EL MUSEO DE LAS CONCEPTAS: INCORPORATING AND ADVANCING THE GARDEN EXPERIENCE

An Interactive Qualifying Project

Presented By:

Stuart Campbell

Renee Dorer

Kyle Hanrahan

Nicolas Rossi

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Stuart Campbell

Renee Dorer

Kyle Hanrahan

Nicolas Rossi

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Director Monica Muñoz

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Professors Robert Hersh and Seth Tuler

Worcester Polytechnic Institute

ABSTRACT

The role of museums today is to be captivating places for enjoyment and learning. Our sponsor, El Museo de Las Conceptas, was interested in creating an engaging experience for visitors in its 400 year old gardens. The goal of our project was to identify and develop themes associated with the gardens to encourage visitors to reflect on the origins, uses, and cultural meanings of the plants. To achieve this goal, we interviewed traditional healers, botanists, and museum personnel. We used the data collected from these to create two guidebooks (one for adults and one for children) as well as a database of plants. These deliverables for the museum are tools to provide its visitors with an engaging and informative experience in the gardens.

Stuart: was the co-creator of the database, as well as assisting in the completion of the children's book and maps. He also served as co-interviewer and note-taker during interviews. Finally, he was a primary contributor to the background, methods, and findings chapters, and an editor on every part of the paper.

Renee: was the co-creator of the database that was designed for the museum's use. She was also the main translator and co-interviewer for the group, due to her strong Spanish skills. Finally, she was a primary contributor to the introduction, background, methods, and findings chapters, and a primary editor on every part of the paper.

Kyle: was the creator of the main guidebook for adults. He designed and wrote the majority of the contents found inside the guidebook. In addition, he was a primary contributor of the introduction, background, findings, and conclusion chapters, and contributed to the methods. He also served as an editor for the full report and worked on the final formatting.

Nic: was the creator and designer of the activity book for kids, as well as the maps contained in the guides. He was the primary contributor in brainstorming ideas for activities and bringing them to life. Additionally, he was a primary contributor in the findings chapter, and methods chapter, and worked on the final formatting.

TABLE OF CONTENTS

LIST OF FIGURES

1. INTRODUCTION

Museums throughout history have been built on two principles: conservation and interpretation (Lewis, 2019). Conservation means saving artifacts for future generations to see. Interpretation can be understood, in this context, as gaining knowledge of the past from these artifacts. However, museums around the world are exploring new ways to engage patrons in order to create a powerful experience that can adapt to modern visitor's shortened attention span. One such museum is El Museo de Las Conceptas in Cuenca, Ecuador, which wishes to conserve the religious artifacts and displays of the museum and captivate its patrons.

In an effort to support El Museo de las Conceptas, our team aimed to create an educational and engaging experience with the gardens. The museum previously took few steps to consistently try to engage the patrons with the gardens. These gardens were merely a display in the center of the museum and did not portray any information about them

Our project aimed to help the museum to gather, analyze, and present this information to their patrons. The goal of our project was to identify and develop themes associated with the gardens to encourage visitors to reflect on the origins, uses, and cultural meanings of the plants. This was done through a series of four objectives:

1. Inventory the plants that are in the gardens and map their location.

2. Determine the uses of the plants in the garden from medicinal, culinary, and spiritual perspectives.

3. Identify the relationship of the plants that inhabit the gardens with the evolution of Cuencano Culture and its roots in the syncretism of Spanish and Cañari traditions.

4. Work with the museum staff and museum patrons to design an interactive visitor experience and to provide guidance to the patrons in the gardens.

Through the completion of these objectives, we compiled stories about the uses of plants from a traditional healer, nuns living in the monastery, a bioscience professor, and a cultural geographer for an adult guidebook. We also created a children's guidebook with interactive activities through interviews with children's education professors. Additionally, our team compiled data gathered on tours of the gardens with multiple personnel to create a database. These deliverables will help the museum staff highlight the gardens in the museum and create an engaging garden experience for visitors.

2.1 THE EVOLVING ROLE OF EL MUSEO DE LAS CONCEPTAS

El Museo de Las Conceptas (hereby referred to as "Las Conceptas") is a museum in the historical center of Cuenca, Ecuador that contributes to the enrichment and education of the surrounding community. The building itself originated as a monastery that was built in 1599 (Heavey et al, 2017). In addition to serving as a home for women who had committed their lives to God, the monastery also served as an infirmary for the community of Cuenca. The role of the monastery changed in 1980, when the cultural department of the Central Bank of Ecuador presented the idea that part of the monastery can be converted into a religious art museum that portrays and preserves the museum's historical and religious significance to Ecuador (Historia, 2017). After six years of renovating the area that served as the infirmary, Las Conceptas opened its doors to the public on November 3rd, 1986 (Heavy et. al, 2017).

The map in Figure 1 shows the location of the five gardens in Las Conceptas. Consistent with the Spanish architecture tradition, there are two large courtyards in the middle of the museum (Harvey, 1974). Additionally, there are two gardens near a replica of a kitchen, and one garden that leads to the cemetery (Figure 1), which is referred to as "The Garden of the Smells". These gardens contain a vast variety of plants that are either native to Ecuador or imported from many different areas of the world.

Figure 1. Museum Map --Heavey, B. M., Perry, J. R., Hernandez, N. D., & Rivera, V. (2017)

These plants have uses that are as diverse as their origins around the world. To begin, there are multiple trees throughout the gardens that produce an edible fruit. Additionally, there are a variety of plants throughout the gardens that serve a medicinal purpose in order to treat a variety of ailments. Some plants in the garden are also used to attract hummingbirds and blackbirds (creatures that are revered in Catholicism due to their ability to travel close to the heavens).

In addition to containing a variety of plants, these gardens host different activities. For example, Las Conceptas invites two local healers (known as curanderas) to the kitchen gardens every

week to perform the limpias, an ancient Cañari practice that consists of repeatedly striking a person with a bush of plants in order to ward off evil spirits and cleanse the soul. Many Cuencanos prefer to have their limpias done in Las Conceptas for multiple reasons. To begin, the limpias is an intimate and sacred practice, so the museum provides visitors with privacy. Moreover, many people prefer the peaceful ambience of the Las Conceptas and its gardens during their limpias. These limpias are an example of the experience that the director of Las Conceptas, Monica Muñoz, wants patrons to have with the gardens: captivating, and interactive.

In addition to the limpias, Las Conceptas also hosts a monthly event known as "Sábado en Familia" (or "Saturday in Family"). (Advertisement shown in Figure 3). These events consist of activities that families can do together that are connected to an art exhibit in the museum. For example, the January event highlighted a set of canvases painted in bright color gradients through small activities. Free masks of different colors were provided to patrons. In addition, a small art station was set up in the Garden of the Smells. Canvas sheets were provided, as well as a variety of bright paints and glitter, so that patrons could create their own version of the canvas

Figure 2. Isabel Lituma performing limpias for a young boy at the museum, Jan. 2019

Figure 3. Advertisement for Sábado en Familia for January 2019

exhibit. Moreover, clay was available so that patrons could make their own miniature sculptures.

In our first meeting with Director Muñoz, she made her goals for the museum very clear: conserve the religious artifacts of the museum and captivate patrons (Munoz, El Museo de Las Conceptas, 2019). Muñoz does not merely want patrons to look at exhibits; she wants patrons to actively interact with the exhibits of the museum.

Museums have their roots in the Renaissance, when owning a collection of artwork was a symbol of prestige and status. These collectors were "concerned with enjoyment and study and the advancement of knowledge" but feared that "the continuity of their collections, had no such guarantee of succession" (Lewis, 2019, pg. 1). In order for the knowledge to continue and have a lasting impact on society, the private collectors began to donate their artwork collection to their cities. The first donation of art to the public came from Domenico Cardinal Grimani to the Venetian people in 1583. The first public museum, the Ashmolean Museum on the campus of the University of Oxford, would later open its doors in 1683 (Lewis, 2019).

If museums in the past were considered places to preserve important art and cultural artifacts, the role of museums in contemporary society is changing. Following the Russian Revolution of 1917, Vladimir Lenin began to further shape the role of museums in Russia, after his government seized the private art collections. Lenin held a strong belief that culture should be shared, and made large strides to preserve Russia's cultural heritage (specifically in the fields of science, art, and history). Thus, Lenin's efforts led to an increase in museums in Russia, including the Winter Palace in St. Petersberg (Lewis, 2019). Germany followed Russia's model shortly after the first World War by opening museums that highlighted its history and prominent figures (Lewis, 2019). No longer did museums strictly hold art collections. In the cases of Russia and Germany, their museums began to educate patrons on the history and culture of their countries.

