



I would like to thank the following individuals for being particularly inspiring...

Dr. Phaedra Livingstone, Dr. John Fenn, Lisa Abia-Smith, & Emily Volkmann

And, I would like to dedicate this work to my parents who helped initiate my
love of museums...

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In Search of the Transformational:
Evaluating Exhibitions to Enhance Museum User Experience

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Introduction

The National Association for Museum Exhibitions published *Standards for Museum Exhibitions and Indicators of Excellence* in 2012 that include seven essential considerations for museum exhibition development, design, and implementation. In the section dedicated to indicators of excellence the concept of a “transforming experience” was highlighted as a sign of a particularly exemplary exhibition. This qualitative assessment is comprised of many elements and this study starts with these indicators of excellence to develop an exhibition evaluation questionnaire.

Little research has been conducted that examines exhibition design across a variety of museum types. This study endeavors to distil the common effective exhibition design elements used across museum types to help inspire a transformative experience for museum users. This study also includes an analysis comparing and contrasting the four elements, based on a previous literature review, that were believed to engender a transformative museum experience. The eight Pacific Northwest museums selected for inquiry represent four of the common museum types – art, history, science, and anthropological.

This study is grounded in constructivist/interpretivist epistemology and attempts to answer the primary research question: *how can exhibition design be best executed to enhance museum user experience?* The result of an extensive literature review was the development of an exhibition evaluation protocol that explores four exhibition elements. This protocol was implemented at eight museum sites, within each site a permanent exhibition was selected for evaluation. The raw qualitative data that was collected from each site was composed into narrative form. Then a comparison and contrast was employed to look at emergent trends between museum sites and across museum type. The purpose of this study is to examine the interplay of four key design elements and how they contribute to the creation of an enhanced museum user experience and if this can lead to a transformative museum experience.

When presenting this research at the recent University of Oregon Graduate Student Research Forum, I built in an interactive aspect to my poster presentation. Offering visitors a small post-it note, I asked them “What makes an exhibit great for you?” After thinking about the question for a moment, visitors jotted down a quick note and contributed their voice to the conversation. This interactive moment encapsulates the essence of why I am conducting this research: I want to help create museum exhibitions that not only are educational, fun, and interesting for visitors, but also are relevant, meaningful, and potentially transforming.

Visitors arrive at a museum with a vast array of details influencing their experience; the visitor is conscious of many of these items - such as what they will pay to enter, who is in their group, and, what is on display – but there are also a plethora of influential factors that they may not be conscious of – such as how crowded the museum is, if an installation is broken, and, what emotions may be stirred by their visit. Asking the people who stopped to speak to me about my research helped me develop insight into an incredibly influential aspect that this study is not able to measure: the influence of memory. In response to the question “*what makes an exhibit great for you?*” visitors responded:

“Connecting history to present day.”

“Seeing something that makes we want to know more, raises questions, and causes me to do more research.”

“When I learn something new that I know I’ll never forget. IMPACT.”

“Stories that break hearts with history.”

“Playing with things.”

“The objects.”

“Visiting with my family.”

“Being inside or part of the exhibit.”

“Interactivity.”

“Stirs understanding in social issues.”

This great variety of response demonstrates that each museum visitor will bring their own memories, experiences, and expectations with them when visiting an institution, and while museums strive to serve all constituents at all times, this may not realistically be possible.

This study cannot hope to definitively assert that one exhibit hall was transformative while another was not: different visitors will be affected differently and at different times. Furthermore, this study does not hope to definitively insist that there is a prescription for creating perfect and universally transformative museum exhibitions. However, this study examines specific details that contribute to engendering a transforming experience. I would argue that exhibitions can provide exceptional and enhanced experiences for museum visitors that do not achieve the 'transformative' level. Transformative experiences are incredibly difficult to measure, and, arguably, often occur for museum visitors after they have left the exhibition and had space and time to reflect on their memories and experiences.

Literature Review

The following literature review addresses the conceptual and theoretical background that has coalesced to inform this study. This literature review is divided into two sections, the first will commence by examining the concept of a transformative museum experience, summative evaluation procedures, and preexisting exhibition evaluation frameworks and methods. The second section of this literature review addresses the development of the questionnaire utilized in this study and the comparison of data between institution, across museum type, and comparative methodology.

Transformative Experience, Summative Evaluations, and Evaluation Frameworks

The National Association for Museum Exhibitions (NAME) published *Standards for Museum Exhibitions and Indicators of Excellence* in 2012 that include seven essential considerations for museum exhibition development, design, and implementation. In the section dedicated to indicators of excellence the concept of a “transforming experience” was highlighted as a sign of a particularly exemplary exhibition. This qualitative assessment is comprised of many elements and this study starts with these indicators of excellence to develop an exhibition evaluation protocol. Included as indicators of transformation are personally relevant, emotive, and evocative qualitative statements such as “It was haunting,” “It knocked my socks off,” and, “I will never see ____ the same way again!” (Standards, 2012). These statements attempt to capture the intangible and powerful personal experience museums can offer visitors; furthermore, as John H. Falk discusses in his text *Identity and The Museum Visitor Experience* (2009) it is the power of the intangible, personal, and memorable that deeply affects visitors. “Meaning, for that matter, memories, are never constructed de novo; visitor meaning is always

constructed from a foundation of fundamental personal needs, prior experiences, and interests” (Falk, 2009, p. 138). The transformative, as described by the NAME is embedded and entwined in the power of memory and the intangible.

Bonnie Pittman and Ellen Hirzy explore a similar entanglement of museum exhibition and visitor identity in their case study conducted over five years at the Dallas Museum of Art. Their focus on a single museum ecosystem produced a robust and in-depth study that resulted in four emergent visitor identities (Pittman & Hirzy, 2010). Falk delineated five museum visitor identities: *Explorers*, *Facilitators*, *Rechargers*, *Specialists*, and *Adventure Seekers* (Falk, 2009). Pittman and Hirzy observed and delineated four visitor identities at the Dallas Art Museum: *Observers*, *Participants*, *Independents*, and *Enthusiasts* (Pittman et al., 2010). While many of the types are similar, what is most interesting, and relevant, about these two perspectives, is that museums are interested and dedicated to understanding the conceptions, motivations, and preferences of their visitors before they arrive at the museum entrance. To create museum experiences that can transform is not only beneficial to museums financially, but also beneficial to their position in culture and history. Falk, Pittman, and Hirzy all agree that visitors can, and will, move between archetypes within a single museum experience, and that the nuanced effects of memory and emotion are difficult to quantify and measure. However, all agree that developing a deeper understanding of visitor motivations, behavior, and identity will help museums attempt to encapsulate and create experiences that can be deeply impactful.

Jack Mezirow is an educational theorist who helped develop transformative educational theory. Transformative learning can be understood as education that produces far-reaching change in the student, where the student begins to question their previously held notions and start to re-imagine previously accepted concepts. Mezirow’s text *Learning as Transformation* was instrumental in helping define “transformational.” Mezirow (2000) writes, “transformation refers

to a movement through time of reformulating reified structures of meaning by reconstructing dominant narratives... we transform frames of reference... by becoming critically reflective of... assumptions” (19). This is echoed in the NAME *Standards for Museum Exhibitions and Indicators of Excellence* particularly in the qualifying statement “I will never see ____ the same again!” (Standards, 2012). Mezirow’s work is not only to understand when transformations occur, but also why they occur. Measuring a transformative learning experience is very difficult, unless you have experienced the transformation; similarly, evaluating an exhibition hall for its potential to engender a transformation is also very difficult. Mezirow identifies conditions where transformative learning is more likely to occur: life-changing traumas, emotional turmoil, and profound actions of a teacher or leader. These conditions are intense and extreme circumstances not experienced every day, which contributes to their agency to transform. Museums do not offer extreme and difficult situations, they offer free-choice learning environments where visitors are empowered to absorb and learn information based on their preferences. In line with Mezirow’s theories, exhibition halls may be able to serve as a profound teacher, which can engender a transformational experience. Mezirow offers a body of research and an educational theory grounded in constructivist epistemology, therefore, it is useful to examine his work though he did not study museums. Mezirow’s work, in concert with contemporary museum thinkers, provides a way to analyze exhibition halls and ascertain if the space could potentiate a transformation.

This study employs a summative evaluative procedure to analyze four exhibit aspects at eight Pacific Northwest museums. A summative evaluation procedure was elected because the exhibit halls have been in operation for at least one year, and this evaluation is being produced by an extrinsic and independent evaluator. This study employed procedural protocols as discussed in Judy Diamond, Jessica J. Luke, and David H. Uttal’s 2009 text *Practical Evaluation Guide, Tools for Museums and Other Informal Educational Settings*. The development of the original

evaluative questionnaire was informed by Diamond et al.'s text by adopting their guidelines for detailed observations, participant observations, and questionnaires (61, 63, 84). This study, including the original questionnaire, is grounded in constructivist epistemology, intended to collect primarily qualitative data, and employ a mixed methods and comparative analysis. *In Search of the Transformative*, was also influenced by the work of Mary S. Korenic and Allen M. Young and their summative evaluation used to evaluate the exhibit *Rain Forest: Exploring Life on Earth* as discussed in their paper *The Rain Forest in Milwaukee: An Evaluation* (1999); particularly their analysis of aesthetic and interactive elements that were adjusted to increase visitor engagement and enjoyment (82). Though this study was not afforded enough time to engage in audience-based evaluations that aspect was considered and presents an opportunity for future study.

This study utilized an evaluative questionnaire that examined four elements: aesthetics, education, emotions, and interactives & technology. These four items were chosen because they represent not only a departure from preexisting evaluative frameworks, such as Beverley Serrell's *Judging Exhibitions* (2006), but also because it attempts to encourage the evaluator to engage in focused consideration of details. The evaluative questionnaire designed and employed in this study, though, does resemble Serrell's *Framework* in that it empowers the evaluator to reflect on their exhibition experiences. It guides the evaluator to inspect, analyze, and observe specificities in a systematic method that can be employed at different institutions at different times. The questionnaire was created to position the evaluator's perspective from the external and move towards the internal of not only the exhibit hall, but also the visitor experience. Delimitations were built into the evaluative questionnaire that reflects the upper limits of concepts such as museum fatigue and crowding (Cota-McKinley & Bitgood, 2010).

The evaluative framework and questionnaire employed in this study conceptually and theoretically drew inspiration from the work of Stephen Weil. Weil wrote about the movement of museums away from acting solely as depositories and exhibitors of culturally significant objects, and towards educational centers where institutional value relevant to the community (Weil, 2001). The evaluative questionnaire employed in this study aims to equip museum professionals with a tool that can enable them to consider how *aesthetics, education, emotions, and interactives & technology* can work together to create exhibition spaces that are important to museum visitors and museum communities.

Questionnaire Development, Data Comparison, & Methodology

This section of the literature review will examine why each element of the evaluative questionnaire was identified as significant, and, will examine the process of analysis and synthesis of recorded data that was employed.

Aesthetics

The visual appearance of an exhibition hall is one of the first cues to museums visitors that inform them where they are and what they are going to experience. I positioned questions about *Aesthetics* as the first evaluative quandary because the questionnaire begins with a visual sweep – the external – and, as questions progress, move deeper into the philosophical and internal.

David Dean's 1996 book *Museum Exhibition Theory and Practice* was a primary resource for the development of the aesthetic inquiry. "Designing museum exhibitions is the art and science of arranging the visual, spatial, and material elements of an environment into a composition..."

(Dean, 1996, p. 32). Drawing directly from Dean's assertions of fundamental considerations of design, I constructed the aesthetic section of the evaluative questionnaire.

Furthermore, I drew inspiration from exhibition design art books that provided not only text describing exhibitions, but also provided photographic evidence of exhibition layout, details, and design. David Dernie's 2006 text, *Exhibition Design*, and Herman Kozzman, Suzanne Mulder, and Frank Den Oudsten 2012 text, *Narrative Spaces: One the Art of Exhibiting*, both explore the marriage of visual-spatial presentation integrated with story, message, and meaning. These two works contributed to the aesthetic section of the evaluative questionnaire by deepening the inquiry to ask "how do the aesthetic enhance the exhibition?" and "how does that occur?"

Leslie Bedford's 2014 text, *The Art of Museum Exhibitions*, was highly influential on many aspects of this study and in the development of the evaluative questionnaire. Bedford's concise analysis of exhibitions as educational platforms that aesthetically engage narrative, and can inspire visitor imagination, helped shape not only the questionnaire categories, but also the more probing questions that uncover the *how* and the *why*.

Education & Comprehension

Bedford's text contributed to the development of the *Education & Comprehension* section of the evaluative questionnaire. Bedford's work considers influential museum educational theorists that have contributed to shaping the field. Thinkers such as John Dewey, George Hein, Lisa Roberts, Maxine Greene, and Mihaly Csikszentmihalyi are specifically unpacked in her text (Bedford, 2014). The *Education & Comprehension* section of this evaluative study particularly employs the ideology of Maxine Greene, George Hein, and John Dewey. Greene and Dewey's concepts of the empowered student influence the development of the question "*what are they trying to teach*

me?” and “*did they succeed?*” (Bedford, 2014, & Howard, 2014). Furthermore, Hein’s focus on constructivist theory of education greatly contributed to the development of questions attempting to determine if the educational message was received, and, if the intended message beneficially contributed to the experience (Bedford, 2014, & Howard, 2014). Bedford’s focus on the importance of imagination helped shape the questions that explore the opportunity to ask questions. Furthermore, Nina Simon’s work exploring the importance of communication and collaborative experience helped shape the questions that explore if any educational material was provided for me to take with me (Simon, 2010). Dewey’s work theories exploring reflection assisted in shaping questions that explore the effect of the educational components of the exhibit halls and how I was affected as a visitor (Howard 2014).

Emotions

Evaluating the emotional impact of an exhibit hall will yield highly subjective and varied data. Arguably, a single evaluator may generate markedly different emotional data sets visiting the same exhibit hall on different days. The *Emotions* section of the evaluative questionnaire was influenced by the work of Leslie Bedford (2014), Herman Kossman (2012), John Falk (2009), Maggie Stogner (2009), and Sunghee Choi (2013). Discussed previously, Bedford’s examination of how education, story, and imagination can combine to create exceptional exhibitions: the emotional impact of the exhibit space contributes greatly to memories (Bedford, 2014). Similarly, Kossman’s work unpacking the importance of story and visual impact to create entry points for visitors to engage, personally, with exhibitions, demonstrates another avenue where emotional impact is relevant (Kossman et al, 2012). Falk’s work with the influence of memory, and how, longitudinally, the personal impact of museum visits shapes experience and

understanding, resonates with the other authors who examine the importance of emotions (Falk, 2009).

Stogner's article, "The Media-enhanced Museum Experience: Debating the Se of Media Technology in Cultural Exhibitions" (2009), examines the three-fold importance of engendering "hands-on, minds-on, and hearts-on" experiences for visitors (8). Stogner asserts that museum visitors will not be fully engaged, educated, or entertained without an emotionally stirring experience. Similarly, in Choi's article, "Relational Aesthetics in Art Museum Education: Engendering Visitors' Narratives Through Participating Acts for Interpretive Experience" (2013), she writes, "visitors will continue to objectify artworks until they specifically engage... cognitively, emotional, and/or physically..." (51). The inclusion of the questions that explore emotions in museum exhibitions was intentional because of the importance of emotive connection for visitors. Arguably, emotional experiences can provide the most opportune moments for transformation: it is often through difficult and complex personal experiences that individuals are transformed. Museums do not present physical obstacles for visitors; the museum is a space of physical security, but, it can provide visitors an opportunity to be emotionally and intellectually challenged.

Technology

Technology was an important detail to analyze and include in the evaluative questionnaire. Though technology can theoretically and conceptually include many things, for the sake of this study, technology means digital technology, such as a touch screen, projections, or computers. The work of architect and exhibition designer Ranjit Makkuni, the text *The Fundamentals of Interactive Design* (2013), the analysis of audience perspectives by Kate Mondloch (2010), and Vince Dziekan's case studies in *Virtuality and the Art of Exhibition: Curatorial Design for the*

Multimedia Museum (2012) have all been highly influential in considering the effect and importance of technology in museum exhibit halls. The questions included in the evaluative questionnaire were formulated with these theorists in mind. Mondloch, and others, encourage the implementation of a multi-user interface; furthermore, Makkuni and Dziekan emphasize the value of employing embedded/obscured interfaces because it can enhance a mysterious quality for the visitor.

All authors highlight the importance that technology be working, easy to understand, and that clear scaffolding be employed to ensure that visitors know how to interface. Technology is often a tool utilized in exhibit halls to help deliver educational or interpretive content, therefore, innovative design married with easy comprehension are fundamental (Mondloch, 2010, Makkuni, 2007, Dziekan, 2012, and, Salmond & Ambrose, 2013). This portion of the evaluative questionnaire provided an opportunity to gather both quantitative and qualitative data; furthermore, it furthered the more detailed analysis of each exhibit hall.

