

2009

WPI

Interactive Qualifying Project
Designing an Interactive Exhibit

Sponsored by
The Worcester Art Museum

Marshall Bernklow, William Henri Neve IV, Joe Worthen
Advised by Professor William Baller and Professor Stephen Bitar
12/17/2009



Abstract

This project team collaborated with Education and Curatorial staff to develop innovative and interactive spaces for the drop-in visitor at the Worcester Art Museum. We evaluated approaches used at other museums, surveyed WAM patrons, and interviewed WAM staff to determine needs, expectations, and creative ideas. This culminated in a list of innovative and diverse recommendations for the museum.

Table of Contents

Abstract	2
List of Figures.....	4
Executive Summary	5
Key Findings	5
Recommendations	8
Introduction.....	10
Background.....	11
The Museum Experience.....	11
Case Studies	14
Methodology	20
Objective 1:	20
Objective 2:	20
Objective 3:	22
Objective 4:	23
Results	24
W.A.M Staff Interviews	24
Visiting/Researching Museums.....	26
Peabody-Essex Museum:.....	27
U.S.S Constitution Museum (website):.....	28
Boston Children’s Museum	30
Mashantucket Pequot Museum:	31
Museum of Natural History:	31
Massachusetts Museum of Contemporary Art:	32
Fitchburg Art Museum:.....	33
DeCordova Museum (Process Gallery):	34
Surveys	35
Ideas, Suggestions, and Recommendations	39
Green/Blue Screen Portrait Play	39
Fixing the Discovery Exhibit:	42
References.....	44
Appendix A: A brief description of the Worcester Art Museum:	46
Appendix B: Possible Floor Plan	47
Appendix C: The Visitor Survey	48

List of Figures

Figure 1: Hierarchy of Engagement	11
Figure 2: Decision Making Process	13
Figure 3: Arc Tangent Exhibit	15
Figure 4: Liquid Time Exhibit	15
Figure 5: The Hypar Room	17
Figure 6: Leaf Leap	18
Table 1: Museum Information.....	26
Table 2: Survey Information	35

Executive Summary

We developed creative ideas for a drop-in visitor center for the Worcester Art Museum. At a drop in visitor center people can stop by the museum and get a taste of what's inside, without having to pay or commit the time to tour the museum. The art museum wanted to target families with the design of this visitor center, specifically with children in the elementary school range. The WAM also wanted to focus on utilizing interactive exhibits in the design of its drop in visitor center.

The four main objectives in our methodology are as follows.

1. To research interactive exhibits at other museums and interview members of their education staff if possible.
2. To survey visitors of the Worcester Art Museum.
3. To interview members of the WAM staff.
4. To compile our research and generate a list of possible ideas for the WAM.

This IQP looked into several different museums for their reputation of effectively utilizing interactive exhibits in their galleries. These museums range in size from small to very large. A few museums that assisted our project most significantly were the Peabody-Essex Museum, the Mashantucket Pequot Museum, the Massachusetts Museum of Contemporary Art, the Fitchburg Art Museum, and the DeCordova Museum.

Key Findings

Peabody-Essex Museum:

The Peabody-Essex Museum features an ever changing interactive exhibit inside of their Art and Nature Center gallery. The subject changes annually and each one tends to focus on a broad idea used to attract people. Right now, they have an exhibit named the Trash Menagerie, which features art from various artists made out of recyclable materials, such as plastic or paper. This area is host to a few different small interactive and games that stimulate the children and adults that visit this area. However, the artwork tends to outweigh the interactive activities, making it a gallery first and a place for entertainment second. These small interactive activities are usually the basis in interactive exhibits and should not be overlooked when creating a drop-in visitor center at the Worcester Art Museum.

Pequot Museum:

The Pequot Museum mastered the idea of an “immersion experience” by including as many different senses as possible, including sight, touch, sound, and smell. Another idea gathered from the Pequot Museum was the use of discovery carts, these are simply carts scattered around the museum dedicated to interactive learning.

Massachusetts Museum of Contemporary Art:

The main idea that Mass MOCA gave us was that children respond well to kinetic art. When the thing that they are interacting with allows for them to touch it, they are very responsive. Also they talked about the ideas of high tech interactivity versus low tech interactivity, stating that simple was very effective and also well liked. Although high tech ideas do have positive aspects about them, children are just as receptive to simple things. An exact quote was “Don’t dumb it down”, because generally things are made a lot simpler for children, even more so than necessary. By having it at an appropriate level you find them more responsive and pensive about the artwork. They also work with the local school districts to decide what their new exhibits should be to help teach students about various things, not just art.

Fitchburg Art Museum:

The Fitchburg Art Museum emphasized care with high tech interactivity within the museum. Although it is a great way to teach and interest children, it is very easy to make something high tech, and the artwork is completely drowned out by the technology; as there needs to be a good balance. They took an idea, children naming different paintings, to a new level, by allowing the children to then put on their own art show, making them think on the ideas of the art and the artist. Since they do not have an interactive area/family center, when they have interactivity within the museum it is inside of an existing exhibit. They show children what to touch and what not to by covering certain things with Plexiglas or putting signs next to them, which is not always as effective.

DeCordova Museum:

The DeCordova museum shows how the multi sensory exploration of artwork allows people to get a better grasp of it. They also discussed the ideas of how interactivity within a museum station can either focus on being more suited for the individual or it can focus on being more about a community or a group. They gave various examples of things that you could create within a museum area, that were less costly, and were found to be very effective. They focused on making sure that their ideas could be reused to keep them more interesting. The simpler the actual activity, the more effective they have found it to be.

Next, we surveyed visitors of the Worcester Art Museum. These surveys were conducted in-person within the art museum. Some of the positive comments that came from these visitor surveys are as follows:

- More than half of the patrons taking this survey, 29, said there was nothing they disliked about their visit.
- Fourteen people mentioned the interactivity of the family day event as something they liked.
- Seven people mentioned that the music, these surveys from both family day and regular hours, was something they enjoyed.
- Seven visitors liked the family event all around.
- Five people enjoyed the courtesy of the museum staff.
- Three simply commented on how beautiful the art of the museum was.
- Three family day visitors said they enjoyed the storyteller.
- Three others liked the Asian art.

For our third objective we interviewed members of the Worcester Art Museum staff. We conducted the interviews with a few select members of the education staff including the Director of Education at the museum, Honee Hess. We asked about any special exhibits that the museum had done in the past, and how they were successful or unsuccessful. We also asked about the best ways to get families more involved in the museum and for recommendations of popular artworks in the museum's collection. What we gained from this was a good sense of our specific audience at the

WAM and what they were looking for in the museum. We also received many useful, valuable recommendations for pieces of artwork to use in our designs for the drop in visitor center.

Recommendations

Finally, we generated ideas for interactive exhibits for the Worcester Art Museum to utilize in its drop in visitor center. Our three main ideas consist of a green screen, touch screen drawing, and an I spy art exhibit.

Green Screen:

Children enjoy dress-up activities and love using their imagination; however, with the use of a green screen a child could dress up as they please and become part of a famous piece of art from the Worcester Art Museum collection. Using a simple pre-programmed interface on a computer, this requires only a couple of clicks to make a green area into a work of art. Visitors could create a scene that was not only fun and interesting, but have a print out of their experience at the museum to keep for no cost.

Touch Screen drawing idea:

The idea would be simple, allow kids to create their own artwork on a screen by drawing on it. They could either draw their own idea, attempt to recreate a current painting, or draw onto an existing painting. It has a simple interface for the children, but has been shown in the past to be effective, allowing the children to feel like artists. The main downsides to this idea would be the programming of the screen, the price for the initial purchase, as well as subsequent maintenance of the idea.

I Spy Art Idea:

This exhibit turns any artwork into an I spy game. By picking out specific things in the art to look for you can force the visitors to examine the art more closely and in the manner best suited for learning. This is a fun activity for children and stresses social interactivity between children and their parents. Another benefit of this for the WAM is that it would be very low in cost compared to other interactive exhibits.

Discovery Exhibit:

The WAM currently has an interactive area called the Discovery Gallery. The exhibit is a great start towards having interactivity, but is still lacking in many ways. There are some things in the gallery that can be touched, and some that can't. Everything should be touchable. Also the lift flaps have too much information to be effective, and the digging activity is too small. With some minor changes the Discovery Gallery could be much more effective as an interactive area.

