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Interactions of War: Exhibiting World War II and the Holocaust

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INTERACTIONS OF WAR: EXHIBITING WORLD WAR II AND THE HOLOCAUST

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ABSTRACT

This paper discusses the use of interactive elements in museums that deal with difficult subject matter, such as war or genocide. This research involves interviews with museum personnel at the Columbus Museum in Columbus, Georgia, the National Infantry Museum in Columbus, Georgia, the Museum of History and Holocaust Education in Kennesaw, Georgia, and the World War II Home Front Museum in St. Simons Island, Georgia. This research also discusses the design of a potential exhibit using interactives about women in the resistance movement during Nazi occupation.

INDEX WORDS: Interactives, Interactivity, Museums, World War II, Holocaust

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TABLE OF CONTENTS

Introduction

Imagine entering into a museum where exhibits are hands-on and visitors are encouraged to actively engage with the content. At first, this museum might sound like a children's museum because of the interactivity, but imagine if this museum tackled difficult topics such as war and genocide. Up until recent decades, only children's and science museums placed an emphasis on interactive elements. However, interactive elements in museum exhibits help the audience engage with the information and can be valuable for guests of all ages. When dealing with sensitive topics, museum personnel must take special precautions in adopting interactive elements in museums. This thesis describes interactive elements, analyzes how they are used in different museums, addresses the challenges that are involved with interactive elements, and examines how they can be used in an exhibit that discusses sensitive topics like war and genocide. Additionally, this thesis then envisions a potential exhibit using interactives about women in the resistance movement in World War II.

Methodology

This goal of this research was to produce an exhibit about women in the resistance movement of Nazi Germany that incorporated interactive elements. In order to achieve this goal, it was necessary to research a variety of topics. Initially, I looked into literature relevant to interactivity in museum spaces, covering topics such as accessibility and sensory experiences. Following the research on interactivity, this thesis required examination of the women involved in resistance movements during the Nazi occupation of Europe. This included topics such as the White Rose, which was a student-led group who wrote pamphlets which spoke out against the Nazi government, and the Rosenstrasse Protest, which was a protest primarily conducted by the wives of Jewish prisoners, amongst other topics.

Additionally, this project added a human element of the research. To understand how history museums incorporate interactive elements when talking about difficult subject matter such as war and genocide, this research involved interviewing museum curators and museum personnel who have worked on museum exhibits pertaining to World War II and the Holocaust. The museums involved in this research offered different perspectives on topics relating to war. The National Infantry Museum discusses the history of the United States Infantry through different wars in which the United States has been involved. The Columbus Museum primarily focuses on local history and art, but they have had temporary exhibits that deal with topics of war. The Museum of History and Holocaust Education details the story of the Holocaust through individual stories of survivors, primarily those who live in Georgia. The World War II Home Front Museum shares the story of life on the Home Front in St. Simons Island, Georgia during World War II. The individuals involved in these interviews were Jefferson Reed, Curator from the National Infantry Museum in Columbus, Georgia, Rebecca Bush, Curator from the Columbus Museum in Columbus, Georgia, Adina Langer, Curator from the Museum of History and Holocaust Education in Kennesaw, Georgia, and Sandy Jensen, Education Director from the World War II Home Front Museum in St. Simons Island, Georgia. These interviews were conducted over email and in person after being approved by the Institutional Review Board. All individuals signed informed consent forms before the interviews occurred. The interviews which were conducted in-person were audio-recorded, and took no more than thirty minutes. This research used the same interview questions for each of the interviews, which covered topics of how the museum made use of accessibility, budget, audience, and interactives. In addition to the interviews, I conducted research into the scholarly literature on interactives. This project also involved researching the subject matter of women in the resistance movement in Nazi Germany

during World War II via primary and secondary sources, and then integrating the two strands of research into a potential exhibit involving interactives.

Argument

In this research, I argue that although there are some challenges that come with using interactives in an exhibit that deals with war or genocide, giving the guests a hands-on experience deepens the guests' understanding of the exhibit's topic. By using interactives to connect the information to visitors' senses, curators enable visitors to more easily envision themselves in the time period under examination, which can help create an emotional response from museum visitors. Sensory experiences allow visitors to place authenticity on the historical period and help create neural pathways for deeper understanding. However, challenges that museum personnel encounter include budget, accessibility, and space.

Interactivity

According to Jessie Pallud, a professor who focuses her research on human-computer interaction, "interactivity represents one of the ways to provide a dynamic experience to visitors instead of a passive reading experience."[1] Interactive elements, or interactives are hands-on components in an exhibit that encourage visitors to actively engage with content. In order for visitors to be actively engaged, according to Edward Alexander, their experience must rely heavily on involvement on multiple sensory levels, including "sight, hearing, smell, taste, touch, and kinetic muscle sense."[2] This creates a full-body experience for the visitor, which helps them shape their own interpretation of the content. As Tim Caulton has noted, "A good interactive

[1] Jessie Pallud, "Impact of Interactive Technologies on Stimulating Learning Experiences in a Museum," *Information & Management* 54, no. 4 (2017): 469.