Interactive Elements

Interactive elements, like technology, can be interpreted in a number of manners; however, for the sake of this study, *interactive elements* refer to non-digital (analog) objects in an exhibit hall that can be touched by museum visitors. In Stogner's article, addressed earlier in this literature review, she insists on the importance of "hands-on, minds-on, and hearts-on" exhibition qualities to enhance museum visitors experiences (2009); therefore, I dedicated a section of the evaluative questionnaire to examining *interactive elements* present (or absent). I examined case studies that unpacked and analyzed the effect of *interactive elements* on museum visitors. Grisha Coleman's article "Listening as the Land Talks Back: Ecology, Embodiment and Information in the Science Fictions of echo::system" examined the effectiveness of marrying performative, interactive, and

digital installations in a highly stylized environment to engage visitors with unpacking the scope of environmental devastation (2013). Martin Hatchet, Jean-Baptists de la Riviere, Jeremy Laviole, Aurielie Cohe, and Sebastian Cursan's article "Touch-Based Interface for Interacting with 3D Content in Public Exhibitions" (2013) analyzed how interactivity can provide museum visitors with an opportunity to engage with collections on a level not available at most institutions.

The case studies provided specific examples of how institutions are utilizing interactive elements; furthermore, examining the work of Ranjit Makkuni, and the *Eternal Gandhi Museum* (which is both a museum and publication), provided me with many examples of different kinds of interactive elements and how they can be employed to deliver content and educational material (2007). Since technology and interactive elements are both avenues utilized in exhibitions to deliver content, I considered the theoretical work of Howard Gardner and his theory of multiple intelligences (Howard, 2014). Gardner writes about the importance and influence of kinesthetic learning: interactive elements provide museum visitors with an opportunity to engage in kinesthetic learning. Previously discussed in this literature review is the intention of the evaluative questionnaire to start from a broad-strokes perspective and then work inward and eventually focus on specific details. The examination of *interactive elements* provided the next step, after *technology*, to engage in close inspection.

Comparison between Institution & Across Institutional Type

Leslie Bedford's book (2014), *The Art of Museum Exhibitions*, provides theory and guidelines for exhibition developers from different kinds of museums. Similarly, John H. Falk's book (2009), *Identity and the Museum Visitor*, presents aggregated data collected from visitor studies from a plethora of different kind of museums. Beverley Serrell's (2006) *Judging Exhibitions*

Framework can be, and has been, utilized in a variety of museum settings. Like Serrell's *Framework*, the evaluative questionnaire developed for this study was created to be used at a variety of different kinds of museums. Furthermore, the goal of this study was to collect and compare data not only between institutions, but also across institutional type.

There are few studies that have endeavored to look at *aesthetics, education & comprehension, emotions, interactives & technology* between institutions, and even fewer that have endeavored to compare across museum type. Kathleen Renee Carberry's thesis, published in 1994, was one of the only studies I could locate that compared an art museum to a science museum: the focus of her study was specifically educational content and delivery (Carberry, 1994). Furthermore, there are websites that compare basic administrative and institutional data from museum sites, but none that analyze the qualitative and quantitative data gathered in this study. Therefore, this study hopes to provide not only a new evaluative framework that leads the evaluator through an intentionally constructed examination of specific details, but also provides a comparative analysis that examines data both between institution and across museum type. The goal of this comparison is to identify trends that may suggest avenues for exhibitions to engender enhanced and transformative experiences for visitors.

Research Methodology

The purpose of this study is to determine which exhibition design features are essential across museum type to create an enhanced user experience. Furthermore, if these features are effectively implemented, this study determines if they are sufficient to engender a transformative museum experience. This study examines four exhibition elements that may contribute to the creation of a transforming experience. This project utilizes an original evaluative questionnaire to closely examine eight exhibitions at Pacific Northwest museums classified in one of four

museum types (Appendix A). The primary research question is *how can exhibition design be best executed to enhance museum user experience?*

The methodological paradigm utilized in this study is grounded in interpretivist/constructivist epistemological framework; the primary avenue for data collection is via a systematic evaluative questionnaire. The questionnaire developed positions the evaluator to examine large scope items, such as aesthetics, and concludes with the analysis of detailed exhibition items, such as interactive elements.

Role of the Researcher

As a museum student and museum professional, I entered this study with a particular perspective that is not representational of all museum visitors. Trying to maintain awareness of my biases, discomforts, and familiarities was important when undertaking this study. I am a multi-ethnic North American female researcher with many years of experience in not only exhibition development and implementation, but also in the creation of art. My perspective will be influenced by my cultural experience: as an English speaking, 34 year old female, that has lived on the West Coast of the United States for the past 24 years, as the daughter of a Chinese mother and European father, who was raised with both Mandarin and English spoken at home. Furthermore, since I am first generation born in America from my matriarchal line, I have been raised with a focus on my Chinese ancestry and culture.

My epistemological orientation is grounded in constructivism: I believe that there are many realities that are constructed by individual experiences, and, I believe that individual perspectives are subjective and multifaceted. In this study, I am the primary research tool, and though this study does not employ auto-ethnographic methodologies, I attempt to utilize my

perspective and experiences – as a museum visitor – to provide a useful critique that explores the details of eight museum exhibition halls.

Primary Research Questions

The primary research question of this study is *how can exhibition design be best executed to enhance museum user experience?* A parallel research question is *how can exhibition design be best executed to inspire a transformative museum experience?*

Delimitations

The eight museums included in this study are Pacific Northwest museums that fall into one of four types; the eight museums are either accredited or a University museum. The four types of museums include: the art museum, the science center, the historical center, and the natural history/anthropological center. All eight of the museums are located in one of the following cities: Eugene, Portland, or Seattle. The eight institutions are: the Jordan Schnitzer Museum of Art, the Portland Art Museum, the Oregon Museum of Science and Industry, the Pacific Science Center, the Burke Museum of Natural and Cultural History, the Museum of Natural and Cultural History (University of Oregon), the Oregon Historical Society, and the Experience Music Project.

Eight museums were visited; within each museum I evaluated one exhibition hall, housed in the permanent collection. The exhibitions are part of the museum's permanent collection. The observation and evaluation procedures were standardized: three hours were spent in each exhibition; all exhibition visits occurred on a weekday, all evaluation procedures used a systematic evaluative questionnaire, and all observations were recorded by hand; however, for institutions that allowed photography images were collected in support of evaluative data.

Limitations

An evaluative protocol was utilized that examines four exhibition elements from the perspective of a museum visitor in hopes to understand what contributes to creating transformative experiences. This study elected to examine exhibitions at eight museum sites that categorically belong to four types in hopes to identify similarities and trends that contribute to creating transformative experiences. Qualitative data was identified as most useful when unpacking contributing elements of transformative experiences; therefore, an evaluative protocol was developed that results in descriptive qualitative data.

The limitations of this study are primarily related to budget and time. Furthermore, the generalizability of results are limited to the museums included in this study. Further research is recommended, including interview with visitors. As the primary researcher, I do not have the resources, or the time, to include museums outside of the Pacific Northwest; furthermore, the regional culture, while not homogenous, is consistent in this region of the United States. This study needs to be completed within the time frame prescribed by the University of Oregon which contributes to the necessity to focus on the Pacific Northwest.

Research Objectives

The purpose of this study is to examine the interplay of four key design elements and how they contribute to the creation of an enhanced museum user experience and if this can lead to a transformative museum experience. Little work has been conducted that examines exhibitions across museum types, by examining exhibits from a variety of museum types this study aims to determine what recommendations the science center could offer the historical center, what recommendations the anthropological center could offer the art museum for example, and vice versa.

This study is intended to contribute to a growing body of knowledge on how exhibitions in informal learning environments disseminate information spatially, and how visitors interpret the content. My professional focus is museum exhibition development and design, hence this study will further my exploration of what contributes to exceptional exhibition design, which will enhance my professional work.

Research Design

This study is a summative evaluation that examines eight exhibitions in eight Pacific Northwest museums with the goal of creating institutional comparisons. The four design elements include: *aesthetics*, *education & comprehension*, *emotions*, and *interactives & technology* (Appendix A). Furthermore, by comparing across museum type, emergent trends are identified that can assist museum professionals in creating enhanced and, potentially, transformative exhibitions. The results of this summative evaluation may provide groundwork for developing enhanced exhibitions that employ the four elements of design.

The evaluations generated in this study have been analyzed utilizing a mixed methods analysis process. Examples of quantitative data include: the number of touch-screens present in an exhibition, the number of functioning installations, and the presence/absence of physical take-aways, etc. Examples of qualitative data include: the emotional reaction inspired by an exhibition, the assessment of educational information and if it is comprehensible, and the innovativeness of interactive elements.

Research Sites

Eight Pacific Northwest museums were the sites for this study: each museum type is represented by two museums. The exhibitions were selected because they are demonstrative of

exhibitions normally found in the selected museums and do not represent travelling exhibitions that are less predictable with regards to their availability to the general public.

The following graph indicates which gallery was examined at each museum.

Museum	Gallery/Exhibition Title
Jordan Schnitzer Museum of Art	Soreng Gallery/Chinese Collection
Portland Art Museum	Asian Galleries/Asian Collection
Oregon Museum of Science and Industry	Life Hall
Pacific Science Center	Wellbody Academy
Oregon Historical Society	Oregon Voices
Experience Music Project	Fantasy: World of Myth and Magic
Burke Museum of Natural History and Culture	Life and Times of Washington State
Museum of Natural and Cultural History	Explore Oregon

Data Collection and Analysis

This study utilized five phases for the collection and analysis of data.

Phase I: After completing a comprehensive literature review, I developed the evaluation protocol and questionnaire. The evaluation questions were synthesized from the information generated in the literature review.

Phase II: I recruited the participation of eight Pacific Northwest Museums. Exhibit halls were selected at each site that was a part of the permanent collection and would be available to any museum visitor; furthermore, exhibit halls that explore similar concepts were selected at each site according to type. At the art museums, Chinese and Asian collections were selected; at the science centers, Life Sciences and Wellness were selected; at the natural history/anthropological

museums, Natural History was selected; and, at the historical museums, Narrative and Story was selected.

Phase III: Site visit and museum evaluation.

1. Thursday, January 29, 2015: Jordan Schnitzer Museum of Art, *Soreng Gallery*. University of Oregon, Eugene, OR. Noon – 3 PM.
2. Thursday, February 2, 2015: Museum of Natural and Cultural History, Explore Oregon! University of Oregon, Eugene, OR. Noon – 3 PM.
3. Wednesday, February 11, 2015: Oregon Historical Center, *Oregon Voices*. 1200 SW Park Avenue, Portland, OR. Noon – 3 PM.
4. Monday, March 16, 2015: Burke Museum of Natural History and Culture. *Life and Times of Washington State*. 17 ave Northeast and Northeast 45th Street, Seattle, WA. 12:45 – 3:30 PM.
5. Tuesday, March 17, 2015: Experience Museum Project. *Fantasy: World of Myth and Magic*. 325 5th Ave, N, Seattle, WA. 12:30 – 3:30 PM.
6. Tuesday, March 24, 2015: Portland Art Museum. *Chinese, Japanese, Korean, and Asian Collections*. 1219 SW Park Ave, Portland, OR. Noon – 2 PM.
7. Monday, March 30, 2015: Pacific Science Center. *Wellbody Academy*. 200 2nd Ave, N, Seattle, WA. 12:30 – 3:30 PM.
8. Sunday, April, 4, 2015: Oregon Museum of Science and Industry. *Life Hall*. 1945 SE Water Ave, Portland, OR. 1 – 4:00 PM.

At all museum sites I entered the exhibit hall through the primary entrance to begin my note-taking and observations. I moved through each exhibit hall multiple times while observing and recording data. At each site, I followed the questionnaire and answered each question in the same order. I took photographs at each site to support and document the notes recorded in the evaluative protocol. Toward the conclusion of each site visit, I would sit, reflect, and record my thoughts and impressions.

Phase IV: Analysis of Data. After transcribing my hand written notes into a typed narrative, important aspects have been identified to inform the development of a matrix. The goal of the matrix is to synthesize what criterion for each exhibition element is necessary when considering transformative potential (please refer to Appendix C). Furthermore, an analysis comparing and contrasting data between museum sites and across museum types was conducted to identify trends that recommend transformative potential.

Phase V: Interpretation of Results. The interpretation of results included situating the emergent trends and criterion identified in the matrix in the relevant literature. Furthermore, the interpretation of results utilized the developed matrix to identify potential recommendations between museum sites and across museum types.

Data Collection Instrument

This study utilized an evaluation questionnaire, which was developed to explore four exhibition elements. Please refer to Appendix A for a copy of the evaluation questionnaire. Furthermore, photographic evidence was captured in support of observations collected when evaluating each exhibit hall. The data collected is primarily qualitative observational data. The questionnaire explores *aesthetics, education & comprehension, emotions, and interactives/technology*.

The *Standards for Museum Exhibitions and Indicators of Excellence* (2012) describe a key indicator of excellence as an exhibition that incorporates a transformative element. The indicators of excellence informed the development of the evaluation questionnaire. The following list presents a synthesis of the indicators of excellence:

1. The exhibition offers a new insight on a topic. (Education & Comprehension)

2. The exhibition presented existing knowledge in a provocative way. (Emotions)
3. The exhibition includes the audience in an innovative manner through design. (Technology & Interactive Elements)
4. The exhibition includes innovative media, material, and other design elements. (Technology and Interactive Elements)
5. The exhibition is particularly beautiful. (Aesthetics)
6. The exhibition is exceptionally capable of engendering an emotional response. (Emotions)
7. The exhibition evoked responses from viewers that are evidence of a transforming experience. (Transformative experience)

Often characterized by these responses:

“It was haunting.”

“I’ll never see _____ the same way again.”

“It knocked my socks off.” (Standards, 2012, p. 5)

Findings

The following narrative reports on my data collection experiences at each museum site. Through this written narrative I hope to recreate the processes which I employed to complete each evaluation. Each section recounts the site visit as it had unfolded at the given museum.

Jordan Schnitzer Museum of Art

I arrived at the Jordan Schnitzer Museum of Art at noon on Thursday, January 29, 2015. The museum was relatively empty and quiet. I entered the *Soreng Gallery* on the second floor and began recording my observations. I begin with examining a set of aesthetic considerations.

Aesthetics

The *Soreng Gallery* has multiple entrances, all of which are accessible through other gallery spaces. There are no obvious intro panels when I first entered the gallery, when I turned and looked for them I discovered one positioned next to a door. The gallery itself employs free-choice directionality and embodies an awesome aesthetic experience. The colors are generally warm and comfortable with accents of blue and grey. The walls are beige, the cabinetry and accents are grey and blue, and red is utilized sparingly. The gray carpets and embroidery contribute a soft texture, while the curvature of the teak provides structure that is still soft. The space is symmetrical and balanced, and it is intentionally laid-out in this manner. The primary shape in the gallery is the rectangle, except for the scholar's desk which breaks the pattern by utilizing a circle. The aesthetics of the gallery assist in mimicking an actual throne room, but with fewer objects. The focus on symmetry and balance is echoed in the objects on display. I note that the number of objects in the exhibit hall feels appropriate: it does not feel crowded;

however, grouped as a collection they complement each other aesthetically, but beyond beauty and country of origin there is nothing that overtly ties them together.

Education & Comprehension

After I finish recording my observation about aesthetics, I move-on to consider the educational aspects of the exhibit hall. I am aware that my interpretation of educational intention may well differ from other museum visitors; furthermore, I am aware that my familiarity with the objects on display recommends that I will be more comfortable interpreting and exploring the labels, objects, and educational content.

The first question I answer is “What are they trying to teach me?” After studying the Introductory Panel, I conclude that the exhibit hall is hoping to teach me about Gertrude Bass Warner and her collection of over 7,000 Asian works, many of which were collected in the first quarter of the 20th century. Warner’s collection of over 2,000 Chinese objects is the foundational items that comprise the JSMA’s collection.

I then considered the question, “did they succeed?” I note that the introductory panels filter too quickly into other languages and that it was frustrating trying to read the complete panel before it changed into a language I could not understand. I noticed that the “goals” were identified at the end of the introductory panel, which suggests that many visitors may not read that message.

This exhibition hall is very object focused; the primary affect is tied to presentation and aesthetics. Upon examining label text and introductory panels, I conclude that there is no specific narrative employed. I also note that, though I am Chinese, I do not necessarily see how this exhibit hall presents relevant concepts relatable to my life. The objects, however, are exceptionally beautiful, but it is hard to understand the educational component addressed. The

introductory panel, “Late Imperial China,” is ripe with information but does not present the exhibits goals till the end. There is a panel that provides a narrative of the Qianlong Emperor, though that narrative thread is not carried into other installations in the exhibit hall.

Accompanying the robe installation is a panel discussing how silk is produced, and, for me, this enhances the robe installation. I appreciate that I can view the robe, appreciate its beauty and details, then learn about the manufacturing process, and then re-inspect the object. The “Scholars Desk” is also very beautiful, the presentation is strong and it creates an experience of being able to step into a different world and become a Chinese scholar; however, the introductory panel for this installation is a strange location – on the side of the case – and can easily be missed.