However, the role of museums continued to change even after World War II: they became a source of entertainment (Lewis, 2019). Moreover, this change is still active to this day, as museums are becoming "active learning environments" (Chang, 2006). Museums need to provide an engaging experience because the human attention span is currently eight seconds (Visser, 2014). Visser (2014) further proposes that the shorter attention span is due to a wider availability of information online and through social media. As a result, modern humans are obsessed with new information and are unwilling to focus their attention on one thing. This need for input provides museums with a difficult task: provide a meaningful experience for a patron through an exhibit before the patron moves on to a new stimuli ("Actively Engaging Museum Visitors", 2016).

Yet, museums do not simply need to serve as an engaging place of education. Lewis (2019) makes the claim that museums can also serve as a platform for communication, among other roles. The following excerpt from the Museums Association (n.d) serves as an adept summary of the changing role of museums:

"Museums can be a place to help shape community identity and bring different community groups together, a catalyst for regeneration through the creation of new venues and civic spaces, and a resource for developing the skills and confidence of members of those communities. Museums are using their unique collections and services to address social issues. They are striving to be places where all sections of the community can have a voice and be reflected in a museum's collections and displays."

Museums help to shape community identity by providing patrons with "a deeper sense of connection to their past and to their living experiences" through their historical artifacts (Chan et. al, 2012, pg. 5). Las Conceptas does this by displaying many exhibits that pay tribute to its monastic past. For example, one room in the museum that was modeled to look like a bedroom that a nun

would inhabit in the monastery. Furthermore, the museums display paintings that were created by nuns as a part of their education about the Gospel.

Lewis (2019) also argues that museums play a role in bringing together different community groups. In fact, museums oftentimes will work with marginalized groups to provide them with a voice and a sense of belonging (although this is usually motivated by an attempt to broaden the museum's visiting population) (Sellwood, 2010, pg. 40). While Las Conceptas does not work specifically with marginalized groups, they do bring together a variety of people from school children to families to the occasional expatriate.

According to Lewis (2019), museums are also becoming a source of regeneration for multiple reasons. First, museums provide a creation of new venues. One such example is The Revolving Museum in Lowell, Massachusetts. This particular museum was founded in 1984, six years after Lowell was given a grant in order to create the Lowell National Historic Park in an attempt to revitalize the struggling city (Westervelt, 2010, pg. 32-34). The Revolving Museum also confirms Lewis's (2019) affirmation that museums provide revitalization by providing resources for people to develop their skills and their confidence. In 2004, the museum pioneered a program known as "Building Vision: Industry and Art in Downtown Lowell". This program paired artists and teenagers for a variety of arts projects, including painting canoes through the "Canoe Tours, Incorporated" workshop series (Westervelt, 2010, pg. 36).

Besides providing a sense of revitalization to communities, museums also help to address social issues. In particular, museums have the platform to tackle sensitive issues such as oppression. For example, the International Slave Museum in Liverpool, England documents the history of slavery as well as its modern-day relevance. In particular, this museum focuses on Liverpool's history as a slave port. While many people expected to enter the museum and feel uncomfortable at its opening in 2007, the general consensus was that "no one can say they are unmoved" (Selwood, 2010). That is the power of the museum: to show people the importance of these social issues and stir feelings through their exhibits in a captivating way.

2.3 ENHANCING PATRONS' EXPERIENCE AT MUSEUMS THROUGH PROGRAMS

A key focus of this project is to more fully engage the patrons of Las Conceptas with the gardens and art collection within the museum. Director Muñoz says that "this isn't meant to be a technical museum" and that it serves as "a place for peaceful reflection". More specifically, Director Muñoz is interested in patrons having an enjoyable interaction with the gardens within the museum. In particular, Director Muñoz wanted our team to specifically focus on engaging younger children and their families because they are demographic that she wants to bring to the museum.

Museums have been actively trying new activities in an effort to provide an enjoyable experience for their patrons, especially for the children who visit with their families. From children's playrooms at Museo Pumapungo (Cuenca, Ecuador) to high-tech interactions at the Tech Museum of Innovation (located in San Jose, California), there are a plethora of approaches. An effective way of doing this is by "telling the story" of the collections because those "are what [the children will] share when they get home," according to the Kids in Museums (an organization in United Kingdom that focuses on family engagement in museums) and their 'Mini Manifesto' that has helped nearly 900 organizations reach their audience. Fleming (2005) commented that merely looking at objects does not provide information about the object, and this applies to anyone at any age.

The method of telling a story is also effective for adults. According to the Falk and Dierking Interactive Learning Model (a model for museum learning that assumes all experience is contextual), visitors will create their own experience and focus on what factors to bring into their own experience. Such factors come from three contexts: personal (which includes, but it not limited to, a person's interests, expectations, motivations, prior knowledge, and experiences), social (which includes the people a person interacts with in a museum context), and physical (which include the activities that a person does while at a museum, the collections at a museum, and the physical layout) (Chang, 2006, pg. 178). From this model, a visitor should be able to learn about by connecting to a story that is provide by the museum and relating the story to their personal context.

A common method to tell the story that is utilized by botanical gardens around the world is to sell or give out seeds or plantlets that are from the gardens in order to establish a connection with visitors. The Singapore, New York, and Sydney Botanical gardens all offer seeds or plantlets to visitors, whether for free or for a price. According to Botanic Garden International Conservation (2007) , providing visitors with seeds or plantlets engages visitors by allowing them to take a part of the gardens home with them and teaches them how to care for a plant. According to a study by McIntyre (2010, p. 181) " visitors view shop spaces as an integral part of the experience during a visit." This quote suggests that items that visitors can take home from the museum are an important part of a patron's experience.

In addition to providing a souvenir, many museums focusing on providing an experience, especially for children. An example of the is the Museo Pumapungo (or simply "The Pumapungo") in Cuenca. The Pumapungo displays exhibits that focus on the Incan and Cañari cultures, but it also provides a variety of different activities for children. For example, the children have a designated play area. In this area are a variety of books, games, and indigenous instruments that relate to the themes of the museum. The Pumapungo also offers a map for children that serves as a scavenger hunt: when the child finds something on the map, they get to put a sticker on it. Additionally, the program director, Juliana Vega, notes that the children enjoy playing outside in the garden area.

In addition to the children's activities, the Pumapungo also has a large chakra garden (Figure 4). The garden is based on the ancient Cañari practice of planting the garden in a specific way, in order for the plants to balance each other during the cultivation process. In order to educate the patrons on the identity of the plants, the Pumapungo utilizes plaques with the Spanish common name of the plant and the Latin name of the plant. As a result, the plaques in the Pumapungo garden could serve as an example of a way to accomplish Director Muñoz's goal for the gardens.

Figure 4. The "Chakra Garden" of Museo Pumapungo

3. METHODS

The goal of our project was to identify and develop themes associated with the gardens to encourage visitors to reflect on the origins, uses, and cultural meanings of the plants. We achieved this goal by addressing the following objectives:

1. Inventory the plants that are in the gardens and map their location.

2. Determine the uses of the plants in the garden from medicinal, culinary, and spiritual perspectives.

3. Identify the relationship of the plants that inhabit the gardens with the evolution of Cuencano Culture and its roots in the syncretism of Spanish and Cañari traditions.

4. Work with the museum staff and museum patrons to design an interactive visitor experience and to provide guidance to the patrons in the gardens.

3.1 OBJECTIVE 1: INVENTORY THE PLANTS PHAT ARE IN THE GARDENS AND MAP THEIR LOCATION.

In order to inventory the plants in the garden, we conducted in-depth semi-structured interviews with the groundskeeper of the garden, Freddie Quizhpi, and the assistant director of the museum, Jonathan Pillco, asking for the Spanish common name of the plants (see questions asked in Appendix C). We also conducted interviews with Silvania Mejía (a museum assistant who is knowledgeable about the plants) and Roberto Adrian Tapia Camacho (an environmental engineer at the Empresa Publica Municipal de Aseo de Cuenca (EMAC)). (Questions in appendix S) In these interviews, we asked for the Spanish common name of the plants that we were not able to identify in the initial interviews. Further scholarly literature review was used to determine the English and Latin names of the plant, as well as their origin (whether the plant is local to Ecuador or was imported).