[2] Edward Porter Alexander, "What is a Museum?," in *Museums in Motion: An Introduction to the History and Functions of Museums,* (Walnut Creek: AltaMira Press, 1996), 12.

exhibit will work at a multiplicity of levels for visitors of different ages and abilities."[3] This means at any age, visitors could engage with the interactive, and each time, they would be able to derive important information from their experience. Interactivity occurs when there is physical interaction and "clear educational objectives which encourage individuals or groups of people working together to understand real objects or real phenomena through physical exploration which involves choice and initiative."[4] In history museums, interactives give visitors agency to explore topics related to the time period to understand the history on a deeper level.

These elements can be high-tech, low-tech, or a combination of the two. High-tech interactives bring the content to the visitors in a digital format. This format is often driven by computerized software, and it can be as simple as a touchscreen or as complex as the creation of virtual reality.[5] In high tech elements, visitors are able to navigate through choices, interact with content, and explore a wider variety of information. Some examples of high-tech interactives could include touchscreen maps, games, or oral histories. Low-tech interactives are interactives that are more hands-on and mechanical. This type of interactive does not include digital components but could include moveable parts, levers, or anything else that requires physical action. Low-tech interactives could be something as simple as a pamphlet requiring visitors to flip a page upon entering a new room or a small door that requires visitors to lift to show additional information, or as complex as a mock assembly line. These two types of interactives

[3] Tim Caulton, *Hands-On Exhibitions: Managing Interactive Museums and Science Centres* (London: Routledge, 1998), 2.

[4] Caulton, *Hands-On Exhibitions*, 2.

[5] Cathlin Bradley and Chris David, "Best Practices for Interactive Exhibits," *GeckoGroup* (blog), November 5th, 2018. http://geckogroup.com/2018/11/05/digital-and-mechanical-interactive-exhibits/

can pair well together to create a hybrid interactive that uses both mechanical and digital components.[6]

Visitor-Centered Approach

Up until recent decades, museums existed as places of preservation and research. However, since the 1970s and 1980s, there has been a shift in mindset to be more visitor-centered. As they have shifted, museums have increasingly incorporated interactives as a means of enhancing the visitors' experience.[7] When museum professionals started researching the visitor's response to the new exhibit additions, they found that visitors (especially families) "stop at interactives more than any other kind of exhibit."[8] Not only are visitors of all ages more likely to stop at interactives, but also they spend "more time with the traditional exhibit than they would have otherwise" because of the presence of the interactives.[9] Interactives not only encourage individuals and groups to spend more time in these exhibits, but they also boost the visitor's overall experience. Interactive experiences "encourage family participation and conversation," which results in higher overall satisfaction because visitors "are absorbing exhibit themes while laughing and learning together."[10] These elements make the experience one that appeals to many generations, "where a grandparent and a grandchild could derive equal enjoyment from their visit."[11]

[6] Bradley and David, "Best Practices for Interactive Exhibits."
[7] Alexander, "What is a Museum?," 11-12.
[8] Anne Grimes Rand et al., "Families First! Rethinking Exhibits to Engage All Ages," *History News 64,* no. 1 (2009): 3.
[9] David Thelen et al., "Reflections on Experience: Listening to Visitors," *History News 68,* no. 4 (2013): 22.
[10] Rand et al., "Families First!," 3.
[11] Sandy Jensen, email interviewed by author, October 10, 2019

While visitors are spending more time in exhibits that house interactive elements, they are being actively engaged with the content of the exhibit. Barbara Franco argues that museums need to design exhibits as if they were created for a primate's interaction; she argues that

> primates are curious, so if you hide something, they will pick it up because they have to; they can't help themselves. So flipbooks, lift-up kinds of things, are always successful. You see them in science museums; they work in history museums. They work everywhere. It's just human behavior; we can't help ourselves.[12]

Visitors come into museum spaces because they are curious and eager to learn, and that curiosity is only amplified when visitors are offered a chance to interact with content. A museum exhibit is usually a space where visitors are discouraged from touching things, but interactives have shifted that paradigm by "actively inviting people to touch," which is a "great way to guide that desire to touch onto activities that require and encourage interaction."[13] This invitation could put historical artifacts at risk of being irreplaceably damaged. However, interactives provide a chance for visitors to touch replications of the original to maintain the original object's historical condition. As Andrea Jones argues, "learners need to be active."[14] Interactivity offers them a way to be active and curious in order to learn.

Interactivity is beneficial for history museums, not just to general museums. While objects are "powerful on their own," an increased meaning is created if the visitors actually experienced the history for themselves.[15] Images, text, and objects help the visitor understand the history, but interactivity allows the visitor to make conclusions for himself/herself, which makes

[12] David Thelen et al., "Reflections on Experience," 22.
[13] Jensen, email interview.
[14] Andrea K. Jones, "All Hands on Deck: Toward the 'Experience' History Museum," *History News* 69, no. 2 (2014): 19.
[15] Jones, "All Hands on Deck," 19.

the history mean more. Interactivity amplifies the experience that a visitor has, which allows them to be more invested and interested in the history that the museum provides.

