ARE VIRTUAL MUSEUMS WORTH IT?:

DISCOVERING HOW GEN Z PERCEIVES VIRTUAL MUSEUM VISITS

IN LIGHT OF THE COVID-19 PANDEMIC

by

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# TABLE OF CONTENTS

1. INTRODUCTION............................................................................................................. 3

2. LITERATURE REVIEW.................................................................................................... 5

3. RESEARCH QUESTIONS.................................................................................................. 14

4. METHOD..................................................................................................................... 16

5. RESULTS.................................................................................................................... 22

6. DISCUSSION............................................................................................................... 26

7. LIMITATIONS AND FURTHER RESEARCH.............................................................. 33

8. RECOMMENDATIONS.................................................................................................. 36

9. ANTICIPATED BENEFITS........................................................................................... 37

REFERENCES................................................................................................................ 39

APPENDICES.................................................................................................................. 42

A. SURVEY QUESTIONS................................................................................................. 42

B. INTERVIEW QUESTIONS............................................................................................ 49

C. INTERVIEW TOOLS................................................................................................... 51

D. INTERVIEW TRANSCRIPT WITH SUBJECT #1......................................................... 52

E. INTERVIEW TRANSCRIPT WITH SUBJECT #2......................................................... 56

F. INTERVIEW TRANSCRIPT WITH SUBJECT #3......................................................... 61

G. INTERVIEW TRANSCRIPT WITH SUBJECT #4......................................................... 65

H. RAMP IRB APPROVAL............................................................................................... 69
CHAPTER 1

INTRODUCTION

The day marked on every student’s calendar since the beginning of the year has finally arrived: field trip day. However, unlike in years past, a permission slip will not be a requirement for this 2020 learning escapade! The only items these Gen Z students need is an ergonomic chair, a strong Wi-Fi connection, and access to a platform such as Google Arts & Culture where over 2,000 virtual museums from across the globe are waiting to be discovered.

Due to the COVID-19 pandemic, art museums across the United States were forced to close their doors indefinitely, removing all physical access to materials. Because of this unforeseen dilemma, there remains only one means by which a visitor can peruse a museum’s collection: virtually. While most museums preemptively created some version of a digital catalog, less have taken the initiative to design an interactive, virtual experience for their audience. Though not initially instigated by the global pandemic’s removal of an institution's physical body, interests in virtual visits to museums have strengthened due to these circumstances.

Virtual museums are collections of museum objects that are displayed entirely online. A virtual museum would be considered a dynamic approach to showcasing a museum’s collection digitally, because it incorporates 3D photogrammetry, a system wherein thousands of photos are compared to create 3D models of materials in a museum (Medina, 2020), and augmented reality (AR) technology (White, 2001) to develop an immersive experience for the audience. This revolutionary method of connecting museums to their audience has only become available through the process of digitization.
Digitization, or the process of cataloging analog information into a machine-readable format, assists museums in fulfilling their most basic function: providing information to their audience (De Mauro, 2015). As detailed by Werner Schweibenz in the Department of Information Science at the University of Saarland, there has been an evolution of museum archives over the last few decades. Brochure museums were designed solely to inform the public on a physical museum’s hours of operation or on which artifacts were currently on display. Now, through digitization, museum websites can successfully present an audience with images of items from the physical institution’s collection, accompanied by information on the items—if available—through what is known as a digital catalogue. In the case of virtual museums, a more advanced method of digitization can now provide a captivating experience to visitors by incorporating 3D models of objects and AR technology (Schweibenz, 2004).

Due to the COVID-19 pandemic, museum professionals have started to utilize less-explored avenues to interact with their audience, one of which being virtual museums. However, there are very few studies conducted on the perception of virtual museums during the on-going pandemic, and even fewer studies conducted focusing on the perceptions of Gen Z audiences specifically. This study aims to answer the question: how do Gen Z individuals perceive virtual museums, in terms of enjoyment, and is this response positive enough to justify allocating monetary resources towards digitization in the form of virtual museums?
CHAPTER 2

LITERATURE REVIEW

The following literature review addresses the history and definition of digitization, the evolution of digital catalogs into virtual museums and how they are perceived, the method in which to measure motivation, the retention of knowledge after participating in a virtual museum, the impact of technology and waiting, the generation for whom this research is being conducted, the cost of virtual museums, and why it is relevant amidst the global pandemic.

Digitization

Technology is ever-changing, as are its effects on museums. Paul Marty and Katherine Jones (2007) describe the importance of museum informatics—or the study of how information sciences and emerging technological advances affect museums, museum professionals, and visitors—when reviewing digitization. They define digitization in a museum context as the process in which a museum professional creates a detailed description of an item recorded on a digital platform and then produces a visual representation of the item from the collection (Marty & Jones, 2007). The article explains that when computerized technology first began being implemented into museums, and there was no way in which to create a visual representation of the object, museum professionals used the term “computerizing” a collection when creating an electronic database from physical card files and ledgers. However, it was not long until digital cameras and scanners were able to upload images and digital representations of objects into files, thus the term “digitization” was born. Marty and Jones explain that this newfound ability to catalog objects was not the end of digitization in museums, but rather a stepping stone for further advancements in the field (Marty & Jones, 2007).
ARCO & Perception/Enjoyment

As addressed in the article by White (2001), a major breakthrough for museums around the world occurred in 2001 when the ARCO (Augmented Representation of Cultural Objects) system was developed as a part of an EU ICT (European Union Information and Communication Technologies) project. This system provided museum curators with the tools necessary to assist in the digitization of their collection by creating 3D models of objects, aiding management of curatorial object databases, and presenting objects in a virtual museum. This article insisted that ARCO’s software was revolutionary for its time and had the potential to engage audiences in a whole new way (White, 2001). Less than a decade later, this theory would be tested. As detailed by Sylaiou, Karoulis, and White (2009) in their journal, their experiment was devised to test how present a user truly felt inside a virtual museum environment by measuring said user’s engagement and enjoyment. In order to accomplish this task, the ARCO system with the Augmented Reality InterFace (ARIF) component was tested and evaluated using a Virtual Reality (VR) and an Augmented Reality (AR) presence questionnaire. Twenty-nine paid volunteers were given a set of tasks to accomplish, told to explore the ARIF, determine what action would be necessary to accomplish their task, and then assess the system’s responses via ‘presence questionnaires’ and record their responses on a Likert scale. Users who had familiarity with AR/VR and/or users who had video game experience were grouped together and measured separately from those who did not. Through this research, they concluded that: the factors ‘presence’ and ‘enjoyment’ are related to one another; there is a positive correlation between VR presence and AR objects’ presence (e.g. participants perceived they were sharing the same physical space as the synthetic objects); and previous computing experience had no statistically significant correlation to perceived ‘presence’ or ‘enjoyment’ (White, 2001).
Self Determination Theory and Motivation

In their book, “Intrinsic Motivation” (1975), Edward L. Deci and Richard M. Ryan detail their theory regarding which factors most affect one’s enjoyment of doing activities. This theory, known as the Self Determination Theory, identified three factors necessary for humans to motivate themselves: the need for competence, the need for autonomy, and the need for relatedness (Deci & Ryan, 2004). The Self Determination Theory provided an explanation as to how an environment can greatly affect – either positively or negatively – a person’s ability to have motivation-driven satisfaction. The two forms of motivation they described were intrinsic motivation and extrinsic motivation. They believed that it is the type, not quantity, of motivation that has the greatest impact on participants’ enjoyment of an activity. When a person participates in an activity through inherent satisfaction it is called intrinsic motivation because these behaviors have an “internal locus of control” (Deci, Vallerand, Pelletier, & Ryan, 1991). On the other hand, when a person is acting out of motivation from outward factors, they are being extrinsically motivated. Extrinsic motivation does not account for autonomy, but rather they motivate participants by either offering a reward or threatening with a punishment. These rewards and threats (or “carrots” and “sticks”, respectively) do not have to be substantial to make an impact or compel someone to complete a task; however, the subject will likely be dissatisfied when the reward or punishment is no longer being distributed, and they will no longer have a way to motivate themselves to complete a task (Deci & Ryan, 1975). In order to test how or what motivates a person to fulfill an activity and enter a state in which they can experience enjoyment through a task, Edward L. Deci and Richard M. Ryan created the Intrinsic Motivation Inventory (2000). This instrument includes 45 items that make up 7 subscales which include:

interest/enjoyment (i.e. “I enjoyed doing this activity very much”), perceived competence (i.e. “I
think I am pretty good at this activity.”), effort/importance (i.e. “I put a lot of effort into this.”), pressure/tension (i.e. ‘I was anxious while working on this task.’), perceived choice (i.e. “I believe I had some choice about doing this activity.”), value/usefulness (i.e. “I believe I had some choice about doing this activity.”), and relatedness (i.e. “I feel close to this person.”) (Ryan & Deci, 2000).

**Knowledge retention**

Considering brick-and-mortar museums were not created purely for entertainment purposes, one could argue that virtual museums should similarly be judged for more than just their entertainment value. Both are learning institutions, which is a point Gheorghiu and Ştefan (2018) touch upon and demonstrate greatly in their 2014 case study. Their case study utilized the “time maps project” in order to show the effectiveness of virtual museums in e-learning. For this project, one has the option to view objects in an immersive experience/environment created using gaming engines like Unity 3D. When placed in this virtual reality, one can choose to transport out of the animated setting and back to “reality” by clicking a hotspot, which then redirects the user to a video of actors reenacting period-accurate scenes correlating with wherever the user left off in the virtual world. Gheorghiu and Ştefan (2018) claim that by linking the two environments, visitors will have the opportunity to experience the information whichever way they prefer, animated immersion or educational video, thus allowing for more retention. As a means of testing this theory, Gheorghiu and Ştefan ran a case study in February 2014, utilizing a Vădastra School public history class, in which they had students and teachers from a primary and secondary class interact with the project for one hour before completing a questionnaire. The results of the study were conclusive. Students and teachers had successfully
responded to Gheorghiu and Ştefan’s questionnaire, and the results showed that virtual museums were an effective tool in e-learning (Gheorghiu & Ştefan, 2018).