The data collected from the aforementioned interviews was later compiled into a database. The softwares that were considered for the database included Microsoft Access, Microsoft Excel, and TreeDBnotes. A summary of these softwares can be seen in Appendix Z.

To map the gardens, we drew sketches of the outlines of the gardens on paper. After this step, we began to draw circles in the sketches to designate the location of a plant species and assigned each species a number that was recorded separately. The map was later redrawn in Microsoft Powerpoint, a software that was selected for its easy use and its ability to easily create editable templates such as a map.

3.2 OBJECTIVE 2: DETERMINE THE USES OF THE PLANTS IN THE GARDENS FROM MEDICINAL, CULINARY, RELIGIOUS AND SPIRITUAL PERSPECTIVES.

We gathered information about how the plants currently in the gardens are used from medicinal, culinary, religious and spiritual perspectives. We were able to learn about the medicinal and culinary plants through our interviews with Pillco and Quizhpi. We also conducted an interview with Dr. Fabián León, a professor and researcher of medicinal plants at the university of Cuenca. In Leon's interview, we asked about the research that he performs as well as the medicinal effects of

the plants that he studies. (Appendix K) To learn about the spiritual uses of the plants, we interviewed Isabel Lituma, a local curandera. (Appendix G) Furthermore, we were able to determine the uses of the plants through reviewing the scholarly literature.

3.3 OBJECTIVE 3: IDENTIFY THE GARDEN'S PLANTS IN RELATION TO THE SYNCRETISM OF SPANISH AND CAÑARI TRADITIONS.

To obtain a better understanding of the role of plants in Cuencano culture we interviewed Gina Lobato, a cultural geographer from the Universidade Federal de Uberlândia who conducted research on gardens in Cuenca. (Questions in Appendix Q) In this interview, Lobato described why different plants had significant meanings and how they are viewed by Cuencanos. We also talked to her about different legends that involve the plants.

We also interviewed Jose Luis Espivoza, an anthropologist who works at the Pumapungo. (Questions in Appendix M) We discussed the syncretism, or merging, of Christian and indigenous cultures. We also discussed how plants from around the world were brought to these gardens, as well as how the changing culture of Cuenca has affected traditions such as the limpias.

3.4 OBJECTIVE 4: WORK WITH THE MUSEUM STAFF AND MUSEUM PATRONS TO DESIGN AN INTERACTIVE VISITOR EXPERIENCE AND TO DEVELOP GUIDEBOOKS FOR VISITORS TO THE GARDENS.

We worked with Director Muñoz and other museum staff to design guidebooks for adults. These guidebooks portray the plant's Latin name, the plant's common name (in both English and Spanish), and the uses of the plants highlighted in Chapter 3.2. We also worked with the staff and experts (Catalina Carrasco and Paulina Martinez) to adapt the guidebook into an activity book for children. We decided that guidebooks were the best engagement option, as they allow for an engaging experience that does not distract from the garden experience.

We also focused on ways to improve the museum's current engagement methods for children. To do so, we interviewed Juliana Vega, the children's program coordinator at the Pumapungo, about the programs and activities that she coordinates for children. (Questions in Appendix I) We also attended the Family Day event at Las Conceptas to talk with the visiting children to learn about their interest in an activity book. We repeated the process for the visiting adults and the idea of a guidebook.

4. Findings and Deliverables

4.1 Strengthening the connection between the museum experience and the gardens

4.1.1 The current engagement methods do not draw patrons towards or provide information about the gardens on a consistent basis.

Upon our first visit to the museum, we received a tour from Jonathan Pillco (the museum's assistant director), during which he highlighted the relation of the plants in the gardens to the art in the museum. With the exception of these moments, he only briefly discussed the gardens. This intrigued us, as the museum staff had expressed that the gardens are important, but the gardens were only discussed for a couple minutes on the guided tour.

We also noticed during the tour that there is no information posted about the gardens. This was particularly intriguing because the typical patron experience consists of patrons walking through the museum by themselves, looking at and reading about each individual artwork. While the museum experience relies on a self-guided approach. However, this self-guided experience does not invite patrons to explore the gardens.

These observations led us to the conclusion that, with the exception of the limpias, Las Conceptas does not emphasize the importance of the gardens to their patrons. Moreover, the museum does not provide patrons with tools that draw their attention to gardens. As a way of overcoming these obstacles, we settled on creating a guidebook that educates patrons about the contents of the gardens. We specifically decided on a guidebook because, as mentioned in Chapter 2.3, Director Muñoz does not want the Las Conceptas to be a technical museum and does not want to create distractions from the tranquility of the gardens.

4.1.2 The current method of navigating the gardens is unclear and provides little direction.

We noticed that the gardener was in one of the gardens, but we did not see the entrance into said garden. Upon asking, we learned that there are gates into the two main gardens, and that patrons are even encouraged to enter them. Furthermore, patrons are also permitted to touch the plants and smell them in order to have a sensory experience with the gardens. However, no patrons entered the gardens until the Sábado en Familia event in February, when museum staff actively encouraged visitors to enter the gardens. Through these experiences, our team concluded that the Las Coneptas's policy about patron interaction with the gardens was not made clear to their patrons.

At the moment, none of the plants in the gardens had labels, nor did the museum have a map of the gardens to provide to patrons. If a patron were to enter one of the main gardens and come across an interesting plant, they would need to ask a museum staff member for information about the plant. Additionally, the staff was not always equipped to answer such questions about the plants in the gardens. Moreover, it can be difficult to find the Garden of the Smells and the Kitchen gardens without a map or assistance from museum staff. As a result of all of these factors, we concluded that it is difficult to navigate the gardens without additional assistance.

Figure 5: Main Garden in the Center of Las Conceptas

In order to overcome these obstacles, our team decided to include a map of the plants in the gardens in the guidebook. This in particular helps to achieve Director Muñoz's goal of having the patrons learn more about the plants by providing them with the names and the locations of the plants. Furthermore, it provides patrons with a tool to independently guide themselves through the gardens.

4.1.3 HIGHLIGHTING THE STORIES OF INDIVIDUAL PLANTS WILL RESULT IN A MORE MEANINGFUL GARDEN EXPERIENCE

Throughout our time at Las Conceptas we noticed that patrons would have to ask museum staff for clarification on various topics regarding the plants. Patrons had no easily accessible information provided to them when passing through the gardens. Director Muñoz has mentioned the importance of understanding more about the plants in order to gain a deeper understanding about the roles of the gardens. These observations allowed us to conclude that a guidebook would need to contain a section that takes a more in-depth look at the plants.

As mentioned before, the gardens contain over 75 different species of plants. Including every plant species in the guidebook with an individualized profile would create a lengthy guidebook, which would be cumbersome to carry through the museum. This helped us to decide to limit the section to only include key or important species to the guidebook as to not overload patrons with too much information.

One way to provide information to people without simply providing them with facts is to tell a story. Telling a story allows people to relate to the information that is being presented to them more so than receiving facts. As mentioned in Chapter 2.3, visitors will create their own experiences based on the physical context that the museum provides and combining the context with other

Figure 6: Example Plant Profile

factors such as personal experience and knowledge. Furthermore, many of the plants in the gardens at Las Conceptas are associated with a variety of stories that can be highlighted in the guidebook.

Due to these factors, we concluded that highlighting a few specific plants in the gardens will provide a more meaningful experience for visitors to the gardens. Our team accomplishes this in our guidebook through the creation of profiles for ten plants that are present in the garden. These profiles include the Latin name of the plant, the Spanish and English common names, and the uses of the plant highlighted in Chapter 3.2. Furthermore, the profile also contains a story about the plant in order to provide a more meaningful connection to the gardens. See Figure 6 for an example profile.

4.1.4 CALLING ATTENTION TO THE DIFFERENT USES OF PLANTS IN SOCIETY GIVES PATRONS A BROADER VIEW OF THE GARDENS IN CURRENT SOCIETY

Inspired by our talks with Pillco and Muñoz, we to further research the background, uses, traditions, and stories involving the plants in the gardens through our interviews with Lituma, Espivoza, and Leon. In addition, we were able to write a list of questions for the nuns who live in the monastery and obtain their responses in writing. From these interviews, we were able to learn about how the plants in the gardens are used in different ways by different parts of society.