The contemporary work “Order (The Red Guards)” is large and impressive, and could help manifest a dialogue that addresses contemporary issues of power and authority, which would link to the exploration of Imperial power and authority; however, this is not overtly stated. The aesthetics of the pieces are in contrast to the rest of the exhibition hall, which could be harnessed to help discuss concepts like “vulnerability of historical memory” and “modern political subject matter.”

I am drawn to closely examine the “Lotus Shoes” installation, which I feel is very strong. I appreciate the presentation of authentic object, narrative of an actual person, poem, photograph, and information of the foot binding process. After answering questions exploring education and comprehension, I consider the emotionality of the exhibit hall.

Emotions

I ponder what emotional response this exhibit hall engenders and I note “awe and appreciation of beauty.” I expand my observations and considerations to include “peaceful,

balance, awe of beautiful artifacts, and reverence.” I note that the height, space, and balance of the throne encourage a reverential emotional response and that the height of the room and the spacing of the objects generate a “great sense of wonder.” When examining the “Lotus Shoes” installation I feel “a bit of outrage, confusion, sadness, and questioning” not because of the presentation, but because of the subject matter, which I suspect greatly contributed to the effectiveness of the “Lotus Shoe” installation. The lighting in the *Soreng Gallery* contributes to the emotive response. Furthermore, even though I experience awe and wonder, I find it difficult to connect the objects in the gallery to my own life and I suspect that a narrative thread may increase the exhibit halls relevance for me. After considering emotional response, I examine the use of technology.

Interactives & Technology

This exhibition hall employs technology, though sparingly. The “Treasure Wall” with its accompanying touch screen and the two audio stations are the primary examples of digital technology. The “Treasure Wall” touchscreen is both embedded in a stylized case and obtuse because it is obviously the interface for visitors who wish to explore the objects presented in the “Treasure Wall.” The technology in the *Soreng Gallery* is available for multiple users and encourages visitors to experiment with the interface. The “Treasure Wall” helps to create an interactive experience that encourages visitors to pause, through the presentation it conceptually relates back to the Emperor’s role as cultural authority. The “Treasure Wall” is a very strong installation and a good use of technology and interactivity. Each piece in the “Treasure Wall” is beautiful; however, I would suggest dedicating more light to the display: it is hard to see each object. It would be fantastic to embed small LED’s into each compartment, so that when a visitor selects an object, it lights up in the display. This may encourage visitors to examine the object

and then the touch screen, referentially. After observing the technological elements of this exhibit hall, I consider interactive elements.

Beside the “Treasure Wall” and two audio stations this exhibition hall does not employ interactive objects. The *Soreng Gallery* does offer three places to rest and reflect, two audio stations, and a “Treasure Wall.” The “Wall” is a strong example of interactive technology that marries an analog aspect (the objects being presented) and paired with a bench encourages visitors to slow down and explore. The “Wall” can be used by multiple users though one visitor will inevitably lead the interactions with the touchscreen.

Portland Art Museum

I arrived at the Portland Art Museum at noon on Tuesday, March 24, 2015. The museum was not very busy and relatively quiet. I began my observations of the Chinese, Asian, Korean, and Japanese Art Galleries on the first floor of the museum.

Aesthetics

The Asian art collection at the Portland Art Museum is exhibited on the first floor of the institution and is divided into five separate galleries: the galleries exhibiting Chinese art are accessible from the lobby – before you enter the main museum building – the galleries exhibiting Asian, Korean, and Japanese Art are directly to the left of the main doors inside the main museum building. Gallery A and B house Japanese art, Gallery C and D house Chinese art, and Gallery E houses Korean art. However, Chinese art was visited first, then Korean, and finally, Japanese.

The five gallery spaces all embrace a cool value with yellow and brown being prominent colors. In the Chinese galleries the primary colors are grey and terracotta, the primary colors in

the other three galleries include grey, white, and wood (teak). The texture is primarily wood floors and tatami style screens. The galleries are all balanced in a symmetrical layout and there is a lot of room around each object. The line of each of the galleries is symmetrical; however, in the Asian, Korean, and Japanese galleries there are repeated flower and screen patterns. Squares and rectangles are the primary shapes in each of the galleries. The entry of each of the galleries is varied; the eye is drawn to the beautiful works of art. The Chinese galleries are primarily intimate, while the three other galleries are more awesome, though with moments of intimacy. The objects are arranged with a particular focus on balance and symmetry.

In the Early Chinese Art gallery, the ceilings are very tall, the atmosphere is very still, and the aesthetics recommend a reverential experience. The lighting in the galleries enhances the shadows of the objects on display which accentuates the negative space around the object. Furthermore, there are exhibition spaces exhibiting funerary objects in a room tucked inside the gallery, which contributes to the reverential quality of the aesthetic presentation. Each gallery has a stylized color for presentation, and each room's vitrine follows a color design as well, which helps reaffirm an aesthetic cohesiveness.

In the gallery titled "Chinese Art" there is a reproduction of a Throne Room, where the pieces have been installed in conversation with each other: each object is balanced with a mirroring object of similar visual weight. There are tatami mats in the base of each vitrine and everything is lit beautifully with diffused white light.

In Gallery B (Japanese) the exhibition design is reminiscent of a Japanese house: there are beautiful wood floors in the base of each vitrine. In Gallery A (Japanese) the exhibition design is reminiscent of a Japanese house, though there are no flower details on the display cases. There are three benches dispersed throughout the galleries and they are placed before a deity or throne. The exhibition hall is reminiscent not only of a house, but also of a temple;

furthermore, by placing benches in front of deities and thrones the act of lowering your body to rest is reminiscent of the act of bowing to an Emperor or a deity. Generally, there are not many objects on display and objects are surrounded by an abundance of negative space. Furthermore, the light diffusing panels installed at the top of the vitrines help create diffused even light, the panels almost resemble rice paper. After I complete my observations regarding aesthetics, I consider the educational component of the exhibit halls.

Education and Comprehension

I examine the label text in each gallery, there are no traditional introductory panels, and I discern that the educational component of the exhibit is addressing the spiritual, cultural, and historical importance of each object in history. “I really enjoy this,” and I note that the labels address how the objects were made (process), the role of the object, the mythology tied to the object, the cultural/historical use, and the provenance of the object. The labels incorporate Chinese, Japanese, and Korean script.

I note, multiple times, that I find the labels exceptionally well crafted and that the exhibit succeeded in teaching me about the objects. I am particularly intrigued and pleased that the spiritual importance of the objects is of primary significance in the labels. The pairing of authentic beautiful objects with process and cultural/historical/spiritual significance is affective and effective for me as a visitor. The labels are very informative and well composed, but are only relevant if visitors read them. After reading, reflecting, and noting various aspects of the label text, I move on to consider the emotional impact of the exhibit hall.

Emotions

Yes, this exhibit hall inspires an emotional response; I experience spiritual reflection, awe, wonder, and interest in how the objects were created. I am drawn to the objects by their presentation and I feel as though I have stepped through an invisible doorway into an idealized world. I note that this affect conjured concepts of “frozen in time” and “very idealized,” which can be problematic. There are a few contemporary pieces included in the exhibit halls, which I recognize is one way curators attempt to contextualize the cultures being presented. I note that this exhibit hall is “very beautiful.” The emotional response is inspired by the innate beauty of the objects and the presentation: there is ample negative space around each object, there is a focus on symmetrical placement of objects, and the presentation, cases, and label text contribute to feeling as though I am in a temple or a home. I note that the emotional aspects of the exhibition enhance is greatly, it inspires me to think about spiritual practices and reflect on process. I am emotionally fulfilled.

Interactives & Technology

The Asian Art Collection at the Portland Art Museum employs no digital technology in the five exhibit halls. These exhibit halls employ a very traditional analog presentation style. I note that “some technology may encourage visitors to slow down,” and provide something familiar that incorporate contemporary culture. The Asian Art Collection at the Portland Art Museum employs no interactive elements: there is nothing to touch.

Oregon Historical Society

I arrived at the Oregon Historical Society at 12:00 PM on Wednesday, February 11, 2015. The museum seems empty save for a group of other-abled visitors. I entered the *Oregon Voices*

exhibition hall and began recording my observations. I began with examining a set of aesthetic considerations.

Aesthetics

Oregon Voices employs a large variety of colors, shapes, sizes, and displays. The lighting is focused on text and object. The colors are primarily cool and the floor is red and brick-like. The textures are varied since the exhibition hall is filled with individual dioramas: stages vignettes. The environments are tucked into each other and create an interesting layered balance. There are a multitude of platforms to lead the eye and it feels like a three dimensional collage. The sounds, shapes, and colors feel jumbled together. The primary shape in the exhibition hall is rectangular and square, which is accentuated by the platforms. Toward the back of the exhibition hall there are large street level windows: with the addition of the brick-like floor it generates an outside-in aesthetic. The entry of *Oregon Voices* states that the exhibition is addressing “change and challenge” in modern Oregon History. The introductory panel utilizes many images collaged together. The space is both awesome and intimate, though each staged vignette evokes a more intimate experience. The floor plan is free choice though at first it appears that the content of the dioramas may lead to the next.

The exhibition hall employs a large mix of color and textures, and each diorama is a story. The vignettes present specific people, places, and times. The multitude of colors and textures makes me a bit uneasy: I am not sure where to begin, though the space is generally playful and inviting. There seats available before each of the dioramas. There appears to be a mix of authentic object, text, recreation, and technology.

Education and Comprehension

After examining the aesthetic nuances of the exhibition hall, I delve into the educational content. I am unsure as to what *Oregon Voices* is trying to teach me. The introductory panel indicates that “Change and Challenge” will be the underlying theme. I examine the quotations in the introductory panel, and I become concerned: it seems that the panel is presenting “white loggers” as the first inhabitants of Oregon and neglects to recognize Oregon Tribes. I wonder if the panel is attempting to discuss diversity unsuccessfully. I move on and examine each of the 10 installations.

After spending an hour interacting with each of the 10 installations, I am still unsure if the exhibition hall presents a cohesive narrative and what, exactly, each of the installations is attempting to convey. The exhibition seems to be very focused on the objects and the dioramas, all educational content is delivered through touch screen, and I note that “there is not sufficient scaffolding” for me to determine what each installation is about. I would appreciate more direct guidance regarding the educational content.

I dedicate a substantial amount of time interacting with each of the 10 dioramas. I notice that all of the text is in English and that there are no options for other languages.

The “Style and Status” diorama presents a story about African Americans in Portland and discuss the history of gentrification. The narrative is about “Inez Duke” who in the 1920’s was the first African American graduate of the Sanitary Beauty School. Her sons are highlighted as the first three black police office in Portland: I am reading the text on the touchscreen panel and I notice that while this information is very interesting the text is very small. When I interact with the touchscreen, I uncover more educational material. “Style and Status” presents information about Black, Jewish/Italian, and SE Asian communities’ experiences of displacement and gentrification in Portland, OR. This installation feels like the “others” or the “ethnics.” Later in

my visit, I converse with fellow visitor-of-color, after he completes a visual sweep of the diorama he shares his thoughts with me. He states that this diorama is trying to teach him something about black culture, but that there is an important object missing. He informs me that there should be a “hot comb” in the beauty parlor and noticing this missing object informs him that the exhibit is not “really” about black culture.

There is a recreation of a “Max” train which offers visitors a place to sit and watch a film, on loop, that discusses jazz, music, and culture. The “Max” installation is focused heavily on Portland with installations presenting objects pertaining to growth, recycling, and Oregon forestry practices. This installation also addresses Wellness Healthcare, the Oregon Cultural Trust, Sales Tax, gas pump laws, land use, and Oregon laws, generally. In this one installation alone there are so many subjects being addressed: I can distil no clear message. I wonder, “Are they trying to simulate movement of time staging this installation on a train?”

In the diorama “Marshals Market,” there is a presentation on agriculture, beer and wine, and Oregon farms. There is a large blue pick-up truck as the primary object, and, I wonder, “What is this really about?” The truck is highlighted as the “modern work horse,” and I ask “why this truck? Is it an authentic object with historical significance or is it just a prop? Can I climb inside of it?” As with all of the dioramas, the delivery method of the content is touch-screen dependent.

The installation “Native Issues” particularly alarms me: a slot machine is the primary object and one embedded touchscreen asks me five questions about Oregon tribal history and issues. The installation appears particularly simplified and I wonder, “Did they consult with Oregon tribes when creating this display?”

The installation “Us and Them” addresses differences between urban communities and rural communities. “Not everyone’s Paradise” is an installation that looks at homelessness in Portland. Grouped with homelessness are child abuse, aging, meth addiction, and mental illness.

This installation appears to address the experiences of poor urban populations, while the installation next to it addresses an affluent urban experience of comfortably car camping in the wilderness: “Call to the Open Road” looks like an advertisement on a showroom floor.

The “Culture and Industry” video installation is broken, but states that it explores artistry and industry from “chips” (wood) to “chips” (computer). There is series of question and answer flaps that ask “What do we do?”, “Where do we live?”, and “Who are we?” that explores demographic information. The “Nuclear Power Plant” diorama presents an interesting authentic object (a nuclear terminal) from the Trojan Nuclear Facility, but it is accompanied by very little interpretive information. In the diorama “Utopian Communities,” information is presented regarding Bhagwan Shree Rajneesh cult of Big Muddy Ranch, lesbians, new age spiritualist, and urban farms. I note that the educational content is grouped very strangely and is focused almost entirely on Portland and Western Oregon. I found no content about gay marriage, fluoride, festival and public gatherings, or protests and social justice organizing, which, for some, may be essential to their Oregon story.

Emotions

My emotional reaction to exploring *Oregon Voices* was primarily confusion. I noted “why are these topics grouped together?” “Why are these juxtapositions occurring (homelessness vs. luxury camping)?” I did experience some pride and some intrigue, though I cannot identify precisely why: my over-all reaction is confusion. The installations about Native Culture and homelessness I find particularly offensive. I question why certain topics were selected for

portrayal and why so many others were omitted. I note that there are too many different topics presented and that that educational content feels jumbled: I would appreciate a connecting narrative.

I note that my emotional reaction to the exhibition hall does not enhance the exhibition. I cannot help but feel like stereotypes and gross generalizations were employed to create the installations. I wonder if Native Peoples, migrant workers, homeless, etc. had been consulted in the creation of these dioramas. I note that there is a strange “frozen in time” feeling, even though the exhibit hall is addressing contemporary issues. In the “Style and Status” diorama I note that the videos about gentrification were emotionally stirring, but that affect is lost in the confusion of all the other presentations. I find it difficult to focus on and find the emotionally valuable experiences.

Interactives & Technology

Oregon Voices employs a variety of technology: five touchscreens, four videos, and one game. The technology is obtuse with the graphic displays installed as primary entry points into the dioramas. The interface is directed at single-users, but multiple visitors can watch the screens. Three of the videos are broken (“Culture and Industry” installation). Almost all of the educational content is delivered via touchscreen, and the touchscreens provide entry points to videos that document specific individual’s lives. There are so many levels of content embedded within the technology that a return visit would be necessary to explore each film. In “Marshall’s Market” information is presented on ranching, migrant labor, fisheries, forestry, and farming. In consideration of the other presentations I found problematic I paid particular attention to the migrant labor films. I notice that the text is not in Spanish and the content is primarily about struggle: bad health, exploitation, poor living, and poor working conditions. While all of these

aspects are true, I cannot help but wonder “where is the hope?” “where is the pride?” The migrant worker film is in Spanish and does include interviews with actual people, though I still find is somewhat demonizing of the migrant/immigrant experience. I note that the forestry video does not address deforestation, environmental concerns, or protection of old growth forests. The “Native Issues” game presents overly simplistic content and while the interface is fun, I wonder “is this the most respectful way to deliver this content?”

Oregon Voices does employ a variety of interactive elements: there are ten digital interactives and five analog interactives. There is a photobook in the “Utopian Communities” environment, a roleplaying activity for kids, a picnic challenge for kids in the “Marshalls Market” environment, a “where are you from map?” and question/answer flaps. The roleplaying area provides scripts, sets, and costumes. The analog interactives are directed primarily at multiple-users and children.

Experience Music Project

I arrived at the Experience Music Project at 12:30 PM on Tuesday, March 17, 2015. The museum was not very crowded, but there were a fair number of visitors. I entered the *Fantasy: World of Myth and Magic* exhibition hall and began recording my observations. I began with examining a set of aesthetic considerations.