Interactive components often exist in museums that are primarily geared towards children. For example, children's museums often use role playing, costumes, eating and tasting, and exhibits that provide choice and diversity to deepen the experience that the visitors have while at the museum, which makes the history become personal.[16] Role playing invites the children to take on "the perspective of a grown-up," by using equipment or clothing to allow them "to experiment with adult roles."[17] Children's museums actively engage the senses of their visitors. Through eating and tasting, children at the National Children's Museum in Washington, D.C. (originally the Capital Children's Museum) "aided by interns, are given the opportunity to make tortillas and hot chocolate as part of the Old Mexico exhibit," which allows them to be exposed to the culture of other countries.[18] While children's museums and history museums have different audiences, it is important to engage a broader audience using interactives. While these interactives may look different in a children's museum by being brightly colored, emphasizing play, etc., interactivity in history museums is beneficial to all audiences.

Science museums utilize these interactive elements as well. In science museums, it is common to employ empirical-inductive reasoning to understand the concepts of an exhibit, which requires guests to "(1) classify and/or serially order observations and establish one-to-one correspondences among the observations; and (2) understand and apply concepts in familiar

[16] Victor Regnier, "The Children's Museum: Exhibit and Location Issues," Children's Environments Quarterly 4, no. 1 (1987): 57.
[17] Regnier, "The Children's Museum," 57.
[18] Regnier, "The Children's Museum," 57.

objects, situations, and events."[19] In more general terms, based on their observations while in the exhibit, visitors take a specific piece of information and then apply it to more general situations. For example, in a science museum, a visitor might observe that every time he/she presses a green button, a green light turns on. From this, he/she determines that the same is true for all of the buttons and lights. If he/she presses the blue button, the blue light will turn on. This reasoning urges the visitor to think more deeply about the content. While this approach is useful in science museums, it can also be applied to history museums and exhibits as well, especially in the terms of interactivity. If visitors are exposed to one individual's story about the experience in a concentration camp, it can be assumed that many others had this experience as well, which broadens the scope of the exhibit. Science museums also focus on the process of scientific method, which allows the children to become a scientist and explore the phenomena for themselves. History museums also provide this experience in some cases. Inviting guests to interpret a text or providing them a chance to be archeologists allows visitors to take on the role of a historian, which is an experience that visitors can only receive in a museum.

The Sensory Experience

One of the major reasons that interactives are successful in spaces like children's and science museums is the sensory experience that engage sight, sound, touch, smell, or movement. This sensory engagement allows the visitor to connect emotionally with the content because they are able to experience it for themselves.[20] Sensory experiences provide the visitor an opportunity to develop a mental pathway for additional learning. After studying national reports, researchers

[19] Anton E. Lawson, *Science Teaching and the Development of Thinking* (California: Wadsworth Publishing, 1995), quoted in Edmund A. Marek et al., "Conceptual Understandings Resulting from Interactive Science Exhibits," *Journal of Elementary Science Education* 14, no. 2 (2002): 41.

[20] Alexander, "What is a Museum?," 12.

"discovered a link between sensory-rich activity and the physical development of neuron connections."[21] These neuron pathways stimulate visitors, encouraging future learning, and they connect to individual's emotions and the individual's overall experience. These sensory-rich environments provide a special opportunity for history museums to connect visitors with memory and emotion. In history museum spaces, visitors are often met with a multitude of text, images, and objects, which engage the sense of sight. However, the other senses are not engaged in this process. Interactives provide the visitor a chance to engage a multitude of senses.

In some exhibits, visitors hear the interactive element before they even see it. Auditory elements add definition to the visitors' experience by giving them "access to that which is hidden,"[22] in the words of Shawn Graham. Or in other words, "Sound provides the means to access invisible, unseeable, and untouchable interiors."[23] These interiors are spaces of historical importance, such as a battlefield or factory. While in an exhibit, the visitor is aware that they are not on the battlefield but in a museum. Being in an exhibit space removes the visitor from the history being discussed, but using audio allows the visitor to move one step closer to the experience. Sound provides the visitor a level of intimacy and immersions that they cannot grasp with text and images alone. Sounds and audio help shape the historical space that is discussed in the exhibits. Audio can make an exhibit about World War I come to life with the sounds of gunfire or explosions, or it can breathe life into an exhibit about the Navy with the sounds of waves or seagulls. Interactives can utilize the sense of sound in a variety of ways. One way includes making the sound replicate that of the historical period, such as the sound of cannon fire

[21] Sharon Shaffer, "Opening the Doors: Engaging Young Children in the Art Museum," *Art Education* 64, no. 6 (2011): 42.

[22] Shawn Graham et al., "Hearing the Past," in *Seeing the Past with Computers: Experiments with Augmented Reality and Computer Vision for History*, ed. Kevin Kee and Timothy Compeau (Ann Arbor: University of Michigan Press, 2019), 226.

[23] Graham et al., "Hearing the Past," 226.

in an exhibit about World War I. This interactive allows the visitor to have a more complete picture of the history by experiencing it for themselves. However, museum personnel have to use sound carefully for the space to be accessible to those with traumatic experiences, which is addressed later in the thesis.

