preface:**</u>

<u>**My Undergraduate Student Career at The Ohio State University and How I Became**</u>

<u>**Student Curator for Ohio State's Andean and Amazonian Cultural Artifact Collection**</u>

Some of the writing for this thesis has been presented and/or appeared previously in one form or another in the following venues: The Denman Undergraduate Research Forum at The Ohio State University (April 3, 2018), The Quechua Student Alliance Meeting at New York University (November 11, 2017), The Advanced Computing Center for the Arts and Design Open House (April 7, 2017 & April 6, 2018), The Symposium on Indigenous Languages and Cultures at The Ohio State University (October 13-15, 2016 & October 25-28, 2018), and *¿Qué Pasa, Ohio State?* Volume 24, Number 2, Autumn 2016 articles titled "Making OSU Home Through the Andes" and "Far from Home but Right at Home: Ecuadorian Student Experiences the Andes at OSU" (2016).[1] In this section I provide some background on how I became student curator for Ohio State's Andean and Amazonian Cultural Artifact Collection and how this long-term involvement with the collection added to my undergraduate academic career at The Ohio State University.

As an undergraduate Arts Management major, I began working in spring of 2016 with Dr. Michelle Wibbelsman, Associate Professor in the Department of Spanish and Portuguese and Faculty Curator of Ohio State's Andean and Amazonian Cultural Artifact Collection which is permanently housed in the Department of Spanish and Portuguese. During my first year on campus I was in search of different opportunities that could help me excel in my college career. After meeting Professor Wibbelsman during a gathering with the Ecuadorian Consul General from Chicago, she informed me of the collection and of the opportunity to work together. I was

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[1] https://issuu.com/quepasa_osu/docs/qpautumn2016v24n2-web1

eager to join the project and to become an integral part of the development and care of the artifacts and exhibits. I became the student curator for Ohio State's Andean and Amazonian Cultural Artifact Collection as a Freshman at The Ohio State University. The collection brought together my interest as an Arts Management major and History of Art minor, my experience with archives from back at home in New York City, and my understanding of a new generation of students, their interests, and learning orientations. This opportunity also provided a platform for me to pair up with a faculty member for undergraduate research.

Along with my faculty mentor, I helped advance the collection as a whole. During my first semester as student curator while enrolled in an independent study course (IS 2193), I worked alongside Dr. Wibbelsman cataloguing the entire collection, collecting ethnographic information on the artifacts and, based on readings and experience with the collection, contributing to discussions on pedagogical and outreach purposes. I catalogued the artifacts based on my experience in New York City at the LGBT Community Center National History Archive. My unique experience as curator of a collection allowed me to implement certain practices and engage issues discussed in many of my arts education classes with a hands-on approach.

Two interrelated themes that were major motivators for me revolve around audience accessibility and engagement. As a result, we implemented the use of interactive digital features that would engage students on a level of understanding they were both comfortable and familiar with. With collaborative help from Ohio State's Digital Storytelling Project coordinators like Professor Brian Leaf and OSU Librarians such as Professor Pamela Espinoza de Los Monteros, we were able to create SoundCloud recordings. We also created a digital story map that gave viewers an opportunity to see where and how some of the artifacts were made. The map also

provides multiple external links to other valuable resources such as YouTube and Vimeo videos on key locations, and webpage links to relevant articles and an exhibition page. The use of digital materials allowed students to access information that provided additional context for the artifacts on display. After months of planning and organizing, the collection was officially inaugurated on April 8, 2016 with support from a number of units on campus including the Center for Latin American Studies (CLAS), the Department of Spanish and Portuguese, the Interdisciplinary Humanities Institute and CLAS Working Group "Continuity and Change in the Andes and Amazonia," OSU Libraries, and The Lawrence and Isabel Barnett Center for Integrated Arts and Enterprise.

During my sophomore year while enrolled in IS 4193, I continued my work as student curator. Throughout the year, we were given opportunities that allowed us to engage with a broader audience. In autumn of 2016, the collection was featured as a Global Gallery panel exhibit in the main lobby of Hagerty Hall, the building that houses the Center for Languages, Literatures, and Cultures at Ohio State. Dr. Wibbelsman and I worked with the Global Gallery curator, Abhijit Varde, to create an exhibit that combined images with informative text and used interactive features to enhance the public's experience as a whole. This exhibit opened doors to broader networks of collaborators and placed me in a role of liaison among centers and departments to generate exposure for the collection and gain support for future endeavors. The Global Gallery exhibit, which ran from September 2016 until late October 2016, was titled *The Hidden Life of Things: Andean and Amazonian Cultural Artifacts and the Stories They Tell*. It coincided with the Center for Latin American Studies' 1st Annual Symposium on Indigenous Languages and Cultures of Latin America (ILCLA) and the 3rd Annual Symposium on Teaching and Learning Indigenous Languages of Latin America (STLILLA), which brought 125

international scholars and Latin American indigenous leaders to Ohio State for a three-day conference. During this conference, I led a tour on the exhibit along with four graduate student docents: Estelí Puente Beccar, Tania Espinales Correa, Ryder Cunningham, and Marie Lerma. I presented in Spanish and English on our use of interactive features and ran a small tutorial on the proper way of accessing the material. Throughout the semester I was scheduled to make similar small tours for university donors such as Patricia Heaton and her family, as well as a number of undergraduate classes. The collection and my experience as undergraduate curator were also featured in a two-page spread in *¿Qué Pasa, Ohio State?* (24: 2, Autumn 2016 issue), a publication that supports the exchange of information and opportunities for dialogue among students and faculty regarding Latinx issues across the disciplines.

In spring of 2017, Dr. Wibbelsman and I were invited to develop additional interactive digital features with support from the Advanced Computing Center for the Arts and Design (ACCAD). Quoting from their website, ACCAD "is a collaborative think space, a place to make, create, imagine and above all connect."[2] They conduct research around the use and implementation of innovative art technologies. Dr. Wibbelsman was invited onto the Humane Technologies Discovery Theme as a Research Fellow and brought me into the project as her student. With this support I was given access to guided tutorials in a number of different 3D modeling softwares including 123D Catch, Agisoft, Zephyr, and Zephyr Lite. I also learned to do photogrammetry and through this process I was able to create 3D digital models of some of our most fragile ceramic artifacts.