To conclude, we found a few specific things the Worcester Art Museum should keep in mind when ultimately designing its drop in visitor center. To have simple games and interactive activities, to make sure everything in the area is touchable, and to prototype the new exhibits with patrons of the museum.

Introduction

Museums are an integral part of American culture and the burgeoning knowledge economy. Museums serve as repositories for cultural, scientific, and historical artifacts, for conducting research, and promoting learning through exhibits, educational programs, and outreach activities. The American Association of Museums estimates that 850 million people visit museums each year, which is more than the combined annual attendance at all professional sporting events in the United States. Yet, the National Endowment of the Arts (NEA) reports that those numbers are declining. In its annual report for 2008, the NEA notes that there has been a six percent decrease in college educated adults visiting art museums since 2002, and the numbers are expected to continue fall. The declining attendance at museums might be related to economic factors, but since the decline extends over several years, it is more likely a reflection of broader changes in society. People may have more leisure time now than in the past, but museums have to compete for attention among the growing array of leisure pursuits from television to the internet to theme parks. Consequently, museums, including art museums, are continually striving to find innovative ways to attract visitors.

Visitation at the Worcester Art Museum, however, has remained quite strong in recent years. Nevertheless, the museum is always looking for innovative approaches to attract new and repeat visitors. Consequently, the museum would like to create a special area in the Higgins Education Wing where the casual or 'drop-in' visitor can learn about the museum collection in fun, engaging, interactive ways. The target audience for this new space is families with grade school children.

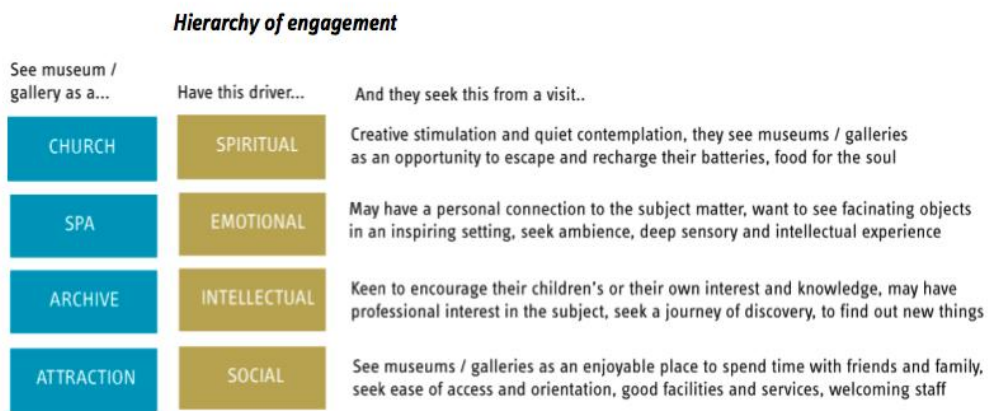
Our goals in this project were to compare what other museums have done with interactive exhibits, survey visitors to the Worcester Art Museum about their suggestions for the museum in general and interactively, and interview education staff at the Worcester Art Museum about past exhibits and interactives. By putting these trends together, we came up with suggestions for a Drop-In Visitor Center at the Worcester Art Museum.

Background

The Museum Experience

Museums have always been subject to large visitation numbers, in the past, and to this day, people still flock to them as a source of recreation. Most visitors are attracted to museums simply for “an enjoyable way to spend leisure time.”(Falk, & Dierking, 1992) People may be coming with their families and friends on a weekend, by themselves, or sometimes as a part of an organized group such as a school field trip. Although all museums are there for the visitors, people are inclined to go for a variety of different reasons. According to a report by the Victoria and Albert Museum, there are four main motivations behind a person’s decision to visit their museum, known as a “hierarchy of engagement.”

Figure 1:
Hierarchy of Engagement (McINTYRE, 2007)

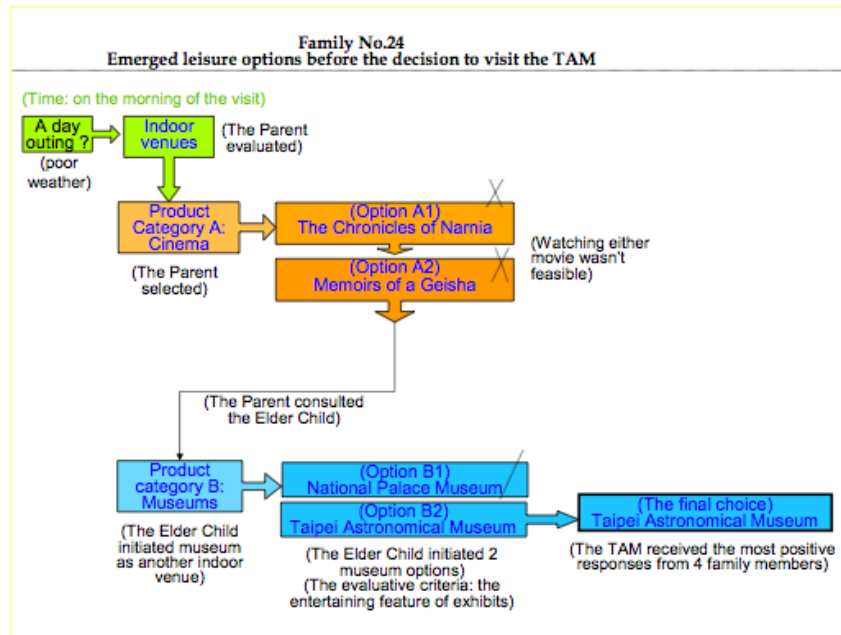


The four motivators it includes are social, intellectual, emotional, and spiritual. Social visitors are there to enjoy themselves while they spend time with their family or friends. Intellectual visitors are motivated to get a learning experience from the museum. Emotional describes a visitor who is there for a more sensory experience. Lastly, the spiritually motivated visitor is there to enjoy the museum and escape from the outside world. This provides a good way to look at different people’s reasons for visiting a museum. A visitor in the social range may be visiting just for a special event or to keep their children entertained, while a spiritually motivated visitor is more likely there to see a range of exhibits in order to satisfy a personal desire for art. Falk and Dierking have developed a

similar classification of visitor motivations; they compiled the reasons that people visit museums all types of museums into three categories, socio-recreational, educational, and reverential. Social and recreational reasons generally outweigh the others. In studies conducted at different museums it was found that people decided to visit for amusement and social concerns more than any other reason, independent of the type of museum. (Falk, & Dierking, 1992) Due to the wide range of visitor expectations it is crucial that a museum considers the reasons why people come to visit. In order for them to keep, or increase visitation numbers, museums must cater to the needs of all of their visitors.

People of all different ages and backgrounds can be found at museums across the world, their displays and collections are a source of enjoyment for all. Visitors find their way to museums on organized trips, in social groups, and individually. The British Natural History Museum found that 70% of people who weren't there with school came in other social groups, and among those social groups 60% were families. (Falk, & Dierking, 1992) Families with children are a major audience for most museums, and therefore many museums focus on this group as a target audience. The main reason for a family visit to a museum is to enjoy a day of leisure activities. As well as that, most parents are motivated to bring their children to a museum for education, entertainment, quality family time, a social outing, and for the needs of their children. (Wu, 2006) Any combination of these themes could be the factor behind a family visit. However, despite the range of the family dynamic, parents mainly consider their children's interests over their own when deciding on what they are doing, or which museum they visit. When discussing children's needs we are referring to their differences for learning needs. Children require a much more engaging and hands-on experience than adults would in order for them to get an optimal learning experience. The idea of choosing based on children's needs are shown in the interviews of some families over their decisions on what to do on a particular day. After their day at the museum one father said, "Before we got married, we didn't visit museums so often. Mainly because at that time we just enjoyed ourselves. (Now) because we travel together, every time we go out, we would consider my two daughters, whether we could go to a place that is good for them." This figure shows the thought process of another family as they made their decision.