**Impact of technology**

Why does a buffering computer feel agonizingly slow? In “The Psychology of Waiting Lines”, researcher David H. Maister (1984) concludes why certain “waits” feel almost unbearable while other wait times go unnoticed. Maister (1984) discusses that, much like how “a watched pot never boils”, time spent while one is unoccupied feels exponentially longer than time that is being occupied with certain tasks. He goes on to mention that uncertain, unfair, and unexplained waits feel longer than finite, explained, and equitable waits (Maister, D. H., 1984). This is applicable to technological wait times (including virtual museum visits) because computer programs, internet connection, and digital devices often prove to be fallible. Even when the museum is not at fault, if a site takes longer to load than a guest would expect or want, that guest may decide to leave. Maister also addresses a different but related concept in his study. He suggests that the perceived value of the product or experience one is waiting for positively correlates with how long they are willing to wait for the opportunity to experience it (Maister, D. H., 1984). If a person is enjoying a virtual museum, for example, and their computer begins to lag, they will be more likely to wait for the website’s loading time than a person who was not enjoying their virtual visit. Of course, since there are circumstances that are out of an institution's control (i.e. a guest experiencing slow Wi-Fi or an older, lagging device); feedback and responses from those experiencing these technical difficulties should be recorded and their technological issues identified, because their opinion of a virtual museum visit may not necessarily be indicative of their potential to enjoy the experience.
Gen-Z

There are discrepancies regarding the exact age of individuals falling into the moniker “Generation Z” (also referred to as “Gen Z”, “iGeneration”, “Post-Millenials”, and “Zoomers”). For the purpose of this study, “Generation Z” will follow Francis & Hoefel’s definition of the term, which includes people born between the years 1995-2005 (2018). Gen Z, as reported by the Income Results (2020) study, was the first generation to grow up with the internet readily available to them from a young age. Because of this, one might assume that most, if not all, Gen Z individuals could be considered digitally literate. However, as discussed in this report, the 2018 International Computer and Information Literacy Study (ICILS) found that, out of 42,000 eighth-graders sampled from 14 countries and education systems, only two percent of students were proficient enough to earn the title “digitally literate”. This is not to say that Gen Z does not appreciate the addition of digital elements in their daily lives. Cesário’s article, “Design Patterns to Enhance Teens’ Museum Experiences” (2017), detailed research conducted on 155 Gen Z teenagers wherein Cesário questioned students on their concepts and values regarding the creation of an engaging museum visit. Afterwards, the data was analyzed for trends which revealed that the 805 individual comments all fell into one of 6 themes. The 6 reoccurring themes were: gaming (e.g. interactive game or quiz), interaction (e.g. AR and 3D images), localization (e.g. digital search engine/map), social media (e.g. a social network site), information on the museum (e.g. video), and photos (e.g. the option to take photos at site or while utilizing AR technology). Even when discussing in-person museums, Gen Z preferred that there be some element of technology to create a more engaging environment (Cesário, 2017).

Another study, “The Authenticity of the Museum Experience in the Digital Age: The Case of the Louvre”, conducted by Yves Evard and Anne Krebs (2018), sought to distinguish
whether visits to “real”, or physical, institutions and visits to virtual experiences of museums, or the museum’s website, were complimentary or if these experiences could be substituted for one another. Surprisingly, they found that those surveyed who were less than 35 years old were less inclined to enjoy visiting a museum’s virtual experience. While this demographic is not exclusively Gen Z, it is worth noting the significance of Evard and Krebs’s findings (2018). It is also worth noting that this study was not solely focused on “virtual museum visits” but rather experiences that can be found on a museum’s website. This distinction is important, because while a museum may have the resources to create a digital archive without outsourcing, if they do not utilize a program or have a digital architect on staff, they likely cannot simply create a virtual museum. It is also important to note the time in which this study took place. This study was conducted in 2018, and it does not account for the global pandemic nor the pandemic’s compelling visitors to the digital format.

**Price of Virtual Museums**

In January 2018, Google Arts & Culture launched a new initiative for museums and cultural institutes. If a museum was willing to share their entire collection with Google, then Google would provide the museum with benefits, one of which being a free, virtual museum. There are pros and cons to this initiative. Having a museum’s collection available on one of the leading search engines would likely fulfill the mission statement for both institutions: making the objects of a collection accessible. That being said, Google Arts & Culture now has the right to display and direct online foot-traffic to their own site, rather than the site of the physical, holding museum. This may cost a physical museum the opportunity to generate traction, and in doing so, lessen interaction with a museum’s programming and fundraising initiatives (Google Cultural Institute, n.d).
That being said, there are other options if you are trying to create a virtual museum. With Ikono space, you can create a 3D gallery for roughly $400-$1,000 USD. According to Invision Studio, the average price of a virtual museum that utilizes either a 360 virtual tour, outdoor architectural photography, or aerial drone photography is approximately $3,000 (Virtual museum tours, 2016). For Momentum Virtual museums, a virtual tour with HD photography and virtual staging will cost approximately $650 (Virtual Tour Photography, 2020). These examples are representative of the dozens of available virtual museum/web architecture sites available to institutions and the vast array of prices and features available with each site. If a museum decided to utilize one of these alternatives, that museum would have full ownership of their objects’ digital representation, therefore having full benefits in regard to online foot-traffic.

**Covid-19**

While a strong digital platform has been an integral piece in running a successful museum for the past few decades, it is crucial now more than ever. According to Orlandi (2020), almost 92% of museums have closed for a period of time due to the Covid-19 pandemic. To combat this staggering fact, museums have begun to implement new elements (i.e podcasts) into their curriculum and increasing focus on existing virtual procedures (i.e. online learning programs). According to a survey of participating museums, since the start of the Covid-19 pandemic, more than 10% of museums have increased their online presence by 100%, and more than 40% of museums have increased their online active by one third. All this being said, Orlandi reiterates the importance of fine tuning any digital platform already held by a museum before creating additional streams. Museums should ensure their websites are functional and the content available is of the utmost quality. After this standard has been ensured, museums must create dialogue via digital platforms as a means of communicating with their audience. One-way
communication during these tumultuous months is not as beneficial to the public whom museums are designed to serve; however, when institutions create projects after listening to the public’s needs and concerns, active participation occurs, and the greatest benefit is achieved for both the museum and the audience (Orlandi, 2020).

Knowledge regarding the history of museum digitization, digital catalogs’ progression into virtual museums and their ability to make the audience feel “there”, a theory and scale used to measure motivation, a study wherein a virtual museum was able to test knowledge retention, the impact of waiting, Gen Z’s relationship with technology and museums, the price of virtual museums, and how the Covid-19 crisis related to museums are all necessary for the scope of this study. However, there are gaps in this information. Without further research regarding how Gen Z perceives virtual museums during the Covid-19 pandemic, there is either a risk of wasted funds from institutions who utilize virtual museums–if they are viewed in an unfavorable light–or a concerning lack of museums taking advantage of a potentially useful tool.
CHAPTER 3
RESEARCH QUESTIONS

Study 1

RQ1: Do members of Gen Z with a higher level of art knowledge differ in their enjoyment of virtual museum visits from members of Gen Z with a low level of art knowledge?

RQ1 Rationale: This question is significant due to the lack in previous research regarding the effects of art knowledge on the enjoyment of virtual museum visits. The inclusion of this question in the study is important as it aims to address this gap in research.

RQ2: Is there a difference in enjoyment between a member of Gen Z with high-functioning internet connection and a member of Gen Z with low-functioning internet connection?

RQ2 Rationale: There exist studies regarding the effects of “waiting” on enjoyment, but there are not yet studies focused on specifically dedicated to determining if there is a difference in the enjoyment of a virtual museum visit on a person with high performing Wi-Fi connection and a person with low performing Wi-Fi connection.

RQ3: Does enjoyment of virtual museum visits differ depending on how people access the visit (smartphones, laptops, desktop computers, tablets, and smart TVs)?

RQ3 Rationale: Consideration into the devices that will be used to participate in a virtual museum experience must be made. If a museum is distributing a virtual museum as a means of promoting their mission to create more accessible content for guests/followers, and a smartphone, for example, is unable to provide an easy-to-use, readable format, then the museum is better off not moving forward with such a tool. There does not yet exist a study on the difference in enjoyment in a virtual museum visit between various electronic devices that are being used to access the experience.
Study 2

**RQ1a: What does Gen Z like about digital catalogues?**

**RQ1 Rationale:** There exist many reasons why a person may enjoy a digital catalogue, but it has not yet been studied how Gen Z, amidst a global pandemic, feels about utilizing this instrument. This information may be useful to museum staff when rationalizing whether they are “worthy” of allocating time or funding into their creation.

**RQ1b:** What does Gen Z like about virtual museum visits?

**RQ1b Rationale:** Again, there is a gap in knowledge regarding the perception of enjoyment in virtual museum visits to members of Gen Z in light of the global pandemic. This question hopes to distinguish elements of the virtual museum that Gen Z feels favorably towards.

**RQ2a: What does Gen Z dislike about digital catalogues?**

**RQ2 Rationale:** Similarly to how discovering what Gen Z perceives favorable about digital catalogues, discovering what Gen Z dislikes about digital catalogues will provide an important framework to distinguish the value that Gen Z believes these tools provide.

**RQ2b:** What does Gen Z dislike about virtual museum visits?

**RQ2b Rationale:** This question aims to identify elements of virtual museums that members of Gen Z do not like. This information is important to collect, as can be used by museums to inform their decisions on pursuing including virtual museums on their website.
CHAPTER 4

METHOD

Study 1

Overview

Following approval by the institution of IRB, an online survey created using the software, “Qualtrics”, measured how members of Generation Z perceive and to what degree that they enjoy virtual museums amidst the Covid-19 pandemic. Survey data was collected over the course of one month.