To begin, Isabel Lituma (a healer) and Jose Luis Espivoza (an anthropologist) taught us about the limpias which have been legal for 27 years, having been previously banned by Ecuador's Catholic government. Despite its condemnation as a practice of witchcraft by the Catholic church, the limpias survived due to a strong oral tradition. The practice was later legalized because of its origins as medicinal practice that treats mal aire and mal de ojo. Furthermore, we learned that rue, costmary, rosemary, and the flowers of the fuchsia plant are used in the limpias and are plants that are found throughout the gardens of the museum.

Meanwhile, Leon told us about his research in medicinal plants, in an advanced lab at the University of Cuenca. Currently, Leon researches with a microbiology group in order to study the compounds of the medicinal plants as well as to find a use for these compounds in new medical technologies. The goal of his research is to combine tradition with science. However, Leon says that his lab is "leaving behind pure ancient knowledge due to new knowledge." This interview with Leon provided our team with a glimpse into how the plants are used in a medicinal and scientific setting.

The nuns told us about monastic life and about the monastery's uses for several plants. The nuns have their own gardens inside the monastery that provides food and as well as medicines. As a result, the nuns provided us with uses for the aloe plant (which is used to treat inflammation) and the rue plant (which is used to treat mal aire). Moreover, they provided us with religious symbolism for the lily (purity), the violet (humility), and the rose (charity, the love of service to others), all which are plants that are included in the gardens of Las Conceptas.

To conclude, these interviews provided our team with multiple looks into the different uses of the plants in the gardens by different groups in Cuenca. In order to encompass all of the information that we learned in the aforementioned interviews in our guidebook, we decided to include profiles of the interviewees. The profiles discuss these people and what they do with different plants from the gardens. Figure 7 shows the profile of Lituma.

Figure 7: Profile on Isabel Lituma

Figure 8: Symbology Key

Furthermore, we determined that the uses we gathered from these interviews were able to be divided into five categories: medicinal uses, culinary uses, aromatherapeutic uses, symbolic stories, and spiritual stories. In an effort to make the guidebook as readable as possible, these five topics are represented by symbols in the guidebook, next to each of the plants featuring those uses or stories. Next to the symbol is a sentence or two about how the symbol is related to the plant. These symbols serve as a hint to the reader about the information that is included in the profile. Figure 8 shows the key of the different symbols.

4.2.1 WITHOUT A SYSTEM TO REGISTER AND MAP THE PLANTS IN THE GARDENS, THE MUSEUM IS NOT EASILY ABLE TO PROVIDE AN INFORMATIONAL EXPERIENCE FOR VISITORS

Our team initially wanted to create a database of the plants in order to keep the information that we learned about them in a secure place. However, upon our team's first meeting with Director Muñoz at Las Conceptas, we discovered two things. First, we learned that there is no record of the plants in the gardens, nor any record of the plants that have been in the gardens previously. Second, we learned that the museum adds new species to the gardens as well as removes species from them. Due to the dynamic nature of the gardens and the lack of an archive, we decided that a database would further benefit Las Conceptas by serving as an in-depth record of which plants have been included in the gardens. Additionally, the database and its contents were used as a reference throughout the design of the adult guidebook and the children's activity book.

After experimenting with the database softwares mentioned in Chapter 3.1, the database was ultimately constructed in Microsoft Excel. Excel was chosen for multiple reasons. To begin, the software has a very similar layout to Microsoft Access, which was Director Muñoz's preference. However, Access was not selected due to its high subscription price. Additionally, Excel has the ability to freeze rows and columns, which help to make scrolling through the spreadsheet easier. Finally, Director Muñoz has previous experience with Excel, which eliminated the need for her to learn a new software. A sample of the database as well as a description of its fields can be seen in Appendices D and E, and an image of the format is shown in Figure 9.

Figure 9: Database Format

The database itself consists of five sheets. To begin, the first sheet (Plantas (Español)) is the collection of the fields discussed in Appendix E in Spanish, while the second sheet ((Plantas (Ingles))

contains the information in English. Next, the third sheet (Fotos) consists the profiles of the plants in the gardens. Finally, the fourth and fifth sheets (Recursos útiles (Helpful Resources) and Las Fuentes (Sources)) contain links to tutorials on the functions used in the database and the sources that were used in the research of the plants.

However, a negative aspect of Excel is that it cannot include pictures in the form of attachments. We were able to remedy this feature through the creation of a separate sheet that consists of profiles of all of the plants in the garden. These profiles consist of the Spanish and English common names, as well as the Latin name of the plant and a picture of the plant. An example of a plant profile can be seen in Figure 10. In both "Plantas" tabs, there is a field called "Photos", which contains a link to the cell with the Spanish name of the plant. This feature helps to provide pictures that can be added to the guidebooks, as well as to provide an easy way to access these pictures.

Figure 10: Example Database Plant Profile

4.2.2 THE GARDENS CONTAIN OVER 70 PLANT SPECIES THAT ORIGINATE FROM MANY PLACES AROUND THE WORLD

Through our team's interviews with Pillco, Quizhpi, Mejia, and Tapia, we were able to identify and inventory 70 species of plants that are in the gardens. Ultimately, we estimate that there are anywhere from 75 to 85 plants in the garden. Due to the large number of plant species that are in the garden, it is also necessary to map the plant species in order to provide museum patrons with a sense of direction when walking through the gardens. Furthermore, we created a "Map Number" field in the database in order to create a legend for the maps. This field will provide museum staff with a reference to the map, as well as keep the information of the plant connected to the map when the plant does not have a profile in the database.
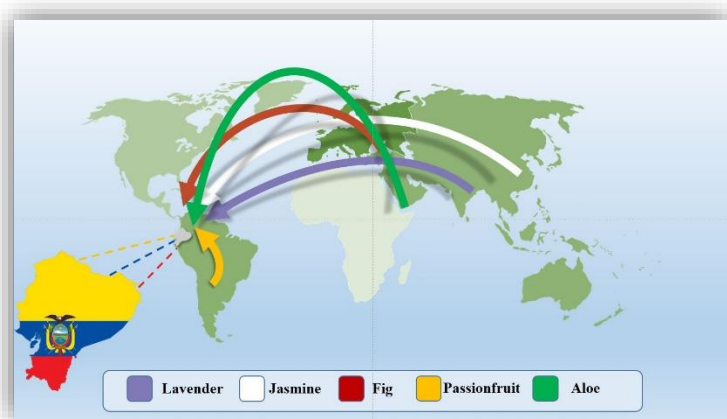
Figure 11: Guidebook Map Showing Plant Origins

Through our scholarly research, we discovered that not all of the plants in the gardens are local to Ecuador. In fact, the plants have origins around the world. Regions that the plants originate from include, but are not limited to: Mediterranean, Africa, Europe, Asia,

and Central America. This reflects not only the types of plants that the Europeans have brought with them when they colonized Ecuador, but also where regions that the Europeans had visited before arriving in Ecuador. Due to the diverse nature of the plants in the gardens, we decided to include an "Origin" field in the database so that the museum can further educate the patrons about the diversity of the gardens.

4.3 THE IMPORTANT FACTORS IN DESIGNING EDUCATIONAL ACTIVITIES FOR CHILDREN

4.3.1 THE CURRENT ENGAGEMENT METHODS FOR ADULTS AND CHILDREN RECOGNIZE THE VALUE OF THE ARTWORK AND GARDENS BUT ARE ONLY UTILIZED ONCE A MONTH

Originally, our group was aware that we would be tasked with creating an experience that highlighted the gardens as a focal point. A more specific focus of that goal was associated with providing an experience that could improve family visits for those with children. When a family enters the museum, they do not receive any tangible item to read about the displays. Instead, the family walks through the museum rather aimlessly. The monthly "Sábado en Familia" event (see Section 2.1) does allow families to actively learn about certain exhibits in the museum through arts and crafts (as mentioned in Section 2.3). Although this is a well-organized event, it takes place only once every month and has a limited audience. After these conversations with museum staff and making our own observations, we decided that if an experience with a similar goal to the family day can be offered to every patron, on any given day of operation, the museum's goal would be achieved.

Figure 12: Nic Participating in Sábado en Familia Activities

4.3.2 THE MOST EFFECTIVE AND ENJOYABLE WAY TO ENGAGE A CHILD WITH MUSEUM DISPLAYS IS THROUGH HANDS-ON ACTIVITIES THAT ENGAGE THEIR SENSES.