Figure 2:
The Decision-making Process (Wu, 2006)



The family originally intended on seeing a movie, the parent’s idea. However, when they couldn’t reach a compromise they decided to go to a museum for the day instead. When they were interviewed afterwards the mother commented on how their children made the final decision, “When elder daughter suggested the National Palace Museum and the Taipei Astronomical Museum, then (her) brother said, ‘TAM isn’t bad, we went before, the school brought us there...and it was fun’...” (Wu, 2006) Just as pleased about the experience as their children, the parents thought, “the children might gain some knowledge about science or see something been mentioned in school textbooks. This could be considered as meaningful.” (Wu, 2006) Social interactions between family members were found to increase the overall enjoyment of the visit; this interaction has also been found to promote more learning for the children. In another case, the parents picked the museum and told their children they had to go. Here, the children were less eager about the trip. The daughter, aged 9, said that, “If there’s nothing interesting there, I don’t want to go.” Another key theme behind the children enjoying their museum visits was the interactive exhibits. The mother stated that “a purely informational type of museum won’t attract the children,” it would be best to go to a museum with “hands-on exhibits that the children will enjoy.” (Wu, 2006)

Including interactivity in exhibits has proven to be very effective in attracting visitors to museums, especially with family groups. In an art museum adults may be content to stroll along as they examine the exhibits around the museum; however, this approach doesn't work with children. In order for a child to be both entertained and educated within a museum, they must be actively engaged. "Children learn differently from grown-ups. They have to explore and discover by using more than their visual sense. Tactile experiences are very important, especially for younger children." (Lord, 2007) The engagement interactive exhibits provide is beneficial not only for a child's experience, but for adults as well. The goal is to keep all of the visitors engaged in the museum. "If a visitor is not attracted to an exhibition long enough to attend to it and remain engaged, little learning is likely to occur." (Falk, & Dierking, 2000) Interactive exhibits can satisfy many needs that family groups have in a museum visit. Science and children's museums were among the first to utilize interactive exhibits, once they proved to be so successful many other types of museums began to adopt the idea. By implementing interactive exhibits in the new drop-in center, The Worcester Art Museum can appeal to larger numbers of families and other groups seeking engagement in their museum experience.

Case Studies

In 2003 the Speed Art museum in Louisville created the Art Sparks interactive gallery in effort to encourage more children from between the ages of two and five to come to the museum. This museum houses a collection of around 12,000 pieces, is the largest art museum in the state of Kentucky, and roughly receives 180,000 visitors a year. The Art Sparks area includes multiple different attractions, such as 12 different stations where the children can interact and a room for children between the ages of two and five which they call Planet Preschool, among other things. One of their new interactive ideas is an exhibit on Native American patterns, where the children recreate symbols and patterns that were used in Native American crafts. Art Sparks's attempts at being more accessible by children was rather successful, with them discovering that half the people who went to the Art Sparks area saw the museum's collection either before or after. There has been a recurring trend, though, that the parents of children visited only Art Sparks because they thought that their children would be disinterested or misbehave within the larger area of the museum. They have noticed that more frequently those families who return multiple times with their children become

more familiar with the museum and do start going out into the main exhibits. In general they found that they were enhancing the visitor experience in a variety of ways, even having school groups go through their area to use the hands on techniques to teach younger children.

Kidspace, a branch of the Massachusetts Museum of Modern Art, decided to attempt a summer exhibition using the work of Camille Utterback, under the name of *Engaging Space*, which included four separate interactive exhibits, such as Arc Tangent and Liquid time. In the arc tangent exhibit (Figure 3) there is a camera and it produces lines and patterns which are generated on the circular space based on the positions of the people around it. [Arc Tangent movie](#). The second exhibit, Liquid Time (Figure 4), is similar in that there is a pre-recorded video segment that gets projected onto a screen, but the people looking at the exhibit control the video and witness the multiple moments in time because of their movements. [Liquid Time Movie](#).

Figure 3: Arc Tangent, Mass MoCA



Figure 4: Liquid Time, Mass MoCA



The Reception of the *Engaging Space* exhibit was unanimously positive. Both children and adults were engaged in the activity and so it was successful with generally all age groups, keeping the attention of most visitors for long periods of time. The only downside with this exhibition was the fact that Camille Utterbacks work is incredibly physical, but a majority of art museums discourage physically interacting with the exhibits because of the danger to the collection. This problem is rather

common in most art museums, whereas science museums normally teach the people by having them interact with the pieces.

The Contemporary Arts Center (CAC) in Cincinnati Ohio decided to try a different approach. They created a large space, and in 2003 commissioned contemporary artists to create art exhibits which are entirely interactive to the audience. The aptly named UnMuseum (so named for the distinguishing characteristic that it is perfectly acceptable and encouraged to touch the art exhibits), is mainly a way for the museum to teach children, based on their idea that children learn best through hands on interactivity, so the best way to teach them about art is to let them handle and touch the exhibits. The CAC discovered that children enjoy contemporary art enormously and are capable of experiencing it in ways that many adults are not able to. Based on this they decided to make art specifically targeted at the children, but that they hoped adults would enjoy and potentially learn from as well. One specific example of contemporary art created specifically to be touched is an exhibit that encompassed a 1,000 square-foot gallery, with a hyperbolic paraboloid (Figure 5), where visitors could enter the above or below space, and would interact with the exhibit in different ways depending on how they entered the room. The children greatly enjoyed making *The Hypar Room* into their own playground within the museum. They surveyed and found that 93% of families really liked that exhibit, and thought that its interactive nature was a great idea. There were a smaller group who believed that they thought it could have been more entertaining, and a final group believed that there were concerns of safety, thinking of it more as a place for children to run wild than as a work of art.

Figure 5: The Hypar Room, Contemporary Art Center



Another example of creating art specifically for the children was called “Leaf Leap” (Figure 6), and it consisted of a bed of bouncy foam, with leaf pillows, of many different types numbering 460 different ones, that had been copied from scientific illustrations and they allowed children to play in that area. They reasoned that since leaves are studied in general 4th grade science curriculum that it would encourage children in their learning and in the end their exhibit *Leaf Leap* broke all of their records for attendance from school groups. Teachers came, and discussed the various types of the leaves, as well as the artist’s ideas when creating them, making this a huge success in teaching children. The only major problem encountered within this idea was a large amount of damage to the leaves due to children playing in the exhibit, which required that they be replaced and fixed rather frequently. This exhibit was also rather successful with mothers who had pre-school age children, who enjoyed it because of its messages that “art doesn’t have to be a picture on a wall” and that “museums can be fun”.

Figure 6: Leaf Leap, Contemporary Art Center



Another idea for interactive Exhibits is called *Text Rain* and it was created by Camille Utterback and Romy Achituv in 1999. This piece has had partial exhibitions at the Contemporary Art Center of Virginia in 2009, Fundacio La Caixa in 2007, Time Warner Center in 2006, Itau Cultural Center in 2006, Austria at ARCO in 2006, as well as 15 other places since 2000. It won the OLB media art prize at the European Media Art Festival in 2000. This exhibit has a screen, on which an image of you is shown, taken from a camera that is on the screen, which is in black and white, and at the same time there are various letters that are falling around the person, of various colors. The text falls until it hits an object of a certain color darkness, normally in this case the projected image of the person, and in doing so the person can interact with the letters such as stopping them, pushing them around, or letting them continue to fall. One of the important ideas is that if you catch the letters, words or even entire phrases can be read, lines which come from a poem. [Text Rain Video](#).

In 2007 Camille Utterback was commissioned by ZERO1, the Art and Technology network, into making an interactive outdoor exhibit for the city hall plaza in San Jose California. This piece, named *Abundance*, was exhibited from September 28th to October 6th, makes the outside of the City Hall into a giant interactive art exhibit, projecting the visuals onto the cylindrical surface. When people move through the plaza located adjacent to the city hall their movements are recorded by a camera, and then the movement of the people going through the plaza creates specific design that appears upon the surface of the building. The specific architecture of the building was used in the creation of the artwork, with specific elements of the art that are influenced, such as lines on the camera that line up

perfectly with pieces of the already existing city hall. The exhibit even distinguishes between the individual people who are moving through the plaza, and when there are a number of people who are moving through, with different color patterns appearing on the canvas. The plaza, a normal place for people to travel through on their way to various places, was turned into a large canvas and used the people of the city as its paint. [Abundance Video](#).