Participants

For the purposes of this study, only answers from participants who can be categorized as members of “Generation Z” were analyzed. Generation Z is defined as people born between the years 1995-2005 (Francis & Hoefel, 2018). These members were recruited through the primary researcher’s social media posts on Facebook, Instagram, and LinkedIn. Of the 200 participants who began the survey, 106 (53%) had not previously visited a virtual museum. Of the remaining survey participants, 31 (15.5%) ended the survey during the virtual museum visit and 10 (5%) more ended the survey during the questions that followed. Of the 53 (26.5%) that completed the survey, only 36 (18%) were in the target age range for Gen Z. The three mediums that were utilized by participants to complete the survey were desktop computers (6%), laptops (17%), and smartphones (78%). Tablets and smart TVs were not utilized by any of the subjects. Regarding the subject’s ethnicity, 67% self-identified as “White”, 8% as “Black”, and 25% as “Hispanic/Latino”. The subjects identified themselves as women (64%), men (28%), agender (3%), and other (6%).
**Procedure**

The online survey, created through a web-based survey platform named Qualtrics and approved by the institution IRB, was able to be accessed through a secure link posted on various social sites (i.e. Facebook, Instagram, Linkedin). Participants accessed the anonymous survey by clicking the link in said post. Once logged into the secure platform, they were asked for their informed consent before proceeding to the rest of the study. Afterwards, they completed the survey in an average of 5 minutes and 57 seconds.

**Measures**

**Consent.** Participants were asked if they are of legal age to consent to the participation in the anonymous online survey.

**Previous experience with virtual museums.** Participants were given the definition and shown a screenshot of a virtual museum. Afterwards, they were asked whether or not they had participated in a virtual museum experience in the past. If they had not, the survey ended immediately. If they had, they moved on to the next block of questions.

**Virtual Exhibit.** Participants were given the link to an accredited museum’s virtual exhibition. Participants were then asked to click through the museum for no less than one minute. After that minute, participants were allowed to close the tab and continue with the survey.

**Intrinsic Motivation Inventory (IMI).** Participants were asked 25 questions from an adaption of Deci’s Intrinsic Motivation Inventory (IMI) scale. These questions were created with the intent to measure the level of motivation when completing computer tasks. The scale tested a participant’s enjoyment, perceived choice, and perceived value of an activity. Several items within the scale were reverse scored, those being items 8, 12, 14, 18, 20, and 24. Participants were asked to rate their level of enjoyment on a 7-point Likert scale. Cronbach’s alpha showed
Participants were asked to rate their level of perceived choice on a 7-point Likert scale. Cronbach’s alpha showed 0.75. Participants were also asked to rate their perceived value/usefulness of the virtual museum visit on a 7-point Likert scale. Cronbach’s alpha showed 0.87. Upon the deletion of items 22 and 23, 7 items remain in the enjoyment subscale, 7 items remained in the perceived choice subscale, and 9 items remained in the value/usefulness subscale.

**Assessment of Art Interest.** Participants were asked to rate their level of interest on 6 statements pertaining to various forms of art that they measured on a 7-point Likert scale where one means no interest and 7 means high interest. The forms of art were: sculpture, paintings, photography, drawings, digital art, and weaving.

**Frequency of Museum Visits.** Participants indicated how frequently they had visited museums in the past 2 years by selecting the amount that corresponds with how many times they entered a physical museum in that timeframe. The options were: 0, 1-3, 4-6, 7-9, and 10+.

**Assessment of Art Knowledge.** Participants answered 10 knowledge-based, multiple choice questions ranging from easy to difficult. An example of one of the questions is, “Who painted the Mona Lisa?”

**Technology Satisfaction.** Participants indicated what device they are taking the survey from, and they were asked to rate their level of agreement with statements pertaining to their current Wi-Fi on a 7-point Likert scale. An example of one of the questions is “I have fast internet connection”. Items 2 and 4 will need to be reverse scored.

**Demographics.** Participants were asked anonymously to report their race, gender, age, ethnicity, and level of education.
Study 2

Overview

In-depth interviews were conducted and utilized to further the findings of study 1. Study 2 hopes to clarify the reasoning behind Gen Z’s opinion of virtual museums through qualitative data and analysis.

Participants

The interviewed participants were 4 members of Generation Z, and they were chosen through a convenience sample. Of those interviewees, three identified as female and one identified as male. The participants were all either recent graduates or currently enrolled in a wide range of higher education programs including a journalism graduate now studying social work, an art history graduate now studying museum studies, a professional pharmacy studies undergraduate student, and an English and education graduate. The participants were 21, 22, 23, and 24. Two participants had previously experienced a digital archive while the other two had not. Only one of the four participants had experienced a virtual museum in the past. Two participants conducted the interview and virtual museum via smartphone and two participants conducted them via a laptop. All participants were from the Southeastern region of the United States. To avoid redundancy, study 2 interview subjects were not to participate in the study one survey.

Procedures

In depth interviews were conducted virtually using the video conference software, “Zoom”. Participants were first asked for informed consent. Then, while the subject was sharing their screen on the video call, the subject looked at 5 images in the National Gallery of Art’s digital catalog for as long as they pleased. Afterwards, they were asked a set of questions
regarding their opinions on the digital catalogue. Participants were then asked to visit a virtual
museum—the same virtual museum utilized in study 1—and asked to look around for as long as
they pleased. They were then asked 5 questions regarding their opinion on the virtual museum.
Afterwards, they were asked about their relationship with art museums and technology. Finally,
they were asked a set of demographic questions. The interviewees answers were recorded, and
their responses were analyzed and interpreted. The interview took approximately 10-25 minutes
in total.

**Measures**

In-depth interviews were conducted as a means of better understanding the decision-
making process of the participants. Interview questions were adjusted based on responses to the
survey conducted in Study 1.

**Consent and Distribution of Tools.** An IRB approved script was read out to the participants
before the interviews began. After participants confirmed their age and consented to being
included in the study, a series of links to items in a digital catalogue and a virtual museum were
distributed.

**Digital Catalogue.** Participants were asked to spend as much time as they pleased looking
through 5 images in the same, accredited museum’s digital catalogue. They were then asked
about their prior experience, if any, in a digital catalogue as well as their perceived value,
perceived choice, and personal enjoyment of the experience.

**Virtual Museum Visit.** Participants were asked to spend a minimum of one minute in the
Virtual museum with no maximum time restraint. Again, participants were asked about their
prior experience, if any, visiting a virtual museum as well as their perceived value, perceived
choice, and personal enjoyment of the experience.
**Relationship with Art.** Participants were asked to describe their relationship with art, in general, and then describe how their relationship with art museums impacts their perception of digital catalogues and virtual museum visits.

**Relationship with Technology.** First, subjects were asked which electronic device they were utilizing to participate in the study. Afterwards, they were asked to describe their perceived skill with technology and to describe their Wi-Fi connection and device speed. They were then questioned as to whether their Wi-Fi connection and/or device speed has a significant impact on their enjoyment of using the internet.

**Demographics.** Interview subjects were asked their name, age, gender, race, highest degree or level of education that they have completed, and which region of the United states they are from.

After all the interviews were completed, interviewee’s answers were transcribed, and similar answers were grouped together to provide the qualitative data necessary to draw conclusions from. These answers were used as a means of explaining and furthering the interpretation of the results from study 1 as well as a means of identifying further research that must occur in the future to better solidify Gen Z’s position on virtual museums.
CHAPTER 5

RESULTS

Study 1

RQ1: Do members of Gen Z with a higher level of art knowledge differ in their enjoyment of virtual museum visits from members of Gen Z with a low level of art knowledge?

Independent t-tests revealed that those who possess a low level of knowledge ($M = 5.37$, $SD = 0.792$) did not significantly differ in their enjoyment while visiting a virtual museum from those who possess a high level of knowledge ($M = 5.24$, $SD = 0.815$), $t(32) = 0.451$, $p = 0.655$.

RQ2: Is there a difference in enjoyment of virtual museum visits between a member of Gen Z with high-functioning internet connection and a member of Gen Z with low-functioning internet connection?

Independent t-tests revealed that those who possess low-functioning internet connection ($M = 5.27$, $SD = 0.871$) did not differ in their enjoyment while visiting a virtual museum from those who possess a high-functioning internet connection ($M = 5.32$, $SD = 0.169$), $t(32) = 0.160$, $p = 0.874$.

RQ3: Does enjoyment of virtual museum visits differ depending on how people access the visit (smartphones, laptops, desktop computers)?

An ANOVA test revealed no significant main effect of the way people access the visit on their enjoyment ($F = 2.404$, $p > 0.05$). Post-hoc analysis showed that people who accessed the virtual museum via smartphone ($M = 5.61$, $SD = 0.811$) did not differ in terms of enjoyment from those who accessed the virtual museum via laptop ($M = 5.295$, $SD = 0.52$) or desktop computer ($M = 4.24$, $SD = 0.586$).
Study 2

RQ1a: What does Gen Z like about digital catalogues?

Interviews with members from Gen Z provided qualitative data to this study. Between the four interview subjects, there was a unanimous, positive association with elements of the digital catalogue. Subject one, “enjoyed getting to see the exhibition history of each of the works.” Subject four stated, “I like the paintings. I liked the background information on the first few about the mourning dove and the background information of the different paintings. The site was also pretty easy to navigate.” Subject three stated that “I really liked that I could click on the pictures and zoom in on them.” Subject two stated that they, “liked that it was super accessible”.

RQ1b: What does Gen Z like about virtual museums?

Subjects one and four both appreciated the ability to read about the works. Subject one stated that, “I liked getting to read about each of the works. I thought that was nice.”, and subject four stated that, “I liked that when you're reading it off the wall you could click on it and read a longer description that had links to more information.” Subject two stated that “It was cool that it was virtual and that no matter where you are it is still an option if you want to see artworks”. The immersiveness of virtual museums was a factor that was praised by Subject three. They liked that, “You could see the room. It kind of felt like you were there, and it was immersive. You could just walk up to any of the paintings and read something about them, like you would in a normal museum.”

RQ2a: What does Gen Z dislike about digital catalogues?