Because of our work in creating the models, I was asked to present at the ACCAD 2017 Open House. My presentation, titled "Andean and Amazonian Artifacts Digitalization,"

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[2] https://accad.osu.edu/about

showcased the methodology for creating the 3D models to a diverse audience of experts and non-experts. At the end of my Sophomore year I was invited to join the Collaboration for Humane Technologies project of Ohio State's Humanities and Arts Discovery Grant as a Student Research Fellow, an honor extended to only a small number of undergraduate students. I continued to conduct this research in my Junior year.

During the Autumn 2017 semester while enrolled in a class that would count towards my applied learning credit for my major (ARTEDUC 4191), I continued my work under the supervision of Dr. Wibbelsman as student curator with more responsibilities and continued working on 3D models of our artifacts. In addition to uses for the collection itself, we were invited to include these models in an experimental Virtual Reality environment with a project called *"Sumac Puringashpa–Walking the Meaningful Path: Coming and Going in Andean and Amazonian Worldviews."* Dr. Wibbelsman and Dr. Alan Price framed the project as an Andean and Amazonian content-driven immersion experience in Virtual Reality with user interactive interfaces that manipulate cultural artifacts to explore central concepts in Andean and Amazonian cultures.

As a Research Fellow under the Humane Technologies Discovery Theme, I was asked to produce a number of research questions that applied to our project. I produced questions from an Arts Management mindset centering on considerations of audience, accessibility, visibility, usage, and overall appreciation. I then used the Fellowship time to create a 3D model of one artifact with the help of Vita Berezina-Blackburn, Animation and Motion Capture Specialist at ACCAD. We created this model using a new software called Zephyr. This software involves a user-friendly interface that can reconstruct 3D models from digital images. I used the majority of the semester as a learning period to familiarize myself with the new software. I made multiple

models of random objects to get a firm grasp on how to use Zephyr. Dr. Berezina-Blackburn provided one-on-one tutorials and access to her immense knowledge on other resources. In the meantime, Dr. Wibbelsman and I worked with OSU Libraries Knowledge Repository to permanently house URLs for the interactive features in order to preserve them for future uses. We used go.osu.edu to create permanent URLs that are easy to access and, in addition, provided valuable tracking data on number of viewers.

On November 11, 2017 I was given the honor of attending and presenting at the 3rd Annual Quechua Student Alliance Meeting at New York University's King Juan Carlos I of Spain Center. The event aimed to promote an exchange of ideas between college students, professors, and the community at large who share an interest and passion for Quechua language and Andean culture. The main goal of this annual conference is to create a broader network of indigenous language advocates here in the United States. My participation in this conference was supported through the Center for Latin American Studies and the Whitten Private Donation Fund for Ohio State's Andean and Amazonian Cultural Artifact Collection. Among the 60 or more attendees were students, professors, community organizers and members of the general public. The title of my presentation was "Digitization as Language and Cultural Democratization in the Andes and Amazonia." I presented twice, once in an auditorium setting and the second in a classroom setting. My presentation began with a small introduction on the history of the collection, and then a showcase of some artifacts I was able to bring with me: three pan pipes, two textiles, three story gourds, and an *Aya Uma* (festival character) rag doll. Then I focused the presentation on the implementation of the digital interactive features like the 3D models and use of photogrammetry, the digital story map, and SoundCloud recordings. The last part of my presentation was a small tutorial on how to use the features and then speaking on why we choose

to include them. The presentation underscored our efforts to bring together teaching on traditional cultures and cutting-edge technology.

The experience broadened my networks with graduate students from NYU and Columbia University who have all stayed in contact since my visit. As an undergraduate student (which they were surprised to learn) it brought me into the fold of graduate research and scholarly work. My presentation reflected well on Ohio State not only in terms of our university's commitment to lesser taught languages and cultures of Latin America, but also in terms of Ohio State's support for undergraduate research and involvement with all of the resources that allow us to carry our work forward in creative, innovative, collaborative and purposeful ways. The fact that I was able to show my work in my hometown and especially at NYU was also personally rewarding.

I gathered all of these experiences for a final poster presentation in spring of 2018 for the Denman Undergraduate Research Forum, which showcases undergraduate student research at Ohio State. The poster was titled "Accessibility, Audience, and Appreciation with Andean and Amazonian Artifact Collection," and was included in the Science for the Public Good category. The Denman research forum attracts approximately 1,200 student presenters with a variety of people coming through. Over the course of an entire morning, I was able to share my research with a large audience of students, professors and judges.

As I reflect back on our last two and a half years of hard work, I realize the immense support I have received from a number of individuals around campus. From the docents at the conference my sophomore year, to the graduate students at ACCAD who took time out of their schedules to tutor me one-on-one. I understand that an experience like this is unique and a result of the dedication and trust of my faculty mentor, Dr. Michelle Wibbelsman. The ability to have

an experience that has allowed me to gain real world knowledge on how best to work with people, on how to manage my time, and create cutting-edge, digitally-animated models truly has been inspiring. Arts Management is an experientially-focused specialty that involves hands-on learning. I am very grateful for the experience I have had. It has motivated me for what lies ahead in my professional career.

1. Introduction

As an arts management major with experience in public exhibits, my research interests center on three major points: 1). How to understand the interests and attention of the general audience, 2). how to identify and effectively use interactive technology that engages a new generation of students, while 3). also providing depth of content that can lead to an overall sense of audience appreciation. My research stems from my work as curator of Ohio State's Andean and Amazonian Cultural Artifact Collection. In this capacity, I consider how everyday digital technology that is accessible and familiar to students, such as smartphones, can facilitate access to the collection. Beyond access, I look at how use of such devices could presumably mediate a sense of familiarity with the cultures represented themselves and ideally lead to a greater degree of cultural appreciation. I am interested in understanding how these digital mediums can also be conducive to audience engagement by way of learning in a different way.