Sound can also be used in a more narrative sense within an interactive, such as through the audio accessed via oral histories or the audio accompanying videos. Museums use these elements in a variety of settings such as using authentic field phones as audio listening stations.[24] These oral histories make the history personal. Oral histories typically provide the history of an individual, which allows the visitor to envision the history on a micro-level. Additionally, these oral history stations require more from the visitor. Listening, "unlike sight, requires *active* attention that divides our ability to make semantic or emotional sense of what is being said."[25] This means that when humans take in sound and audio, the brain not only processes what is being said but "*how* it is being said"; "in short, sound require cognition to make sense."[26] This active effort allows the visitor to create connections between the audio and the text content, opening pathways for additional learning opportunities.

Touch is often the sense that is underappreciated in museum exhibits. Objects are usually on display behind glass cases that discourage physical touch to protect the object in question. This is especially the case with history, given the need to preserve primary source documents and the material objects of the past that cannot be replaced. However, visitors have a need to touch

[24] Jensen, email interview.
[25] Graham et al., "Hearing the Past," 227.
[26] Graham et al., "Hearing the Past," 227.

objects "to acquire information about them."[27] In a history museum, touching offers the visitor a chance to experience the history for themselves. For example, visitors at the USS Constitution Museum are encouraged to "climb in a hammock or get on their knees and scrub the deck; it is a full body experience," as opposed to just reading about the life of a sailor on an exhibit panel.[28]

By being allowed to touch the objects and interactives, guests impose an authenticity on the object and on the era itself, which brings them closer to the history and makes it personal. "Authenticity is critical in the relationship between a history museum and a visitor."[29] By touching interactives, museum visitors are able to relate to the content on a personal level because they also have a chance to experience the history by being hands-on. In fact, guests comment on the exhibits they can touch the most. At the World War II Home Front museum, there is an interactive that involves "a table with ropes where visitors can learn to tie knots like the Coast Guard. Despite the simplicity, it is one of [their] most touched and commented on interactives in the museum."[30] As this example demonstrates, the interactive does not have to be complicated for it to be popular. At the Museum of History and Holocaust Education, there is an interactive element that is made to resemble a World War II living room. Guests are encouraged to flip through a scrapbook of the era and examine a radio of the time.[31] Being able to do so brings visitors closer to the history of the home front during World War II because they are able to encounter objects of the time in a space that would have been relevant.

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[27] Francesca Bacci and Francesco Pavani, "'First Hand' Not 'First Eye' Knowledge: Bodily Experience in Museums," in *The Multisensory Museum: Cross-Disciplinary Perspectives on Touch, Sound, Smell, Memory, and Space*, eds. Nina Levent and Alvaro Pascual-Leone (New York: Rowman & Littlefield), 17.

[28] Rand et al., "Families First," 6.

[29] Nina Levent and D. Lynn McRainey, "Touch and Narrative in Art and History Museums," in *The Multisensory Museum: Cross-Disciplinary Perspectives on Touch, Sound, Smell, Memory, and Space*, eds. Nina Levent and Alvaro Pascual-Leone (New York: Rowman & Littlefield), 78.

[30] Jensen, email interview.

[31] Adina Langer, interviewed by author, Museum of History and Holocaust Education, October 1, 2019

Lastly, the sense of smell is strongly linked to memory. "Humans can perceive some 10,000 scents, and specific odors can elicit memories or behaviors."[32] Additionally, smell is one of the strongest senses that is linked to emotion.[33] In museum exhibits, interactives can include odor cards to replicate smells of the historical period. For example, the National Infantry Museum previously used odor cards to replicate the smell of coffee in the mess hall exhibit.[34] However, exhibit curators and designers need to choose the smell carefully, as the smell of the battlefield would not be appealing to audiences. For instance, during World War I, the trench would have smelled horrible, which would have been a mixture of bodily excrement and decomposing bodies.[35] This would be something that museum personnel would most likely not want to replicate because it may cause the visitors' experience to become negative. However, engaging the visitors' sense of smell makes connections in their brains to memories and emotions, which offers the visitor a more vivid experience.

Creating a sensory experience for visitors opens doors for additional learning and engagement. While this can be done using multiple senses, the most beneficial is touch. Sensory experiences provide the visitor a chance to experience the history in ways that they would be unable to with text and images alone. By providing visitors with interactive experiences, it allows them to impose authenticity on the era, and it helps them to create neurological pathways to deepen their understanding of the topic.

Accessibility

[32] Eleonore Von Bothmer, "When the Nose Doesn't Know," *Scientific American Mind* 17, no. 5 (2006): 64.
[33] Bothmer, "When the Nose Doesn't Know," 64.
[34] Jefferson Reed, interviewed by author, National Infantry Museum, September 24, 2019.
[35] Reed, interview.