Subject one and subject three shared the same sentiment of, “I didn't dislike anything.” Subject four wished there had been more information on pieces provided by the museum. They stated that, “Some of the items were not as descriptive as others—more like a bibliography—so I
wish those had been more detailed.” Subject two described their emotions felt while looking through the digital catalogue and then gave justification as to why they might feel the way that they do. They stated that, “I guess what I don't like is it was kind of boring, but only because it's not like the real thing or my preferred style.”

**RQ2b: What does Gen Z dislike about virtual museums?**

Technical issues and difficulty maneuvering in the program were unanimously experienced by interview participants. Interview subject one experienced difficulty utilizing certain functions when visiting the virtual museum. They stated that, “I guess maybe it's just me not knowing how to work it, but I wish they could have zoomed in a little bit more on the work themselves.” Interview subject three had difficulty distinguishing how they might maneuver within the virtual museum. They stated that, “I think my dislike would be just at first I kept clicking and I kept moving around everywhere, but then I realized that there was a floor plan button that you could click, and that made it a lot easier. Once I got the hang of it, I was okay. It was just the initial technical difficulties that I did not enjoy.” Interview subject four explained that they experienced difficulty navigating during the virtual museum visit. They stated that, “Since it was my first time, I was having a hard time navigating in the museum and it kept kicking me out of that back room, because there were some technical issues. This was a little confusing, but for the most part it was pretty simple.” Interview subject two did not provide detail into the technical difficulties that they experienced, but they did provide insight into a separate factor that they disliked about the virtual museum visit. They stated that, “I would always prefer to see artwork in person, but this year especially that wasn’t really available. Those are the main reasons I would have to dislike it other than minor like technical difficulties and things like that.” Similarly, Interview subject four later stated, “I feel as though we have almost
any information we'd want to find at our fingertips. I’ve never really had the thought cross my mind, but I guess technically the things you're learning in the museum you could just learn through a website about art, but I do think that there's something about being there in person that makes me more engaged with the subject matter. Maybe it's just an emotional thing because I don't think I necessarily learn more being in a museum than from a digital catalog or virtual museum, but I guess because of my relationship and kind of fondness for in person museums if someone said oh you can just learn all that from a digital catalog, I guess I would just be a little hesitant, or not hesitant, but I would just think oh that's a lesser version to going to a museum and seeing works in person.”
CHAPTER 6

DISCUSSION

Study 1

This study sought to discover if there was a difference in enjoyment that occurs when visiting a virtual museum for a member of Gen Z with high and low levels of certain variables. For the first variable, an independent t-test revealed that those who possess a low level of knowledge do not differ in terms of enjoyment from those who possess a high level of knowledge. While there was no difference found, the inclusion of this variable in future studies is still valuable, because it will help establish for museum professionals discover who from their audience will be most likely to enjoy virtual museums. This information will then allow them to adjust their tone of voice and the information included accordingly. The lack of difference in these results may have occurred for several reasons. One reason why this may have occurred is because there was a small survey sample size. Another reason why this may have occurred was because the knowledge test was too easy. Because the mean score on the knowledge test was a 9.3 with the majority of participants (61%) receiving a perfect score, it can be hypothesized that the questions on the quiz were not difficult enough to measure “knowledge of art”, as the test aimed to do. It is also possible that the participants were too homogenous. Because participants were collected through convenience and snowball sampling, it is possible that the sample pool was too similar, and potentially in similar fields of study. Education level was included in the demographics portion of the survey; however, there was no question pertaining to the field of study, if any, that a person would categorize themselves into. Finally, there is potential for cheating to have occurred. There was a 30 second time limit placed on each question; however, it is still possible that a person could quickly use another device or ask another person for
assistance to discover the correct answer to the art knowledge test questions. If this were to be the case, it would suggest that the art knowledge test questions may be an accurate tool to measure art knowledge and potentially discover a difference in high and low knowledge, but too much time was allotted to each participant to complete each question on the test.

Secondly, it was important to discern if there is a difference in enjoyment of virtual museum visits between a member of Gen Z with high-functioning internet connection and a member of Gen Z with low-functioning internet connection. This is a valuable variable, because it will inform museum professionals as to whether or not virtual museum visits are enjoyable to those with low-functioning internet, and in doing so, assist in determining if they are an accessible means of providing a museum-like experience to all guests. Independent t-tests revealed that those who possess low-functioning internet connection do not differ in levels of enjoyment when experiencing a virtual museum visit from those who possess a high-functioning internet connection. This result, again, may be due to the small survey sample size. It is also possible that the item “I feel upset when my devices take too long to load a webpage” included in the Wi-Fi scale may have caused confusion or skewed results as it did not contain the term “Internet connection”. It is also possible that confusion occurred due to the use of both the term “Wi-Fi” and the term “Internet connection” without distinguishing between the two. While these terms are frequently grouped together, they are not synonymous and should not be used to calculate the same variable.

Finally, this study sought to discover if there is a difference in the enjoyment levels of a member of Gen Z while visiting a virtual museum and other members of Gen Z visiting a virtual museum on different types of electronic devices. Smart phones were categorized into group 1, laptops were in group 2, and desktop computers were in group 3. As there were no responses
indicating the use of a tablet or a smart TV while visiting the virtual museum and completing the survey, those variables were not included in the analysis. This variable was chosen to provide insight on to whether or not screen size and/or retina display will impact a user’s enjoyment while in a virtual museum. An ANOVA test revealed that the enjoyment for those who used one electronic device to access a virtual museum visit did not differ from those who utilized other devices to access a virtual museum visit. Like the previous Study 1 results, it is possible that these results may have been impacted by the small sample size of members of Gen Z who had completed a virtual museum prior to the survey. One potential factor that was not accounted for was that the participant was not made aware that they would be experiencing a virtual museum visit during the survey. This may have the opportunity to alter data, because had a survey participant been aware of the visit prior to their consenting to participate, they may have begun the survey using a device that they felt could be better suited for visiting a virtual museum.

**Study 2**

The interviews in study 2 were held to provide qualitative data for this research and enhance understanding as to why members of Gen Z feel the way they do about elements of digital catalogues and virtual museums. The interviews in this study sought to discover what elements of a virtual museum that members of Gen Z liked. Subject one enjoyed a component of the digital catalogue that allowed them to see the exhibition history of the pieces included in the archive. This feature allows the viewer to identify where, when, and under what context an item in the collection was shown. Subject three enjoyed having the ability to zoom in and see the artwork up close. Subject four enjoyed the artwork and the several paragraphs that were included alongside each of the pieces. They enjoyed having the background information easily accessible to them whilst they browsed the catalogue, and they also appreciated the ease at which they were
able to navigate the museum’s website and catalogue. Subject two liked how accessible the
digital catalogue made the artwork and information. This statement was mentioned elsewhere in
the survey; however, it was mentioned in relation to the term “value”. The variable “like” and the
variable “value” are not one and the same. If value is taken into consideration, every interview
subject mentioned the digital catalogues’ attribute of accessibility, and some further specified
valuing the ability to access information, regardless of distance.

Secondly, this study aimed to discover what elements of virtual museums that Gen Z
liked. One feature of virtual museums that was appreciated by both subjects one and subject four
was the extended object labels. Object labels within physical museums do not typically contain
lengthy descriptions of the artwork, but virtual museums have the opportunity to provide history
and background information on the pieces as well as links to more information stored on the site.
Subject three enjoyed the immersiveness of the experience. They enjoyed that you were able to
“walk” up to any work of art in the exhibit and read as much about it as you pleased. Subject
two, again, mentioned accessibility, and they went on to specify that they enjoyed the availability
of the virtual museum visit regardless of physical location and distance from a museum. This
sentiment was also shared by other interview subjects, specifically in the context of utilizing the
virtual museum visits during Covid-19; however, they mention it in the context of valuing a
particular element of the virtual museum. “Like” and “value” not being synonymous variables
will detract from the results for the research question proposed; however, it is a variable that is
well worth including in future studies.

The study then sought to discover what elements of a digital catalogue were not liked by
Gen Z. Subject one and subject three were both unable to identify elements of the digital
catalogue that they disliked. Subject four desired more information on works of art. They were
displeased that certain items contained lengthy description and background information, meanwhile others do not and are, in their opinion, more similar to a bibliography. Subject two, on the other hand, felt that their experience with the digital catalogue was “boring”. While that is not an element that can be easily controlled, the interview subject went on to state that they felt this could be the case for two potential reasons: the digital catalogue “is not the real thing”, i.e. not a physical museum with access and exposure to art in person, and the catalogue did not showcase the subject's preferred style/type of artwork. This information highlights two variables that may need to be included in future studies.

Finally, this study aimed to identify what elements of a virtual museum that were not liked by Gen Z. Interview subjects unanimously experienced technical issues and/or difficulty maneuvering throughout their visit in the virtual museum. Interview subject one attempted to zoom into the artwork while in their virtual museum visit, but they were unsure if it was their inability to understand and properly utilize the platform, or if they were only able to zoom in to a certain extent, wherein dissatisfaction with the software may occur. Interview subject three experience technical difficulties initially, because it was not made clear to them how to navigate through the space. They eventually noticed and utilized the arrow buttons located on the virtual museum’s ground. It is important to recognize that for the virtual museum portion of this study, interview subjects were asked to interact in the museum for no less than one minute. Had this not been a factor and the interview subject was able to leave whenever they pleased, it is possible that the subject would not have stayed on the web page long enough to discover the arrow buttons. Interview subject four described initial technical difficulties causing them to “get kicked out of the back room”, but they were able to resolve the issues soon after. Interview subject two did not provide detail into the technical difficulties that they experienced, but they did provide
insight into a separate factor that they disliked about the virtual museum visit. They stated that, “I would always prefer to see artwork in person, but this year especially that wasn’t really available. Those are the main reasons I would have to dislike it other than minor like technical difficulties and things like that.” Similarly, Interview subject four later discussed that although they feel that they are able to “technically” access any information they desire through the internet, when they are in a physical museum and surrounded by the subject matter that they are studying, they feel more engaged in learning. They were unsure as to whether the effect of being inside a physical museum was effective in making all visitors more engaged in subject matter, or if it was purely their own fondness of visiting museums and seeing works in person that causes them to become more engaged.