My research approach has relied on applied methods as described in my Preface. Each step of the way, I have considered how interactive exhibit features allow students to access information that contextualizes the artifacts on display and communicates aspects of Andean and Amazonian aesthetics and cultural concepts. This has required targeted reading on Andean and Amazonian cultures to understand on a more precise level the materials and themes in and

around the collection. Having this foundational knowledge has allowed me to select what to focus on and how to communicate targeted information in innovative ways to our audience. Furthermore, this knowledge was key in creating accurate interactive digital features since the readings provided guiding content and insights not just into indigenous cultural products but also into indigenous ways of knowing the world and approaches to cultural production. I also collected audience feedback from exhibit tours, classroom interventions and Open Houses. My efforts focused on ensuring ease of access by way of QR codes that students scan with their smartphones using popular apps like Snapchat or thanks to recent updates, the camera feature. My research points toward the possibility that familiar technology and frequent use of devices that facilitate access to interactive features might, in fact, have the potential to bring Andean and Amazonian culture into the realm of the familiar by way of association, immediacy or simultaneity.

Preliminary observations indicate that use of this interactive tech resulted in longer and more focused attention to items in the collection. At minimum, this allocation of time indicates sustained audience engagement. Beyond that, it possibly suggests deeper audience curiosity and emerging insights about the artifacts. These observations provide a foothold for conceiving of dynamic new learning environments for diverse audiences.

While my work with the collection up until this semester (Autumn 2018) has been more about production and implementation of exhibit features, in this thesis I focus on information on audience feedback I collected and analyzed to address questions of effectiveness, audience appreciation, and understanding. The value of this research is that it can continue to inform ways to adapt existing exhibit features for better effectiveness or provide suggestions for developing new ones. Given the nature of the exhibit, one guiding question is how audiences come to

understand and appreciate indigenous cultures differently when they are presented in a different light.

First, I present a history of the collection. Then, I delve into an explanation of the methodology behind the interactive digital features and the processes by which these features were developed. This background provides the foundation for discussion of my three main principles for the curatorial process: audience, accessibility, and appreciation.

2. Brief Background on Ohio State's Andean and Amazonian Cultural Artifact Collection

Ohio State's Andean and Amazonian Cultural Artifact Collection was acquired by the Center for Latin American Studies (CLAS) in autumn of 2015 through a series of donations and purchases supported by Title VI Federal Funds. The collection, which is housed in the Department of Spanish and Portuguese conference room (Hagerty Hall 255), supports a growing curriculum and innovative programming on the Andes and Amazonia connected to the Quechua Language Program and the Andean and Amazonian Studies Minor at The Ohio State University. It is part of a CLAS's developing "Integrated Learning Environment for the Study of Andean and Amazonian Languages and Cultures" that features activity-based and experiential pedagogies compatible with non-Western traditions and engages prevailing forms of indigenous knowledge, power, resistance, and self-determination (CLAS Integrated Learning Environment proposal).

The collection includes artifacts from the Andes and Amazonia including "Slice of Life" Tigua Paintings, unique Canelos Quichua Ceramics, etched story gourds, woven tapestries and *shigras* (net bags), musical instruments, festival masks and ritual items, hunting implements, children's toys, and food ways implements. Some artifacts purchased from Sacha Runa

Foundation and donated by Norman E. Whitten, Curator of the Spurlock Museum of World Cultures, have similar pieces on exhibit at the Spurlock Museum at the University of Illinois in Urbana-Champaign.

The collection centers on the ways indigenous communities maintain storytelling, cultural production and oral traditions, passing down wisdom and meaning-making from one generation to the next not through conventional written texts but rather by way of practice, experience, and applied knowledge of the processes behind beautifully made things. As Dr. Wibbelsman writes, "although selective and small, the collection is a meaningful step toward the inclusion and validation of indigenous production and perspectives at our institution" (Wibbelsman 2017:59). She goes on to state that, "more than conversation starters for *talking about* indigenous cultures (already a noteworthy advancement and trend in many departments of Latin American languages, literatures and cultures) the artifacts provide a point of entry for *engaging with* indigenous forms of knowledge and expression" (Wibbelsman 2017:59). Wibbelsman insists in her article that the cultural artifacts "affirm, for instance, representations of information beyond conventional written texts and present us with the challenge of developing 'reading' practices beyond written documents and critical assessments of Western delimitations of alphabetic writing altogether" (Wibbelsman 2017: 59). She calls for "a serious commitment to the integration of approaches that are compatible with oral and non-Western traditions, raising awareness of prevailing forms and critical sites of indigenous knowledge, power, resistance, memory, self-determination and ethnogenesis, as well as the processes behind their production" (Wibbelsman 2017: 59).

Taking cues from Dr. Wibbelsman's approach to indigenous cultural artifacts as texts in their own right, we consistently paired artifacts with literature, music CDs and film DVDs. For

instance, weavings appear side by side with books such as Denise Arnold's and Elvira Espejo's *The Andean Science of Weaving: Structures and Techniques for Warp-Faced Weaves* (2015), Ann Pollard Rowe et al's *The Junius B. Bird Conference on Andean Textiles* (1986), and Rebecca Stone-Miller's *To Weave for the Sun: Ancient Andean Textiles* (1994); festival masks and paraphernalia are paired with the movie *Transnational Fiesta: 20 Years Later* (2014) and Michelle Wibbelsman's book *Ritual Encounters: Otavalan Modern and Mythic Community* (2009); Norman Whitten's literature including *Rain Forest Visions: Amazonian Ceramics from Ecuador: The Melza and Ted Barr Collection* (2015), *From Myth to Creation* (1988), *Histories of the Present: People and Power in Ecuador* (2011), and *Puyo Runa: Imagery and Power in Modern Amazonia* (2008) complement the shelves of Canelos Quichua ceramics; and Inge Bolin's *Growing up in a Culture of Respect: Child Rearing in Highland Peru* (2006) lies next to toy canoes and ethnic dolls in our "Children's Literacy" display.