The two main interviews with Paula Martinez and Catalina Carrasco focused on the importance of hands-on activities for children. Their suggestions for specific activities mainly related to incorporating the five senses. Their recommendation is supported by a study by Dinh (1999): "In particular, the addition of tactile, olfactory and auditory cues to a virtual environment increased the user's sense of presence and memory of the environment.". Incorporating the senses help children retain the information that they have learned. Organizational charts pertaining to suggested activities and their relevant audience made by Paula Martinez can be seen in Figure 13, as well as Appendix

(AA). These charts give us suggestions for activities in the guidebook, as well as the groups that they would benefit. In our case, the demographic focus was on children in the 5-12 age range who are visiting with their family. With this information, we had different options to choose from to create activities. The combination of a sensory experience and hands-on activities creates a fun and informative dynamic to educate children.
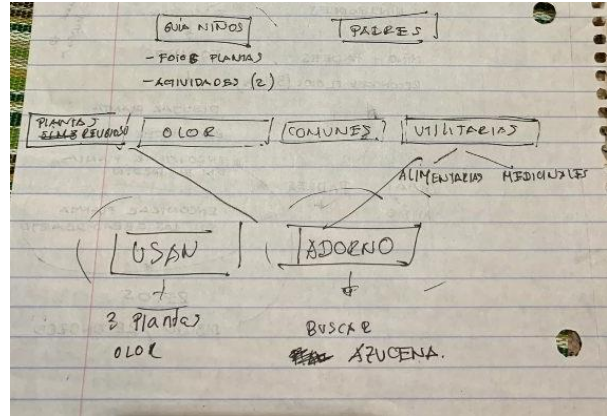
Figure 13: Activity Charts from Martinez

4.3.3 VARYING ACTIVITIES CONTAINED IN THE ACTIVITY BOOK WILL BE EFFECTIVE IN ENGAGING A RANGE OF DIFFERENT CHILDREN'S AGES

Through the information that we gathered in our interviews and research, we decided that a children's activity book would best serve to actively capture and hold the children's' interest. The activities within the book aim to satisfy children in the age range of 5-12, through varying ranges of depth and difficulty in the different activities. For example, some activities are partnered with correct answers and descriptions of plants, while others are more open to a child's imagination, and let them describe the smell/taste of certain plants. Carrasco reinforced this idea of not having to have a correct answer, saying that "The experience is the important part in making a positive impact on a child not necessarily the information or the fact"(Carrasco, Museo de Las Conceptas, 2019). In addition, there are occasional ties between this version, and the more informative adult guidebook, that require a parent to help their child with certain activities. This activity book will assist the museum in becoming a family-friendly museum that educates and entertains its patrons through an interactive experience with the gardens.

Figure 14: Example Activity from the Kid's Activity Book

We had the opportunity to test the activities in our children's guidebook at the February 'Sábados en Familia' event. Director Muñoz requested we lead this day through a combination of activities (tours, games, and the activity books prototypes). The first activity was a guided tour through the gardens with our group members. This tour provided the children and the parents with information we have collected about particular plants with different scents, feels, and meanings. Sharing this information sparked further conversations between our group members and those present. The children began to smell, feel, and observe plants on their own as they participated. This activity served as an informative background of the variety of plants in the garden.

The benefit of this tour was not observed until the activity books were started. By the time the children sat down to use the activity book, they already had some knowledge about the plants in the garden. That knowledge appeared to make the activities a continuation of the tour instead of a new subject. For example, when the children were instructed to find two plants with an appealing smell and draw those plants, they remembered where they could find the plants and searched through the gardens deciding which to choose. Additionally, when asked their favorite plant in the gardens, one child knew it of the top of their head. Another child ran to pick off a flower for a drawing reference. This interest to express their favorite plants without further exploration showed the impact the tour had on the young subjects, as the memories of some specific plants and their sights and smells had already stuck with them. All three children who attended and were provided an activity book completed the activities enthusiastically.

Figure 15: Children Participating in Sábado en Familia Activities

5. RECOMMENDATIONS

5.1 DESIGNATE A STAFF MEMBER TO UPDATE AND MAINTAIN THE DATABASE AND THE MAP

Las Conceptas should designate someone to maintain the database. This person should be familiar with the database and be trained to use and update it. Updates to the database should happen whenever new plants are introduced. The database contains information about the entirety of the gardens and will be useful in events when there are changes in staff. Additionally, it will help to serve as a record of what types of plants have been planted and taken out of the gardens and provide a record of a dynamic garden. When adding a new plant to the database, it is a good practice to verify its identity with the "Empresa Municipal De Aseo De Cuenca" (EMAC), Cuenca's main municipality, before creating a record of the plant. We also recommend that the museum records the uses of the plant in the proper fields. In addition, a picture of any new plant should be added to the "Fotos" sheet when it enters the garden.

We also recommend that the person in charge of the database also update the maps. The reason why we recommend this is because the map has very close ties to the database. Specifically, the "Map Number", "Location in the Garden", "Currently in the Garden", "Years Present in the Garden", and "Frequency in the Garden" fields need to be updated whenever a plant is added, removed, or is moved to a different location. Due to these connections, it would be easier to have the same person updating the database as well as the maps.

5.2 DESIGNATE A STAFF MEMBER OR AN INTERN TO SERVE AS A DIRECTOR OF CHILDREN'S PROGRAMS

We further recommend that Las Conceptas designates a staff member to serve as a director of children's programs in order to ensure that there are activities for children to do at the museum on a daily basis. This is a position at the Pumapungo (as discussed in 2.3) that specifically focuses on the engagement and the education of children visiting the museum. The person in this position can also be tasked with the updating of the plants in the children's activity book.

If the museum does not have staff that has time available to take this position, and intern could be very useful. The intern can be a student from the University of Cuenca who studies childhood education or a similar field. The intern could work with the Las Conceptas Staff to further develop activities for the children who visit the museum. Moreover, the intern could also be tasked with executing the Sabado en Familia activities, as well as creating programs for the school groups that visit.

5.3 DESIGNATE A STAFF MEMBER TO UPDATE THE ADULT GUIDEBOOK

We recommend that a designated staff member be tasked with updating the plants featured in the guidebook whenever there are changes made to the children's guidebook. To begin, we recommend updating the adult guidebook because there are activities in the children's guidebook

that reference the adult guidebook. Furthermore, updating the plants in the guidebook will provide a fresh set of plants for potential returning visitors.

5.4 INCREASE PATRON AWARENESS OF RESOURCES AND OPPORTUNITIES DURING VISITS

We recommend that the gates to the gardens be clearly marked with a sign that indicates the entrance to the gardens. We noticed that the only people who entered the gardens were ourselves and museum staff. While the museum staff permits visitors to enter the gardens, it is not made clear to the public. In addition, it is difficult to find the gates to the gardens (an experience highlighted in 4.1). Visitors may not necessarily know where to enter the gardens even if they were aware of the opportunity to walk among the plants. Thus, we recommend making this opportunity explicitly known to the public through a simple sign with instructions on how to open the gates to the garden.

Additionally, it would further benefit the museum to make it known to the patrons that this deliverable (as well as past deliverables) are available to the public. While the availability of previous IQP deliverables was not a focus of our project, we did not see any sign of them whenever we visited the front desk at the museum. As a result, patrons may be unaware of the guidebooks that are available and may be lacking an engaging museum experience as a result. Thus, making them aware of museum resources can provide more direction in the museum and an engaging and entertaining experience. We recommend that if plausible, every guest receives a guidebook or activity book. If necessary, the museum could charge a small fee to recoup the cost, or make the guide available online for patrons to print before visiting.

5.5 FURTHER IDENTIFYING THE PLANTS AND SHARING THEM WITH THE PUBLIC

Director Muñoz has expressed that the museum would like guests to have the opportunity to learn about every plant in the gardens. In order to provide patrons with knowledge about every plant, we recommend the installation of small, simple plaques near each different plant. These plaques can include the Spanish common name of the plant, the English common name of the plant, as well as one use of the plant (whether it be a culinary use, a medicinal use, or a religious use). These are all facts that have been recorded in the database and can be easily accessed for the creation of these plaques.

We recommend the use of the plaques because while our guidebook maps only provide the name of all of the plants, they do not provide interesting facts for all the plants in the garden. The plaques instituted at the Pumapungo museum (as discussed in Chapter 2.3) are an example of how other institutions provide information about plants to their patrons. In addition, simple plaques can also provide a way of educating people about the plants in the gardens in the event that there are no guidebooks available.