Methodology

The purpose of the project is to design a new drop-in visitor center for the Worcester Art Museum. Focusing on this main goal, the necessary objectives are as follows

Objective 1: To characterize the Worcester Art Museum's goals and expectations for their drop-in visitor center

Review Internal Documents:

To determine what the Worcester Art Museum wants to see inside of this interactive exhibit, the project group reviewed evaluations of interactive exhibits that the museum may have done, as well as looking into the successes or failures of any special events that they have held for families. Also to review the documentation on visitation, in order to determine what the museum does in general that seems to attract more visitors at one time over another. As well as this, reviewing the museums visitation gave us a better understanding of the size, diversity, and trends of their audience. A review of the past renovations and what the museum has done with the freed-up space, as well as how it has been successful in gaining and retaining peoples interest, in an attempt to get a better idea of what the Worcester Art Museums patrons find more interesting in terms of newer exhibits.

Interview Staff:

The goal here is to determine the ideas that key members of the Worcester Art Museum have regarding the proposed drop-in visitor center. To do this we conducted in person interviews with staff members, especially those in the education and exhibit departments. These interviews lasted from between 20 to 30 minutes, because we understand how busy many members at this museum are. In general the types of questions we asked related specifically to what they are looking to achieve inside of this new space and what have they found to be the best ways to educate children while at the same time keeping them entertained. These interviews are key because they are experts in their various fields and they also have in-depth information about the Worcester Art Museum specifically.

Objective 2: To review the state of interactive art exhibit design in art museums.

Article Research:

An important aspect of this project was to visit other museums in order to determine what it is that they have done in this area of interactivity and generating interest for patrons. However, before we visit it is necessary to do background research on the museums first. We would look into which museums would be most relevant to our goals and review and special exhibits and programs they may have done. This gave us a better understanding of the museums we visit which allowed us to fashion better interviews. Also during this time we will be doing research into journals and articles in an attempt to find out what has been more successful at museums that are too far away for us to visit or interview in person. Depending what is found in the specific articles we would attempt to set up a phone interview for the people at those museums, if we believe that this specific exhibit would help us to formulate a plan for the drop-in visitor center.

Visiting and Interviews:

The group visited various art museums in the area in order to observe the museums, as well as conduct interviews with key members of the art museum staff on the topic of interactive exhibits pertaining to their specific museums. Where it was not feasible to interview the staff members in person, the team conducted the interviews over the phone. The museums that interviews were conducted for includes the Fitchburg Art Museum, where we met with Laura Howick, the Peabody Essex museum, where we met with Jane Winchell, the Mashantucket Pequot museum, and the Massachusetts Museum of Contemporary Art (Mass MoCA), specifically “Kidspace”, collaboration between Mass MoCA, the Clark Institute, and Williams College Museum of Art.

At the Museums the first thing to do is to interview the known key members of certain museums. After this, we attempted to expand our list by inquiring with the interviewees about their recommendations for staff at other museums that would be able to positively contribute to our research. These museums interviews were very similar to the interviews that were conducted with the staff at the Worcester Art Museum, because we were simply trying to take their ideas on the same topics and utilize them to improve design of the visitor center as well as improve public interest in the museum in general. During these interviews we inquired about whether they have any surveys that they themselves have done, or any documentation that they might have about the public

reaction to their interactive exhibits. The end of these interviews involved us attempting to gain more contacts at other museums in order to widen our dataset.

Objective 3: To characterize what patron's needs and expectations would be in visiting a museum

Surveys:

One of our main focuses in our methods was the creation and distribution of a questionnaire survey to the patrons of the Worcester Art Museum. This questionnaire occurred early and throughout the term, within the first 2 weeks, over a number of days in order to get a larger applicable data set. We want to survey on different days during the week, including weekends, in order to see and understand the variations in visitation during the week. Also, to help reduce bias inside of the data we randomly selected every 3rd person who enters into a specific part of the museum we decided on the museum. The staff normally advises patrons to work their way from the top of the museum down, so meeting them somewhere at the "end" on the first or second floor would allow us to survey them with the experience still fresh in their minds. For this survey, no children were asked to complete a questionnaire on their own; however on their questionnaires there was a section that encouraged families to answer the questions together. This is important in order to help us collect data on what patrons of the museum currently like about the museum, but also what they feel could be improved upon. Collecting this data will allow evaluate visitor needs and use these key ideas that we determined in order to improve the conceptual-design of the drop-in visitor center.

It was a completely anonymous survey that we handed out and collect from the patrons in person. There was a small table set up with pens provided in order to better allow them to quickly and easily complete the survey, which did not take them more then 5 to 10 minutes. The survey included more general/easy questions in the beginning, and then flow into more challenging questions that required people to think more about their answers. Questions would flow from "Why did you decide to visit the museum today?" into more thoughtful ones such as "Would you like to see more in terms of interactivity within the museum?" and if so "What specific things would you like to see?".

List of Topics to address in the survey

- Frequency of visitation to the museum
- Reasons for visits
- Visiting with family or alone
- Exhibit questions
 - What did you particularly like?
 - What did you dislike?
- Interactivity
 - Have you seen any other museums that had interactive exhibits that you liked?
 - Would you like to see interactive exhibits on future visits to this museum?

Objective 4: To synthesize the data and recommend key ideas to the Worcester Art Museum in order to better decide how to design their drop-in visitor center

Synthesize what we learned:

We coded all of our data and all of our research and then synthesized the data in order to grasp the main overarching concepts that succeed in interactive exhibit design. We created various ideas for interactive exhibits, weighing the advantages and disadvantages of each, based specifically on the successful trends we found in the data.

Results

With the information gathered and with the use of our research methods proposed, our project characterized the way family exhibits could be created, and suggested what should be in these exhibits based on the results of what was successful and unsuccessful; especially putting focus on ideas that have not been implemented here at the Worcester Art Museum. By breaking down each section of methodology, one can see how these ideas were formulated and how each section affected the creative process in its own way. Our methodology is as follows: to conduct interviews of WAM employees, to survey visitors of the museum, to research and interview other museums, to generate a list of possible ideas for the WAM. With the use of our interviews, our surveys, and the museums we visited and/or researched our group brainstormed some ideas for the Drop-In Visitor's Center for the Worcester Art Museum.

W.A.M Staff Interviews

As we detailed in the methodology, our first goal was to talk to employees of the Worcester Art Museum, specifically the education department. We decided that in-person interviews with a few people from the education department would assist us in seeing where they think this project is heading and what they want in this exhibit. So we started with the head of the education department and worked our way down through the department. The people interviewed include the Director of Education Honee Hess, Katrina Stacy, Jan Ewick, Elaine Pusateri Cowan, and Christopher Whitehead.

We first asked about any successful special exhibits the museum had done in the past. The one most frequently mentioned was an exhibition created based on the work of Andy Warhol, a well-known artist. A space was set aside where children and adults could make copies of paintings, similar to Warhol's work. This exhibit was very successful with all age groups, especially children. Another popular exhibit, mentioned by Honee Hess, had been done based on a painting of a 17th century Dutch room, by Judith Leyster. The exhibit was an "immersion experience" where they modeled a room in the museum to look like a 17th century Dutch room, and provided traditional Dutch clothes for people to dress up in. This exhibit proved to be successful with both children and adults; everyone seemed to enjoy the experience. Elaine Pusateri Cowan talked about an Antioch exhibit done by special programming that included dancers and music, which were very popular with museum visitors. The marketing and effort put into the exhibit all contributed towards successfully

bringing people to the Art Museum. Jan Ewick mentioned an exhibit done by contemporary artist Matt Mattus, an orb with a face that spoke to people. However, she explained that this was more engaging than interactive. The exhibits usually have videos or something similar which do not allow for people to interact; however, it allows people to be engaged and learn about art in an entertaining way, rather than just listening to a regular class lecture or simply having someone explaining the exhibit. Lastly, both Christopher Whitehead and Katrina Stacy talked about an exhibit called Mi Puerto Rico where the museum had Puerto Rican artists come in and speak to engage the audience about the way they do their art. Katrina Stacy thought this was an effective exhibit at bringing in a new audience; “While Mi Puerto Rico fell flat with our “traditional” audience, all of our programming was PACKED with members of our Puerto Rican community. It was a really great way to include this part of the population who don’t normally visit.”

The topic of getting families more involved was brought up next. Family days seem to be most successful at bringing families into the museums. Hess said that the museum should focus on one theme and that one theme should then be presented in a variety of perspectives, in order to cater to everyone’s needs and keep the children occupied. Stacy added that any activity that is involving both the parent and child is best for family interaction. When asked about age-specific exhibits, all agreed it was very important. It was even suggested to try to incorporate more teen and pre-teen age groups into their programs.