We also took a critical stance on displaying artifacts in vitrines, trying to address the problem of presenting artifacts out of their original context and as finished products that divorce them from their processes of production and from the producers themselves. We attempted to utilize and benefit from knowledge of certain literature around museum studies such as Rika Burnham's and Elliot Kai-Kee's *Teaching in the Art Museum* (2011), Nannette V. Maciejunes's and Cindy Meyers Foley's article "Re-Visioning the Museum as a Learning Institution" in *The Manual of Museum Learning* (2015), and Julian Spalding's *The Poetic Museum: Reviving Historic Collections* (2002).

The collection goes in hand with several interactive digital features including SoundCloud recordings, a digital story map, and 3D models that can be accessed through QR codes. These QR codes enable our audience to engage directly with the artifacts and immerse

themselves in the culture. SoundCloud recordings feature the OSU Andean Music Ensemble and riddles, poems and stories by Professor Luis Morató of the Quechua Language Program that capture the rhythm, tone, and manner the language is spoken. A Digital Story Map gives viewers an opportunity to see where exactly artifacts were made and how some of them were produced. The 3D digital models allow students to manipulate the artifacts in a familiar environment on their personal smartphones. The use of these interactive features taps into the use of different senses for more experiential types of learning.

3. Interactive Digital Features

Our interactive digital features were created in collaboration with numerous departments and centers on campus. These key university assets were generous and assisted us in gaining technical skills to develop SoundCloud recordings, a Digital Story Map, and three dimensional (3D) digital models. These interactive digital features allow students to access meaningful information and resources around Andean and Amazonian culture. Low budget and easily shareable, the features also harness student work and add significant depth with little use of space. Two examples of this are Osmari Novoa's digital story, "Finding Myself through My Afro-Peruvian Lineage" developed for an SPA 4998 course and Kate Martínez's SPA 5660 course project on the myth of the fat-sucking *kharishiri* or *pishtaku* of the Andes. Our use of interactive digital features attempted to address the problematic "decontextualization" of cultural artifacts on display, as Sally Price warns (1986:580 cited in Whitten and Whitten 1993:23). To the best of our ability we tried to reflect upon critiques such as James Clifford's poignant criticism of "the tendency of the art world to pluck 'tribal objects' from their original contexts" in his article "Histories of the Tribal and the Modern" (Clifford 1985:200 cited in Whitten and

Whitten 1993:23) and to avoid pitfalls like ones made in the 1984 "'Primitivism' in 20th Century Art" exhibition at the Museum of Modern Art that was the target of Clifford's criticism.

In this next section, I outline the interactive digital features, the processes behind them and the collaborations that enabled them.

3. (a)   SoundCloud Recordings

Figure 3.1: Banner for SoundCloud recordings homepage

In conjunction with The Ohio State University Libraries Digital Storytelling Project under the direction of Professor Brian Leaf and Professor Pamela Espinosa de Los Monteros, we recorded spoken Quechua language. The context of oral traditions within Andean and Amazonian cultures is important. Given this observation, having an auditory component associated with Andean and Amazonian culture seemed to be of key significance. We wanted to capitalize on this medium that is so often left out and also heed J. Edson Way's suggestion in his article titled "The Modern Gallery Exhibition," that "the surest way to avoid awkwardness is to employ the actual voice of the people themselves" (J. Edson Way 1993:120). This way, modern exhibitions can strive to avoid biases and offer audiences involvement with indigenous peoples. Our intention was to provide auditory resources that hopefully addressed Way's concern about bias and allowed the language and culture to speak for itself.

Professor Luis Morató, Quechua Language Instructor at The Ohio State University, assisted us with his time and expertise. Together we decided that Professor Morató would recite certain songs, riddles, and stories. Some of the recordings of Quechua were not translated in order to allow audience members to immerse themselves in the sound of the language and focus not on what the professor was saying but rather *how* he was saying it. This approach emphasized immersion in the tonality of Professor Morató's voice, the sounds he stressed or accented, and the rhythm of the language. Length of time for each recording was also a consideration. For the first recordings, we registered small sound bites that would hook our audience's attention and hopefully encourage more proactive listening. Then, we worked on one extended recording which is used as a resource to provide a prolonged engaged experience. The subject matter of these recordings also highlights relevant cultural content that resonates with exhibit content.[3]

In addition, Ohio State's Andean Music Ensemble's SoundCloud recordings by Gordon Ulmer, then graduate student in Anthropology and member of the ensemble, are also included. The music ensemble is offered as a cross-listed course in Music and Spanish and Portuguese. The class of Ohio State students learn to play and perform music from Bolivia, Peru, Ecuador, Chile and Argentina. They explore a variety of Andean music genres and performance aesthetics while also learning about the cultural background and social significance of the songs. With this resource, we were able to bring a course within the Ohio State curriculum into dialogue with the work we were doing. The soundtrack creates an immersive ambiance and provides auditory value to the collection. If people are listening to the recordings in conjunction with exploring the artifacts it can create a more immersive experience overall.[4]

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[3] http://go.osu.edu/QuechuaNarrativesAAAC
[4] https://soundcloud.com/andeanensemble

3. (b) Canelos Quichua Ceramics Digital Story Map

The Canelos Quichua Ceramics Digital Story Map was created with the guidance of Ohio State's Digital Storytelling Project. Using ArcGIS, we were able to utilize satellite imagery to show the precise locations where the Canelos Quichua ceramics in our collection were made. ArcGIS is a platform for the managing and sharing of spatial data with the use of innovative data visualizations.