**General Discussion**

Museums are experiencing difficult times. A study conducted in October 2020 by the American Alliance of museums found that, out of 850 museum directors across the United States that were surveyed, almost one-third felt that their institution was “at risk of permanent closure by the following Fall” (2021). It is undeniable that Covid-19 has changed the museum-field and forced many within these institutions to consider what they can and cannot afford. That being said, how can a museum fulfill their mission without providing access to their physical institution and materials? Moreover, how can they ensure their future success by targeting the next generation, Gen Z? Virtual museums appear to be an obvious solution, and many ways, they provide a museum guest with the same information and access to the same materials offered in a physical institution; however, this study aimed to discover if Gen Z perceived virtual museum visits favorably, and if so, distinguish if that perception constitutes devoting a portion of a budget to creating a virtual museum.
Gen Z, ages 18-25, was chosen due to the generation’s reputation of being the most "internet-savvy". Having had access to some form of internet during their entire lives, this group—unlike others—was presumed to be capable of providing a perspective on using virtual museum visits as a method of digital outreach. This perspective would then give museum professionals insight into how to engage with the younger generation, especially during unforeseen times (i.e. Covid-19) wherein the only methods of engagement available are digital.

Study 1 sought to measure this perception through a survey. While, there were no differences found in levels of enjoyment between those experiencing high vs. low levels of art knowledge and internet connection or varying electronic devices utilized while visiting a virtual museum, these variables are still valuable to include in future replications of this study.

Study 2 sought to distinguish what elements Gen Z liked and disliked of a virtual museum visit and of their simpler predecessors, digital catalogues, and in doing so provide qualitative data to this research through interviews with members of this generation. The interview subjects unanimously liked the digital catalogues, and the only disliked elements mentioned were in regard to them being too short and “boring”, which was later stated to be due to the art style shown in the digital catalogue and not necessarily the catalogue itself. While both the virtual museum and the digital catalogue were praised in their provision of accessibility to art and knowledge regarding the variable “value”, both tools were also described in the interviews as being “liked” for their elements of accessibility.
CHAPTER 7

LIMITATIONS AND FURTHER RESEARCH

Limitations

Study 1

The greatest limitations of this project involved the selection and participation of the survey. The survey’s participants were chosen using the snowball sampling, wherein several subjects were consensually recruited and chose to pass the survey along to their network. This process was then repeated, and so on and so forth. This method of sampling may be a disadvantage, because there is little control over how the survey is being presented after its initial distribution, the sample may not be representative of the entire population, and sampling bias may have occurred. Another limitation regarding distribution of the survey was the forced use of solely virtual recruitment due to the Covid-19 pandemic.

It is possible that because of how specific the target of the survey was—Gen Z who had previously participated in a virtual museum visit—there was too small a sample size to generate a difference between variables. While this target demographic is interesting and has the potential to provide valuable information to museum professionals, it may also be beneficial to understand the perception of virtual museum visits from guests, regardless of age. This way, the survey sample size may be large enough to calculate a difference using a t-test.

Limitations regarding the survey itself include the length of the survey, the length of the time required to interact with the virtual museum, and potential confusion when navigating the survey. The length of the survey, which had a predicted duration by Qualtrics of approximately 7.5 minutes, may have deterred participants. Participants may have also been more inclined to click away from the survey due to the length of time they were made to interact with the virtual
museum before having the ability to move on to the next question. Finally, users who may not have a firm grasp on technology may have had a difficult time navigating the survey and may not have known how to move throughout it.

Study 2

Interview questions were asked to 4 members of Gen Z with varying ages, backgrounds, and education. Each interviewee represented their individual view and opinion, and it is not necessarily indicative of the Gen Z population as a whole. These interviewees were chosen through convenience sampling. Due to this sampling method, there is potential for biases to have occurred.

There were questions in the interview section that were included based on their ability to add credibility to the survey in Study 1, rather than their ability to answer the research questions intended for Study 2. These questions do not assist in answering the research question, and may have led skewed data had they not been separated whilst analyzing data. That being said, there is information in the answers provided by the interview subjects that would assist in helping reach the overarching goal of discovering the Gen Z’s perception of Virtual museum visits. Because of this, it is highly suggested that the variable “value” be taken into consideration in future applications of this study.

Further Research

Suggestions for further research include distributing the survey to more participants. Due to the survey’s small sample size, it is likely quantitative results were not able to be as impactful had there been a larger survey pool. Similarly, conducting more interviews with participants in Gen Z may have led to different conclusions being drawn. Furthermore, it is suggested that the inclusion of a survey item for subjects who indicated that they had not previously visited a
virtual museum in the past be made, as this may give further insight into the perception of virtual museum visits to this generation. Preference of art style, as mentioned in study 2 by Interview subject 2, may be a factor in the enjoyment of a museum’s virtual experiences. In future studies, the provision of several virtual museum and digital catalogue options may produce different results than those found within this study. As indicated by the interview subjects’ responses—both in the “like” of digital catalogues/virtual museum visits and in responses pertaining to “value” of digital catalogues/virtual museum visits—accessibility is an important element of a museum digital outreach. Several subjects clarified that by “accessibility” they were referring to distance from a museum, but it may be valuable to ask the subject what element of the museum’s instrument and/or in what way they find it accessible. Another tool that can be used by museums and other institutions to reach Gen Z is social media.

As mentioned in a closing comment on Interview subject three, many museums—the Carnegie museum’s use of the app “Tik Tok” was the example provided by the subject—have turned towards social media to engage with their audience. Further research should be conducted to determine if this generation’s enjoyment of virtual museum visits differs from their enjoyment of social media.

It is also worth noting that the rise in Covid-19 cases was not the only significant event to occur in 2020. Political unrest and a need for social justice sparked the Black Lives Matter movement during the summer of 2020, and the movement—as well as its cultural impact—continue to this day. The dramatic effects of this cultural movement may have had an impact on virtual museum enjoyment, and it would be beneficial to dedicate additional research to determining if this could be a potential factor on a person’s enjoyment.
CHAPTER 8

RECOMMENDATIONS

These recommendations are being provided to assist in the creation of a more successful study 1. Inform participants within the consent section that they will be participating in a virtual museum visit. Change target from Gen Z to all ages if concerned about potential sample size. Do not end the survey immediately for survey participants who have not visited a virtual museum in the past. Include a question to help discover why those subjects had not participated in a virtual museum in the past. Provide several virtual museums in varying art styles for the remaining survey-takers to choose to visit from. Decrease time required to be spent in the virtual museum visit from one minute to thirty seconds. Remove redundant items from IMI scale. Increase the difficulty of the knowledge test. Include items in the knowledge test that incorporate less Western-focused art/artists. Decrease the amount of time allotted for the participant to take the knowledge test. Test only the variable “internet connection” in the technology section. Allow respondents to indicate a field of study, if any, in the demographics section.

These recommendations are being provided to assist in the creation of a more successful study 2. Include the variable “value” in research questions as it pertains to digital catalogues and virtual museums. If a subject claims that a museum is “accessible”, ask them for clarification on . Provide interview subjects additional items from a virtual catalogue in varying art styles. Allow the interview subjects to choose the digital catalogue that is in their preferred art style. Provide interview subjects with additional digital museums in varying art styles. Allow the interview subjects to visit the virtual museum of their choice.

These recommendations are provided to assist museums in their efforts to reach their target audience and fulfill their mission. Include a digital catalogue on the museum’s website to
promote accessibility and access to knowledge/art. Consider utilizing social media/networking sites to promote engagement with the target audience. If providing a virtual museum to guests, ensure that it is easy to navigate.

CHAPTER 9

ANTICIPATED BENEFITS

This study was intended to help museums and cultural institutions that were financially afflicted by the Covid-19 pandemic in their attempt to reach a younger audience and decide if a virtual museum is a worthy instrument to allocate monetary resources to. This topic, under these unforeseen circumstances, have not yet been explored, and the impact of the results of this study may be beneficial when used in a museum’s financial decision-making process. Although this study was specified primarily toward virtual art museum visits, the results may also be useful to other academic institutions considering allocating funding towards a virtual museum visit.

Through this study, 200 participants—over half of whom had never participated in a virtual museum—were reminded or informed as to what a virtual museum is and what it has to offer. Now, it is possible for an increase in traction on sites that contain virtual museums through the people surveyed/interviewed and potentially even more through a snowball effect. Through the application of this research, there is hope that the institutions who were once deemed “at risk” will continue on and see another year.
REFERENCES


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http://dx.doi.org/10.1037/0003-066X.55.1.68,


APPENDIX A

SURVEY QUESTIONS

1. Previous Experience with Virtual Museum

A museum that has undergone digitization, or the process of cataloging analog information into a machine-readable format, may present itself in a variety of ways.

An early form of digitization in museums is a digital catalog. This could include a museum's website or database displaying images and/or short descriptions of items in the collection.

A more expansive digitized collection is a virtual exhibition that incorporates AR (augmented reality) technology and/or 3D imaging to provide a museum-goer with an immersive online experience. An example of this technology in practice is having the ability to see an object from any angle while on the digital platform.

Featured below is an example from the Vatican Museum's virtual exhibition. As you can see, users have the opportunity to click and drag through the museum as well as zoom into/out of objects as they wish, thus seeing the objects from a variety of angles.

![Virtual Museum Example](image)

Have you ever visited a virtual museum or gallery experience that incorporates AR technology and/or 3D imaging?

- [ ] Yes
- [ ] No
2. Intrinsic Motivation Inventory (IMI)

The following items concern your experience with the task. Please answer all items. For each item, please indicate how true the statement is for you, using a 7-point Likert scale.