While sensory experiences are valuable considerations, accessibility is one of the most important topics for consideration among museum personnel when discussing museum interactives in exhibits. Accessibility encompasses physical accessibility as well as mental accessibility. The challenge for curators and exhibit designers is to find a balance between what is best for accessibility and which interaction is most feasible for the audience, while trying to maximize the use of floorspace in the process. Physical accessibility refers to the physical space allowed for accessibility in an exhibit. For example, in thinking about new exhibit design, the team at the National Infantry Museum has to ensure that a person in a wheelchair can perform a 360-degree turn while inside an interactive element that replicates a bunker, while attempting to conserve the authenticity and claustrophobic conditions of the space.[36] However, physical accessibility is not limited to enclosed interactives. Interactives that are built onto walls often protrude into the walking space, and they "cannot protrude out further than 4 inches unless they protrude all the way to the floor to be felt by the visually impaired with an aid."[37] This means that in order for a space to have an interactive that is on the wall and comes into the walk way, it cannot stop halfway down the wall; it would need to go all the way to the ground so individuals with visual impairments could feel it.

Accessibility is not limited to physical accessibility; it also encompasses mental accessibility, which involves the ability to intake the content. In this arena, interactives open doors for the visitor to gain information that they might have been unable to grasp without these initiatives or alternative methods of digesting the material. Text panels in exhibits are written for a certain reading level, which can be anywhere from first grade to eighth grade, but in every

[36] Reed, interview.
[37] Jensen, email interview.

museum setting, there are some visitors who cannot read the content.[38] This inability to comprehend the content may be caused by a number of situations, such as a language barrier or disability. According to curator Sandy Jensen, "Well-designed interactives have the opportunity to bridge those gaps so groups can engage in a mutually enjoyable activity."[39] As she notes, interactives offer accessibility to "people of all abilities, backgrounds, and generations."[40] They also help visitors grasp difficult concepts. These concepts may have "few if any artifacts or images to support" them, such as "understanding why someone would join the crew" of the USS Constitution.[41] In these situations, interactives enable the museum curators to communicate the concept to visitors of all ages, not just those who can comprehend the concept without the interactive.

As museums develop interactives to enhance accessibility, they must give special consideration to ensuring that interactives are accessible to those with mental health conditions such as post-traumatic stress disorder (PTSD) and anxiety when talking about difficult subject matter. As Pamela Ballinger states, post-traumatic stress disorder is

> commonly defined as a response, sometimes delayed, to an overwhelming event or events, which takes the form of repeated, intrusive hallucinations, dreams, thoughts or behaviors stemming from the event, along with the numbing that may have begun during or after the experience, and possibly also increased arousal to (and avoidance of) stimulants recalling the event.[42]

Individuals who are affected by PTSD include "war veterans, concentration camp survivors, and atomic-bomb survivors," among others.[43]

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[38] Jensen, email interview.
[39] Jensen, email interview.
[40] Jensen, email interview.
[41] Rand et al., "Families First," 3.
[42] Pamela Ballinger, "The Culture of Survivors: Post-Traumatic Stress Disorder and Traumatic Memory," *History and Memory* 10, no. 1 (1998): 100.
[43] Ballinger, "The Culture of Survivors," 100.

Because interactives offer a chance for visitors to get a first-hand experience of a historical subject, in exhibits that relate to war or genocide, some interactives can trigger problematic reactions or emotions for certain individuals. The National Infantry Museum, for instance, has to be careful with their choice of interactive because of their audience. They have individuals come through the museum who have never been to war, and they have patrons who just came off the battlefield.[44] Because of this and because of the subject matter of the museum, it is far more likely that individuals who suffer from PTSD would find the content harder to process than those who do not. The museum has a Vietnam Jungle Experience, an interactive component that takes guests through a replication of the Vietnam jungle. The experience is separate from the main gallery, but it is available for guests to walk through. As guests walk through the exhibit, lights and sounds mimic explosions and gunfire. The room is dark to replicate the experience. According to National Infantry Museum curator Jefferson Reed,

> At its initial design and opening, [the issue of PTSD] was an oversight. Day one, the [museum personnel] quickly realized that they need[ed] to do something. Primarily, how they reacted was [to put] a sign, a very prominent sign, stating that persons that might be prone to [PTSD] may want to consider not including that in their gallery tour.[45]

However, mental accessibility not only affects exhibits that replicate real experiences, such as the Vietnam Jungle exhibit, but it also affects exhibits that do not have sensory exposure. In an art installation that accompanied a World War I exhibit at the Columbus Museum, the safety of individuals within the space was a top concern. The artist, who had an interest in memory and its relation to World War I and II, custom designed the space that housed the art installation. Designed to have a minimum amount of light, the space was extremely dark, and it housed a large "sculpture made of barbed wire that sat on a platform that was covered and wrapped in

[44] Reed, interview.
[45] Reed, interview.

Army surplus blankets."[46] The team at the Columbus Museum had a discussion with the design, curatorial, and security teams about how to handle a situation if individuals felt unsafe in the space, whether that meant they were "overwhelmed on a sensory level or on an emotional level." They wanted their guests to be able to exit the space safely, and this is something they take into account on a regular basis. Interactives require special attention to accessibility, whether physical or mental. While interactivity bridges the gap to allow more individuals to learn from the experience, special consideration needs to be taken for the interactives to include individuals that have mental health issues like anxiety and PTSD.