We then asked about any ideas regarding exhibits for our drop-in visitor center. Hess informed us that it all had to depend on what our goals were for the exhibit. “Once we decide” what we are trying to achieve we should try to include a variety of perspectives. Have people make something, tell a story, dress up, etc. The trick is to get people involved; interactivity is key.

To conclude each interview, we asked if each person could come up with a few pieces of the museum’s artwork that they believed would be good to use in an interactive exhibit. Hess thought that the Gainsborough *Portrait of the Artist’s Daughters* and the Freake’s painting would be good works if our goal was “understanding painting.” Jan talked about the painting *Portrait of My Daughters*, by Frank Benson being a good example of portraying colors. Elaine thought that anything easily recognizable to visitors would be most successful, and Mr. Whitehead said that the abstract and unique works tend to get the most attention while Egyptian pieces always fascinate the children. Katrina said that any of the abstract or expressionist art is good for understanding painting. She also

gave a list of some artworks she thought would be good for the goal of telling a story, these are *The Peaceable Kingdom* (Edward Hicks), *The Worcester Hunt Mosaic* (Antioch), *The Discovery of Honey by Bacchus* (Piero di Cosimo), and *The Shipwreck* (Hubert Robert).

Visiting/Researching Museums

One thing that can help create a good exhibit is comparing what other museums have done with interactive exhibits and putting them into a concrete form in relation to the Worcester Art Museum. By seeing what has worked for other museums, you can compare and contrast the style of the museum. This will then be used to see if these ideas would work in the Worcester Art Museum with the goals of the drop-in visitor center in mind. By conducting phone and email interviews with staff at other museums, we found out what they have done with interactive exhibits and what worked the best in interactive exhibits the museums featured. This allowed us to summarize a similar style that could influence the Worcester Art Museum.

For each museum we interviewed, we placed their name in our compendium table below with a few statistics. This was done in order to see if they have interactive exhibits, what is in them, and what worked best. By using this format it is easy for anyone to see exactly what a museum is offering as far as interactivity goes. You can also see what they suggest not doing, as well as ways the Worcester Art Museum could implement good ideas into this Drop-In Visitor Center.

Table 1: Museum Information

Museum Name	Some Content of the Exhibit	Ideas that Worked	Ideas that Struggled.
Peabody-Essex Museum	Exhibits change yearly; simple games and interactives.	Trash Menagerie; Origami Now	A Sense of Place (Textile Exhibit)
Boston Children’s Museum	Entire museum is interactive and has mainly hands on activities.	Science Playground (golf ball physics machine; bubble machine); Light Patterns	Johnny’s Workbench (Wood construction area; work with tools)
U.S.S Constitution Museum	Interactive area based around being on the U.S.S Constitution.	Hammocks(Seaman Sleeping Area Activity); Mess Area(Interactive play area)	Pack Your Seabag (Activity where you just put essentials in a canvas bag)

Table 1: Museum Information

Museum Name	Some Content of the Exhibit	Ideas that Worked
Fitchburg Museum	Interactivity are part of existing exhibits.	Contemporary Sculptures (PVC Pipe Sculptures)
Massachusetts Museum of Contemporary Art	<i>Kidspace</i> : Changes Bi-annually. Content varies from interactive to non-interactive exhibits.	Engaging Spaces (Interactive Technology)
Mashantucket Pequot Museum	Immersion Experience (Native American History).	Multi-sensory Exhibits; Discovery Carts
Smithsonian National Museum of Natural History	Array of different ones, from interactive to non-interactive	“Kid Level” (things at child height); Slide Flaps (Sliding Lift Flaps)
DeCordova Museum	Frequently changing; ex: silhouette drawings, looking through cameras to simulate artists pictures	Multi-sensory interactivity; changing interactive exhibits; Simpler the better

Peabody-Essex Museum:

The Peabody-Essex Museum’s interactive exhibit is significantly smaller than the other ones on this list. However, the fact that people are interested by the exhibit, and visit the museum because of this annually shifting interactive exhibit, serves as proof to its success. The Trash Menagerie exhibit on display now has a few small interactive games and activities. For example there is a music area where they have a couple of instruments made of recycled materials, but also have a couple of computers with an interactive map where you can click on links and see pictures and videos from various artists and sources. This exhibit works because it doesn’t get too complicated and has a mix of hands on play and technology that allows for the exhibit to stimulate every sense a child has.

In contrary to the Trash Menagerie success wise in the Art and Nature Center, the name of this interactive area, was the exhibit A Sense of Place. The exhibit was a textile based art exhibit, showing textiles from all around the world. The trouble was that children couldn’t touch some of the textiles and the ones they did wore out fast. When making an interactive exhibit that is hands on you must make sure it is something that can be interacted with. This is something Jane Winchell, the director of the Art and Nature Center, told us in her interview. She felt the reason this exhibit did not work as well as it could have was that it was more of a gallery inside an interactive exhibit. The exhibit felt as if it was not to be touched when it could be and the games were not as simple and creative as they should have been, like they were in the Trash Menagerie. When you have an exhibit that has any aspect that is a little confusing, like a difficult game where you need to read a lot of directions or

when you are not sure if children can touch something or not, then you have an interactive exhibit that will not work.

U.S.S Constitution Museum (website):

Mrs. Winchell also suggested the U.S.S Constitution Museum's website for interactive family exhibits called the Family Learning Forum. Once we looked at the web site, we could tell that it was an amazing template any museum could use for their museum on figuring out what will work and what will not work in an interactive exhibit. One section, named Steal This Idea, was telling people from museums that it is fine if you take this idea to make a good museum experience for families since it has been tested and works. Some of these ideas include involving senses, lift flaps, board games, and flipbooks. We analyzed this section of the web site and summarized each section they had that was relevant to what the Worcester Art Museum could do with this Drop-In Visitor Center.

Involving the senses

The basic idea behind this is that by increasing the number of senses used in a visit, it increases the chance that the visitors will create more lasting memories about the experience. It is a fact that smell is an incredibly powerful tool for creating memories. Experiencing the smells of an exhibit, such as in a history exhibit smelling the items and places specifically, has been effective in engaging people better. "Sensing Chicago" allowed people to smell the fire of 1871, as well as hear the crowd yelling at a baseball game, and even to climb into a giant foam hot dog roll to see what it would feel like to be a Chicago hot dog.

Lift Flaps

Not considered by most to be interactive in themselves, but mainly meant to provide more action towards learning in an interesting way to read. This proves to be more effective than simply reading something stationary on the wall. The flaps cannot simply be additional long and useless information on the same topic; the lift flaps have to be formatted differently. If they are not the patrons will start to grow disinterested with the flaps because they do not provide any interesting reason for the people to lift the flaps. It is best to attempt to ask the visitors a question using these flaps, or to empathize with someone's past decisions, or to make active comparisons to the person's daily life. The lift flap could also include a picture to prompt the patrons to go and see a different

section. What is important is that the short message underneath the flap is humorous, surprising, and thought-provoking or in some way remarkable, otherwise people will have no interest in them. Lift flaps are an inexpensive thing to fabricate and the inclusion of them can add another layer to the exhibit in question. Flaps need to be focused on adults as well as children, because they have found that adults read them just as often as children do.

Board games

Board games can be made for families to do together; they get everyone involved, and can provide a rest place within the museum so that people can relax. They can be used as a summary activity to go over what the families should have learned, but should still be fun for the people involved. The downside is a need to review the rules multiple times before so as to remove anything that would make game play too hard. Board games are very effective at summarizing the important things people should have learned in a fun and creative way. This is a cheaper way of interacting with the people. Making sure playing pieces are not a choking hazard for children is very important, as well as making sure that the pieces are mobile, but won't be taken away by children who place them inside of their pockets. It is important to create the rules, then review them multiple times to fix all of the bugs within the game, but also make sure the rules are as simple as possible so that the children will enjoy playing it. Board games are a simple format that helps to work with the whole family to sit, reflect, and learn about everything that they are doing.