Aesthetics

I enter the exhibition hall through a large and heavy wooden door that initiates the aesthetic experience of the gallery. The interior of *Fantasy: World of Myth and Magic* is dark and brown, copper, and gold are the primary colors used in this exhibition hall. The texture of the space is defined by wood and shadows are cast throughout the exhibition hall to mimic light

being diffused through branches in the forest. There are forest sounds, lights, music, and the sound of a sleeping dragon permeating the space. There is balance of cases and interactive elements throughout the space: the cases hold recognizable costumes from characters of familiar films. The lines in the exhibit hall are branch-like, broken and almost serpentine. There is a variety of shapes employed and the space is immediately immersive. It looks like I have entered a wooded area or a cave. The entry is intimate and opens into a primary exhibit space that is both awesome and intimate. The ceiling of the entry is low and the primary exhibition space is much larger; however, the aesthetic of a fairy-tale wood is carried uniformly through the exhibition hall. The floor plan is arranged for free-choice exploration. The objects are arranged with display cases along the walls with many interactive installations centered.

This exhibit hall is fully immersive: I feel like I am on the set of a fantasy film. There are so many sounds and it is very dark; however, the space is not noisy, the sounds of dragon-fly wings and birds chirping are kept very low. There are reproductions of pine-needles on the ground and the display case glass is purposefully cracked. There is large metal structure in the central exhibit space that looks like the scales of a dragon, the wood display cases look handmade and of the forest. The detailed aesthetics experience immediately drops me into the world of fairytales and fantasy.

Education and Comprehension

Fantasy: World of Myth and Magic is divided into five sections and a map is presented in the entry. The five regions include Roleplaying, Arcane Wizardry, World Building, Epic Artwork, and Light & Shadows. I explore the installations and text and learn that the exhibition is presenting content relating to archetypes in film and literature. In the section devoted to world building, building fantasy worlds based on inspiration from the real world is explored. In the

section devoted to wizardry a historical look at fantasy literature is addressed by examining works from Homer to Rowling. In the section devoted to epic artwork, concepts of morality, of good vs. evil, and concepts relating to historical inspiration are highlighted. In the section devoted to light and shadow, concepts of morality are discussed. The costumes in the display cases ground the fantastical realm in recognizable popular culture objects.

I feel that *Fantasy: World of Myth and Magic* is successful in presenting educational content and I am encouraged to sit, reflect, and interact. The Experience Music Project offers visitors a website to explore concepts post museum visit, but the EMP does not offer avenues for me to ask questions while in the museum. This exhibition blends immersive stage-like environments with experiential learning to introduce literature, history, research, and morality. The exhibition space is very comfortable: there are ample places to sit; there are fun things to interact with, and many things to touch. The costumes are beautiful and the films are familiar.

Emotions

I experience a strong emotional reaction to *Fantasy: World of Myth and Magic*: awe, fun, nostalgia, and wonder. The environment is dark and a bit spooky, which recommends, for me, reflective thought. I note that there are profound concepts being presented and considered through the lens of popular culture. My experience of nostalgia is strong, particularly when I examine artifacts from films from my childhood, such as the Labyrinth, the Princess Bride, and the Wizard of Oz. *Fantasy: World of Myth and Magic* evokes many memories and thus, I find it easy to surrender to the immersive environment. I note that this exhibition hall is “really memorable and that I want to “wear the costumes” and “live in this world.”

Interactives & Technology

Fantasy: World of Myth and Magic employs many different varieties of technology: touchscreens, videos/film, and sounds. The technology is primarily obscured and embedded in presentation. There are some unique presentations that I have not encountered at any of the other sites I have visited: crystal balls showing films and a large dragon fly sculpture playing films where its eyes would be. The technology is geared toward multiple users and is presented in casing that aesthetically blends with the environment. The technology is well-placed and each section of the exhibition hall offers a digital interactive. Much of the technology is paired with beautifully designed seating. The technology is innovative and aesthetically mirrors the immersive environment.

This exhibition hall provides many interactive elements, though all are digital interactives. There are ample opportunities to put myself into the exhibit: one interactive asks a series of questions to ascertain which fantasy archetype best aligns with my personality. Another interactive allows me to use a photo capture of myself to become one of the archetypes and this image can be shared via email. In the world building section an interactive allows me to build a map, though I found this interactive to be less robust and less interesting than the others. I spent the most time at the interactive that allowed me to “research magic,” which was a touchscreen table that explored mythology and literature.

Burke Museum of Natural History and Culture

I arrived at the Burke Museum of Natural History and Culture at 12:45 PM on Monday, March 16, 2015. The museum was not very crowded, but there was a school group in the exhibition hall. I entered the *Life and Times of Washington State* exhibition hall and began recording my observations. I began with examining a set of aesthetic considerations.

Aesthetics

The *Life and Times of Washington State* utilizes both dark and light values and incorporates blue, red, and brown. The exhibition hall is divided into four areas, the first, dedicated to dinosaurs employs silver, blue, and black; the second, dedicated to volcanology and geology employs red and brown; the third, dedicated to mammoths and sloths, employs blue and black; and the fourth, employs white, green, and brown. The exhibit hall carpet and false stones contribute to the textural experience of the exhibition hall. The line, shape, and balance all utilize a serpentine presentation aspect, particularly when describing the dinosaur dioramas. The space is primarily awesome, though a few intimate moments are generated. The *Life and Times of Washington State* uses the most directed and linear floor plan of any exhibit hall included in this study. The objects are arranged primarily against the wall with dioramas of walking dinosaur skeletons; the central exhibit space employs more free-choice movement with the discovery lab as the central component.

Education

After noting aspects of the aesthetics of the exhibit hall, I consider the educational components. The *Life and Times of Washington State* is trying to teach me about evolution in the state of Washington and region. It begins the story 520 million years ago and attempts to move through time till the present. There is a timeline presented at the entry that utilizes the fossils to indicate different periods. I note that the label design seems relatively strong and that dinosaurs appear 270 million years ago. So far, I feel that the exhibition hall is successful. Since there is no primary introductory panel to the exhibit hall, I explore labels and observe the subtle

demonstration of change in time. I wonder about the primary message, is it, a “massive change in life over time?”

The museum offers a website for me to continue learning at home and access to an interpretive docent. Education appears to be the primary intention of this exhibit hall; however, the presentation of objects and composition of labels seems to detract for the halls effectiveness. I note that the color of the background of the cases displaying fossils visually washes out the objects. And, when examining the marine reptile labels, I wonder “what am I looking at?” and “why is the skeleton so high up?” I assume that everything is a reproduction but I am unsure. I wonder about authentic objects and how the objects presented relate to their corresponding labels: it is hard to determine which labels refer to which model.

There is a triceratops fossil installation that is very interesting, it catches my eye, and I note that I would like to be able to walk around the object. However, I am still unsure which objects are authentic and which are reproductions. I note that I am “stuck behind a school group” and for these students the interpretive docent is a necessity.

Moving from the dinosaur diorama room into the primary exhibit hall I wonder about the absence of discussion relating to the extinction period, “is it this walkway?” I note. Exploring the primary exhibit hall I note many questions regarding the educational content. I discover the baleen whale installation and see that it is labeled as an authentic artifact. This very interesting object has been presented in such an odd place (next to a ramp) that most visitors walk right past it. I note that collection history, authentic object, and links to current science seem to be missing from the educational content.

In the center of the primary exhibition space is the “Discovery Lab”, and when unused by school groups it remains closed. The “Discovery Lab” is in aesthetic discord with the rest of the exhibit hall and though useful for school groups, I wonder about the laboratories function in

providing opportunities for individual discovery. Moving into the third gallery space – a hallway with dioramas presenting a mammoth and a sloth, there is a wall panel, often skipped, that introduces “Americas First People.” This is the first mention of human presence in the entire exhibit hall. After moving into the fourth and final presentation area, there is a small diorama depicting a forest, some salmon, and a beaver. I return to the beginning of the exhibition hall and attempt to discern the meaning of the different colors of labels. I observe that baby blue labels are about presented objects; light pink labels are also about presented objects; and, red labels are about the baleen whale. These inconsistencies contribute to my general confusion about the educational content of this exhibit hall.

Emotions

When I began to unpack my emotional response to *Life and Times of Washington State*, I was underwhelmed. I noted that my emotional response was “mild,” “some wonder,” and “some awe.” I am not a typical museum visitor: undertaking exhibition evaluation at eight different institutions has particularly affected my emotional response to exhibition space; however, I interpret my “mild” emotional response to be connected to my confusion regarding educational content. I recognize that the large dinosaur installations, the rumbling volcano, and the stage-like environments could provide deeply affective experiences for other visitors. However, for me, this exhibition was “not very emotionally stimulating.”

Interactives & Technology

Surprisingly, *Life and Times of Washington State* did not employ technology. There were no touch screens and no videos in the exhibit hall. The space was dedicated to dioramas, glass cases, walls panels, models, and reproductions. The volcanology exhibit – the volcano – did

employ the sounds of rumbling; however, I did not feel that this enhanced the exhibition experience or the delivery of educational content. In the fourth area of the exhibit hall (the exit) there was a television presenting a video with very quick closed captioning, on a loop, and an accompanying QR code to “Herbarium website”. This area of the exhibit hall, particularly, felt like an afterthought. The Forest area appeared to be an attempt to modernize the exhibition hall but feels “disjointed”. The “Forest” area, including the exit, felt neglected and was used as a storage area for coat racks.

The most interactive element of the exhibit hall was the “Discovery Lab.” This area provided objects for visitors to touch and explore though there appeared to be a lack of corresponding educational material. In the dinosaur gallery visitors had the opportunity to interact with 1 big bone, 2 eggs, and a fossil footprint. In the geology gallery visitors had the opportunity to interact with footprints in a mold and the “rhino rock,” which did not present adequate interpretive material so I was very confused by it. The “Discovery Lab” provided 19 objects of fossils, wood, minerals, and crystals. The mastodon gallery had no items to touch. The forest gallery offered an “education nest” with three touchable objects, books, a raptor guide, a computer with a telescope, toys, specimen drawers, and an antiquated push-button light-up installation.

I observed that the interactive elements appeared to be an afterthought and were not well integrated into the exhibition experience, though were available for multiple users. The exhibit hall, generally, requires docent interpretation for deep engagement and that contemporary audiences may find it difficult to identify a personal connection to the exhibit. The “Forest” appeared to be an attempt to make the space more relevant to contemporary audiences with the addition of books, microscopes, interactives, toys, specimen drawers, etc., and that these additions may encourage visitors to slow down; however, it still felt like an afterthought. I also

noted that the volcano installation would benefit from some interactive technology, possibly a bench, better lighting, and an enhanced presentation of interpretive material.

Museum of Natural and Cultural History

I arrived at the Museum of Natural and Cultural History at noon on Thursday, February 5, 2015.

The museum was nearly empty. I entered the *Explore Oregon* Hall and began recording my observations. I begin with examining a set of aesthetic considerations.

Aesthetics

The entry for *Explore Oregon* is dark and punctuated with cool colors like black walls, silver titles, and grey floors. The colors in *Explore Oregon*, however, come in a huge variety, and where the entrance is small and dark, the hall is large and bright. Colors such as black, blue, silver, green, red, orange, and blue, are used to organize each section of the exhibition hall and help demarcate not only installations, but also concepts. Lights are focused intentionally to help the colors pop. There are a plethora of different textures in the *Explore Oregon*, some are touchable and some are not. There are objects, installations, and text at many different levels through the exhibition hall. The text on the panels help create a very linear line through the exhibition hall: the headings, subheadings, and panels are very logical. There are a large variety of touchable shapes, paired with rectangular panels, and linear text. The entry conjures an intimate feeling and opens with an introductory film, there are objects to touch, a cartoon-like map, artifacts to interact with, and artifacts in display cases to help reaffirm the authenticity. However, upon entering the primary exhibition hall the lights, colors, and space open up and generate an awesome aesthetic experience. The floor plan is open and the objects are arranged

against the walls with some interactives located in the center of the room. The overall aesthetic experience is that the space is “very fluid”.

Education

The educational component of *Explore Oregon* initiates at the entry with a film that introduces evolution in the state of Oregon, and I find that the film is effective. The film presents a time line that is scaled to a calendar year, which is a familiar demarcation of time. I can understand that for audiences of many ages, thinking about time as a calendar year would make the scope of evolution more accessible. The film is subtitled, in English, which makes me wonder about children who are too young to read, or those that cannot see, or those that do not read English. The soundtrack of the film adds an emotional dimension, and though the film is strong I wonder how it can be adapted to engage non-readers and non-English speakers. Generally, I find that the film was a successful way to introduce the educational concepts addressed in *Explore Oregon* and I am inspired to investigate the rest of the exhibition hall.

Explore Oregon is the only exhibition hall that I visited that not only provides useful pamphlets to encourage learning outside of the museum, but also incentivizes returning to the exhibition hall to share my out-of-museum experiences with other visitors. *Explore Oregon* has a wall of pamphlets informing me where to go and what to do, and an interactive touch screen installation that allows me to leave messages to other visitors about my adventures. Though I observed no way for me to ask questions in the exhibition hall, I notice that leading questions are incorporated into almost every installation. I note that three hours is not enough time to explore everything available and that I want to return. In the entry of the exhibition hall is an inviting quote from Dr. Jon Erlandson asking the visitor to use their imagination and to “stretch your

mind back millions of years...;” *Explore Oregon* is the only exhibit hall that features a personal message from the director of the museum at the entry: I appreciate this quote and sentiment .

Emotions

My primary emotional response to *Explore Oregon* is excitement; I also experience wonder, awe, and fun. I note that the exhibition hall utilizes different heights, sizes, and scale of objects, which generates a “sense of intrigue”. I want to touch everything and I want to read the labels. There are a plethora of great leading questions interwoven into the installations, paired with so many objects to play with, furthermore, the open space, light and colors all contribute to my excitement and fun. I also experience curiosity and exploration, which I note helps to generate a “desire to return” and a personal connection for me as a visitor. I reflect on how this sense of curiosity, excitement, and fun can be translated into a stewardship model for the natural environment and if this is intentional. After I finish observing and noting my emotional response to *Explore Oregon*, I begin to examine the technology utilized in the exhibit hall.

Interactives & Technology

Explore Oregon utilizes a variety of technology: this exhibit hall employs videos, touchscreens, and a microscope. The majority of the technology is obtuse and available to both single and multiple users. The videos and touchscreens include: “Go See It,” “Collections,” “Evolution,” “Wolves/reintroduction,” “Climate Change,” the introductory video, “Natural Forces,” and “Sea Floor”. The one microscope allows visitors to examine small fossils found in samples. I note that some of the technology is broken and worn-out: “Natural Forces” (nothing happens), “Sea Floor Mystery” (loud and crackly), “Evolution” (headphones are broken – one is terrible and one partially works), and “Collections” (the video appears very old and the audio is

very loud and distorted by static). Four out of the eight touchscreen interactives are broken or in disrepair, which detracts from the exhibition experience.

I note that there are two particularly strong videos: “Climate Change” and “Wolves/Reintroduction.” The “Climate Change” video provides a narrator with a lovely voice and asks reflective questions such as “how far have we gone?” and “can we come back to a balance?” The video includes personal anecdotes about observing climate change and I find it to be very evocative and educational. I note that salmon require water at a temperature of 50 degrees too allow salmon eggs to hatch in 50 days; the eggs are dying because the temperature of the water is 3 degrees too warm; “I learned something!”

The “Wolves/Reintroduction” video opens with a recording of the evocative sounds of wolf calls; I recognize that my general love of canids contributes to my appreciation of this video. I intently watch and absorb information about “trophic cascade” and how animals at the top of the food chain affect all elements. I learn about Yellowstone in 1995 and the reintroduction of wolves to the region, how the wolves hunt their prey and, in turn, give life to other animals. The behaviors of the wolves create balance: the wolves change the behavior of the deer and over-grazed environments start to regenerate. I note that this is “very emotive!” The birds and beavers increase in numbers and bring back ecosystem engineers, which, in turn, change the behavior of the rivers. I am fully engrossed in this film and am grateful for the opportunity to sit and enjoy. I note that the film is “very moving and education”. Accompanying the video is a journal, which I look through, and am surprised to note that there are very few entries. The directions for how to use the journal do not adequately relate back to the video, and I surmise that is why there are so few entries.

Explore Oregon employs a huge variety of interactive elements, both digital and analog. There are 73 objects to touch: 8 specimen drawers to explore, 62 fossils, stones, and geology

specimens, 2 maps, 1 X-Ray station with 4 films, and 1 station with 4 flaps. In the “Natural Forces” installation there is information presented on plate tectonics, the ice age, and fossils. The Sloth installation incorporates interactive elements, textual information, and leading questions. The Geology/Earthquake & Tsunamis/Volcanoes installation incorporates interactive aspect with textual information and leading questions. This pattern is seen in many of the installations in *Explore Oregon*.

Most of the interactive elements are geared toward multiple-users; though do not exclude single-users, even the videos provide opportunities for two visitors to watch at the same time. The Geology interactive is a bit confusing and could encourage visitors to work together to figure out the significance of the touchable objects and the accompanying map. The Ocean conveyer belt installation is approachable on both sides; however, I cannot determine what the installation is trying to teach or demonstrate. The Bone Classification table encourages multiple users to interact simultaneously but the identification diagrams need improvement and can only be accessed by one visitor at a time. When examining and interacting with the Bone Classification table I had an idea to adhere a vinyl key to the table that illustrated the shape of the bones and provided accompanying information, this would encourage multiple visitors to identify bones simultaneously. Generally, *Explore Oregon* offers so many objects to interact with and provides context for each of the objects. The interactives are reflexive: look at this artifact, touch this reproduction/example, consider this question, and examine this large display. I find this style of interactive installation promising in encouraging visitors to slow down and explore.