Practical Concerns

As demonstrated above, interactives engage patrons on a deeper level with the subject in question by providing a first-hand look at the history. However, museum personnel have to take other factors into consideration when deciding to use an interactive or not. Some of the most critical concerns are budget and space. Interactives need to be chosen deliberately to enrich the visitors' experience. Museum professionals need to use interactives where they are needed and make sense. Implementing interactives for the pure sake of having interactives does not do anything for the visitor.

Budget is a major factor that goes into the exhibit design process. Budgets can vary widely from exhibit to exhibit, and they depend on factors like the materials the museum already has available and the size of the exhibit. As stated above, interactives can be high-tech, low-tech, or a combination of the two. Low-tech, hands-on interactives are less expensive, while high-tech interactives tend to be extremely expensive. For example, the Columbus Museum housed an art

[46] Bush, interview.

exhibit that involved a drawing station. The exhibit encouraged visitors to experiment with the artistic process by creating drawings of objects themselves. The interactive was extremely low-cost, as it used paper and pencil.[47] However, "a game/challenge played on a screen would cost around $75,000, which included the price of graphic design, audio design, media production, computer programming, computer screen, and fabrication of the housing."[48] Because of the high price tag of certain interactives, curators and exhibit designers are often forced to choose whether or not to have an interactive. One way some curators counteract this is to build prototypes of the interactives to gauge guest engagement. "Even a cheap plywood and laminate version of an interactive that can be tested on the floor is much less expensive than a finished version – especially if the final version is not successful."[49] In some cases, the artistic vision that curators and exhibit designers have for an exhibit is just not feasible within the constraints of the budget; when this happens, it is up to the exhibit designers and the curators to do their best to decide which elements would be most beneficial for the visitor.

Space, both mental and physical, is also a major concern when discussing interactives. Because interactives are used to supplement the text content in an exhibit, they can be large and complex, taking up a lot of space. There is only so much available floor space in an exhibit gallery, so museum personnel have to be deliberate in their choices of interactivity. If there are too many elements in one exhibit space, the visitor could feel "museum fatigue," which occurs when there is so much content to absorb that visitors leave feeling drained.[50] When this happens, visitors spend less time in the gallery spaces, leaving because they feel overwhelmed.[51]

[47] Bush, interview.
[48] Jensen, email interview.
[49] Rand et al., "Families First," 4.
[50] Jensen, email interview.
[51] Jensen, email interview.

Originally, physical exhaustion was thought to be the cause of museum fatigue, but in the 1930s, "Edward Robinson suggested that psychological factors were of equal, if not greater, importance."[52] There needs to be a balance of interactives and content to prevent this from happening, and this balance varies from museum to museum. This balance comes from knowing who the museum's audience is. In a museum like the National Infantry Museum, which caters to a mixed aged demographic, curators use about 70 percent traditional and 30 percent interactive. However, in an exhibit designed for children's discovery, this ratio could be reversed.[53] When visitors enter an exhibit, they are exposed to content immediately, but "visitors need a space for their eyes to rest and for their bodies to rest."[54] This space, which could be a bench or a place outside of the exhibit, allows visitors to process the information, especially if it covers difficult subject matter. While it is important that museums keep the visitors actively engaged, it is impossible for curators to include everything they would like to due to the restraint of physical and mental space.

Putting It into Practice

While conducting the interviews and research on interactivity, I started to think about how it could be incorporated into a museum exhibit about the women in the resistance within Nazi occupied Europe. At first, this process was challenging because the resistance movement relied heavily on print as a means of resistance, and I was not aware how I would be able to make that interactive. However, I knew that I wanted to create interactives that engaged the senses, especially hearing and touch. From there, I knew I wanted variety of high-tech and low-

[52] John Howard Falk and Lynn Diane Dierking, "The Physical Context: Visitor Pathways," in *The Museum Experience* (Washington, D.C.: Whalesback Books, 1992), 56.

[53] Reed, interview.

[54] Jensen, email interview.

tech interactives as well. Once I knew these two things, the ideas for different styles and types of interactives began to flow.

I chose to focus the exhibit around women in the resistance because women are often overlooked in the discussion of Nazi Germany.[55] Framing the exhibit from the perspective of the resistance provides the visitors with a narrative that is different from the conventional narrative of the time. Typically, the emphasis in discussions of the Holocaust tends to be about the perpetrators and about the victims rather than about the resisters. While the story of the resistance is small compared to overall story of World War II, it is one that should not be ignored. Ideally, this exhibit would be a temporary exhibit in a Holocaust museum. While it could stand alone in a museum, the exhibit would work well within the context of Holocaust exhibits. Thematically, the exhibit is divided into three parts: a general history of the era; the power of print; and the power of numbers. The historical theme presents the visitor with information about women in Nazi Germany, such as the social and political expectations on women from the government. Also included in the general history is a dual timeline: a red timeline that showcases events that would most likely be familiar to audiences, such as the invasion of Poland or D-Day, and a gold timeline that showcases events within the history of the resistance. Every event or person that is mentioned on the gold timeline is mentioned elsewhere in the exhibit, so visitors can make connections between the content. The power of print portion of the exhibit focuses on the use of print within the resistance. The majority of the resistance groups wrote for underground newspapers or wrote pamphlets of their own. The power of numbers highlights the specific resistance groups that women were involved in during the war.