While speaking with students about the collection, we found that some students were unable to locate the Andes and Amazonia on a map. We created this map and presented the formal language within it to situate our audience geographically. We wanted students to feel confident and leave the collection knowing something they did not know before. To achieve this, I thoroughly and rigorously researched these places and decided how to diversify the external resources we presented in order to engage our audience. The external resources links include:

1. YouTube video of an indigenous festival in Curaray, Ecuador

2. Documentary video on Youtube about humanitarian projects in Curaray, Ecuador by Plan Binacional Ecuador y Perú

3. YouTube video with music by Guillermo Flores on the protection of Sarayaku, Ecuador from petroleum companies

4. Promotional video on Youtube on Canelos, Ecuador

5. Link to the Spurlock Museum of World Cultures Rainforest Visions Exhibit webpage

6. Link to a webpage on the South American Coatimundi

7. Link to a webpage on the history of Montalvo, Pastaza, Ecuador

8. Link to an article by Dr. Norman E. Whitten and Dr. Rachel Corr titled "Contesting the Images of Oppression: Indigenous Views of Blackness in The Americas"

9. YouTube video of the Amazonian potter, Esthela Dagua

10. Vimeo video titled "Revalorización De Las Expresiones Culturales Del Pueblo Kichwa de la Comuna San Jacinto del Pindo"

11. Promotional video on Youtube on Puyo, Ecuador by the Alcaldía del Cantón Pastaza

The final step was a detailed checking of accuracy in consultation with Dr. Norman E. Whitten, Professor Emeritus at The University of Illinois and Curator at the Spurlock Museum of World Cultures at the University of Illinois at Urbana-Champaign, who has over 40 years of experience working with Canelos Quichua communities. Interactions like this have created valuable dialogue and relationships with an expert tier of scholars beyond Ohio State.

The initial page of the Digital Story Map shows an overview of the country of Ecuador with a number of red flags showing the locations of interest. By pressing the arrow, one is redirected to a closer view of the location of interest. Clicking on a red flag causes a text box to appear, providing ethnographic information for the artifact, a picture of the specific artifact, and an external link to more resources. One external resource, the Esthela Dagua video and the ethnographic information provided, offer insights into the identities of these makers alongside the piece they produced. This follows Franz Boas' and Raymond Firth's "anthropological advocating" (cited in Price 1993:47) for placing an emphasis on the artists when dealing with indigenous artworks. The map includes 11 artifacts with 11 external resource links. Clicking on

the picture of the artifact automatically redirects viewers to the blog for the collection. A step-by-step process is shown below.[5]
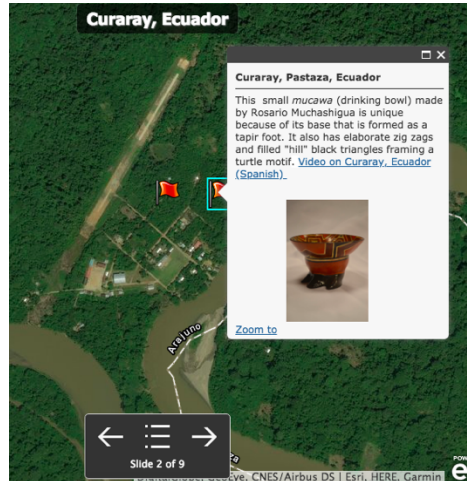

Figure 3.2: Homepage for the Digital Story Map

Figure 3.3: Second slide for the Digital Story Map

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[5] http://go.osu.edu/DigitalStoryMapAAAC

Figure 3.4: Example for when red flag is clicked

3. (c)   Three Dimensional (3D) Digital Models

As stated in my Preface, in spring of 2017, the Advanced Computing Center for the Arts and Design (ACCAD) invited our participation and enabled the use of photogrammetry to create digital models of select artifacts. With help from Dr. Alan Price and Jonathan Welch, MFA candidate in Design, I was able to create 3D models of some of our most fragile ceramic artifacts. We first used a system called 123D Catch which sadly was discontinued while we were in the process of production. Next, I was guided through Agisoft PhotoScan. Agisoft is a software that uses photogrammetric processing of images to generate 3D data. After getting a structured 3D model on Agisoft, I completed some final edits on an editing software called Maya, then uploaded the model onto Sketchfab, which is similar to a social media site for 3D models. Just as I did with the other features, I made the models accessible through QR codes placed strategically in the collection that can be scanned using smartphone apps such as Snapchat, a QR code reader app, or with the simple use of the camera feature. This allows our

audience to personally interact with the collection at their own pace and in their own digital environment. This accounted for the majority of my work in the spring 2017 semester.

The process of photogrammetry conducive to creating 3D digital models begins with taking roughly 800 pictures of the artifact from three different perspectives, first from above, then around the center, then finally from below. After taking the pictures they are uploaded to a new program we began to use called Zephyr. The program then decides which images it will use in creating the model and which it discards as redundant. After uploading the images, the program creates what is called a "sparse cloud." This is basically a bunch of small pixels that give a general idea of the shape of the object that is being modeled. The first editing process begins at this stage. Points that seem abnormal such as ones that stray away from the solid shape or protrude outwardly must be deleted. After this editing phase, a "dense point cloud" is generated. This is almost the same as a sparse cloud, except for the fact that, as its name suggests, it is more dense and the texture of the shape begins to appear. A second round of editing eliminates any remaining abnormalities in the shape of the object. Then, the process requires generating "mesh extractions." Meshes are similar to blankets that coat the top of the object to start adding the details such as color, shade, and texture. Abnormalities such as holes or dents that should be filled are addressed with additional editing. A piece can require more than one mesh depending on how detailed it is. Finally, a "textured mesh" is created as the last step on Zephyr. The textured mesh is exactly what it sounds like, it adds the final details in texture to the piece hopefully providing one solid true model. In order to preserve the pieces and files,[6] we uploaded them to Sketchfab. Here we generate links to our models that then can be easily shared. Also in this uploading process we are allowed to perform more editing to make sure the color