However, in the event that the plaques are installed, we still recommend the use of the guidebooks. The guidebooks provided can still be used to teach the public interesting facts about the plants. These can include legends and stories that were recorded in the database. For example, if there is a plaque made for the Fig tree that discusses what sorts of dishes the fruit is used in, the guidebook profile of the plant can include the story of how Adam and Eve sewed clothes with fig leaves after eating the forbidden fruit. These plaques could even have the symbols used in the guidebook to represent different types of uses, to connect them with the guidebooks, and make for a cohesive experience.

5.6 DESIGNING ADDITIONAL GUIDES BASED ON AUDIENCE

We recommend that the museum continues to focus on engaging other groups that are not included in our deliverables, specifically school groups, and teenagers. The children's guidebook that we designed is intended for families with young children who visit the museum. While this does help to attract one audience, it neglects other audiences: teenagers and the school children who visit on field trips. Our talk with Paula Martinez, education professor from the University of Cuenca, sparked the idea of creating a separate guidebook for school children with activities similar to the current children's guidebook. However, instead of providing activities that instruct the children to work with their parents, Martinez suggested a guidebook that instructs the school children to break up into teams and work together to complete different activities. This guidebook would likely be slightly more difficult, and also feature different activities that emphasize teamwork and can be done without the assistance of an adult.

5.7 ASSESS VISITORS' USE OF THE GARDENS THROUGH A SHORT SURVEY

In the event that the guidebook and children's activities book are offered to the public, it would be beneficial for the museum to hear feedback from the patrons about how the guidebooks have influenced their experience of the gardens. This feedback can be obtained through exit surveys that question about the user's experience with the guidebook and/or a family who tried the children's activities. We have provided a sample exit survey in Appendix Y.

5.8 HAVE PATRONS TOUR THE GARDENS BEFORE THEY USE THE CHILDREN'S GUIDEBOOK WHENEVER STAFFING IS AVAILABLE

We recommend giving a tour to families that visit the museum before they use the guidebook. This was a method we utilized during the February Sábado en Familia event, and was very helpful for several reasons. To begin, the children team became a lot less shy with our team when we began to show them plants that either had a pleasant smell or a pleasant touch. Next, they became a lot more interested in learning about the gardens. In fact, two children actively looked through the garden for plants that sparked their interest. Finally, when we gave the children the guidebooks, they were excited to complete the activities and talk about their favorite plants. Due to the results of the tour, it could be beneficial to continue this practice with the use of the guidebooks.

6. CONCLUSION

To conclude, the focus of our project was to identify and develop themes associated with the gardens to encourage visitors to reflect on the origins, uses, and cultural meanings of the plants in the gardens of El Museo de Las Conceptas. Through the completion of our objectives, we determined that a lack of a system to map and archive the plants in the gardens inhibits Las Conceptas' ability to provide patrons with an informational experience. Additionally, we further learned that the current method of navigating the gardens is unclear and provides little direction in the gardens and little to no information about the gardens. Finally, we learned through expert opinion that the most effective and enjoyable way to engage a child with museum displays is through hands-on activities that engage their senses. With the conclusions we've drawn, our team was able to design deliverables to further provide Las Conceptas with the tools to provide patrons with an interactive and educational experience with the gardens.

Looking forward, we hope that the deliverables that we have provided to the museum will help their efforts to create an engaging experience with the gardens. The guidebooks will hopefully serve a wide variety of patrons as educational tools. The maps provided in the guidebooks aim to provide patrons with more direction in the gardens. The database was designed with the goal of allowing museum staff to keep track of the plants in the gardens and the known information associated with each plant. In addition, the database was also designed to provide the museum with a reference to use when updating the guidebooks. It is through the design of these deliverables that our team was able to help El Museo de Las Conceptas continue to change its role from an infirmary to a place of engagement and education with and about the ever evolving culture portrayed by the Cuencano community.

Actively engaging museum visitors & why it matters. (2016, September 26). Retrieved from
https://gsmproject.com/en/journal/article/actively-engaging-museum-visitors-and-why-it-matters/

Ahmad, S., Abbas, M. Y., Yusof, W. Z., & Taib, M. Z. (2013). Museum Learning: Using Research as Best Practice
in Creating Future Museum Exhibition. *Procedia - Social and Behavioral Sciences*, 105, 370-382.
doi:10.1016/j.sbspro.2013.11.039

Aguirre, A. (2010). Recetario de Medicina Tradicional en la Comunidad de San Juan de Cid - Provincia del Azuay
(Unpublished Bachelor's thesis). Universidad del Azuay. Retrieved February 13, 2019, from
http://dspace.uazuay.edu.ec/bitstream/datos/6521/1/07791.pdf

Arinze, E.(1999). The Role of the Museum in Society [PDF of Script]. Retrieved from
http://www.maltwood.uvic.ca/cam/activities/past_conferences/1999conf/CAM'99-
EmmanuelArinze.GuyanaFinal.pdf

Botanical Gardens Conservation International. (2007, August 15). Commercial Activity. Retrieved from
https://www.bgci.org/resources/1570/

Benson, y. (1962). *Plant taxonomy: methods and principles*.

Betty Farrell, P. (n.d.). *Demographic Transformation and the Future of Museums*.

Brown, R. (2016, August 4). The Importance of Museums: Preserving Local Culture - New Jersey Maritime
Museum. Retrieved from https://njmaritimemuseum.org/the-importance-of-museums-preserving-local-culture/

Burton, C., Louviere, J., & Young, L. (2009). Retaining the visitor, enhancing the experience: Identifying attributes
of choice in repeat museum visitation. *International Journal of Nonprofit and Voluntary Sector Marketing*, 14(1),
21-34. doi:10.1002/nvsm.351

Chan, P. Y., Chung, Y. S., & Leung, Y. Y. (n.d.). *Museum and Cultural Identity - Hong Kong Heritage Museum*
(Rep.). Retrieved from http://lbms03.cityu.edu.hk/oaps/ctl2012-4514-cpy950.pdf

Chang, E. (2006). Interactive Experiences and Contextual Learning in Museums. *Studies in Art Education*, 47(2),
170-186. Retrieved from http://www.jstor.org.ezproxy.wpi.edu/stable/3497107

Crawford, J. A., & Sullivan, O. S. (2015). Worcester Art Museum: Audience Engagement Study. Retrieved from
https://digitalcommons.wpi.edu/mqp-all/3255

Dawood, A. (2015). How can museums use design to better connect with their audiences? *Design Week Online*.

De Acosta, J. (n.d.). Historia Natural y Moral de las Indias. *Globalisierung in Zeiten der Aufklärung*.
doi:10.3726/978-3-653-04630-4/33

Dewaelheyns, a, Kerselaers, v, & Rogge, l. (2016). A toolbox for garden governance. *Land Use Policy.*, *51*, 191–
205. https://doi.org/10.1016/j.landusepol.2015.11.016

Dilenschneider, C. (2013, Winter). Signs of Trouble For The Museum Industry (DATA). Retrieved from
http://www.colleendilen.com/2014/12/03/signs-of-trouble-for-the-museum-industry-data/.

Farrell, B., & Medvedeva, M. (2010). *Center for the future of museums*. Retrieved from https://www.aam-us.org/wp-content/uploads/2017/12/Demographic-Change-and-the-Future-of-Museums.pdf

Flemming, D. (2005, November 8). Managing change in museums. Address presented at The Museum and Change International Conference in Czech Republic, Prague.

H. Q. Dinh, N. Walker, L. F. Hodges, Chang Song and A. Kobayashi, "Evaluating the importance of multi-sensory input on memory and the sense of presence in virtual environments," *Proceedings IEEE Virtual Reality (Cat. No. 99CB36316)*, Houston, TX, USA, 1999, pp. 222-228.
doi: 10.1109/VR.1999.756955

Harvey, J. (1974). Spanish Gardens in Their Historical Background. *Garden History, 3*(1), 7-14. doi:10.2307/1586307

Historia. (2017, February 27). Retrieved February 20, 2019, from https://museodelasconceptas.com/historia/

Heavey, B. M., Perry, J. R., Hernandez, N. D., & Rivera, V. (2017). El Museo de las Conceptas: Assessing and Advancing Community Engagement. Retrieved fromhttps://digitalcommons.wpi.edu/iqp-all/1510

Jones, T. (2017, October 12). Cardigan Castle: How to create a guidebook your visitors will want to buy - Museums + Heritage Advisor. Retrieved from https://advisor.museumsandheritage.com/features/cardigan-castle-create-guidebook-visitors-will-want-buy/

Knight, P. T. (2002). *Small-scale research*. London, : SAGE Publications Ltd doi: 10.4135/9781849209908

Kids In Museums. (2018). Home - Kids in Museums. Retrieved from https://kidsinmuseums.org.uk/

Key Research Findings | The Case for Cultural Learning. (2017). [ebook] Cultural Learning Alliance. Available at: https://culturallearningalliance.org.uk/wp-content/uploads/2017/08/CLA-key-findings-2017.pdf [Accessed 21 Jan. 2019].