[55] Jill Stephenson, *Women in Nazi Society* (London: Routledge, 2013), 1.

This section discusses groups like the White Rose, the Red Orchestra, and the prisoners who revolted at Auschwitz-Birkenau; women played major roles in each of these groups.

The space is designed to be open, so that visitors would be able to move through the gallery freely. To adhere to American Disabilities Act (ADA) compliance, the doorway and the space between walls are at least three feet wide. This ensures that a person in a wheelchair can move through the space without difficulty. Also to be ADA compliant, the center of the panels on the walls is roughly 60 inches from the ground. Not only is this accommodating for individuals with disabilities, but it is also accommodating for children. This location allows visitors to be able to read the text without difficulty or strain. For visitors who become overwhelmed in the space or simply need a space to sit, there is a bench located behind the wall.

Within the exhibit, there are four different interactives: two are low-tech and two are high tech. The first low-tech interactive replicates passports of individuals within the resistance. Each passport details the experiences of a specific woman involved in the resistance and their accomplishments. This interactive engages the sense of touch and allows guests to choose their own story that they want to read, and they are able to compare the different experiences with other visitors, which promotes visitor to visitor interaction. These passports are designed for visitors to take them with them when they leave. While being low-tech, this interactive allows visitors to view history at a mirco-level and make it personal, giving them a chance to explore deeper.

The second low-tech interactive is a replication of a typewriter that individuals in the resistance used to write pamphlets and located in the section of the exhibit that discusses the power of print in the resistance. This interactive encourages visitors to type a phrase on the typewriter, but in order to do so, they must load paper into the interactive. From loading to

typing, this interactive focuses highly on touch, allowing visitors to participate in an act that the women in the resistance did regularly. Visitors are encouraged to be hands-on with a machine that they may have never seen before. It evokes the sense of curiosity, allowing visitors to explore actively.

The third interactive is high-tech, and it is located in the section that focuses on the power of groups within the resistance. In this interactive, guests use a touchscreen to answer questions about themselves, such as age, marital status, and whether or not they are a student. Based on the answers that visitors provide, the interactive will decide which group within the resistance they would have most likely belonged. In a study conducted in a museum which concerned visitors answering questions about themselves and what they would do in certain situations, "visitors expressed these labels fulfilled their need for thought-provoking content and the questions' open-endedness was more engaging."[56] This type of interactive places the visitor within the history, making it personal and thought-provoking.

The final interactive in the exhibit uses a combination of senses: touch and sound. Towards the exit of the exhibit, guests are invited to pick up era-specific phones, which provide the visitor with oral histories of individuals from the time period that discuss the events mentioned in the exhibit. Visitors are given the choice of which oral history they want to hear. They can choose one or all of them. This interactive allows for visitors to hear the history from the people who lived it, which makes it personal. The reason it is by the exit of the exhibit is because the visitors will have the context needed to connect and comprehend the oral histories.

[56] Rand et al., "Families First," 5.

Also, it allows for visitors who are feeling overwhelmed or fatigued to exit the exhibit without difficulty.

While the exhibit space is small, the overall exhibit acts as a space that is conducive for the visitor to learn and explore. The interactives invite guests to engage with the content on a personal level, making the history mean something more than text on a panel. The exhibit is designed in a way that bridges interactivity with difficult subject matter, which is not easy to accomplish, and it could be designed relatively cheap, given that the interactives are simplistic.

Conclusion

Interactivity opens doors for museum goers to reach content on a deeper, more meaningful level. In today's digital society, information is at our fingertips, yet museums remain wildly popular because of the opportunity to experience the history first-hand. Interactives provide this opportunity by engaging the visitors' senses and providing a full-body experience, which visitors remember even after they leave the museum. Museums that tackle difficult subject matter have to think creatively about how to overcome the challenges that interactives provide. Interactivity aids in helping the visitors reach the mic-drop moment that makes them understand the exhibit and its content. While it may be difficult to execute, the research and lived experience of curators demonstrate that interactivity is deeply impactful in achieving the mission of museums.

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Appendix I

Exhibit Panels

Panel 1: **Women in Nazi Germany**

In Nazi Germany, the ideal German woman's place was in the home. She was the one in charge of childcare and education, and she was responsible for raising the next generation of Germans. However, in reality, many women worked outside the home, often as secretaries and store clerks. As Hitler's government gained traction, women noticed their rights slipping through their fingers. The freedom of speech and association were some of the first rights attacked by the government. Many women refused these policies, actively resisting the laws of the state. This is their story.

Panel 2: **The Power of Print**

The Nazi government controlled the media, and they censored publications as a means to regulate the political scene. Something as simple as publishing leaflets or pamphlets that spoke out against the Nazi regime was seen as an act of political resistance. However, many women chose this route as their method of resistance. Sophie Scholl wrote political leaflets; Libertas Schulze-Boysen wrote a political play; Charlotte Muller wrote for an underground political newspaper called *The Red Flag.* While the methods were vast, print media gave the resistance a voice to combat the censorship of the German state.