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[6] All of the 3D model' original files are housed on ACCAD computers in the Y:Drive Scratch folder titled Arellano
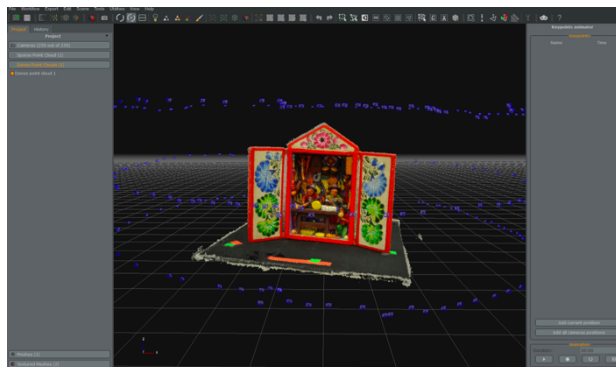
and shades are true to the original object. During every editing process, I have the piece in front of me so I can see exactly how best to create a truthful image in digital form. The step-by-step process of photogrammetry is shown below.
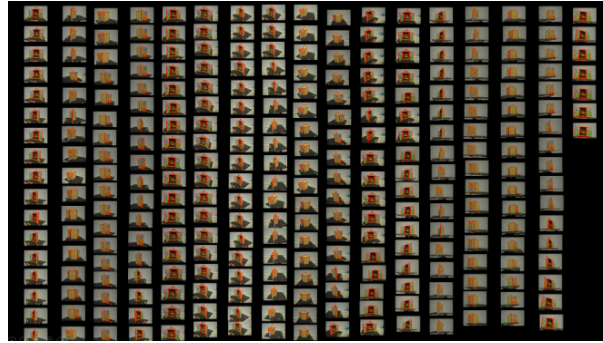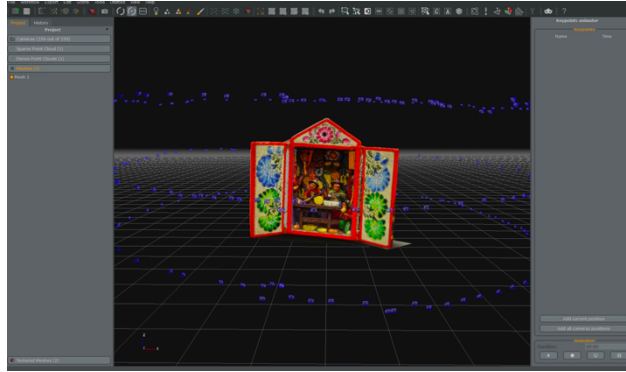

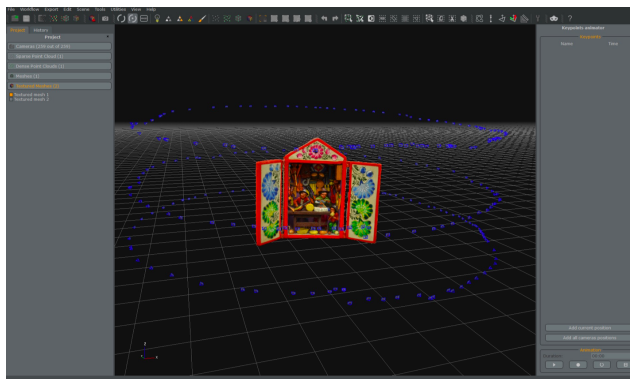**Figure 3.5** Example of pictures to produce 3D Digital Models
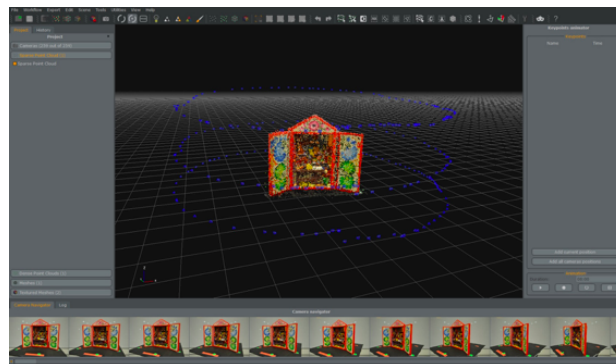
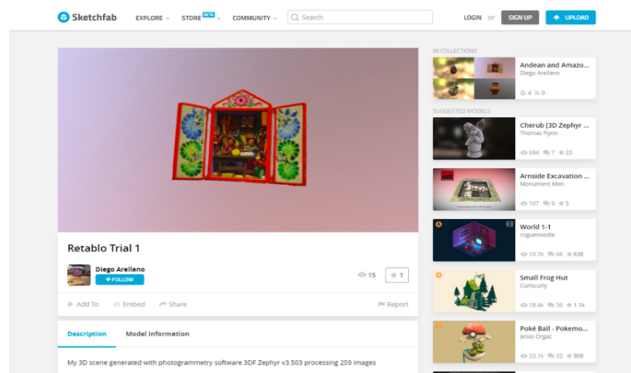**Figure 3.6** Example of generated sparse cloud

Figure 3.7 Example of generated dense point cloud

Figure 3.8 Example of generated mesh

Figure 3.9 Example of generated textured mesh

Figure 3.10 Example 3D digital model uploaded to Sketchfab

Digital 3D models are particularly useful in giving access to and allowing audience members to interact virtually with some of the fragile artifacts in the collection. People were more willing to engage and had the ability now to manipulate the artifacts in their own

environment (smartphones) and at their own pace. Any complications that might arise from taking an artifact out of a glass casing are no longer an issue with a digital model. The inconvenience of looking at an artifact as others stand in line waiting to do this same is also eliminated. By way of this feature we created an environment conducive to interacting with the artifacts without having to physically touch them.[7]

4. Arts Management Perspective

Arts management applies business administration techniques to the art world. The education I received from The Ohio State University's Department of Arts Administration, Education and Policy (AAEP) places an emphasis on business theories and practices while also involving arts-related implications. According to AAEP's website, the department does "not believe that art can be understood without also understanding the social and economic context in which it is conceptualized, created, critiqued, organized, maintained, disseminated, and for which advocacy is essential."[8] From this positioned academic perspective, in addition to creating aesthetically pleasing displays, my research focus as collection curator was on how to understand the interests and attention of the general **audience**. Understanding thoroughly one's respective audiences allows for proper tailoring of the interaction in order to capture their attention and hopefully lead to a better experience. I also focused on how to make **accessible** the use of interactive technology that engages a new generation of students. The need for accessible materials with low barriers to entry allows ease in dissemination of information that can in turn foster better understanding. Lastly, I looked at how to provide depth and insight into the

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[7] http://go.osu.edu/3DModelsAAAC
[8] https://aaep.osu.edu/about/history

collection to develop an overall sense of **appreciation** among audience members with extended dedicated attention as a metric.