Oregon Museum of Science and Industry

I arrived at the Oregon Museum of Science and Industry at 1:00 PM on Sunday, April 3, 2015.

The museum was well populated, and in comparison to the other sites I visited, crowded. I entered Life Science Hall and began recording my observations. I began with examining a set of aesthetic considerations.

Aesthetics

The *Life Hall* at the Oregon Museum of Science and Industry is bright and full of movement. There is a huge variety of colors including vibrant neon's. The overall aesthetic experience is shiny and bright. The space feels chaotic and unbalanced. There is no specific linear placement of installations and the variety of shapes is great. There are many kiosk style installations and the room is crowded. The entry is an analog interactive which presents an educational question/answer schema exploring the "Zoo in You". The space is awesome and the floor plan is free-choice. The objects are arranged filling the center of the room and there is a casino like aesthetic to the presentation. I immediately notice that the newer installations are presented in two languages (English and Spanish), and that Spanish was intentionally incorporated when the exhibition space was updated – within the last two years. The exhibition hall feels like a game gallery or arcade. There are brightly colored interactive elements everywhere, and the hall is filled with sound and movement. The *Life Hall* is very loud and popular.

Education

The *Life Hall* is trying to teach me about life cycles: animals, aging, germs and disease, pregnancy and birth, DNA, hearing, microbes, and Nano-technology. There is a plethora of

information being delivered in a variety of modalities and I can already sense a need to return to fully explore everything present. OMSI provides a website as an avenue for me to continue my learning post-visit. There is a docent in the Life Sciences Lab who I can address questions to: I inquired about the human skeleton that was on display.

The educational content of the *Life Hall* drives the delivery mechanism and employing a gaming experience encourages visitors to interact. I find that some of the games are more effective than others, though I wonder, “Are the games too shiny and sophomoric?” Some of the games are difficult to figure out so I dedicate my energy to making them work, not learning the educational content. I find that the microbe game, where you are prompted to poke a touchscreen, is fun but not very informative, while the interactive demonstrating the relative size of a microbe is easier to interact with and learn from.

The “Prenatal Development” installation provides a very different experience than the primary exhibit floor: it is much darker and quieter. There are no photographs allowed in this area, all the specimens (fetuses) are real, and the presentation employs a circular display. The specimens are presented with the object, some accompany information, a leading question, and are in sequence representing the gestation periods. I find that this presentation is particularly dehumanizing: there are no images of pregnant women or of the uterus. This presentation feels sterile, frozen, and isolated in scientific isolation. Some of the preserved babies look to be in pain, while some are not. The exterior of the exhibit is much more colorful than the interior and seems to be attempting to humanize the installation.

The Life Sciences Lab provides a welcome reprieve from the chaos of the primary exhibit floor, and, is home to the living collection. I am drawn to the quieter, more subdued energy, and gratefully engage with the corn snake, rats, and tarantula. I notice that visitors give each other

more room and quietly observe the animals. The ceiling is much lower in the Life Sciences Lab, the space is smaller, and visitors seem to be asking more questions.

Emotions

The *Life Hall* at OMSI inspires an emotional response from me, in the main exhibit hall I feel joy and excitement; in the Life Sciences Lab I experience wonder and a love of animals; and, in the Prenatal Development installation I feel sadness, awkwardness, and awe. The main exhibit hall harnesses lots of color, games, things to play with, movement, and sound. The Life Sciences Lab provides experience with living creatures; while the Prenatal Development installation is very dark, foreboding, and markedly different than the rest of the space.

Interactive & Technology

The *Life Hall* employs a large variety of technology, and I wonder, “Is it too much?” There are microscopes, touchscreens, audio installations, projection, videos, and an “electronic woman.” The technology employed in the *Life Hall* is obtuse: there are 26 interactive kiosks that use digital interfaces (there are 50 kiosks in the *Life Hall*). The majority of the interfaces engage single users, but some – such as the videos – provide opportunities for multiple users.

Many of the digital components are broken in the exhibit hall: ones that require or encourage a lot of play are broken, but ones that employ a single-button interaction are working. There is a huge focus on Nano-technology and almost one third of the interactive kiosks address this topic. The Nano-technology focus eclipses many of the other installations. Since so many of the interactives generate sound, there is a lot of non-directed noise.

There is a huge variety of interactive elements utilized in the *Life Hall*: about 50% analog and 50% digital. There are puzzles and games, and the space exudes a festival or casino

aesthetic. There are about 50 interactive kiosks on the primary exhibit hall floor and there is a plethora of things to touch. I notice that there is no decoration of any variety on the walls. The interactives are directed at both single and multiple users. There are many interesting and fun interactives to explore, though the space is generally overwhelming because of the movement, noise, and chaos. Because there are so many interactives to explore, I could see visitors encouraged to return. The interactives, while fun, do not always provide a clear educational message, which may encourage groups to collaboratively work together to figure out content.

Pacific Science Center

I arrived at the Pacific Science Center at 12:30 PM on Monday, March 30, 2015. The museum was well populated, and in comparison to the other sites I visited, crowded. I entered *Professor Wellbody Academy of Health & Wellness* and began recording my observations. I began with examining a set of aesthetic considerations.

Aesthetics

Professor Wellbody Academy of Health & Wellness utilizes a dark color scheme and value: the prominent color is brown, with wood textures. The aesthetic style is reminiscent of rustic cabins and a dude ranch. The exhibition hall is composed of many small building working together to create a Western academy feel. The lines are varied but the primary shapes are squares, rectangles, and circles. There is a dark carpet on the ground and the lighting is directed on installation items. The entry greets visitors with a stylized sign that embraces a Western/Dude ranch aesthetic and announces “Wellbody Academy of Health and Wellness.” The exhibition hall primarily employs an intimate spatial experience. The space is arranged in a free-choice environment with different topics being divided into their own gallery niches.

The aesthetic experience of *Wellbody Academy* is interwoven with the primary exhibition narrative: Dr. Arden Wellbody invites visitors to learn about and refine behaviors that will encourage healthy living. I am curious about the choice of a western theme, since Dr. Arden Wellbody does not, necessarily, seem situated in the old west. The exhibition space is full of interactive elements; it feels a bit like a circus: there is a cartoon-like quality and a playground appeal.

Education & Comprehension

When considering the primary educational content of *Wellbody Academy* I note that the exhibit space is trying to teach me “generalizable ways to make healthy choices and foster a healthy lifestyle.” There is no immediately recognizable introductory panel but blackboard style panels are used throughout the exhibition space and provide conceptual information. I note that the exhibition hall was generally successful in teaching me about wellness and self-care and that by incentivizing active play I was engaged with the installations. PSC provides visitors a museum website as an avenue to learn more, but did not provide an opportunity for me to ask questions while exploring *Wellbody Academy*.

This exhibition is driven by educational content, employs a specific (fabricated) narrative as a delivery style, and focusses on stylized interactives to engage the audience. *Wellbody Academy* is comprised of seven areas – each affiliated with a specific wellness concept – “Slumbertorium”, “Cafedium”, “Wellbody Hall”, “Playdium”, “Germnasium”, “The Studio”, and “The Loft”. “Slumbertorium” discusses the importance of sleeping well; “Cafedium” explores eating a balanced diet; “Wellbody Hall” provides avenues for visitors to set health goals and make wellness plans; “Playdium” encourages visitors to play-well and be-well; “Germnasium” explores germ stopping strategies; “The Studio” gallery changes every 6 months,

the current exhibition presents food allergies; and, “The Loft” provides space dedicated to “Major Milestones”, the “Journey Gallery” (photos of museum visitors share with the community), and “Changes & Choices”. In each section blackboards act as introductory panels presenting topics and primary conceptual information.

Emotions

Wellbody Academy is a very active, fun, exciting, and playful exhibition; I note that I experience curiosity and a desire to engage in play. The exhibition space is filled with flashing lights and evokes a somewhat theme park like experience. I note that there are “so many things to touch and play with.” It appears that the style of this exhibition is intended to engage the audience with light, fun, and playful interactives: there are many people playing, laughing, and being joyful.

Interactives & Technology

Wellbody Academy employs a vast array of technology, there is a large variety, and, almost all of it is working. The technology is both embedded and obscured, and stylistically built into the rustic Western style. The technology offers both multiple-user and single-user interfaces. I note that the exhibition hall is heavily dependent on both interactive and static technology. There are lots of interesting technological avenues employed: mimicry, testing, projection, photography, and ‘network stations’. I notice that some of the technology is easy to use and requires little instruction, and some is more complicated, but, visitors are engaging with the technology – as am I – and it is slowing me down and focusing my attention.

One technological installation that was a bit confusing was a projection area filled with glowing spiders. I walked though this installation many times but could not figure out what it

was trying to teach me or demonstrate. I overheard other visitors state that the “bugs follow” the visitors. Since there was no explanatory panel affiliate with the installation it was difficult to understand.

Each section of *Wellbody Academy* employs specific technology. In the “Germnasium” there is 1 Network Station, a touchscreen periodontal disease interactive, a sneeze experience, a digital hand-washing station, and a digital introductory panel. The periodontal disease interactive utilizes a projection to show what bacterial infection may look like on the visitors arm and then relates it back to gum disease. The “Sneeze Experience” includes a screen and a moisture projectile: when visitors are close enough to the image, a mechanized sneeze sprays the visitor. The “Wash-Your-Hands” interactive employed mimicry and projection to demonstrate proper hand washing techniques.

The “Network Stations” (NS) are loci that allow the visitor to create a *Wellbody Academy* persona, take tests about the information presented throughout the exhibition hall, and be placed on the Honor Roll. The NS employ a game based schema that allows visitors to collect and share information. The knowledge based tests embedded in the stations could provide an opportunity for Pacific Science Center staff to evaluate how effectively visitors are understanding and retaining educational content. The NS are located in all of the galleries and there are extra stations positioned in the hall.

The “Playdium” features one NS, a touch screen with a documentary, but no digital introductory panels. The main feature of the “Playdium” is analog interactives.

The “Cafedium” features one NS and five touch screens. The space is primarily dedicated to an interactive game that mimics a sushi train. The content of the game explores how to compose a well-balanced meal. Each food item includes an image of the food, the name of the food, and a digital reader that, when plugged into the interface, provides detailed nutritional information

about the item. This game was particularly engaging and interesting, and I noticed that many visitors would spend long periods of time on their own, and in groups, interacting with the objects and touchscreens.

The “Slumbertorium” featured one NS, a digital introductory panel, and sleep-well game that collected and compared visitor data. “Wellbody Hall” featured an NS, a touchscreen game, and a video on loop.

“The Studio” and “The Loft” were the least populated areas of the exhibition space. “The Studio” featured a NS, a touch screen interactive, and a digital introductory panel. “The Loft” featured four touchscreens, two photo booths, two video-telephones, and three digital introductory panels; furthermore, “The Loft” offered an aging station. Though “The Studio” and “The Loft” offered many entry-points for visitors, I noticed that they were not very popular.

Wellbody Academy offers visitors a plethora of analog and digital installations to interact with, and each installation is consistently stylized to follow the Western aesthetic.

In the “Germnasium” there was an installation that encouraged exploring scents called the “Odor Decoder:” this multi-sensory installation asked visitors to guess what kind of breath they smelled. There was also a large flip-book that illustrated how cavities effect teeth and how brushing can help prevent this decay. The “Sneeze Experience” married analog, digital, and multi-sensory experiences.

The “Playdium” offered the most popular and physical interactive objects presented at *Wellbody Academy*: “Loft-a-Palooza” which encouraged visitors to bounce and move to increase their heart rate. One enough bounces, or potential energy, was generated by the visitor the “Loft-a-Palooza” would trigger a reaction such as a ball being released. I observed a large number of young visitors run straight for the “Loft-a-Palooza” and jump, bang, and bounce with great joy immediately upon entering *Wellbody Academy*. The “Playdium” offered other analog interactives

that were also tests of strength and/or endurance such as: the “Swimmer” (which would activate once the visitor rotated the accompanying crank the necessary number of rotations); the “Acrobat” (who would flip over once the visitor pulled enough rope); and, the “Bicycle” (which was broken at the time).

The “Slumbertorium” offered flaps for visitors to lift and an installation that demonstrated what happened when air flow was blocked while sleeping. The “Slumbertorium” offered far fewer analog interactives than the other sections of *Wellbody Academy* but did present a beautiful and interesting clock that marked the cycles of sleep. While I found this installation to be very interesting to look at, I was unsure as to what the specific educational message was.

The “Cafedium” featured a walk-up window where visitors could order food, this installation was interesting to observe because it encouraged visitors to role-play and collaborate. The sushi-train style conveyer belt interactive employed both digital and analog components and was very popular amongst museum visitors.

Wellbody Academy is ripe with interactive experiences: visitors engage with educational content through experiential learning, experimentation, gaming, and fun. The interactives are targeted toward both multiple-users and single-users and keep the playful, curious, and exciting energy alive at *Wellbody Academy*.

Comparison between Institution & Across Institutional Type

The following presents a comparison of data between museum sites and presents a pattern analysis across institutional type. Each design element is examined closely, initiating with an examination between museum sites and ending with an examination across institution type.

Aesthetics

Each of the exhibition halls included in this study embrace a particular and cohesive aesthetic vision: there are similarities and differences amongst them all. I decided to explore exhibition halls that presented similar collections at each of the institutions so that comparisons and contrasts would be cohesive.

The Portland Art Museum (PAM) and the Jordan Schnitzer Museum of Art (JSMA) both employ a similar aesthetic style, though there are differences in presentation. The incorporation of tatami mats, the use of display cases that resemble houses and temples, and the negative space afforded each object are ways in which the aesthetics differ at the PAM; however, I would argue, that the obvious similarities are more pronounced than the differences. The adherence to symmetry, the subdued colors, and the focus on primary objects (such as screens and the throne) are echoed in each space. Both exhibition halls also achieve the subtle experience of silence and reverence, which is partially demonstrated in exhibition style, but also inherent in the collections presented. Furthermore, both exhibit halls were populated by few visitors, which allowed me the opportunity to reflect on subtleties such as silence, awe, and reverence.

In stark contrast to the art museums are the exhibition halls at the Oregon Museum of Science and Industry (OMSI) and the Pacific Science Center (PSC): these spaces were not only filled with visitors, but also, with regard to exhibition layout and design, filled with bright colors,

moving objects, and digital interactives. The aesthetic experience in the science exhibition halls both resulted in my noting that I felt overwhelmed. The primary difference between the *Life Science Hall* (OMSI) and *Wellbody Academy* (PSC) was that the Pacific Science Center elected to utilize a cohesive aesthetic narrative to lead visitors, while OMSI did not. PSC created a fictional academy that employed the visual and spatial experiences of a dude ranch or ski cabin, while OMSI employed no cohesive visual and spatial narrative. I could argue that the casino-like or carnival-like aesthetic of the installations at OMSI created a cohesive visual space, but the resulting aesthetic environment was chaotic and crowded.

The Burke Museum of Natural History and Culture (BURKE) and the Museum of Natural and Cultural History (MNCH) employed similar choices in color; however, the presentation of objects was markedly different. The *Life and Times of Washington State* (BURKE) employed a linear presentation, which represented an evolutionary timeline. The dioramas showcased walking replicas of dinosaurs, mastodons, and a giant sloth, which encouraged the spatial experience of moving through time. *Explore Oregon* (MNCH) anchored its space with eye-catching large installations (the giant sloth and the saber-tooth salmon), but the exhibit hall was much more open and free-choice than that of the Burke Museum. *Explore Oregon* organized its content, and hence the spatial and visual experience, by topic. At MNCH, I found myself walking back and forth between installations, while at the Burke Museum I found myself walking from the beginning of the exhibit hall to the end, multiple times. The central arena of the *Life and Times of Washington State* appeared to present a more free-choice environment, arranged topically, but the primary topic addressed was geology, while the “Discovery Lab” appeared to be a remarkably puzzling break to the hall’s aesthetics. Similarly, the final section of the *Life and Times of Washington State* – “Forest” – came across, to me, as such an after-thought that it did not feel like a cohesive exhibition.

The Experience Music Project (EMP) and the Oregon Historical Society (OHS) generated remarkably different experiences for me as a visitor. I appreciated that both exhibit halls wanted to create moments where the visitor could lose themselves in captivating aesthetic vignettes; however, while I felt that *Fantasy: World of Myth and Magic* (EMP) achieved this elusive moment of surrender, *Oregon Voices* did not. Immersive aesthetic presentation was paramount in both exhibit halls; however, the cohesive, detailed, and intricate presentation at the EMP was not apparent at OHS. While both institutions focused on details and creating theatrical environments, the confusing array of dioramas employed at OHS detracted from the aesthetic success of the hall. Furthermore, *Oregon Voices* lacked the cohesive narrative that *Fantasy: World of Myth and Magic* achieved, to such an extent that the haphazardness of *Oregon Voices* distracted from the intricately designed visual vignettes.