Panel 3: **Sophie Scholl**

A 20-year-old at the University of Munich, Sophie Scholl was a founding member of the White Rose, a student resistance group founded in 1942. Along with her brother and a few friends, Sophie wrote six leaflets that spoke out against the atrocities of the Nazi Regime. The group placed the leaflets around the city and would mail them to people to spread their message. On February 18, 1943, Sophie Scholl and her brother were arrested by the Gestapo after throwing leaflets from a balcony at the university into the courtyard below. Four days later, they stood before a judge and were charged with high treason. Later that same day, they were executed.

Panel 4: **The Right Type**

Many women who wrote pamphlets or other types of print media used typewriters like this one. Grab a sheet of paper, load the typewriter, and write a sentence or two. Be sure to take it with you when you leave.

Panel 5: **Libertas Schulze-Boysen**

After growing up in Berlin, Libertas worked as press officer for Metro-Goldwyn-Mayer in 1933. Using this knowledge of the film industry, she would help write a play, "The Good Enemies," with Gunther Weisenborn, a Nazi resistance fighter. Determined to continue fighting

on the side of the resistance, she gathered photographs that depicted cruelty at the German cultural film center. After the Gestapo came to arrest her husband for his resistance actions, Libertas was arrested in September of 1942 and sentenced to death in December that same year.

Panel 6: **Charlotte Muller**

Charlotte Muller joined the Communist Party after she lost her job for not saying "Heil Hitler" to a SS guard. After being sent to Belgium in 1936, Muller wrote for an underground Communist newspaper called *The Red Flag.* In 1940, she was arrested for her involvement with the Communist party and sent to an all-female concentration camp. Muller was able to survive in the camp because of her high-demand skill: plumbing. She was released from the camp, and later, she testified against the SS guards from the camp, all of whom were sentenced to death.

Panel 7: **The Power of Numbers**

While some resistors acted alone, many were associated with groups like the White Rose, the Red Orchestra, and the Kreisau Circle. However, even outside of these political organizations, resistance gained traction that resulted in revolts and protests. In 1943, women married to Jewish men took to the streets in protest after their husbands were arrested; this would become known as the Rosenstrasse Protest. At Auschwitz-Birkenau in 1944, after learning that they were to be killed, female prisoners revolted to fight for their lives and for their freedom.

Panel 8: **The Red Orchestra and Kreisau Circle**

The Red Orchestra, which began in the mid-1930s, was a collection of social circles that worked against the government. Members in the organization came from a variety of backgrounds, but the majority of the members were women. Libertas Schulze-Boysen and her husband were a part of the Red Orchestra, and they passed secrets to the Soviet Union. Much like the White Rose, the Red Orchestra distributed its message through leaflets and pamphlets.

The Kreisau Circle started in 1940 on an estate in the small town of Kreisau. The women in the group were allowed to participate because of their husbands' involvement. The group's main focus was society after the fall of the Nazi regime and how to better it. The group planned to assassinate Hitler with a bomb in 1944. The attempt failed, and the group disbanded after their leaders were arrested and executed following the attempt.

Panel 9: **Resistance in the Street**

In 1943, the Gestapo came to arrest and deport the Jews of Berlin. Many of these Jewish men were married to Aryan women. In Nazi society, interracial marriage between Aryans and Jews was strongly discouraged. Most of these men were taken to Auschwitz, but some were sent to a Jewish Community Welfare Center, where they were imprisoned. After coming to Rosenstrasse to hear information on their husbands, the wives took to the streets chanting and holding vigils. The women refused to back down, even when the police threatened to shoot them. The protests continued until the Jewish men were released.

Panel 10: **Revolt, Revolt!**

The prisoner revolt that took place at Auschwitz-Birkenau was one of impressive circumstances. Leading up the revolt, prisoners smuggled small amounts of gunpowder in bits of cloth or paper. On October 7, 1944, the prisoners used this gun powder to set fire to the crematorium and stage a revolt. However, the Germans defeated the revolt, killing 250 prisoners in the process. It was later discovered that five women helped smuggle in the gunpowder that started the revolt. They were later put to death by the SS guards.

Panel 11: **Where Do You Belong?**

Take our interactive quiz. Based on your responses, you will be sorted into one of the groups of the resistance.

Panel 12: **Their Story, Their Voice**

Make a selection to hear oral histories from individuals who lived during Nazi occupation.

1- Rita Kuhn, Rosenstrasse Protest
2- Anonymous, Rosenstrasse Protest
3- Gertrude Weinfeld Bettelheim, White Rose
4- Sam Goldberg, Auschwitz Prisoner Revolt

Panel 13: Take a passport to learn more about an important individual in the resistance.

Image 1: **Sophie Scholl**

Image 2: **Libertas Schulze-Boysen**

Image 3: **Berghaus Estate**

Image 4: **Roza Robota, prisoner at Auschwitz-Birkenau**

Appendix II