1. I believe that doing this activity could be of some value for me.
2. I believe I had some choice about doing this activity.
3. While I was doing this activity, I was thinking about how much I enjoyed it.
4. I believe that doing this activity is useful for improved concentration.
5. This activity was fun to do.
6. I think this activity is important for my improvement.
7. I enjoyed doing this activity very much.
8. I really did not have a choice about doing this activity. (R)
9. I did this activity because I wanted to.
10. I think this is an important activity.
11. I felt like I was enjoying the activity while I was doing it.
12. I thought this was a very boring activity. (R)
13. It is possible that this activity could improve my studying habits.
14. I felt like I had no choice but to do this activity. (R)
15. I thought this was a very interesting activity.
16. I am willing to do this activity again because I think it is somewhat useful.
17. I would describe this activity as very enjoyable.
18. I felt like I had to do this activity. (R)
19. I believe doing this activity could be somewhat beneficial for me.
20. I did this activity because I had to. (R)

21. I believe doing this activity could help me do better in school.

22. While doing this activity I felt like I had a choice.

23. I would describe this activity as very fun.

24. I felt like it was not my own choice to do this activity.

25. I would be willing to do this activity again because it has some value for me.

Scoring information. Begin by reverse scoring items # 8, 12, 14, 18, 20, and 24 by subtracting the item response from 8 and using the result as the item score for that item. Then calculate subscale scores by averaging the items scores for the items on each subscale. They are shown below. The (R) after an item number is just a reminder that the item score is the reverse of the participant’s response on that item.

Interest/enjoyment:

3, 5, 7, 11, 12(R), 15, 17, 23

Value/usefulness:

1, 4, 6, 10, 13, 16, 19, 21, 25

Perceived choice:

2, 8(R), 9, 14(R), 18(R), 20(R), 22, 24(R)
3. Art Interest

Please rate your level of interest on the following:

<table>
<thead>
<tr>
<th>No interest</th>
<th>High interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sculpture</td>
<td></td>
</tr>
<tr>
<td>Paintings</td>
<td></td>
</tr>
<tr>
<td>Photography</td>
<td></td>
</tr>
<tr>
<td>Drawings</td>
<td></td>
</tr>
<tr>
<td>Digital art</td>
<td></td>
</tr>
<tr>
<td>Weaving</td>
<td></td>
</tr>
</tbody>
</table>

4. Art Knowledge

Red, blue, and yellow are referred to as what?

- Complimentary colors
- Neutral colors
- Pastel colors
- Primary colors (correct answer)

Sculpture is artwork that is _____________.

- 0 dimensional
- 1 dimensional
2 dimensional
- 3 dimensional (correct answer)

In which country is the Sphinx located?
- Egypt (correct answer)
- India
- Australia
- Chile

Which animal is often used to symbolize peace in art?
- Dove (correct answer)
- Cat
- Frog
- Fox

Who painted "The Mona Lisa" (1503-1506)?
- Da Vinci (correct answer)
- Rembrandt
- Vermeer
- Michelangelo

Which museum holds "The Mona Lisa"?
- The Guggenheim
- The National Gallery
- The Smithsonian
- The Louvre (correct answer)

Which art period's name translates "rebirth" in English?
- Cubism
- Renaissance (correct answer)
- Surrealism
- Avant-Garde

Salvador Dalí is best associated with which art movement?
- Surrealism (correct answer)
- Rococo
- Impressionism
- Minimalism

What is Edvard Munch best known for creating?
- "Girl with a Pearl Earring" (1665)
- "The Scream" (1893) (correct answer)
- "The Kiss" (1907)
- "The Persistence of Memory" (1934)

The artist known for painting "The Starry Night" (1889) also well known for painting variations of what flower?
- Daffodils
- Peonies
- Roses
- Sunflowers (correct answer)

5. Technology

What device are you using to take this survey?
- Laptop
Please respond to these questions based on your level of agreement.

<table>
<thead>
<tr>
<th></th>
<th>Not at all true</th>
<th>Somewhat true</th>
<th>Very true</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am satisfied with the speed of my Wi-Fi.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel upset when my devices take too long to load a webpage.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have a fast internet connection.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The quality of my Wi-Fi prevents me from enjoying activities on the internet.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Scoring:** Reverse item 2, “I feel upset when my devices take too long to load on a webpage”, and Item 4, “The quality of my Wi-Fi prevents me from enjoying activities on the internet”. 
APPENDIX B

Interview Questions

Informed consent

Subject views 5 images from a museum’s digital catalogue.

- Digital Catalogue
  - Have you ever looked through a digital art catalogue? Which one?
  - Value
    - Do you feel there is value to looking at a digital catalogue?
  - Perceived Choice
    - Did you feel you had a choice while looking through the digital catalogue?
  - Enjoyment
    - Did you enjoy looking through the digital catalogue? What did you like/dislike?

Subject views virtual museum.

- Virtual museum visit
  - Virtual museums
    - Have you ever experienced a virtual museum visit? Which one?
    - Value
      - Do you feel there is value to visiting a virtual museum?
    - Perceived Choice
      - Did you feel you had a choice while visiting the virtual museum?
    - Enjoyment
      - Did you enjoy visiting the virtual museum? What did you like/dislike?
      - Relationship with art
        - How would you describe your interest in “art” in general?
        - How does your relationship with art museums affect your enjoyment of digital catalogues? Virtual museums?
  - Relationship with Technology
    - What device are you using to take the virtual museum?
● How would you describe your perceived skill with technology?
● How would you describe your Wi-Fi connection and/or device speed?
● Does that impact your enjoyment of using the internet?

Do you have any further comments?

● Demographic questions
  ○ What is your name?
  ○ How old are you?
  ○ What is your gender?
  ○ What is your race?
  ○ What is the highest degree of level of education that you have completed?
  ○ What region of the US are you from?
APPENDIX C
SURVEY TOOLS

Digital Archive:

Work 1:

https://www.nga.gov/collection/art-object-page.24.html

Work 2:

https://www.nga.gov/collection/art-object-page.41671.html

Work 3:

https://www.nga.gov/collection/art-object-page.23.html

Work 4:

https://www.nga.gov/collection/art-object-page.12145.html

Work 5:

https://www.nga.gov/collection/art-object-page.21.html

Virtual Museum:

https://www.nga.gov/features/raphael-virtual-tour.html
APPENDIX D

INTERVIEW TRANSCRIPT WITH INTERVIEW SUBJECT #1

Researcher [2:21] Have you ever looked through a digital art catalog or archive?

Interview Subject 1 [2:30] No.

Researcher [2:32] Do you feel that there is value to looking through a digital catalog?

Interview Subject 1 [2:38] Yes. I think that it gives greater accessibility to those who might not be able to see those works in person, and to promote accessibility, you know more knowledge of those works, and people are more inclined to know more about something if they can see it, or experience it, even if that's virtually.

Researcher [3:14] Do you feel that you had a sense of choice while looking through this digital catalog?

Interview Subject 1 [3:21] Yes.

Researcher [3:25] Did you enjoy looking through this digital catalog?

Interview Subject 1 [3:29] I did.

Researcher [3:30] What did you like and what to do, maybe dislike about it?

Interview Subject 1 [3:38] I would say that I enjoyed getting to see the exhibition history of each of the works. I thought that was really cool. I can't think of anything I disliked at the moment.

Researcher [4:04] And if that is all. Then, let's move on to the virtual museum visit. So please click on the link there. Again, no pressure, you can spend as much time in the virtual museum as you would like.

Interview Subject 1 [4:33] Okay.
Researcher [4:56] Have you ever experienced a virtual museum before today?

Interview Subject 1 [5:04] No.

Researcher [5:06] Do you feel that there is value to a virtual museum?

Interview Subject 1 [5:12] Yeah, I think it was very cool to be able to, kind of be in the museum actually being there, seeing what it looks like.

Researcher [5:24] Did you feel that you had a choice while visiting the virtual museum?

Interview Subject 1 [5:29] Yeah.


Interview Subject 1 [5:47] I felt very much like I had freedom to roam I guess you could say. So, That's cool.

Researcher [5:59] Did you enjoy visiting the virtual museum?

Interview Subject 1 [6:03] I did.

Researcher [6:13] What did you like or dislike about visiting the virtual museum?

Interview Subject 1 [6:23] I liked getting to read about each of the works. I thought that was nice. I guess maybe it's just me not knowing how to work it, but I wish they could have zoomed in a little bit more on the work themselves. Yeah, I think that's about it.

Researcher [6:53] How would you describe your interest in art in general?

Interview Subject 1 [7:04] I have a pretty great interest in art.

Researcher [7:10] How does your relationship with art museums affect your enjoyment of digital catalogs?

Interview Subject 1 [7:25] I would say that it brings a sense of familiarity. So, You know, although it's not actually there. I think it's nice to simulate that feeling of being in a museum.
Researcher [7:47] How would you say that your relationship with art affects your enjoyment of virtual museums, on the other hand, if there is a difference between the two?

Interview Subject 1 [8:03] I don't know, I feel like it's the same for me. I think it's just the experience itself.

Researcher [8:32] What device are you using for this interview?

Interview Subject 1 [8:45] My phone.

Researcher [8:50] How would you describe your perceived skill with technology?

Interview Subject 1 [8:56] I think a pretty decent grasp on technology.

Researcher [9:01] How would you describe your Wi-Fi connection or device speed?

Interview Subject 1 [9:08] Good.

Researcher [9:10] How does that impact your enjoyment of using the internet?

Interview Subject 1 [9:18] I think it greatly impacts it. Yeah, I think being able to access information quicker is always nice.

Researcher [9:31] Do you have any further comments?

Interview Subject 1 [9:37] No, thank you.

Researcher [9:40] Thank you. And now on to the demographic questions. What is your name?

Interview Subject 1 [9:56] Leah.

Researcher [9:57] How old are you?


Researcher [9:59] What is your gender?

Interview Subject 1 [10:00] Woman.

Researcher [10:01] What is your race?

Interview Subject 1 [10:02] Black.
Researcher [10:03] What is your highest degree or level of education that you have completed?

Interview Subject 1 [10:06] I have a bachelor's degree in Journalism, and I am currently a Master’s candidate in the Social work program.

Researcher [10:07] And what region of the US are you from?

Interview Subject 1 [10:08] Southeast.

Researcher [10:10] Perfect, thank you so much Leah I really appreciate you participating in this interview. I hope you have a great rest of your day.