4. (a)   Audience

In the *National Standards and Best Practices for U.S. Museums* by Elizabeth E. Merritt (2008), the American Association of Museums lays out clear instructions on how to best run cultural institutions in the United States. There are multiple standards that involve the audience. For instance, in "Section I. Public Trust and Accountability," it states that "the museum identifies the communities it serves and makes appropriate decisions in how it serves them," and "the museum strives to be inclusive and offers opportunities for diverse participation," (Merritt 2008:15). More standards are outlined in "Section V. Education and Interpretation," such as "the museum understands the characteristics and needs of its existing and potential audiences and uses this understanding to inform its interpretations" (Merritt 2008:16). This shows the growing trend and accountability current cultural institutions are heeding when it comes to placing the needs of audiences first. Our collection is not a museum, but by attempting to follow similar goals we can potentially create a more robust experience with our audience at the center. These guidelines provide evidence in how having a clear understanding of one's audience can improve the overall experience.

As stated before, the collection is housed in Hagerty Hall 255, the Department of Spanish and Portuguese conference room, used for graduate and undergraduate classes as well as faculty meetings and special events. Average graduate classes in this particular conference room are 8-12 students, and average undergraduate classes are 22-26. With this in mind, we structured the exhibit for a diverse audience, with particular attention to undergraduate students. As an

undergraduate student and member of Gen Z, I had a unique insight in how to engage this new population of students. One aspect of this generation's interests is the use of technology. This is supported by the ever-present and growing use of smartphones.

According to a Pew Research Center study published in February of 2018, 94% of U.S. adults between the ages of 18-29 own smartphones.[9] With smartphone and internet capabilities we were able to think beyond the scope of labels and information cards. One-on-one engagement taps into different learning dispositions such as visual versus aural or experiential learners. The idea of creating interactive digital features catered to student preferences and introduced valuable information and resources. The use of familiar technology such as smart phones allowed us to capitalize on this ubiquitous tool as a resource and opportunity.
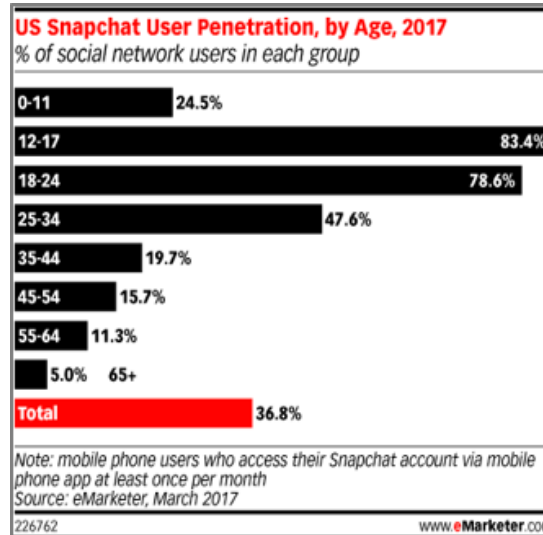
4. (b) Accessibility

With an understanding that a large percentage of the students entering Hagerty Hall 255 would have access to a smartphone, we wanted to present our interactive digital features with the least possible barriers to entry. To address this, we decided to present our interactive digital features as QR codes. Viewers are invited to scan the codes placed strategically around the room using either a QR code reader app, Snapchat, or just with the camera feature on their phone. According to an eMarketer study, 78.6% of US adults between the ages of 18-24 use Snapchat at least once per month. This population only comes in second to US teens ages 12-17.[10] This study shows the growing trend of college students who can easily access our features through QR codes and also anticipates the next generation of university users.

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[9] http://www.pewinternet.org/fact-sheet/mobile/
[10] http://www.emarketer.com/Chart/US-Snapchat-User-Penetration-by-Age-2017-of-social-network-users-each-group/207836

Figure 4.1: Graph of eMarketer study showing
"US Snapchat User Penetration, by Age, 2017"

Nonetheless, according to Jia Jia Fei's (Director of Digital at the Jewish Museum,

NYC)[11] presentation titled "If Technology Is the Answer What Was the Question?," applications

can also imply a barrier to entry because of the need to download them. A TechCrunch study, in

fact, shows that the average app loses 77% of users in the first three days of download, and that

the five most used apps take up to 80% of usage time.[12] This alerts us to the fact that the need to

download a QR code reader app might actually work against us in terms of access and use, but

the use of Snapchat potentially helps engagement of target audiences by using an app they likely

already have on their devices. In her presentation, Fei spoke about how the least common

denominator of the digital visitor experience is WiFi. She argues that a simple WiFi connection

and access to a webpage provides the best approach with low barriers to entry.

With a recent update made to current IPhones and Androids, QR code readers now

already come installed on most cameras. This eliminates the need to download an external app to

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[11] https://www.jiajiafei.net/

[12] https://techcrunch.com/2016/04/30/welcome-to-the-post-app-world/

access our features, therefore reducing barriers to entry. Furthermore, based on Fei's suggestions, our features can now be accessed just using a simple webpage link and require no other external apps. Beyond this, our QR codes are inexpensive and easily shareable. Since many indigenous communities in the Andes and Amazonian now have access to WiFi and use of smartphones, this extends the opportunity to share the digital interactive features with the rural communities of some of the original producers of the indigenous artifacts in our collection.

4. (c) Appreciation

Once the digital features were created and implemented our overall challenge was to see if accessing these features led to increased cultural understanding. For our purposes, one indicator for appreciation was longer, more focused attention on any given exhibition. Cultural institutions are allocating considerable resources towards programing in innovative learning and education methods. For instance, in his article, "The Modern Gallery Exhibition as a Form of Western-Indigenous Discourse," J. Edson Way writes, that "expanded staffing and budgets for the education department at most museums, the proliferation of educational outreach programs, and interactive exhibition techniques to engage and challenge the visitors' curiosities have been other developments" (Way 1993:109). Within our own exhibit, we follow these general trends in modern cultural institutions by complementing displays with resources that offer a foothold for conceiving of and creating dynamic new learning approaches and environments.