Examining the aesthetic experiences across museum type is difficult. The beauty and stillness generated at the art museums may not serve the audiences at the science centers; however, there are strengths that I noted in each of the exhibition spaces. The use of a cohesive visual narrative contributed much to the Experience Music Project, Museum of Natural and Cultural History, the Portland Art Museum, the Jordan Schnitzer Museum of Art, and the Pacific Science Center. Employing an easily identifiable introductory panel can also help orient visitors, and clearly stating, early in the panel, the intention of the exhibition hall can prime visitors for well-informed exploration. Allowing objects, and visitors, an ample amount of space may help reduce museum fatigue and help focus the aesthetic intention of the exhibits. Depending on the collection presented, a linear narrative may be appropriate, but if an institution selects to utilize this approach, providing appropriate signage and indicators are necessary; furthermore, demonstrating how the linear narrative directs the space is essential. Reflecting on my observations, I would suggest that institutions maintain a free-choice learning environment, but

punctuate the space with groups of installations that are topically linked: this will help visitors slow down and engage. The use of theatrical aesthetics appears to be a large investment on the part of the institution; hence, if a museum elects to utilize this route, I would suggest that it be thoughtfully considered. The entrance and exit of an exhibition hall initiates and terminates a visitor's experience, therefore, I recommend that museums mindfully craft these aesthetic spaces.

Education & Comprehension

Comparing and contrasting the educational component of each exhibit hall presents particular challenges primarily because the content is so varied across museums sites. I selected exhibition halls that present similar objects and information so that a comparison may be possible; however, I hope to address issues regarding *how* educational content was presented, as opposed to exactly *what* educational content was presented.

The Asian Collection at the Portland Art Museum (PAM) and the Jordan Schnitzer Museum of Art (JSMA) differed in a few notable ways regarding how educational content. The JSMA's exhibition explored issues of authority and power and briefly introduced a specific Emperor; furthermore, the JSMA's exhibition hall was presented in celebration of Gertrude Bass Warner and her notable contributions to the institution. There were many examples of label text at the Portland Art Museum that married provenance, process, social/cultural significance, spiritual use, and history, which I found to be very effective in engaging me as a student and visitor. The Portland Art Museum did not employ a traditional introductory panel and neither institution provided me with avenues to ask questions. Though there were differences, the presentation of information at both the Portland Art Museum and the Jordan Schnitzer Museum of Art were very similar.

In contrast to the similarity observed at the art museums, the Oregon Museum of Science and Industry and the Pacific Science Center employed very different avenues for presenting educational content. *Wellbody Academy* (PSC) generated a fictionalized cohesive educational narrative that ran through the entire exhibit space, while the *Life Hall* (OMSI) presented an introductory panel (“The Zoo in You”) and left the visitor to explore interactive installations, many of which did not relate to each other. I found that the presentation at *Wellbody Academy* was particularly effective because of the cohesive nature of the presentation. The four primary messages of the exhibition space were clearly delineated and when I was exploring the “Germnazium” I was always aware that I was learning about germ stopping strategies. While at the *Life Hall*, I was aware of what a specific installation was hoping to teach, but I was unsure as to why the installations had been elected initially and how they related to each other. For example, there was an emphasis on Nano-technology which was not clearly related to hearing or understanding DNA.

The *Life Hall* that did carry a cohesive educational narrative included the Life Sciences Lab (observing and learning about the animals in the living collection) and the Prenatal Development installation (the developmental stages of the human fetus). It would take a dramatic exhibit hall redesign for the *Life Hall* to employ a single cohesive educational narrative and I am unsure that OMSI would desire to employ this strategy. In comparison to the other exhibit halls in the museum, the carnival-like experience of the *Life Hall* is expected. OMSI was the only institution that I visited that actively presented information in both English and Spanish, in the newer Nano-technology installations, which I appreciated. Though I do not speak Spanish, I am aware that there is a large Spanish speaking population in Portland and providing educational material in an integrated method helps generate inclusion.

The Burke Museum exhibit hall, the *Life and Times of Washington State*, and the MNCH exhibit hall, *Explore Oregon*, also employed very dissimilar educational trajectories. The free-choice nature of *Explore Oregon* was very effective for me as a visitor, while the linear time-line of the *Life and Times of Washington State* presented me with many moments of confusion. My primary concern with my educational experience at the Burke Museum was that I was often unsure if I was looking at an authentic fossil/object or a replica. *Explore Oregon* clearly identified authentic fossils/objects and replicas; furthermore, *Explore Oregon* employed an educational strategy that I noted was very effective. *Explore Oregon* married an authentic object, with a touchable reproduction, a series of exploratory questions, and a diagram that presented specific details. In *Explore Oregon*, I observed myself looking at objects, reading text, touch replicas, reexamining the authentic object, pondering questions, and then exploring the diagrams to answer the related questions.

My movement through *Explore Oregon* was non-linear, I would notice an installation that peaked my interest, spend time exploring the topic, then move on to the next space that attracted me. While at the *Life and Times of Washington State*, I moved through the space linearly and often stopped to wonder why the information was being presented in the manner selected. There were often times I wish I could touch something, and I often questioned what I was looking at. Part of why these two exhibit halls differ so greatly is because of when they were designed and installed: *Explore Oregon* is only a year old, while the *Life and Times of Washington State* is over ten years old.

The exhibition halls I examined at the Experience Music Project and the Oregon Historical Society differ in many ways, and the educational content is a prime example. I do not hope to compare the educational content between these two exhibit spaces. I would be gravely mistaken to assert that *Oregon Voices* and *Fantasy: World of Myth and Magic* were presenting

comparative educational content; however, I will speak to how each institution elected to present information. The primary difference between *Fantasy: World of Myth and Magic* and *Oregon Voices*, is that the EMP elected to explore the topic of Fantasy by focusing on five primary concepts (characters, mythos, world building, artwork, and morality) while *Oregon Voices* elected to link a series of topics (urban farming, homelessness, meth addiction, camping, “native issues,” recycling, migrant workers, gentrification, etc.) in an attempt to address contemporary issues of change and challenge. A strength of *Fantasy: World of Myth and Magic* is that the exhibit hall limited the number of topics explored and then allocated real estate within the exhibition hall to address each concept: by employing an immersive world the areas are seamlessly incorporated. *Oregon Voices* use of many individual dioramas that group sometimes unrelated topics in singular presentations, not only confused me as a visitor, but also had me wondering “how do the dioramas relate to each other?”

My primary concern with *Oregon Voices* is the educational content and presentation, particularly the installation that introduces “native issues” and the homelessness installation that groups meth addiction, homelessness, child abuse, aging, and mental illness. In the “Tribal Thunder” installation there is an over-simplification of Oregon tribal concerns, and in the “Not Everyone’s Paradise” installation the educational content groups topics that are inherently unrelated to each other: the effect is somewhat demonizing of all topics presented. Neither institution provided me with an opportunity to ask questions, which I would have engaged particularly at *Oregon Voices*. My educational experience at *Oregon Voices* was anecdotally portrayed in my experience with another visitor-of-color when we conversed with each other and concluded that many of the dioramas had been created without the input of the communities being represented.

Examining educational content and comprehension across museum types is difficult: while the educational content of the Asian collections at the Portland Art Museum and Jordan Schnitzer Museum of Art are similar, they employ slightly different techniques. The Portland Art Museum did successfully combine information regarding authentic object, process, provenance, spiritual significance, and historical/cultural meaning that generated not only an informative, but also affective experience for me: I appreciated the incorporation of spiritual significance greatly. The concepts explored by *Wellbody Academy* and the *Life Hall* were similar (and the exhibit halls even offered similar interactives, like the hand washing game) but the underlying presentation narrative was dramatically different. The free-choice exploration encouraged at *Explore Oregon* stood in marked contrast to the linear presentation at the Burke Museum: the intellectually reflexive exercise at *Explore Oregon* was particularly powerful for me. The issues with content I experienced at *Oregon Voices* left me with a plethora of concerned questions, while the focus, cohesiveness, and slow pace of *Fantasy: World of Myth and Magic* intrigued me.

My research suggests that there is not one doctrine to follow when creating educational material for museum exhibitions, but there are particular strengths I have noticed. The use of an educational narrative married with well-defined concept areas enhanced my experiences at *Fantasy: World of Myth and Magic*, *Wellbody Academy*, and *Explore Oregon*. The presentation of authentic object married with replica, leading questions, diagrams, and informational text engendered a fun inquiry for me at *Explore Oregon*. A primary detail that detracted from my educational experience at the *Life and Times of Washington State* was my confusion regarding authentic object versus reproduction, and the haphazard presentation at the end of the exhibit hall. At the Jordan Schnitzer Museum of Art and the Portland Art Museum, a presentation of authentic object married with discussion about process and social/historical significance was

well received. The educational chaos I experienced at both *Oregon Voices* and the *Life Hall* were interesting to reflect upon: I did not enter either space anticipating such an experience but this most notably shaped my memories.

Emotions

Emotional experiences are, by nature, highly subjective and personal. I do not assert, nor insist, that my emotional response to an exhibition hall is objective or universal. In fact, I would insist the opposite: the observations I noted regarding my emotional reactions within each exhibition space is singular to me, my experience, my history, and my visit to the museums. The following attempts to compare and contrast the emotions I observed when visiting each of the eight selected exhibit halls. Furthermore, I cannot conclusively state that I would want to have the same emotional reaction in each exhibition space, but I can consider how each exhibit hall left an affective memory for me as a visitor and how this shapes my experience.

The Asian Collections at the Jordan Schnitzer Museum of Art and the Portland Art Museum both affectively made me feel reverence, awe, appreciation of beauty, and peacefulness. However, my notes indicate that I felt the exhibits are not relevant to my contemporary life. I can reflect on my ancestral heritage, but this is a bit forced and I do not immediately see how these collections emotionally connect to me. I am unsure if this connection to the contemporary self is necessary; however, relevancy is often addressed in museum studies literature in contributing to enhancing visitor experience. In both exhibition halls I note that there is a feeling of “frozen in time,” which is more pronounced at the Portland Art Museum, I suspect this is due to the stylized display cases.

At the JSMA, when examining the Lotus Shoes installation I feel outrage, sadness, and confusion; I note that this is not because of the how the material is presented, but because of the

content. I reflect on the dehumanizing practice of foot-binding and I wonder if any of my ancestors were subjected to this torture. I record in my notes that these feelings, though negative, make the Lotus Shoe installation very effective and affective for me as a visitor, and that the break from reverence and awe is somewhat welcome. This particular installation becomes more emotionally ripe and more relevant for me. I reflect that possibly incorporating some discussion of contemporary art production in Asia, or, more politically relevant, the production of mass market goods in Asia may create a thread that generates relevancy for the modern audience.

The *Life Hall* and *Wellbody Academy* evoke similar emotional responses from me as a visitor. However, since the *Life Hall* includes the Life Sciences Lab and the Prenatal Development Installation, I experience a greater diversity of emotions at OMSI. At *Wellbody Academy* I feel fun, excitement, the desire to play, and curiosity. At the *Life Hall* I experience joy and excitement, at the Life Sciences Lab I experience wonder and a love for animals, and, at the Prenatal Development installation I feel sadness, awkwardness, and awe. The layers of emotional experience for me at OMSI is in contrast to the continual excitement and playfulness I experience at PSC; and, at OMSI, I find myself preferring the smaller and quieter Life Sciences Lab than the chaotic and noisy *Life Hall*. While *Wellbody Academy* was entertaining and educational, I find that I think about the sadness and awkwardness of the Prenatal Development installation more frequently. I am unsure if I learned more at the Prenatal Development installation, but I reflect on the methods and practices of exhibition design in relation to this installation often.

The fetuses are presented in dark, sterile, and dehumanized presentations. I am aware that the uterus would be dark, so I am unconcerned with lighting, but the uterus would be full of fluid, warmth, and noise (heartbeats, gurgles, the mother's voice, and noise from the outside world). The use of preserved human fetuses, some of which were in pain when expiring, haunts

my memory. The installation completely removes the mother, which saddens and angers me. I would conclude that even though the “Prenatal Development” installation inspired in me a specific and multi-faceted emotional response, I would not assert that this was an enhanced museum experience.

My emotional experience at the Burke Museum of Natural and Cultural History was underwhelming, I indicated that I experienced “some wonder” and “some awe.” My emotional reaction at the Museum of Natural and Cultural History included excitement, wonder, awe, and fun. The layout and presentation generated a “sense of intrigue” and my persistent memories of *Explore Oregon* differ than my persistent memories of the *Life and Times of Washington State*. I credit this marked difference to my comprehension of education content: at *Explore Oregon* I felt empowered as a visitor to engage and learn, while at the *Life and Times of Washington State* I was often confused by the presentation. Furthermore, at *Explore Oregon* I was able to touch and interact with so many different objects, while at the *Life and Times of Washington State* there was little for me to touch. The ability to bounce back and forth between topics and graze at *Explore Oregon* (from volcanology to osteology) encouraged my sense of intrigue, while piecing together the timeline and wondering why certain eras were missing (extinction and ancient humans) diminished my capacity for “wonder” and “awe.”

I approached each exhibit hall with an open mind and an open heart: I hoped for fantastic emotional responses regardless of institution, subject matter, and presentation style. I placed the qualitative observations of emotional response after Aesthetics and Education/Comprehension because I wanted to prime myself, as a visitor, before I considered my emotional reactions. My desire for clearly identified authentic objects, interactives, cohesive aesthetics, and engaging educational content directly molded my emotional responses, which is the primary reason why my reactions to *Explore Oregon* and the *Life and Times of Washington State* differed.

The emotional observations I recorded at *Explore Oregon* and the *Life and Times of Washington State* employed similar words: wonder and awe; however, the degree to which I experienced these differed at each institution. My emotional observations recorded at the Experience Music Project and the Oregon Historical Society also differ, but to an even greater degree. My emotional response to *Fantasy: World of Myth and Magic* included awe, fun, nostalgia, and wonder. I easily surrendered to the immersive environment and expressed the desire to live in the world that had been created by the museum. My emotional response to *Oregon Voices* included confusion, frustration, and I was offended by some of the educational content and juxtaposition of presentations. I interpret my markedly different emotional response to each exhibit hall to be rooted in the details: at *Fantasy: World of Myth and Magic*, I appreciated the shadows on the ground, the sounds of dragon flies and birds, and the many comfortable places to sit and explore educational material. At *Oregon Voices*, I spent the majority of my time trying to ascertain why the exhibition hall was presenting the particular topics addressed and if the curators had consulted with any of the groups represented.

Interestingly, *Fantasy: World of Myth and Magic* dedicated much of their content to discussing issues of morality and how characters in the literary world of fantasy are sometimes easily identifiable as “good,” but, often, the most realistic and personable characters struggle with being both “good” and “bad.” *Oregon Voices* presented many topics that grapple with philosophical concepts of morality (such as meth addiction and homelessness) but did not adequately, for me, address the complexities of these important contemporary issues. Furthermore, in the diorama “Utopian Communities” the topics that are grouped together (Bhagwan Shree Rajneesh cult of Big Muddy Ranch, lesbians, new age spiritualists, and urban farms) seem incredibly disjointed. And, because they are grouped together, I cannot help but think that they are presented together intentionally to be in dialogue: I am not only confused, but

also a bit offended. I wonder, what do lesbian communities have to do with the Bhagwan Shree Rajneesh cult? And, why is there no context presented to help empower the visitor in understanding?

This is one of many examples I observed in my experiences at *Oregon Voices* and, though, I would not definitely assert that there is one perfect way to illicit positive emotional feedback from museum visitors, I can offer a few suggestions. One of the strengths of *Fantasy: World of Myth and Magic* is that the exhibit hall is clearly divided into five categorical sections that explore specific concepts through art, interactives, and literature. There are a plethora of fantasy films, authors, and games presented in *Fantasy: World of Myth and Magic* but when they are utilized in a specific section the primary topic is referred to consistently. *Fantasy: World of Myth and Magic* makes great use of films, which is also the dominant interpretive mechanism in *Oregon Voices*; however, the films at the EMP integrate specific commentary that relates back to the primary topics. Generally, I would suggest that clarity of intention and cohesive educational messages will contribute to affecting positive emotional experiences for visitors. My experiences at *Oregon Voices*, the Prenatal Development installation at OMSI, and the *Life and Times of Washington State* demonstrated to me that confusion, feeling underwhelmed, and being offended are not ideal affects for museum visitors. However, I would argue that museums do not need to always be emotionally effortless for visitors. I have been moved to tears in museums by exhibitions of transformative works; however, none of the exhibition halls I visited engaged me emotionally in this manner.