Interview Subject 1 [10:17] Thank you. Have a great rest of your day too.
Researcher [3:31] Have you ever looked through a digital art catalog in the past?

Interview Subject 2 [3:39] Yes.

Researcher [3:39] Do you remember which ones?

Interview Subject 2 [3:44] Kind of just too many to count.

Researcher [3:49] Do you feel there is value to looking at a digital art catalog?

Interview Subject 2 [4:01] I feel like it is beneficial especially if you're trying to see an overview of an exhibition and understand how the artwork plays together. I also feel like in physical museums the object label is really, really short, but catalogs usually have a longer one.

Researcher [4:44] While looking through the digital catalog, did you feel that you had a sense of choice?

Interview Subject 2 [4:52] Yeah, because there were tabs on the side that gave an overview of the piece’s exhibition history. It was a pretty simple format, though, so there wasn't a lot to choose from, but if you're talking about choosing between the five, then I could definitely go back between different images freely.

Researcher [5:23] Did you enjoy the digital catalog? What did you like or dislike?

Interview Subject 2 [5:36] I liked it. I guess what I don't like is it was kind of boring, but only because it's not like the real thing or my preferred style, but I like that it's super accessible.

Researcher [5:48] Now would you mind screen sharing again and spending one minute in a virtual museum. You're free to spend more time, if you wish.

Researcher [8:01] Have you ever experienced a virtual Museum visit before in the past?
Interview Subject 2 [8:07] Yes.

Researcher [8:09] Do you remember how many or which ones?

Interview Subject 2 [8:10] I can't think of one off the top of my head, but I've definitely done between 5 and 10.

Researcher [8:28] Do you feel that there is value to visiting a virtual museum?

Interview Subject 2 [8:33] Yeah, because you don't always have the opportunity to go to a museum. You can sometimes do them from your phone, so it's just really easy and accessible, like I said before.

Researcher [8:54] Did you feel like you had a sense of choice in this virtual museum?

Interview Subject 2 [8:57] Yeah, like you could just go on really any direction that you want to and choose what you wanted to spend time with, just like if you were walking through like a museum. You can choose which ones you want it to look at or which object labels you want—or don't want—to read. I like that you weren't stuck going in a sequence.

Researcher [9:17] Did you enjoy visiting the virtual museum? What did you like or dislike?

Interview Subject 2 [9:24] It was cool that it was virtual and that no matter where you are it is still an option if you want to see artworks, but it wasn't my taste in art. Again, I would always prefer to see artwork in person, but this year especially that wasn’t really available. Those are the main reasons I would have to dislike it other than minor like technical difficulties and things like that. I think the style of art really affects my enjoyment, so if it like intrigues me right then and there, then I’ll enjoy a virtual museum or any type of catalogue or digital platform, because it lets me study the art that I’m interested in further.

Researcher [10:23] How would you describe your interest in art in general?
Interview Subject 2 [10:29] Very interested, I got a Bachelor of art in art history, and a minor in museum studies, so I would just say that I'm definitely more interested in it than the average person.

Researcher [10:51] How does your relationship with art museums affect your enjoyment of digital catalogues?

Interview Subject 2 [11:02] I guess they make everything easier to organize. I think digital catalogs are helpful because you can go through museum and say, “Oh, I like this”, and then at the end of the day you sometimes forget something or you'll want to know more about a certain piece that you saw, so I feel like the digital catalogs are helpful to review items that you saw in a real museum.

Researcher [11:32] How does your relationship with art museums affect your enjoyment of virtual museums?

Interview Subject 2 [11:39] I think because I like seeing art in person and like seeing it to scale, it makes me enjoy virtual museums a less, because it's less of a personal experience. That being said, I think it's still like a really cool tool for accessibility purposes like for those who cannot visit in person.

Researcher [12:09] And what device are you using for this interview?


Researcher [12:25] How would you describe your perceived skill with technology?

Interview Subject 2 [12:29] I'm in my early 20s, so I know it's pretty easy for me to use, but I think they're always tricky when you're trying to walk around a room and use the 360-view tool. I'd say using a computer and technology and whatnot can be difficult at times, but it's not the worst.
Researcher [12:56] How would you describe your Wi-Fi connection and/or device speed?

Interview Subject 2 [13:01] Good, right now, but it always just depends where you are, but right now I'm at home, so it's not too bad.

Researcher [13:16] Does that impact your enjoyment of using the internet? If so, how?

Interview Subject 2 [13:22] Yeah, because if a video is buffering, or like it's taking too long to load or crashing, then I don't want to be on that site anymore, and I’ll probably just leave if I can.

Researcher [13:37] Okay, do you have any further comments regarding virtual museums or digital catalogs?

Interview Subject 2 [13:44] Not that I can think of.

Researcher [13:50] What is your name?

Interview Subject 2 [13:51] Ivy.

Researcher [13:54] How old are you?


Researcher[13:56] What is your gender?

Interview Subject 2 [13:57] Female

Researcher [13:59] What is your race?

Interview Subject 2 [14:01] Black

Researcher [14:03] What is the highest degree or level of education that you have completed?

Interview Subject 2 [14:10] I have a Bachelor's degree in Art History, and I’m working on my Masters in Museum Studies and Cultural Heritage.

Researcher [14:16] What region of the United States are you from?

Interview Subject 2 [14:25] Southeast.
Researcher [14:25] Thank you so much for participating today, Ivy. I really appreciate it, and I hope you have a great rest of your day.

Interview Subject 2 [14:32] Thank you, you too.
APPENDIX F

INTERVIEW TRANSCRIPT WITH INTERVIEW SUBJECT #3

Researcher [2:49] Have you ever looked through a museum’s digital catalogue before?

Interview Subject 3 [3:07] I believe I have.

Researcher [3:08] Do you remember which one or ones?

Interview Subject 3 [3:12] I can’t remember exactly which one, but I feel like it probably was something from the MOMA.

Researcher [3:19] Do you feel there is value to looking at a digital catalog?

Interview Subject 3 [3:24] Yeah, I think if you aren't able to go to that museum in-person you'd miss out on seeing the artwork, so it's nice to have the catalog to get access to information on a certain piece or exhibition that you’d like to see a little bit closer.

Researcher [4:39 ] Did you feel that you had a choice while looking through the digital catalog?

Interview Subject 3 [4:46] Yeah, I'd say I had some choice.

Researcher [4:50] Did you enjoy looking through the digital catalog?

Interview Subject 3 [4:53] I did.

Researcher[4:55 ] What did you like or dislike?

Interview Subject 3 4:57[] I really liked that I could click on the pictures and zoom in on them.

Researcher [5:06] What did you dislike?

Interview Subject 3 [5:12] I didn’t dislike anything.

Researcher [5:24] Now I'm going to ask that you open up the virtual museum visit and spend approximately one minute in this exhibition. Feel free to spend as much time as you'd like.

Researcher [10:09] Now I'll ask you a few questions regarding the virtual museum. Before today, had you ever experienced a virtual museum?
Interview Subject 3 [10:18] No.

Researcher [10:21] Do you feel that there is value to visiting a virtual museum.

Interview Subject 3 [10:27] I definitely think so. I think if you're not able to go there and you don't have the money or the resources to get there, it's definitely a valuable experience especially in a time where we have something like COVID-19 that doesn't allow us to travel like we are used to.

Researcher [10:46] Did you feel you had a sense of choice while visiting the virtual museum?

Interview Subject 3 [10:53] Yeah.

Researcher [10:55] Did you enjoy visiting a virtual museum?

Interview Subject 3 [10:57] Yeah.

Researcher [11:00] And what did you like and dislike about it?

Interview Subject 3 [11:03] I liked that you could see the room. It kind of felt like you were there and it was immersive. You could just walk up to any of the paintings and read something about them, like you would in a normal museum. I think my dislike would be just at first I kept clicking and I kept moving around everywhere, but then I realized that there was a floor plan button that you could click, and that made it a lot easier. Once I got the hang of it, I was okay. It was just the initial technical difficulties that I did not enjoy.


Interview Subject 3 [11:50] I definitely have an interest in art. You know, I like going to museums and stuff.

Researcher [12:01] How does your relationship with art museums affect your enjoyment of digital catalogues, as seen in the first section of this interview?
Interview Subject 3 [12:05] I guess, because I have an interest in going to museums and seeing art. I'm more inclined to look at a catalog. That way I know what artwork a museum has and if I can see certain pieces of work in-person. However, during COVID-19, it's nice to have access to knowledge about art even if it is virtual.

Researcher [12:27] How do you feel that your relationship with art museums affects your enjoyment of virtual museums?

Interview Subject 3 [12:35] I say the same answer. Just knowing if I can't go there, that there's still an alternative where I can see the same art, just online.

Researcher [12:46] What device are you using today?

Interview Subject 3 [12:49] A laptop.

Researcher [12:53] How would you describe your perceived skill with technology?

Interview Subject 3 [12:59] Intermediate, I'm kind of good at technology, kind of like in the middle.

Researcher [13:11] Okay, thank you. How would you describe your Wi Fi connection and or device speed?

Interview Subject 3 [13:20] I'd say my Wi-Fi right now is alright, and then my laptop speed is up to par as well.

Researcher [13:34] Does your Wi Fi connection and or device speed impact your enjoyment of using the internet?

Interview Subject 3 [13:43] Sometimes it can. But in this case, it didn't really.

Researcher [13:49] And do you have any further comments that you'd like to add regarding either a digital archive, or a virtual museum?
Interview Subject 3 [13:58] I do, sort of. I don’t visit a lot of virtual museums, but I just remembered that there is this account that I’ve been following on Tik Tok. I think it’s like the Carnegie museum who is doing it, but they have different people in the museum share a joke, or a fun fact, or something like that, and I don’t know I think it's super interesting and also accessible, and yeah. I’m not sure if you remember the one from the beginning of quarantine, but it was a curator telling a snail joke, and I think it worked really well for that museum!

Researcher [15:00] That’s incredible! Thank you for sharing. Now onto some demographic questions. What is your name?

Interview Subject 3 [15:04] My name is Haley.