Flipbook/questioning interactive

Can be a useful way to prepare the people for the exhibit that lies ahead. Simple questions, with a good grounding in humor, will engage the visitors on the topics of the exhibit while making them think about their own experiences. This tool has been paired with comfortable seating in situations in order to allow people to sit and reflect. The flipbook idea requires more conversations between people. There was a large amount of discussion between families, who discussed in length the topics with their children.

Boston Children's Museum

The Boston Children's Museum in Boston, Massachusetts contains an entire museum filled with interactive learning activities for children from just toddlers to around eleven or twelve. The exhibits range from science based to an acting stage and dress-up with a workbench and construction based play areas in between. The areas in the museum are meant to challenge children to learn how to do an activity and learn about what they are using, for example if they are working in the construction area they would learn about what tools they were using. The museum has a collection of art they use to inspire creativity in the children who visit and their exhibit space is open so children can learn and play with their parents and other children.

Science Playground

The Science Playground is an area where children can learn about simple science in a fun way. In this exhibit there is a golf ball physics activity and a bubble blowing activity that are fairly popular with everyone that comes to the museum. This exhibit is popular for the tiny and yet addictive activities it offers, like sorting and comparing games that let children work together with other children or their parents. This exhibit also owes some of this popularity to being the first exhibit anyone sees at the entrance; however, this mix of simple activities and learning tends to attract people for hours at a time, making it an interactive exhibit that the Worcester Art Museum could learn from.

Johnny's Workbench

Johnny's Workbench is an exhibit which is set up for children to be able to use tools to create, using a set of instructions, a fairly interesting piece of wood working and teaches some tool safety while doing this. This is a very popular exhibit and children, as well as their parents, have fun working to make something, like a small wooden boat, they can take home and feel proud that they created it. Yet, this exhibit has a problem not in the content of the exhibit but in supplying the raw materials for this project and the wear and tear on the tools is too great and upkeep of the tools gets to be high.

Mashantucket Pequot Museum:

Based on an intensive review of the website, the Mashantucket Pequot Museum in Mashantucket, Connecticut is a Native American heritage museum that places much emphasis on their interactive exhibits and hands-on activities. The museum is designed as a multi-sensory immersion experience, where the visitor will travel through the history of the Mashantucket tribe as they make their way through the museum. The Pequot Museum serves as a great example of effective designs for “immersion experience” exhibits, however many other aspects of the museum could not be utilized well inside of a museum like the WAM.

Discovery Carts:

One idea gathered from the Pequot Museum that would be practical for the Worcester Art Museum to utilize is the discovery carts. These are carts, or stations set up around the museum, which are dedicated to interactivity. They can hold any theme that would be appropriate for the day or its position in the museum. For example, the Pequot Museum claimed to have activities on their carts such as jewelry making and touching real animal pelts. In a place such as an art museum where objects usually cannot be touched, these carts serve as little areas scattered around the museum where hands-on activities are encouraged.

Museum of Natural History:

A visit in November of 2009 to Washington, DC to the Smithsonian National Museum of Natural History was made during the project. The museum is filled with a variety of exhibits, including many interactives. Just from visiting the museum some of these interactive exhibits appeared to jump out as good designs to utilize in the Worcester Art Museum.

Kid Level

As you walk through a museum you may notice that all of the exhibits are placed at a height that would match up to a typical adult’s eye level. At the museum of natural history, however, there were exhibits hidden beneath this level, closer to a child’s eye level. At first they may even be unnoticed by adults, yet they did not escape the children’s views. For example, there was an exhibit on chipmunks. It was a diorama style exhibit that began at about waist height. However, if you were to duck underneath you could see a little home burrowed into the ground. Children would pick up on

this first, and then excitedly inform their parents. This add-on to an exhibit is very effective in not only keeping children engaged in the museum, but also in promoting social interaction between the children and their parents.

Slide Flaps

These are nearly the same as the lift flaps but are a much more effective design. Instead of turning the flap over, they simply slide it up and out of the way. This design allows the flap to be more protected, so less maintenance is required. Also it's easier and quicker to use than a traditional lift flap. It allows the visitor to switch back and forth more quickly, which would make comparing two images, for example, much easier. This flap design could be very effective in an art exhibit where you would want to compare multiple images of a painting, like with the Gainsborough *Portraits of the Artist's Daughters*.

Massachusetts Museum of Contemporary Art:

The Massachusetts Museum of Contemporary Art (MassMoca) has an area inside of it called *Kidspace*, and it exists mainly for the purpose of educating children about art. They change this exhibit bi-annually and it is very successful in teaching children about various different forms of art. The current exhibition is called "You Are What You Eat", and it focuses on using food as art materials in order to teach. The *Kidspace* area does not specifically focus on making things interactive for children, it focuses on making different exhibits that they think would be educational, and then adding in different elements, some being interactive pieces if they believe that it would serve to further their purpose of education and not detract from the rest of the works.

When they go about creating an exhibit they first get into contact with the North Adams school districts to decide what they want to focus on the children learning. By working with the schools they are able to make it so that their exhibitions are helpful as an alternative way to teach the children. They also talk about the importance of making things simple for children, but being careful not to "dumb it down". Children are smarter than most people give them credit for, so making the interactive pieces simpler for them is an important thing, but you have to make sure that there are some aspects of it that still make them think about the pieces of art. It is also very important to stress a balance between simpler interactive exhibits and ones that have a higher focus on technology.

While more technologically sophisticated pieces can be important it is also very easy to go overboard

with them, and that if there is not a strong connection to the art, then the children will lost the focus of all of the pieces, which would be bad. To get children engaged, it's not required to have a lot of technologically oriented ideas; simplistic things can work just as well. The final thought that they wanted to get out was that it's not too hard to get children to think about art, you just need to give them simple engaging topics and they will put a great emphasis on the art.

Fitchburg Art Museum:

The Fitchburg Art Museum does not have a family center, or a drop in visitor center, as it were, but they do put interactive exhibits inside of normal exhibits. They are currently working on updating their Egyptian area, and including certain interactive activities inside of there. They talked about how when they were doing an exhibit on contemporary sculptures they included an area where they had PVC pipes and other things that the children could make their own little sculptures out of them. They have also tried having the children create labels for pieces of artwork, which is similar to what the WAM has in its discovery gallery, except they take it a step further, by allowing the children to then put on an exhibition of those pieces, allowing them to feel like the artist. Other such simple things they have found effective is allowing children to trace impressionist paintings and attempt to recreate them with as few lines as possible.

The main thing they seem to strive to teach these children is the idea of what it would feel like to be the artists. By doing this they allow them to think of what artists would think and, therefore, appreciate other pieces of artwork by thinking about them in terms of what the artist was thinking of. They talked about certain things that you have to deal with when you decide to focus on more high tech interactive activities, such as the tendency to focus on the technology over the art, or how they have to be simple enough for children, because they don't want to have to go through and read long and complicated instructions. Something that they have to deal with is children touching things they shouldn't, since they have their interactive pieces in the exhibition area, they have to deal with children, making sure that they don't touch things that they shouldn't. They help this by having signs next to paintings you can't touch, or putting them under Plexiglas.

DeCordova Museum (Process Gallery):

One of the main objectives of the DeCordova Museum's process gallery was "to create a dynamic, interactive space that provides an experiential, multi-sensory environment for visitors of all ages, using the exhibition goals as a guideline". The process gallery is different, because through active researching the DeCordova has discovered simple trends that museums, large or small, can attempt in order to make a successful area for interactive education. Based on the low cost of the gallery, it is not too far outside of the possibilities for any museum, as well as their constant changing of it they can keep it more modern and be more creative, as well as encouraging people to come repeatedly in order to enrich their time inside of the museum. They do not build their area for more permanent pieces, preferring to keep them able to be cycled in order to keep it updated. The DeCordova has had success in two important areas, one of which being to help people create connections between the interactive pieces, and the rest of the museum, as well as giving people a better understanding of how artists work.

This process gallery is designed to reflect the theory of noted psychologist Howard Gardner and his theory of multiple intelligences, by providing stimulus for the patrons in the forms of visuals, sounds, and objects to touch, read, and write. This focus will allow people to have multi-sensory exploration of the artwork. They focused on 3 over-arching ideas as "stations" where people inside of their gallery could come and learn, such as Interactive Stations, Thematic or Historical Stations, and Artist Stations. Making the interactive stations, they have a very open definition, allowing anything that they decide people would try, such as allowing people to look through different types of cameras for a photography exhibit, or create drawings of people's silhouettes, by simply using a high powered projector and projecting them onto a large piece of black paper. They have found that for interactive stations, the simpler the idea is, the more successful they typically become. They need to be very straightforward and have few written instructions or the people will lose interest quicker, and the most successful are the ones with a very intuitive design. Being high tech does not always mean that it is going to be successful, and simpler things are much easier to maintain, since the gallery shuffles through different ideas over a period of time.