Lewis, Geoffrey D. (2019) "Museum." *Encyclopædia Britannica*, Encyclopædia Britannica, Inc., www.britannica.com/topic/museum-cultural-institution#ref341406.

Mallarach, Josep-Maria & Juviñá, Josep & Papayannis, Thymio. (2014). Christian Monastic Communities Living in Harmony with the Environment. An Overview of positive Trends and Best Practices.. Studia Monastica. 56. 353-392.

Mallarach, Josep-Maria & Juviñá, Josep & Papayannis, Thymio. (2016). Christian monastic lands as protected landscapes and community-conserved areas: an overview. PARKS. 22-1.. 63-78. 10.2305/IUCN.CH.2016.PARKS-22-1JMM.en.

Mcintyre, C. (2010). Designing museum and gallery shops as integral, co-creative retail spaces within the overall visitor experience. *Museum Management and Curatorship*, 25(2), 181-198. doi:10.1080/09647771003737299

Museum Experience Design Crowds, Ecosystems and Novel Technologies /. (2018). Cham :: Springer International Publishing : https://doi.org/10.1007/978-3-319-58550-5

Museums Association (n.d) Museums Deliver. Retrieved February 13, 2019, from https://www.museumsassociation.org/download?id=143115

O'Neill, A. P., Davis, M. R., & McCoy, S. (2018). El Museo de Las Conceptas Final Report. Retrieved from https://digitalcommons.wpi.edu/iqp-all/473

Parker Gumucio, C. (2002). Religion and the Awakening of Indigenous People in Latin America. *Social Compass*, *49*(1), 67–81. https://doi.org/10.1177/0037768602049001006

Perera, K., & Chandra, D. (n.d.). How Museums in the Digital Age Become More Dynamic, Visitor Oriented? Retrieved February 13, 2019, from https://www.researchgate.net/publication/210223631_How_Museums_in_the_Digital_Age_Become_More_Dynamic_Visitor_Oriented.

Quintana Arias, R. F. (2016). Medicina tradicional en la comunidad de San Basilio de Palenque. *Nova*, *14*(25), 67. doi:10.22490/24629448.1731

Reader's Digest. (2018, April 12). America's 10 Best Children's Museums | Reader's Digest. Retrieved from https://www.rd.com/advice/parenting/americas-10-best-childrens-museums/

Selwood, S. (2010). Making a difference: The cultural impact of museums. Retrieved from https://www.nationalmuseums.org.uk/media/documents/publications/cultural_impact_final.pdf

Sung, a, Chang, u, Hou, u, & Chen, i. (2010). Designing an electronic guidebook for learning engagement in a museum of history. *Computers in Human Behavior.*, *26*(1), 74–83.

Westervelt, R. F. (2010). *Museums and urban revitalization: Regional museums as catalysts for physical, economic, and social regeneration of local communities* (Unpublished master's thesis). Retrieved February 23, 2019, from https://scholarship.shu.edu/cgi/viewcontent.cgi?article=3541&context=dissertations

"The World Factbook: Ecuador." Central Intelligence Agency, Central Intelligence Agency, 1 Feb. 2018, www.cia.gov/library/publications/the-world-factbook/geos/ec.html.

Thibault, A. B., DiLullo, G. A., Moutinho, J. L., Shugrue, M. M., & Kirilova, M. M. (2012). Botanical Gardening at the Wat Pathumwanaram School. Retrieved from https://digitalcommons.wpi.edu/iqp-all/1160

UNESCO World Heritage Centre. (2017, June 28). *Historic Centre of Santa Ana de los Ríos de Cuenca*. Retrieved from https://whc.unesco.org/en/list/863

Vincenzo De Feo. (2004). The Ritual Use of Brugmansia Species in Traditional Andean Medicine in Northern Peru. *Economic Botany, 58*, S221-S229. Retrieved from http://www.jstor.org/stable/4256919

Visser, J. (2014, April 18). Museums in times of social and technological change. Retrieved February 13, 2019, from https://themuseumofthefuture.com/2014/04/18/museums-in-times-of-social-and-technological-change/

Appendix A

Script of Statement of Informed Consent Used for Interviews With Experts and Civilians

"En este entrevista, vamos a hablar sobre [topic of interview] para aprender más sobre [insert topic]. Este informacion estara usado para la creación de una base de datos de plantas en los jardines y para la creación un sistema de compromiso. Esta bien con usted? Puede terminar esta entrevista cuando quieres."

"In this interview, we will talk about [insert topic of interview] in order to learn more about [insert topic]. This information will be used in the creation of a database of the plants in the garden and the creation of a system of engagement. Is this okay with you? You are able to stop this interview when you wish."

Appendix B

Questions we wanted answered from the Interview with Freddie Quizphi

- Orientation of the Gardens

- Identification of the plants

- Key or Major plants

- If there are legends or stories about any of the plants

Appendix C

Interview Questions for Freddie Quizphi and Johnathan Pillco

- How long have you been working at the museum?

- Could you describe how you maintain the gardens and the plants in them?

- What is your favorite part of the gardens?

- In your eyes what are the most important plants in the gardens?

- Do you know of any legends or stories about the plants in the gardens?

- Could you give us a tour of the gardens?

- Do the gardens attract a lot of birds?

Sample of the Google Sheets Database Prototype

	A	B	C	D	E	F	G	H	I	J	K	
1	Map Number	Name (Spanish)	Name (English)	Name (Latin)	Name (Quechua)	Culinary Use	Medicinal Uses	Religious and Spiritual Uses	Legend	Symbolism	Care	Other
2	19	Acanto	Bear's Breeches	Acanthus mollis						Acanthus leaves are used to symbolize that life is enduring, as well as pain, sin, and punishment.		
3	39	Achira	Edible Canna	Canna indica		Used to make tamales	Used to treat fevers, headaches, gonorrhoea, and rashes					
4	13	Aeonium	Aeonium	Aeonium				.				One o
5	54	Agapantho Africano	African Lily, Blue Tuberosa, African Agapanthus	Agapanthus africanus								
6							Agave sap has antiseptic, diaphoretic, diuretic, and laxative properties. It can be used as a binding agent for poultices on wounds. The plant can be used for treatment of indigestion					

Plantas (Español) ▾   Plantas (Ingles) ▾   Fotos ▾   Recursos útiles ▾   Las Fuentes ▾   Explore

Appendix E

Descriptions of the Database Fields Based on Assigned Column Number

A. Name (Spanish) - The Spanish common name of the plant.

B. Name (English) - The English common name of the plant.

C. Name (Latin) - The scientific name of the plant, which is given in latin.

D. Name (Quechua) - The common name of the plant in Quechua, if it is applicable to the plant.

E. Photos - A hyperlink to a picture of the plants in the "Fotos" (Photos) sheet.

F. Culinary Use - The uses of the plant in the preparation of food.

G. Medicinal Use - The uses of the plant in order to treat certain illnesses.

H. Religious and Spiritual Uses - The uses of the plant in a religious or spiritual setting

I.   Legend - The legends that include the plant for use as a symbol.

J.   Symbolism - The abstract concept that the plant is used to represent in culture (including in art and folklore).

K. Care - The required care for the plant.

L. Origin - The region in which the plant has its origins.

M. Other Notes - Information about the plant and its uses that does not fit into any of the other categories.

N. Frequency in the Garden - The number of plants in the garden.

O. Location - The gardens in which the plant is located.

P. Map Number - The assigned number of the plant that corresponds to their location on the map.

Q. Years in the Garden - The number of years the plant was present in the gardens.

Appendix F

Questions we wanted answered from the interview with Isabel Lituma

- What are Limpias and what do they intended for

- What plants are involved

- Explanation of the tradition

- The history behind the cleansing

Appendix G

Interview Questions for Isabel Lituma

- How many plants are used in the Limpias?