Interactives & Technology

Comparing and contrasting the use of interactive elements throughout the eight museum sites presents an interesting spectrum to consider. Observing interactive elements, some digital,

some analog, yielded similar data as observing technology: some institutions employed many different kinds of interactives, while others, employed none. Like technology, interactivity can be understood in a multitude of ways: observing a work of art is, in a manner, interacting with the piece. However, for the sake of this study, I am examining the use of physical and analog interactive objects used in exhibit halls to deliver interpretive content.

At the *Soreng Gallery* at the Jordan Schnitzer Museum of Art, there were three digital interactive elements: the “Treasure Wall” and the two audio stations. The *Soreng Gallery* did not employ any analog interactives. At the Asian Art Collections at the Portland Art Museum, there were no analog or digital interactives utilized in any of the galleries. I cannot conclusively assert that each exhibit hall would have been enhanced if analog interactives were introduced, since the integration of interactive elements works best when stylistically and interpretively blended into the exhibition. I can suggest a few considerations: there are opportunities in each museum to provide replicas of objects that visitors could touch. Furthermore, providing touchable examples of porcelain, teak, jade, and silk would provide opportunities to engage with visitors who have trouble seeing, and/or appreciate being able to physically interact with objects.

In contrast to the lack of touchable objects, the *Life Hall*, at OMSI, and *Wellbody Academy*, at PSC, employed a huge variety of digital and analog interactives. At the *Life Hall* there are approximately 24 analog interactive kiosks, which utilized puzzles, games, role playing, and view finders. Every kiosk in the *Life Hall* is interactive and appears to have been designed to withstand sustained use. The analog interactives at *Wellbody Academy* were as diverse and unique as the digital interactives. The most popular object was the “Loft-a-Palooza” that encourages visitors to jump and bounce to generate potential energy that would eventually trigger a reaction. The “Odor Decoder” encourages visitors to use multiple senses to engage with the interactive to discern the variety of breath they smelled. The “Sneeze Experience” included a

projection, video, and a spray that would “sneeze” on the visitor if they entered the “wet zone.” There were exercise machines, role-playing opportunities, and sushi trains: the analog interactives a *Wellbody Academy* often married a digital component, engaged multiple senses, used the dude ranch style of the exhibit hall, and delivered educational content in a fun manner. The primary difference between the analog interactives at OMSI and PSC, were that the interactives of *Wellbody Academy* were not only educationally innovative, but also blended into the visual narrative of the exhibit hall.

The *Life and Times of Washington State*, at the Burke Museum, and *Explore Oregon*, at MNCH, both offered visitors analog interactive elements; however, *Explore Oregon* provided a far greater number of objects to touch. The *Life and Times of Washington State* provided replicas of tracks, bones, and eggs for visitors to touch, and the Discovery Lab provided opportunities to explore geodes, crystals, and fossils; there was also an opportunity for student groups to attempt a paleontological dig. When I first arrived in the exhibit hall, there was a student group engaged in exploration in the Discovery Lab. I waited for the group to leave the exhibit hall to explore the Discovery Lab on my own. The paleontological dig “sites” (large Tupperware) were covered and in storage. The objects that were accessible to me included a few fossils, crystals, and geodes. I gratefully touched all of these objects and search for accompanying interpretive material, which I was unable to locate.

As noted in other sections, the interactive elements that were present in the “Forest” section of the exhibit hall appeared to be an afterthought. There was a large selection of children’s books available for visitors to engage with, and though I did not observe any visitors utilizing the texts, I could see that pausing and reading a story with a young child could enhance both the child and adults experiences. The crystals, fossils, and geodes provided in the Discovery Lab were not only beautiful, but also very interesting, therefor, providing interpretive material

that would be accessible to visitors, without necessitating a docent, would enhance this section of the exhibit hall.

Explore Oregon, employs a huge variety of interactive elements, both digital and analog. I counted 73 objects to touch, including specimen drawers, fossils, stones, geological specimens, maps, x-ray films, and question/answer flaps. Most of the interactive elements are available to multiple users, and most of the interactive installations provide sufficient instructions and scaffolding to empower well-informed visitor experiences. The two interactive elements that I noticed could benefit from clear instructions include the Geology/map interactive and the Ocean conveyor belt installation: I was unsure what each of these was trying to teach me, and, furthermore, I was unsure that I was interacting with them properly. As discussed in other sections, *Explore Oregon* composes installation spaces in a manner that I find to be very effective: as I write in my analysis, “look at this artifact, touch this reproduction/example, consider this question, examine this large display,” and inspect this informative diagram for more information. The marriage of these installation elements encouraged me to slow down and engage with each piece individually, as a group, and then referentially from one element to another. This method of presentation engendered an enhanced experience for me at *Explore Oregon*, and I would suggest that the *Life and Times of Washington State*, and other exhibit halls, consider these elements when constructing installations.

At *Fantasy: World of Myth and Magic*, at the EMP, there are interactive elements, though none are analog. At *Oregon Voices*, at OHS, there are five analog interactives which are primarily targeted at young audiences. The digital interactives of *Fantasy: World of Myth and Magic* are innovative, unique, and highly stylized; therefore I am unsure if adding analog interactives would enhance the exhibit space. A few analog interactives to consider may include reproductions of costumes, masks, and props, or, potentially, a spell casting activity that utilizes

a digital projection, a wand, and a game interface that tracks the movements of museum visitors while they cast spells. The sleeping dragon installation does provide an opportunity for visitors to pet the dragon's tale, but this interactive detail was eclipsed by the visual narrative and digital interactives.

At *Oregon Voices*, at OHS, five analog interactives are presented: a photobook in "Utopian Communities," roleplaying for kids, a picnic challenge for kids, a map asking "where are you from?" and question/answer flaps. Like many aspects of *Oregon Voices*, the analog interactives are not well integrated into the overall exhibit space. The photobook in the "Utopian Communities" does not provide an introduction to contextualize the images. The roleplaying opportunity for children did present an interesting collection of interactive objects: a collection of costumes, a variety of scripts, a small stage, with accompanying sets. A way to enhance this aspect of the *Oregon Voices* exhibition would be to provide clear instructions for visiting families.

As a visitor, I appreciate being able to physically interact with elements of the exhibit hall. At *Explore Oregon*, I greatly appreciated the presentation of touchable replicas that generated a referential point of entry to installation content. At *Wellbody Academy*, the unique and diverse interactive elements – ones that engage multiple senses and generated moments of surprise – were intriguing for me as a visitor and generated memories and stories for me that I share with colleagues. Interestingly, I had no desire to be sneezed on, nor did I want to smell different varieties of good and bad breath, but, I did appreciate these stylized and innovative interactive elements that married multiple senses and interactive aspects. Similarly, I did not bounce and jump on the "Loft-a-Palooza" but I observed many joyful visitors, both child and adult, engage with the interactive that encouraged healthy lifestyles through play.

Comparing and contrasting the use of technology in exhibitions halls presents an interesting consideration of nuances and purpose. Of the eight exhibition halls I visited not all employed digital technology; however, most did. Technology can include many items, but, for the sake of this study, I am examining digital technology that has been intentionally incorporated into the presentation of objects and interpretive material. The *Soreng Galley* at the Jordan Schnitzer Museum of Art employed three digital technology stations. The “Treasure Wall” is the most obvious installation in that it resides in the center of the exhibit hall and creates an avenue for visitors to engage with not only a collection of artifacts, but also with a specific avenue of presentation. “Treasure Walls”, traditionally, did not include a touch screen interface, but were exhibition vehicles showcasing objects, which indicated the prestige and status of the collector. The Portland Art Museum’s Asian Collection did not employ any digital interfaces to engage visitors. I observed that introducing a digital component, potentially an installation like the JSMA’s Treasure Wall, may encourage visitors to slow down and contemplate. The suggestions I noted in my observations, about affixing LED lights on the interior of the Treasure Wall, so that when objects were selected on the touchscreen the corresponding object would alight, would help highlight objects, make them more visible, and, potentially, encourage visitors to examine the object and then refer back to the screen for more information. The audio stations in the *Soreng Gallery* were less strong than the Treasure Wall. I listened to and watched each of the slideshows and found that the presentations were a bit confusing. There was not sufficient explanation as to why the music was paired with slideshows or why the images were illustrating significant contributions. The audio stations offered a place to sit and reflect, but, ultimately felt like an after-thought.

In contrast to the limited use of digital interfaces employed at the art museums, both science centers depended heavily on the use of digital interactives. The *Life Hall* at OMSI

offered 26 different digitally based interactive kiosks, while the *Wellbody Academy* at PSC offered at least 20 different digitally based interactives. The digital elements utilized in the *Life Hall*, though presenting different information, used a generally uniform presentation model: an installation exploring an aspect of biology or Nano-technology, a touch screen or button activation, a short film, and/or a game interactive. The digital elements utilized at *Wellbody Academy* stylistically resembled the exhibit space and were very diverse. The “Network Stations”, placed throughout the hall, provided testing opportunities, while the interactive in the “Cafedium” (that explored the creation of a balanced meal) utilized touchscreens, representations of food items, and a sushi train. The diversity of technology employed at *Wellbody Academy* provided me with many opportunities to engage, play, and explore: I appreciated this diversity, while the similarities of the digitally interactive kiosks at the *Life Hall* provided a uniform presentation, but were less engaging. Furthermore, many of the digital interactives provided at OMSI were broken, or very complicated, which made it difficult to interface with them. The simpler digital interactives that offered a push button and a short video, at the *Life Hall*, were effective not only because they worked, but also because they provided a simple interface and delivered information in a familiar, and easily digestible, manner. I noted that many of the films were geared toward a younger audience (with the use of cartoons, or loud/exaggerated hosts) but this ensured that the content was accessible to a wide audience.

Another positive aspect of the short films provided at OMSI was that they were paired with a comfortable place to sit, which provided respite from the commotion omnipresent in the exhibit hall. The two primary detractors of the digital interactives at OMSI were that a majority of the installations were either broken or difficult to use. The strengths of the digital interactives at PSC were that they were all functioning, included sufficient instructions and scaffolding, and engaged diverse and innovative technology.

The *Life and Times of Washington State*, at the Burke Museum, surprisingly did not employ digital interactives, save for a single short film on loop at the end of the exhibit hall. In contrast, Explore Oregon, at the Museum of Natural and Cultural History, employed eight videos, touch screens, and a microscope. As I commented in my analysis, four of the eight video/touchscreens were broken or in disrepair, which detracted from the museum experience. The two films I explored in detail were very strong and pairing the video with seating for two provided opportunities to relax, learn, and reflect. The *Life and Times of Washington State* is a much older exhibit hall than Explore Oregon, and I would guess that if the *Life and Times of Washington State* were to be redesigned and reinstalled digital interactives would be included.

The use of digital interactives, particularly touchscreens, was present in both *Fantasy: World of Myth and Magic*, at the Experience Music Project, and *Oregon Voices*, at the Oregon Historical Society. In *Fantasy: World of Myth and Magic* there were four touchscreen interactives, crystals balls showing films, and a dragon fly utilized to show films. All of the digital interfaces worked and ample instruction and scaffolding were provided so that I knew how to interact with each installation. *Fantasy: World of Myth and Magic* made use of innovative iterations of museum technology: I have never encountered crystal balls that showed films or the dragon fly sculpture. The highly stylized nature of the digital elements enabled them to blend into the environment and further the aesthetic experience of the hall. Though the role playing game and character building game utilized a touchscreen reminiscent of other museum touchscreens, the casing for the screens, and the stylization of the user interface, helped obscure and embed the interactive. *Oregon Voices* utilized touch screens and short films as the primary mode to deliver educational content, but the actual touch screens and corresponding flat screens did not blend into the visual vignettes they accompanied. The use of digital interactives in

Oregon Voices was not particularly nuanced or innovative, and the many layers of content did not encourage me to engage in deep reflection but engendered confusion.

The nuanced and innovative technologies utilized at *Fantasy: World of Myth and Magic* and *Wellbody Academy* demonstrate how technology can enhance an exhibit hall and provide entry points for visitors to engage with educational content. Both exhibit spaces utilize a cohesive educational, aesthetic, and visual narrative, and the digital interactives are blended into this presentation. Similarly, the Treasure Wall at the *Soreng Gallery* (JSMA) blends the underlying visual narrative of the exhibit space into the presentation and implementation of the interactive. I would suggest that embracing this model can potentially contribute enhanced experiences for museum visitors. Key successful aspects of these digital interactives include clear instructions for use, that they employ innovative visual presentation modes, and that they blend into the overall exhibit space.

Finding the appropriate, and most useful, balance of these four exhibition elements presents a complicated and difficult task for any institution. While they should all be considered there is no definitive method on how to best implement each aspect. Exploring eight exhibit halls in Pacific Northwest museums allowed me to not only consider these four aspects, but also test the viability of being able to assess each element, which proved valuable.

Interpretation

The following interpretation works to embed the findings of this study into the relevant literature of exhibition development and design. The literature review of this paper introduced a plethora of theorists; however, this interpretation will focus on the work of four prominent thinkers: John Falk (2009), Leslie Bedford (2014), Jack Mezirow (2000), and Beverly Serrell (2006). The work of these four theorists will be utilized to interpret and explain the results from this study. The primary research question of this study is “how can exhibition design be best executed to enhance museum user experience?” The goal is to identify if an exhibition halls can inspire a transformational educational experience, which will be contextualized vis-à-vis the work of Falk, Bedford, and Mezirow. To analyze the effectiveness of the evaluation tool developed for this study a comparison to Serrell’s (2006) Judging Exhibitions framework will be employed. A critical evaluation of this study and recommendations for further research will conclude this interpretation.

John H. Falk (2009) conducted extensive research examining museum experience and how visitor identity informs experiences. In his text *Identity and the Museum Visitor Experience* (2009), Falk asserts that, through his research, there are five emergent visitor identities. Falk is not the only researcher that has developed applicable archetypes; however, this interpretation uses on his work. While Falk uncovered five emergent identities, he insists that they are mutable and not mutually exclusive. The five identities include: Explorers, Facilitators, Experience-Seekers, Professional/Hobbyists, and Rechargers.

Explorers are individuals who are motivated to see as much as possible, to browse, and are drawn to exhibition halls and objects based on personal interests; Explorers often do not have a specific goal for their experience. Facilitators are motivated to engender a beneficial experience for individuals in the group; an example of a facilitator is a parent who brings their children to

the museum to learn. Experience-Seekers are individuals who are motivated to see the blockbuster exhibition or the prized artifact; Experience-Seekers often go to the museum with a specific goal to fulfill. Professional/Hobbyists are individuals who are motivated to learn about their specific area of interest/expertise; an example of a Professional/Hobbyist is an archeology professor who wants to learn more about flint-knapping so they visit the Museum of Natural and Cultural History to examine projectile points. Rechargers are individuals who are motivated to find a contemplative and/or restorative experience; Rechargers are interested in observing something beautiful/interesting in a setting that is conducive to relaxation.

Falk's five visitor identities are a useful lens to filter the findings in this study. It is important to remember that these identities are not static or exclusive: a single visitor can experience all five identities in a single trip to the museum. Instead of dissecting how each exhibition hall could serve each identity, I will focus on the broader implications each exhibit hall provides for each identity.

Facilitators often search-out science centers for museum outings, particularly because they often offer more interactive installations, and accommodate the energy of excited children. *Wellbody Academy*, at PSC, and *Life Hall*, at OMSI, would serve the needs of Facilitators by providing a plethora of interactive educational opportunities. The exhibition halls at PAM and JSMA, while educational, do not provide ample opportunities for integration with objects/displays, and learning is primarily concerned with reading and interpreting labels, which may not best serve the mission of a Facilitator.

Rechargers will be served by the *Asian Galleries*, at PAM, because of the ample opportunities to sit, the contemplative environment, the spiritual focus of the hall, and the small number of visitors. Conversely, *Wellbody Academy*, at the PSC, and the *Life Hall*, at OMSI,

would be too loud and crowded for a Recharger. *Fantasy: World of Myth and Magic*, at the EMP, would also provide opportunities for rest and contemplation.

Explorers are the most flexible of Falk's five identities and since they often do not arrive at the museum with a specific goal each of the exhibition halls examined in this study could serve their needs. However, while most of the spaces evaluated can be recommended, it is important to identify which spaces may not prove satisfactory. Explorers browse information and installations; therefore, because of the unclear presentation in the *Life and Times of Washington State*, at BURKE, and the culturally insensitive presentation in *Oregon Voices*, at OHS, these exhibition halls would not be recommended.

Since Experience-Seekers often search out blockbuster exhibitions, the halls included in this study may not serve their motivations. This study examined eight halls that are in their museum's permanent collections: these spaces rarely change and do not host travelling exhibitions.

Each exhibition hall provides a valuable opportunity for the Professional/hobbyists visitor depending on their interests and goals; however, because of the previously identified concerns information and cultural competency the *Life and Times of Washington State* and *Oregon Voices* may not provide the professional/hobbyist with an ideal visit.