Over the course of two years, I collected feedback from over 150 undergraduate and graduate students as well as specialists to see if our features were working the way we had intended. This information was used as a basis for an anonymous focus group study with

undergraduate OSU students. They were systematically asked two questions over the course of three phases of engagement:

1. Looking at the artifacts

2. Engaging with 3D digital models of the artifacts on their smartphones

3. Engaging with the interactive digital story map on their smartphones

The first question read, "On a scale of 1-10, how curious are you about the artifacts?" The second question read, "To what extent does your curiosity about the artifacts elevate your curiosity about Andean and Amazonian cultures?" My results indicated that the virtual experiences elevated curiosity over all with a two- to three-point increase as indicated in the circle graphs below.
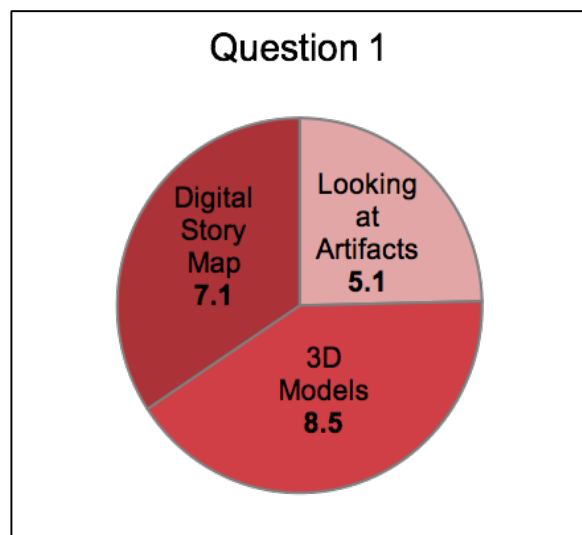
Figure 4.2: Graph showing responses to the question "On a scale of 1-10, how curious are you about the artifacts?"
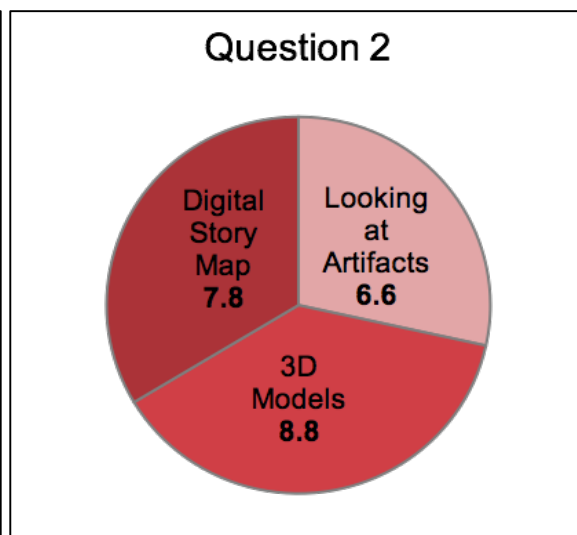
Figure 4.3: Graph showing responses to the question "To what extent does your curiosity about the artifacts elevate your curiosity about Andean and Amazonian cultures?"

For both questions, we can clearly see an increase in curiosity when students interacted with the Digital Story Map, and especially when they engaged the 3D models. In question 1,

there is a 3.4 point increase in curiosity about the artifacts themselves when using the 3D models. In question 2, curiosity about Andean and Amazonian Cultures more generally goes up 1.2 points with use of the Digital Storytelling Map and another point when the 3D models are added.

Our next figure indicates the time allocated towards each phase of engagement. The virtual experiences performed well in this observation as well. In the phases involving the interactive digital features, the test audience spent longer periods of time with the exhibit feature, doubling and quadrupling the time spent with the more traditional experience of just looking at the artifacts.
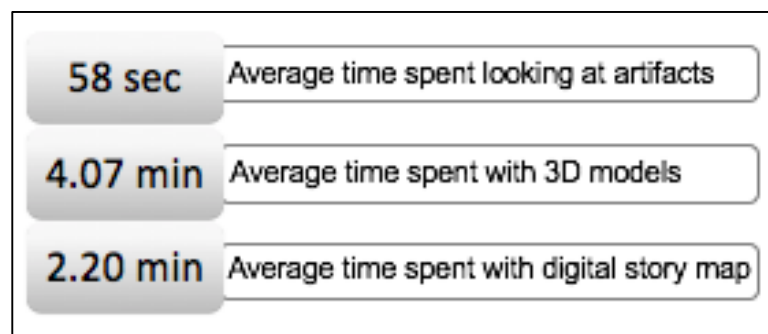
Figure 4.4: This illustration shows the amount of time students spent on each phase of the study.

Narrative feedback by participants included responses such as "the map also allowed me to see where the items were from which made me more curious about the cultures of those individual places," suggesting a correlation between information and increased appreciation for the culture. Another participant stated, "I had more of a personal appreciation with the digital models because in today's world we do a lot on our phones," showing that we have effectively engaged our targeted audience at their level of comfort and familiarity.

5. Conclusion

By implementing interactive digital features made accessible through the use of QR codes readable by smartphones, we have engaged our audience at their level of comfort and familiarity. By using interactive technology effectively in the context of learning about and engaging with non-Western cultures, we have provided depth and insight that supports measurable audience attention and time spent with the exhibit. Narrative feedback from participants in the pilot group indicates that there is a correlation between time spent with features and audience appreciation both of the collection artifacts themselves and, beyond that, of the cultures that produced them. The extended time spent observing key concepts and ideas as well as the artifacts themselves via the use of interactive digital features clearly shows an increase in engagement and curiosity. This leads us to consider that when faced with radically different cultures it is conceivable that the technology itself can mediate familiarity and bridge cultural appreciation.

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