Researcher [15:06] How old are you?

Interview Subject 3 [15:08] I'm 23 years old.


Interview Subject 3 [15:13] Female

Researcher [15:15] What is your race?

Interview Subject 3 [15:18] White

Researcher[15:25] What is your highest degree obtained or level of education?


Researcher [15:32] What region of the U.S. are you from?

Interview Subject 3 [15:36] The Southeast.

Researcher [15:38] Thank you for your time, Haley.

Interview Subject 3 [15:42] Of course! Thank you.
APPENDIX G

INTERVIEW TRANSCRIPT WITH INTERVIEW SUBJECT #4

Researcher [4:52] Have you ever looked through a digital art catalog before?

Interview Subject 4 [5:01] No, not really. I like art, so I feel as though sometimes on my own time I will look up information about random paintings, but I don't think I've ever gone through an entire curated art space or something, you know? I’ve probably looked at a specific painting in an archive, but not through an entire archive by any means.

Researcher [5:41] Do you feel that there is value to looking at an art catalog or digital archive?

Interview Subject 4 [5:48] Yeah, I think so. I liked that while I was in the archive just now, if you don't know something, I could click on it and look up what it means, you know, I don't know if that works all the time, but I feel like it can be very helpful. Although, I would say I like or would prefer going to, you know, just Art Gallery in person.

Researcher [6:21] Did you feel that you had a choice or looking through the digital catalog?

Interview Subject 4 [6:30] Yes, I did.

Researcher [6:33] Did you enjoy looking through the digital catalog?

Interview Subject 4 [6:37] I did, it was nice.

Researcher [6:39] What did you like or maybe dislike?

Interview Subject 4 [6:42] I like the paintings. I liked the background information on the first few about the mourning dove and the background information of the different paintings. The site was also pretty easy to navigate. Some of the items were not as descriptive as others—more like a bibliography—so I wish those had been more detailed. Overall I liked it, I learned something new, which is always cool.
Researcher [8:11] Now I would like to ask you to look through the virtual museum also linked on the same page, and I feel free to spend as much time as you would like.

Researcher [16:06]. Have you ever experienced a virtual museum visit before today?

Interview Subject 4 [16:18] No, I have not.

Researcher [16:21] Do you feel that there is value to visiting a virtual museum?

Interview Subject 4 [16:27] Yes, I thought it was very interesting. I didn't know that you would actually virtually be in the museum. I thought it'd be more like the five items in the catalogue, so I thought it moving around the objects made it more fun.

Researcher [16:50] Okay, did you feel that you had a sense of choice, while visiting this virtual museum?

Interview Subject 4 [16:55] Yes I did.

Researcher [16:59] Did you enjoy visiting a virtual museum?

Interview Subject 4 [17:04] Yes, it was nice.

Researcher [17:05] What did you like and what did you maybe dislike?

Interview Subject 4 [17:12] Since it was my first time, I was having a hard time navigating in the museum and it kept kicking me out of that back room, because there were some technical issues. This was a little confusing, but for the most part it was pretty simple. I liked that when you're reading it off the wall you could click on it and read a longer description that had links to more information. I thought that was cool.

Researcher [18:06] How would you describe your interest in art in general?

Interview Subject 4 [18:11] I would say pretty high, maybe not necessarily for visual art, specifically, but, in general, I would say high interest.
**Researcher** [18:25] How does your relationship with art museums affect your enjoyment of digital catalogues?

**Interview Subject 4** [18:55] I feel as though we have almost any information we'd want to find at our fingertips. I’ve never really had the thought crossed my mind, but I guess technically the things you're learning in the museum you could just learn through a website about art, but I do think that there's something about being there in person that makes me more engaged with the subject matter. Maybe it's just an emotional thing because I don't think I necessarily learn more being in a museum than from a digital catalog or virtual museum, but I guess because of my relationship and kind of fondness for in person museums if someone said oh you can just learn all that from a digital catalog, I guess I would just be a little hesitant, or not hesitant but just think oh that's a lesser version to going to a museum and seeing works in person.

**Researcher** [20:12] How does your relationship with art museums affect your enjoyment of virtual museums?

**Interview Subject 4** [20:20] On the other hand, I felt as though I liked the virtual museum more because even though I wasn't completely immersed or anything, it definitely made me feel more so like I was walking around an actual museum. It made it feel a little bit more human and emotional as opposed to just clicking on hyperlinks and things like that. Still, I don’t think either option really compares to being in an actual museum.

**Researcher** [20:51] Now moving on, what device are you using for this interview?

**Interview Subject 4** [20:59] My iPhone.

**Researcher** [21:04] How would you describe your perceived skill with technology.

**Interview Subject 4** [21:09] Out of 10, I would say a four. Below average.

**Researcher** [21:17] How would you describe your Wi-fi connection or device speed.
Interview Subject 4 [21:23] Lately, pretty good.

Researcher [21:35] So how does your Wi-Fi connection or device speed impact your enjoyment of using the internet?

Interview Subject 4 [21:42] I would say that it definitely made the experience more enjoyable. If it were glitching or constantly lagging I think it wouldn't be nearly as fun or interesting.

Researcher [21:59] And do you have any further comments or questions?

Interview Subject 4 [22:06] I don't.

Researcher [22:09] onto some demographic questions. What is your name?

Interview Subject 4 [22:12] Jacob

Researcher [22:17] How old are you? Jacob

Interview Subject 4 [22:19] I am 24.

Researcher [22:23] What is your gender?


Researcher [22:27] What is your race?


Researcher [22:33] What is the highest degree or level of education that you have completed?

Interview Subject 4 [22:40] I did my undergrad in English and Education at Florida State University.

Researcher [22:55] What region of the US are you from?

Interview Subject 4 [23:01] Southeastern.

Researcher [23:05] Thank you so much for participating in this study. I wish you a great rest of your day.

Interview Subject 4 [23:08] Thank you, I hope the same for you too.
APPENDIX H

RAMP IRB APPROVAL

FLORIDA STATE UNIVERSITY
OFFICE of the VICE PRESIDENT for RESEARCH

EXEMPTION DETERMINATION

December 9, 2020

Mallory Glaser, 850-644-5260
mmsg17@my.fsu.edu

Dear Mallory Glaser:

On 12/9/2020, the IRB staff reviewed the following submission:

<table>
<thead>
<tr>
<th>Type of Review:</th>
<th>Exempt (2)(ii) Tests, surveys, interviews, or observation (low risk)</th>
</tr>
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<tbody>
<tr>
<td>Title:</td>
<td>Are virtual museums worth it?: Discovering how Gen Z Perceives virtual museum visits in light of the COVID-19 Pandemic</td>
</tr>
<tr>
<td>Investigator:</td>
<td>Mallory Glaser</td>
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<td>Submission ID:</td>
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</tr>
<tr>
<td>Study ID:</td>
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<td>Documents Reviewed:</td>
<td>• Honors Thesis Prospectus 2.pdf, Category: Other;</td>
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<td></td>
<td>• Interview Consent, Category: Consent Form;</td>
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<td></td>
<td>• SurveyConsent.pdf, Category: Consent Form;</td>
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<tr>
<td></td>
<td>• Virtual Museum Qualtrics.pdf, Category: Recruitment Materials;</td>
</tr>
</tbody>
</table>

The IRB staff determined the protocol qualifies for exemption, effective on 12/9/2020. Your study conforms to FSU policy on COVID-19-related requirements and restrictions related to research activities that involve in-person interventions or interactions with human research participants.

Note that once the COVID-19-related requirements and restrictions are lifted and IF you plan to substitute remote interactions or interventions with in-person alternatives, or IF you plan to include as human subjects persons who were previously excluded due to their high risk for severe illness from COVID-19 or ages 65 or more years, please be sure to submit a modification to the IRB for its review of these substitutions. If however you only plan to discontinue other COVID-19-specific risk mitigation (e.g., social distancing, screening, use of PPE), then no study modification request need to be submitted to the IRB for review before these changes may be implemented. For all other study modifications, see notes below.
You are advised that any modification(s) to the protocol for this project that may alter this exemption determination must be reviewed and approved prior to implementation of the proposed modification(s).

Modifications to the research may invalidate the exemption determination (because the research no longer meets the exemption criteria described in HRP-312 – WORKSHEET – Exemption Determination).

Examples of minor changes to exempt research that would not alter the exemption determination and should therefore not be submitted to the IRB for further review include the following:

- Making administrative (formatting, grammar, spelling) revisions to the protocol, consent or recruitment materials or other study documents
- Adding or revising non-sensitive questions or non-identifiable response options to a survey, interview, focus group or other data collection instrument
- Increasing or decreasing the number of study subjects — unless adding a new study sample such as children or prisoners or adding a new source of data or records
- Making study team/personnel changes — except a change in Principal Investigator (PI)

Examples of changes to exempt research that do require prospectively submitting a modification to the IRB before implementing changes include the following:

- Making substantive revisions or additions (e.g., change in PI; funding source; sample; source of study subjects or their data; study sites or settings; procedures, interventions or interactions with study subjects; use of any drug, device, supplement or biologic; study subjects’ time or duration spent performing or participating in study activities) to the protocol, consent or recruitment materials or other study documents
- Adding or revising sensitive questions or identifiable response options to a survey, interview, focus group or other data collection instrument
- Adding a new study sample such as children or prisoners or adding a new source of data or records
- Obtaining, using, studying, analyzing, generating, storing or maintaining identifiable information or identifiable biospecimens in addition to or in lieu of de-identified or anonymous information or specimens
- Change in study risks (e.g., impact upon study subjects, impact upon students’ opportunity to learn educational content or assessment of educators who provide instruction; any disclosure of study subjects’ responses outside of the research may place study subjects at risk of criminal or civil liability or be damaging to subjects’ financial standing, employability, educational advancement or reputation)
- Change in Principal Investigator (PI) or (for students) faculty advisor
- New or change in financial interest

In conducting this protocol, you are required to follow the applicable requirements listed in the Investigator Manual (HRP-103), which can be found by navigating to the Library within the RAMP IRB system.

Sincerely,

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