It is important to consider Falk's visitor identities when trying to ascertain if an exhibit hall has the potential to offer transformative experiences. Falk's archetypes demonstrate that what best serves one visitor may not benefit another. For exhibition developers, it is recommended to consider each visitor archetype and while a single exhibit hall may not fulfill each archetypes needs, efforts can be made to accommodate their preferences.

In Leslie Bedford's text, *The Art of Museum Exhibitions* (2014), she presents a paradigm for creating exhibitions that will create meaningful visitor experiences. Bedford asserts that the three foundational elements are story, imagination, and experiential learning. She draws heavily on the work of John Dewey: particularly his focus on "learning through doing" (77). Regarding the topic of story, Bedford supports a cohesive narrative that provides familiarity for the visitor. The narrative is carried through objects, text, and presentation. Bedford is also adamant about the importance of the subjunctive mood and encouraging visitors to become curious (92). These two elements contribute to engaging visitors in active learning. This section considers if Bedford's museum exhibition triad are present in the selected exhibit halls, and if the implementation was successful.

The exhibition hall that employed a single recognizable story (with characters, back-story, etc.) was *Wellbody Academy*, at PSC. Dr. Wellbody is introduced to the visitor at the beginning of the exhibit and his "voice" is consistently present in label text throughout the space. *Fantasy: World of Myth and Magic*, at EMP, and, *Oregon Voices*, at OHS, also employ recognizable narratives; however, *Fantasy: World of Myth and Magic* stylizes the exhibit halls narrative to mimic traditional Fantasy literature, while *Oregon Voices* brings together differing narratives that speak to a central theme.

In different ways, each exhibition hall encourages visitors to be curious and use their imagination; however, certain exhibition halls engender greater opportunity for curiosity by embedding questions into the installations. *Explore Oregon* routinely offers the visitor guiding and prompting questions and asks them to consider hypotheticals, such as: "what would it be like to be a paleontologist?" and "what can we do to help the climate?" *Wellbody Academy*, *Fantasy: World of Myth and Magic*, *Oregon Voices*, *Life Science Hall*, and *Life and Times of Washington State* also make use of prompts. The two art museums, PAM and JSMA, do not use prompts and

leading questions as found in the other institutions. Similarly, the two art museums provided far fewer opportunities to learn by doing; the primary method of teaching is through printed label text. The visitor who enjoys reading labels and asking themselves broader questions (about spirituality, monarchies, or commerce, for example) may have their imaginations stimulated.

The majority of the exhibitions evaluated in this study employ various ways for guests to interact and learn. However, certain exhibit halls provided a greater diversity of unique interactives than others. *Fantasy: World of Myth and Magic* created a world that was not only fully immersive, but also highly interactive. The potential for both imagination and engaged learning is particularly strong in this exhibit hall. Though the exhibit hall presented objects from film and literature, the ideas explored included emotionally poignant concepts: authenticity and morality. *Wellbody Academy* also established a near immersive environment comprised of installations that were interactive, complicated, and unique. *Explore Oregon* also successfully implemented interactive and engaging installations. The *Life Hall* and *Oregon Voices* are filled with interactive options; however, neither of these spaces achieved success for similar reasons: there were too many installations, too many interactives were broken, and, most importantly, there was insufficient scaffolding to help guide the visitor toward the intended educational goal. *Life and Times of Washington State* did not provide adequate opportunities for visitors to do and learn; furthermore, the discrepancies in the accuracy of the information will most likely confuse, not inspire, visitors.

In consideration of Bedford's assertion that the three foundational elements of an exceptional museum exhibition include narrative, imagination, and engaged/interactive learning, the most successful exhibit hall was *Fantasy: World of Myth and Magic* followed closely by *Wellbody Academy*. These two exhibition spaces provided visitors with a familiar narrative, with ample opportunities to ponder new thoughts, and physically interact with installations.

In Jack Mezirow's text *Learning as Transformation* (2000) a collection of essays are presented that explore different aspects of transformative learning including core concepts, neurological, and social justice. Mezirow asserts that transformative learning employs opportunities for adult learners to engage in activities that help them evaluate and re-imagine their previously held assumptions. Mezirow argues that major life crises are opportune times for transformative learning; however, if focused upon, transformative learning can occur in less stressful environments too. This interpretation employs Mezirow's concepts of "evaluating and re-imagining previously held assumptions" as most applicable to determining is an exhibition engenders a transformation. Mezirow (2000) writes, "transformative learning refers to the process by which we transform our taken-for-granted frames of reference... to make them more inclusive, discriminating, open, emotionally capable of change, and reflective so that they may generate beliefs... that will prove more true... to guide action (8). This interpretation examines each museum's potential to provide a free-choice learning environment that encourages transformative learning.

In their own manner, each exhibit hall could be potentially transformative for the right visitor; however, in consideration of my data, certain exhibit halls more closely potentiate Mezirow's definition of transformative learning. I would argue that *Oregon Voices* provides visitors with a great potential for transformative learning; however, the issues I observed embedded in the exhibit hall greatly detract from the transformative power of *Oregon Voices*. While the Asian galleries at the Portland Art Museum and the Jordan Schnitzer Museum of Art provide visitors with an entry-point into cultures and histories potentially new, the lack of interactive learning options detracts from their transformative potential. *Life and Times of Washington State* and *Life Hall* both suffer from a similar ailment: the presentation of

unclear/inaccurate information. *Explore Oregon*, *Wellbody Academy*, and *Fantasy: World of Myth and Magic* provide the greatest opportunities for transformative learning.

Explore Oregon allows visitors to touch, interact with, listen too, pretend, imagine, and explore topics that are relevant to our understanding of the natural world, while learning about the processes that are employed by scientists who undertake the work. Looking at a fossil is educational; however, digging a fossil, in-taking a fossil, and asserting a hypothesis about a fossil not only requires the visitor to spend a greater amount of time with an installation, but also encourages the visitor to consider the object on display (the fossil) from a variety of perspectives. This adoption of a variety of perspectives recommends an opportunity to re-imagine previously held assumptions which is a central concept of Mezirow's transformative learning.

Wellbody Academy allows visitors to touch, interact with, listen too, pretend, imagine, and explore topics that are relevant to our understanding of our bodies and our health. *Wellbody Academy* is also a call to action: a call to adopt healthy habits to lead healthy lives. The installations in the exhibition space are unique, complicated, and thought-provoking. Visitors are asked to reflect on their own patterns and habits: food, sleep, hygiene, and exercise. Visitors are presented with information about how healthy lifestyle choices affect overall happiness, and, conversely, how poor choices detract from the quality of life. *Wellbody Academy* provides visitors with opportunities to assess their previously held beliefs and, further, provides visitors with examples of how to identify and change unhealthy behaviors. The potential to change behaviors and beliefs provides the potential for transformative learning.

As discussed previously, *Fantasy: World of Myth and Magic* is an installation hall exhibiting objects that tell the story of fantasy literature and film in pop culture. At first glance, the themes and topics of this exhibit hall appear superficial; however, a deeper examination of the installation reveals discussion around philosophical topics such as *authenticity* and *morality*.

Installations in this hall routinely ask the visitor to question what they believe: the world of fantasy is full of changelings, magic, illusion, and drama. The exhibit hall provides visitors the opportunity to challenge their assumptions of concepts that are multifaceted, complex, and personal. By using archetypes from pop-culture fantasy the conversation can be light-hearted and accessible; however, this does not detract from the gravity of considering philosophical questions. A primary concept of transformative learning is to reconsider taken-for-granted ideas, therefor cloaking a philosophical conversation about *morality* in the guise of a conversation about characters in a fantasy novel provides a wider entry-point into the conversation, which will encourage a larger audience to engage and consider.

A draw-back to this study was the time constraints which did not provide opportunities to conduct interviews with museum visitors. Measuring transformative learning is very difficult but can be completed through the implementation of interviews, surveys, and focus groups. For future study of transformative learning in museum exhibitions it is recommended to include interviews, surveys, and focus groups of visitors that specifically ask about previously held assumptions and potential changes to said assumptions.

Beverly Serrell developed and published *Judging Exhibitions, A Framework for Assessing Excellence* (2006), which is commonly utilized by museum professionals to assess exhibition success. The Framework is concerned with four criteria: *Comfortable*, *Engaging*, *Reinforcing*, and *Meaningful*. *Comfortable* examines if an exhibit is physically and psychologically comfortable (noise level, lighting, seating, etc.). *Engaging* examines if an exhibition encourages the visitor to pay attention (reading labels and interacting). *Reinforcing* examines if an exhibit hall allows opportunities to feel intellectually successful and if the message of the exhibit hall is consistent. *Meaningful* examines if visitors are not only engaged and learning, but also if visitors are “changed, cognitively and affectively, in immediate and

long-lasting ways” (Serrell, 41, 2006). This interpretation utilizes Serrell’s Framework as a comparison to the evaluative tool created for this study.

Serrell’s Framework is less structured than the questionnaire used in this study and far less structured than the reworked questionnaire recommended for use in future studies (Appendix B). Furthermore, Serrell’s Framework is concerned with a general assessment of excellence, while the questionnaire utilized in this study hoped to determine if transformational learning is possible: the *Meaningful* criteria most closely addresses this concept. The evaluative tool created for this study was originally created to evaluate eight elements of exhibition design, but after experimentation the evaluation tool was concentrated to consider four elements. The four elements: *aesthetics, education, emotions, and interactives & technology*. When these four elements are balanced and employed, there is great potential for creating exceptional and transformative exhibit halls. Serrell’s Framework is primarily utilized as a tool to encourage group discussion post-evaluation, while the tool utilized in this study can be used by individuals. To serve the greatest number of visitors and to engender the potential for transformational experiences it is recommended that museums develop exhibit halls that consider Falk’s visitor archetypes, utilize Bedford’s triad foundation, and encourage visitors to reconsider their previously conceived notions. Furthermore, if transformative learning is a goal of an exhibit hall, then the developers of the exhibition must consider what questions and interactives will encourage contemplation. Examining the findings generated in this study has recommended that successful, and potentially transformative, exhibits balance aesthetics with interactives and education with emotions. When visitors are able to learn, feel, see, and do they will not only be engaged, but also may be able to achieve transformation.

Conclusion

The purpose of this study was to examine the question *how can exhibition design be best executed to enhance museum user experience?* A primary concern of this study was attempting to ascertain if specific exhibition elements could engender a transformative experience.

According to the National Association for Museum Exhibition, a transforming experience is characterized by visitor responses including “I will never see ____ the same again!” “It knocked my socks off!” and “It was haunting” (NAME, 2012). These responses are by nature, highly subjective, personal, and emotive: there is an intangible quality to a transformative experience that is difficult to quantify. This study was able to identify aspects of exhibit presentation that can assist in contributing to enhanced museum experiences, and, this study was able to identify aspects that may hinder an enhanced experience.

This study produced an in-depth exhibition analysis at eight museum sites in the Pacific Northwest. This study produced and tested a new evaluative questionnaire that examines four specific exhibition design elements. This study was also able to compare and contrast the resulting data between institutions and across museum types. This analysis and synthesis identified trends that contribute to the enhancement or hindrance of exhibition success. Furthermore, after this study has been completed, the full document will be made available to not only the participating museum sites, but also will be made available to interested museum professionals.

This study established a robust potential for future research. I would like to provide the developed evaluative questionnaire to museum professionals and have them evaluate the same permanent exhibitions: it would be very interesting to see the emergent similarities and differences. Furthermore, the evaluative questionnaire could be modified to collect audience evaluations and critique. The questionnaire could be turned into a series of survey questions,

intercept interview questions, and focus group questions. It would be incredibly valuable to generate and analyze audience sourced evaluative responses and compare their evaluations to the original data sets. Furthermore, engaging the public in evaluation would provide a more holistic and well-rounded evaluative perspective. As a museum student and professional, I wonder if museum audiences consider topics such as emotions, interactivity, and immersive environments when they visit institutions, and if bringing these topics to their attention may change their museum experiences. This study has demonstrated that successful, and potentially transforming, exhibition spaces provide a balance of aesthetic robustness, emotional inspiration, educational opportunities, and unique interactive technologies. Further research is suggested, including testing the redesigned evaluative questionnaire (Appendix B), designing and developing an exhibition that balances “learning/feeling” “seeing/doing,” and incorporating visitor feedback. Transformative experiences are an elusive but achievable goal worthy of pursuit, and I encourage museums to consider the value of potential transformations.

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In Search of the Transformational: Museum Exhibit Evaluation Protocol	Date	
Museum Type: Museum Name: Museum Contact: Contact Phone Number: Contact Email Address: Mailing Address: Museum Mission:		
Exhibition Name: Exhibition Duration: Exhibition Type: Traveling/Permanent: Exhibition Mission:		
Consent: _____ Oral _____ Written (form) _____ Thank you card sent		
Photography: _____ Allowed _____ Not Allowed		
Key Points CODING	INFORMATION	NOTES

Aesthetics

Value:

Color:

Texture:

Balance:

Line:

Shape:

Viewing Height:

Entry:

Awesome or Intimate:

Floor Plan:

Object Arrangement:

Logo:

Typeface:

How do the aesthetics enhance the exhibition?

Education & Comprehension

What are they trying to teach me?

Did they succeed?

What do they offer as a take-away so I can continue to learn outside of the museum?

Did they offer an avenue for me to ask questions?

How does the educational component of the exhibit enhance the exhibition?

Emotions

Does this exhibition inspire an emotional response?

What emotions are inspired?

How are the emotions inspired?

How does the emotionality enhance the exhibition?

Technology

Does this exhibition use technology?

What kinds of technologies are employed?

Is the technology embedded/obscured or obtuse?

Does the technology offer a single-user or a multiple-user interface?

How does the technology enhance the exhibition?

Interactive Elements

Does this exhibition use interactive elements?

How? What are the interactive elements?

Are they directed at single-users or multiple-users?

How do the interactive elements enhance the exhibition?

Appendix B: Evaluation Matrix

In Search of the Transformational: Museum Exhibition Evaluation Matrix

Name of Museum:

Name of Exhibit Hall:

ELEMENTS	
Aesthetics	
Is the space intimate or awesome?	
Is the space bright or dim?	
Is the space crowded with display objects or uncrowded?	
Is there a directed path through the space?	
Can you choose your own path through the space?	
Is it quiet or noisy?	
Are there many colors or few?	
Are there lots of things to read or few?	
Are there places to sit down?	
What adjectives would you use to describe the space?	
Will you think about the aesthetics once you leave the museum?	
Education & Comprehension	
What is the lesson/message/intention of the exhibition?	
How is the lesson/message/intention communicated to you?	
Do you understand the lesson/message/intention?	
Is the lesson/message/intention consistent through the exhibition?	
How is the lesson/message/intention consistent or inconsistent?	
Is the lesson/message/intention of the exhibition something you will think about once you leave the museum?	
Is the lesson/message/intention important to you?	
Did you learn something new? If so, what?	
Did you learn something of value? If so, how is it of value?	
Does the exhibition exhibit original objects to support the lesson/message/intention of the exhibition?	

Emotions	
What emotions did you feel when you began exploring the exhibition?	
How did the exhibition inspire these emotions at the beginning?	
What emotions did you feel while you were exploring the exhibition?	
How did the exhibition inspire these emotions during your exploration?	
What emotions did you feel when you finished exploring the exhibition?	
How did the exhibition inspire these emotions at the conclusion?	
Was there a specific experience that inspired a strong emotional response?	
What was the specific experience?	
What was the emotional response?	
How did the specific experience inspire these emotions?	
Are the emotions you experienced in the exhibition something you will think about after you leave the museum?	
Are the emotions you experienced important to you?	
Did you feel something new? If so, what?	
If you learned something new in the exhibition, did that influence your emotions? If so, how?	

Interactives & Technology	
Does the exhibition utilize digital technology?	
If so, what does the digital technology look like?	
Can you interact with the digital technology?	
*Can you touch it?	
*Can you smell it?	
*Can you taste it?	
*Can you listen to it?	
*Can you look at it?	
Can more than one person simultaneously interact with the digital technology? If so, how?	
How is the digital technology being used in the exhibition?	
Does the digital technology blend into the exhibit space? If so, how?	
Does the digital technology clash with the exhibit space? If so, how?	
What is the content of the digital technology?	
What is the platform of the digital technology?	

Does the exhibition utilize analog technology?	
If so, what does the analog technology look like?	
Can you interact with the analog technology?	
*Can you touch it?	
*Can you smell it?	
*Can you taste it?	
*Can you listen to it?	
*Can you look at it?	
Can more than one person simultaneously interact with the analog technology? If so, how?	
How is the analog technology being used in the exhibition?	
Does the analog technology blend into the exhibit space? If so, how?	
Does the analog technology clash with the exhibit space? If so, how?	
What is the content of the analog technology?	
What is the platform of the analog technology?	
Are there aspect of the exhibit that blend analog and digital technology?	
If so, what does this look like?	
Can you interact with it?	
Was the technology in the exhibit important to you?	
If so, how?	
Was the technology new to you?	
Will you think about the technology after you have left the museum?	