- What plants are used in the Limpias?

- What do each of the plants contribute to the Limpias?

- Can you explain the significance of the actions in the Limpias?

- How long have you been performing the Limpias?

- How did you become interested in performing the Limpias?

- How did you learn to do the Limpias?

- Could you explain the tradition of the Limpias?

- How long does the ceremony take?

- Do you grow your own plants or buy them?

Appendix H

Questions we wanted answered from the interview with Juliana Vega

- How Pumapungo engages children

- What activities are offer

- If the gardens are included in children's activities

Appendix I

Interview Questions for Juliana Vega

- How long have you been working here?

- Could you explain what you role at the museum is?

- What activities do you have for the children?

- Could you tell us more about the gardens here at Pumapungo?

Appendix J

Questions we wanted answered from the Interview with Fabían Leon

- How are medicinal plants used in current medical practices

- How medicine has changed

Appendix K

Interview Questions for Fabían Leon

- Could you explain your research/work to us in general?

- How long have you been working in this field?

- Could you tell us a little bit about the medicinal plants in Cuenca?

- What interested you in medicinal plants?

- What type of plants do you study?

- Are these plants used differently now than they used to be, and how so?

- Are most of the medicinal plants indigenous or native?

- Where are they sourced from/ how did they get here? (If not native)

- Can you tell us why traditional medicine is so popular is Ecuador?

Appendix L

Questions we wanted answered from our Interview with Jose Luis Espinoza

- Symbolism and significance of Limpias

- Explanation of Syncretism

- What plants are symbolic or significant

- Explanation how indigenous people used plant vs today

Appendix M

Interview Questions for Jose Luis Espivosa

- Could you give us a background on what you focus on as an anthropologist?

- What is the significance of the Limpias?

- What ailments does the limpias treat?

- What plants are significant to the culture of Ecuador?

- What is the importance of hummingbirds?

- How did the limpias become popular?

- Do you know of any plants that have legends or stories associated with them?

- Can you explain what syncretism is?

- How does syncretism relate to plants in Ecuador or these gardens in particular?

- Can you tell us about the importance of medicinal plants in Ecuador?

- Could you tell us about how the foreign plants came to Ecuador and when they came?

- Do you know of any of the plants that had indigenous uses?

Appendix N

Questions we wanted answered from our Interview of the Nuns

- Change of the gardens over time

- How the nuns use the gardens and plants

- Symbolism of the plants

- Stories or Legends about the plants

- How the plants got to the monastery

Appendix O

Interview Questions for Mother Abadesa

- How have the gardens (and plants in them) changed over time?

- What are some of the most important plants for you in the garden, and why?

- What are some of the most interesting stories about plants?

- Do any of the plants have religious or symbolic significance?

- How did the plants that did not come from Ecuador arrive at the monastery?

- Are the plants in the gardens in the monastery similar to the ones in the museum? Which are the most important?

- Do you ever use plants from the museum gardens? Or just the one inside the monastery.

- At what age do women enter the monastery? Has that age changed over time?

- What belongings have the nuns brought to the monastery at the time of the colony?

Appendix P

Questions we wanted answered from our Interview with Gina Lobato

- Symbolism of plants

- Stories or legends about plants

- What makes these gardens special

Appendix Q

Interview Questions for Gina Lobato

- Where are you from?

- We know you are studying your pHD in Brazil, but what university are you studying with?

- Could you tell us a little bit about what you are getting your pHD in?

- How long have you been working on your pHD?

- What is your thesis?

- Why did you decide to focus on these gardens in particular for your thesis?

- What is your favorite part about these gardens?

- What has been the most challenging part of your writing?

- Do you know of any stories or legends about certain plants in these gardens?

- Do you know if any of these plants are used to symbolize something or have a meaning in artwork or other folklore?

Appendix R

Questions we wanted answered from our interview with Silvania

- Identify unknown plants

- Learn how the gardens and museum have changed over the years

- History of the museum/monastery

- Plants with ties to the Canari

Appendix S

Interview Questions for Silvania

- How long have you worked here?

- What is your favorite part about working in the museum?

- Do you know of any Quechua names of the plants in these gardens?

- Do you know of any plants that have symbolism or are significant to the artwork in the museum?

- Do you know of any stories or legends about certain plants in the gardens?

- How have the exhibits/museum changed in your time at the museum? Do you think this reflects a change of Cuencano culture?

- Do any of the plants reflect a history of the mixing of indigenous and Christian cultures?

- Could you tell us a little about the start of the museum and the transition from being a monastery?

- Where did all the plants come from? Are there any that you know when and how they got to the museum?

- Do you have any recommendations or suggestions for naming the different gardens?

Appendix T

Questions we wanted answered from our interview with Paula Martinez

- Important factors in designing kids activities

- If our proposed ideas would work

- How do kids learn

Appendix U

Interview Questions for Paula Martinez

- Could you tell us about your job as an education professor?

- What is the most important thing to keep in mind when designing children's activities?

- Do you have any recommendations for changing our current activities?

- Do you have any suggestions for new activities or games?

Appendix V

Questions we wanted answered from our interview with Catalina Carrasco

- Important factors in designing kids activities

- If our proposed ideas would work

- How do kids learn

Appendix W

Interview Questions for Catalina Carrasco

- Could tell us a little about your program for STEM activities

- What is the most important thing to keep in mind when designing children's activities?

- Do you have any recommendations for changing our current activities?

- Do you have any suggestions for new activities or games?

Appendix Y

Exit Survey for Guidebook/Activity book users

- Did you enjoy your time at the museum?

- Did you spend any time in the gardens?

- Did you find the guide books helpful?

- If you have a child with you, did they enjoy the children's activity book?

- Is there anything you (or your child) did not like or find useful in the guide book or children's activity book?

- Do you have any recommendations for the guide book or children's activity book?

Compare and Contrasting Database Options

Microsoft Access

Pros

-The interface is designed to be a spreadsheet that the user enters data into.

-This is very good for organizing data easily

-Pictures can be included through the form of an attachment.

-The interface has a search tool.

-This is very helpful for finding specific plants.

Cons

-There is a very high cost for a subscription of Access.

TreeDBnotes

Pros

-The interface is designed to enter data into "folders" that can be designed as profiles.

-The user can include pictures in the profiles.

-There is a free download.

Cons

-No search feature - finding specific plants will be difficult.

-Harder to organize data through profies

Microsoft Excel

Pros

- The user enters data into a spreadsheet, as with Access.

- Certain rows and columns can be "frozen" in order to make scrolling through the spreadsheet easier.

-Additionally, there is a search feature, for finding certain information.

Cons

-Excel does not allow the inclusion of pictures as an attachment

JAZMIN

RUDA

ROMERO

ENELDO

LAVANDA

(CEDRON) → TOMAR AGUA → IDENTIFICAR LA PLANTA
POR EL OLOR.

OREJA DE BURRO → ¿QUÉ PLANTA DE ESTE JARDÍN
SE LLAMA OREJA DE BURRO?

• BUSCA 3 PLANTAS QUE TENGAN OLOR ¿SABES
SU NOMBRE?

[GUIA NIÑOS]   [PADRES]

- FOTO G PLANTAS

- ACTIVIDADES (2)

[PLANTAS SILVESTRES REVUELTO] [OLOR] [COMUNES?] [UTILITARIAS]

ALIMENTARIAS   MEDICINALES

(USAN)   (ADORNO)

3 Plantas   BUSCAR
OLOR   AZUCENA.

⌐₂ Load for a plant w/ 2 colors

Paula Martinez
  ↳ Children learn through.
  ↳ Our idea
          inguene drawing
          ↳ frading
              ↳

PLANTA JARDIN

NIÑO PADRES   ESCUELA
    ↓   ↓
NIÑO + PADRES   EQUIPOS
RECONOCER EL OLOR (3 Plantas)   ↓
    ↓   DIBUJAR PLANTA
    ?   RECONOCER OLOR
                                 ↓ ₹NCONTRAR PLANTA
GUIA↓   PADRES   EN EL JARDIN
NIÑO   ↓   ENCONTRAR PLANTA
                                 EN LAS OBRAS DEARTE
                                         ↓
                                 RETOS.
                                 DIBUJO / RECONOZCO.

reconnect to museum

51

Appendix BB

Maps

Cocina

39
39
38
39
39

35

2
26
13
37 36
35 4
7 4
16
6 4

Entrada

54