The museum staff also found two distinct types of interactive stations, those based on being more individual, and those more focused on a larger group. The individual ideas are simple things, such as written responses, whereas the ones focused on a group can vary, such as the silhouette tracing, or things such as displaying people's responses to a single prompt, allowing the people to be

put together. The museum has emphasized the importance of the prototyping of as many ideas as possible before allowing them to be put out with as few mistakes as possible. They also recommend making sure that you have either someone on staff or someone you can contact who can come and make repairs as needed, but also to teach you about how to keep it fixed yourself. They stress the importance of knowing the equipment that you buy in order to be more effective in using it.

The DeCordova museum found that out of their process gallery, the people were most pleased with the interactive stations, because they found that roughly 71% of the people who went to the process gallery ended up using them. One of the main ideas that they found was that the process gallery was effective in educating more “novice” art museum patrons, in order to educate them as to how they need to think about art. The idea of the process gallery is similar to the drop-in visitor center that the WAM is thinking of, because it was an interactive space, where people who came to the museum could simply go to in order to explore the ideas around the art, even though their gallery is changed more frequently than the WAM’s drop-in visitor center, which would be more of a permanent establishment.

Surveys

The final and arguably most important objective we needed to complete before we could put this all together was visitor surveys. We wanted to know what each visitor thought about the museum and what they believe the museum could use for the drop in visitor center, or just general improvements. By getting this information we found out what these visitors believe would help as far as an interactive exhibit’s content goes and anything else that they would want to see in the museum in general. Topics ranged from the café hours being short to more broad aspects about what the Worcester Art Museum could do for an exhibit for families. Whether they were broad or specific, the information the patrons gave us in these surveys is valuable. This is information the Worcester Art Museum staff can use to attract more people to classes, exhibits, and the proposed drop-in visitor center.

The surveys gave some insight on who visits the museum and what kind of changes or additions the visitors would like to see. The table below gives a list of the information that the simple questions gave us for answers.

Table 2: Survey Information

Member?	Number of visits this year?	With family?	What would children gain from visit?	Lack of Family Activity?
No: 36	First time this year: 16	Yes: 27	Education: 22	No: 14
Yes: 11	Six times and over: 12	No: 14	Entertainment: 19	Could be better: 11
Was in past: 2	Two times: 11		Family Bonding: 15	Don't know: 6
	Four times: 4		Social Activity: 14	
	Three times: 3		Other – Cultural Education: 4	
	Five times: 2		Other – Creative Crafts: 3	

The survey information above allows us to see simple trends in visitors to the museum. Many people visited the museum for the first or second time this year in the few weeks this survey was done; however, a large number of people also returned for their sixth time or more this year. This type of spread is not crucial to this visitor center, but we want returning people to keep coming back and the first time visitors this project could attract to the museum more often.

Some of the other information the surveys gave us were an insight to what people liked and disliked. Since there was such a broad spectrum of what people liked and disliked, the ones mentioned multiple times were of higher priority.

Positives:

- More than half of the patrons taking this survey, 29, said there was nothing they disliked about their visit.
- Fourteen people mentioned the interactivity of the family day event as something they liked.
- Seven people mentioned that the music, these surveys from both family day and regular hours, was something they enjoyed.
- Seven visitors liked the family event all around.
- Five people enjoyed the courtesy of the museum staff.
- Three simply commented on how beautiful the art of the museum was.
- Three family day visitors said they enjoyed the storyteller.

- Three others liked the Asian art.

Negatives:

- Three people mentioned the café was not open long enough.
- Two people felt there could be more signs to direct people on family day.
- Two people complained about the smell in the galleries.

As far as ideas go, the visitors had a long list of varied ideas that could be taken into consideration. Since it was so open ended, all suggestions are important, nothing is negligible like the likes and dislikes are. These ideas varied from actual exhibit ideas to just little things the museum should look at to improve the visitor experience.

References to other museums:

- Programs in Spanish, M.E.T in NYC.
- Higgins Armory Second Floor has good interactives.
- Author/Illustrator specific galleries, Eric Carle Museum.
- PEM is a good place to look.

Activity ideas:

- Five people suggested scavenger hunts for things around museum, animals and things in pictures. Similar to the Chinese scavenger hunt at family day.
- Public interactive: A wealth of people can join in.
- Exhibit where children draw on their own.
- Video games or interactive videos.
- Tours geared toward children.
- Computer based interactions.
- Creative panel with/by children who tell their parents to ask and get them excited.

General ideas:

- Rotating children's room with big foam pillows etc.

- Timeline for Greek, Roman, and Egyptian exhibits.
- Open studio classes.
- More comic book art.
- Two people wanted similar exhibits to family day ones.
- Open closed galleries.
- Stay open later.
- Front door open all year round.
- Way to have children enjoy themselves while parents look at exhibits.
- More interactive exhibits in general.
- More free programs (like family day was with the flyer).
- Programs for children that are homeschooled.

Ideas, Suggestions, and Recommendations

Green/Blue Screen Portrait Play

One idea we felt could easily allow the drop-in visitor to directly interact with the Worcester Art Museum collection would be a Green Screen, or in some cases a Blue Screen. As many know, Green Screens are what weather reporters use to stand in front of a virtual map and give us the weather report as it progresses. This is also the technology that actors stand in front of when interacting with a CGI character or scene to give us many of the movies we have today. Perhaps the museum could use this technology to allow interaction with paintings or sculptures in some way, but, how does it work?

The first thing one needs to know is that there are two different screens, a green screen and a blue screen. They are not too different from each other, each is just a foam-backed piece of canvas that is the color of the screen you need. The only difference between it being green or blue is what you want to do with the screen. Each is a Chromakey color which means that the blue and greens are the base blue and greens that televisions use; most televisions use a Red, Green, Blue (RGB) system. The only thing that you need to be concerned about is what will be in front of the screen. If you were wearing an outfit that is mainly green and standing in front of a green screen, the picture you are trying to project behind you would appear on your clothes. In a situation like that a blue screen is better; otherwise there is no real difference.

The show “How It Works” on The Discovery Channel looked into this technology to tell us how it works for a television show, or any interaction one might have with it. In the article you learn two different types of techniques used in filmmaking. The one pertinent to us is the traveling matte or blue/green screen technique. With this technology, a person can stand in front of the blue/green screen and a scene can be put behind them to create the illusion of a person being somewhere different than in front of this screen. In the movies, this is a very in depth technique that takes the special effect department to figure out. However, with a portable green screen you can easily just shoot the scene and replace the green area with a picture or video.

You could easily put yourself into any situation and have it so you seem to be part of a scene that you are not. This is a great way to stretch a child’s imagination and see how creative they can be. With this, you could easily have a bunch of different situations to use the green screen in.

The major component this would be good for is a way for a child to play dress up and have a way to remember it by printing it out and looking at it. With this, you could get as much of the art the museum has into digital format and you would display it so people could interact with the art and pose for pictures with the art. It could be a fun way for the day to close out and for children to use their imaginations in a format that they are familiar with, the technology format.

Another positive about this is that you can use this for more than just the art. You could have it become its own art form, where you have children use their creativity to put themselves into a video or have some fun with videos that you could get a collection of. By getting children use their imaginations, have parents play with their children in a fantasy world, and have a memory to take home with you in the form of a picture, would all be fun ways for people to enjoy the museum's art.

The Boston Children's Museum has a Green Screen Room centered on the children's show *Arthur*. "This set up," as James Jenson from the museum explained, "is twelve feet wide, eight feet tall and goes out about four feet on the floor. The setup can be bought by anyone and the camera set up is fixed for optimal distance from the screen." Mr. Jenson went on to explain that any AV Technician could create the touch screen setup they have to allow families to choose what Arthur scene they would like to choose; a simple interface to allow maximum use and the least amount of stress.

From what we have found, the way you can make the green screen show the picture is easy if you follow a long set of directions. However, the directions are only easy if you have someone who codes a program from Adobe or various other sources into the computer. The program talks about how you are supposed to replace the background with the picture that you want but it seems like a common person, and especially a child, couldn't figure out this program unless these pictures and videos were programmed into the computer. If you could have this as a preprogrammed file on the computer with simpler directions to choose what you would like to use, then it would be functional; however, it seems that it would not be a good way for an interactive exhibit to work.

A negative about this is the space you would have to use for it. There are different ways you could use this idea, for example you could make an entire room green screen and have a dress up area next to this room for people to dress up and enjoy this space. The problem comes when you would have to get more than one camera and computer setup so more than one group could use this functionally. This may be a problem with how much this all will cost.

As far as a camera and computer go, top of the line webcams are around \$500 but cheaper ones should work with the green screen technology. The computer you need for this would have to be compatible with certain programs that you would need to buy. The high end ones are \$1,500 and they are not worth that cost; however, there are cheaper ones that come with small green screens and would work with any green screens from the same company. Westcott has a few packages around \$300 with lighting, green screens and the software that would be good for what you are trying to do, however, additional screens may be better so more parents and children can get involved.

If you do look for a bigger green screen, there are a few possibilities. Many of the public high end ones are reversible between blue and green screen but would run around \$1,000. These are twenty feet by twenty feet and the reversible aspect is better for being able to change what you need to do, blue costumes would have holes on blue screens and green outfits the same on green screens.

Overall, the average setup would cost you around \$1,000 for everything but the computer. The computer setup depends on which program you get for the green screen. Overall they could range from \$1,000 to \$2,500 depending on what you get. But, a top end package for all of this would be about \$5,500 for an entire setup, not counting someone coming in and setting it up so you have the system coded so the pictures would be there for the convenience of the visitors, so they don't have to go through the process of figuring out how to make the program work. This seems like a rather large process that could cost about \$10,000 at most if you get the best equipment for what you are doing and have someone who knows how these computer setups work come in and set it up so anyone could figure it out and use it with ease. It is a bit of a cost for something that is seemingly experimental since museums researched have not done this before the way we are proposing. These costs are based off Google Shopping results and most other online sites say about the same.

This is the type of interface being proposed for the Worcester Art Museum. Mr. Jenson has confirmed that the price for a green screen room like this is about as much as proposed if, perhaps, less. Since the interface is easily installed and the art from the museum could easily be put into digital format then this green screen setup would be perfect for the Worcester Art Museum.

Fixing the Discovery Exhibit:

The Discovery Gallery is the Worcester Art Museum's first attempt at this kind of interactive exhibit. It has a feel of an interactive and family based exhibit, however, there is a lot lacking. The activities are a little incomplete as far as the interactivity part of it is. The digging in the sand exhibit stops after they dig up something and brush it off. Also it tells people to write down what they find in a log, which not many children would want to do. The museum detective thing seems like a good idea, but having children write about what they think the paintings hold or their meaning is not likely since there is a lot of writing involved. Also, the lift flaps have far too much information under them, since lift flaps are meant to just have a bit of information under them. Also, can people touch the paintings in the room? If the tile floor mosaic is allowed to be stepped on, why should the ones on the walls not be touched? Yet, there are no signs to say yes or no to that. The Discovery Gallery shows a lot of promise; the activities just need a little tweaking.

Dig to Completion

The digging activity is just too small to be any fun. All you can do is dig up some stuff and then dust them off and then put them back. There needs to be more that you can do with the things you dig up. For example, if you have this with different color coded puzzle pieces, so you know which of the puzzles you are attempting to complete, and then have children dig them up so ultimately a picture or object could be made from the shards you find. By giving this activity some sort of conclusion and a feeling of accomplishment to the families involved in digging, you could have a good number more of people enjoying the exhibit.

Information Flaps

The Discovery Exhibit also has a few lift flaps that, as the U.S.S Constitution site has proven, work well when wanting to convey a small amount of information. Yet, these flaps have large paragraphs underneath them, and on top of that they are also far too high up for children to reach the very top one without help. If there were two opposites that pushed children away from interactive exhibits long paragraphs and being unable to reach the exhibit under their own power are the main things you cannot do. These flaps have just too much information under them. It feels like for one, about abstract art, you could put all of that information or you could just put the sentence "What do you see?" under the flap as the whole point of abstract art. Abstract art can usually be a

form that is open to interpretation and where the flap does address that, it has far too much information before that. Let the children open their minds and see what they want and write it down for you if they choose to. Overbearing reading is always a killer of interactive exhibits.

...With my little eye.

An idea that seems fantastic for the content you are working with, thousands of art pieces that have a lot going on in many of them, could be an ISpy: Worcester Art Museum Edition. In the Discovery Gallery, there is a “art detective” area and it seems like a fun idea; however, the writing down of the information feels more like a homework assignment than a fun time. Less writing and more family fun interaction is needed. This is where the ISpy idea comes into play. With some art, there is a lot of commotion going on and a lot of detail in the picture many people do not look at. Well, try and make them see what you see by having a list of “hidden” things in a bunch of different pictures. Many paintings have things that people don’t always see and if you can make them think a bit outside the box to try and find something their mind cuts out or is oblivious to, you have succeeded in making them think. This is something the Worcester Art Museum must ignite in the minds of the visitors that come here.

References

- (n.d.). Museum facts. Retrieved from <http://www.speakupformuseums.org/docs/Museum%20Facts.pdf>
- (n.d.). Retrieved from <http://www.worcesterart.org/>
- (n.d.). Museums FAQ. Retrieved from <http://www.aam-us.org/aboutmuseums/abc.cfm#visitors>
<http://philanthropy.com/news/philanthropytoday/8577/in-the-arts-surveys-find-decline-in-museum-attendance> (Figure 1)
- Adams, M., Moreno, C., Polk, M., & Buck, L. (2003). The dilemma of interactive art museum spaces. *Art Education*, 56(5), 42-52. Retrieved from <http://www.jstor.org/stable/3194042>
Figures (4-7)
- Bonnie Nichols, Tom Bradshaw, Sarah Sullivan, Ellen Grantham, & Kelli Rogowski. (2008). Arts participation 2008: Highlights from a national survey National Endowment for the Arts.
<http://www.nea.gov/news/news09/SPPA-highlights.html>
- Camille Utterback. Retrieved September 27, 2009, from <http://www.camilleutterback.com/>
- Cheng, T., Cullen, D., Herzberg, D., & Trikoz, K. (2009). Innovative exhibit interpretation using mobile applications. Retrieved from <http://www.wpi.edu/Pubs/E-project/Available/E-project-043009-205722/unrestricted/InnovativeExhibitInterpretation.pdf>
- Falk, J.H., & Dierking, L.D. (2000). *Learning from museums*. Walnut Creek, CA: Altamira Press.
- Falk, J.H., & Dierking, L.D. (1992). *The museum experience*. Washington, D.C.: Whalesback Books.
- Lord, B. (2007). *The manual of museum learning*. Lanham, MD: Altamira Press.
- McINTYRE, M.H. (2006). Testing themes and titles: Responses to the V&A's exhibition programme. Retrieved from
http://www.vam.ac.uk/files/file_upload/28423_file.pdf (Figure 2)
- Wu, K.L. (2007). What do families with children need from a museum?. *Cultural Policy, Criticism and Management Research*, (2), Retrieved from
http://www.city.ac.uk/cpm/ejournal/ejournal2_wu.pdf (Figure 3)
- “Video Edit Magic: Using the Green Screen Technique”. Deskshare.
http://www.deskshare.com/Resources/articles/vem_greenscreentechnique.aspx (accessed Nov 18th, 2009)
- Marshall Brain, “How the Blue Screens Work.” Howstuffworks, inc.
<http://entertainment.howstuffworks.com/blue-screen.htm> (accessed Nov 20th, 2009)

USS Constitution Museum Team, “family learning forum: steal this idea”. (2009)

<http://www.familylearningforum.org/rethinking-exhibitions/steal-this-idea/index.htm> (accessed Nov 13th 2009)

“Mashantucket Pequot Museum and Research Center”, <http://www.pequotmuseum.org/> (accessed Nov 19th 2009)

Honee Hess, Director of Education, in-person interview, November 10th, 2009

Jan Ewick, Tour Program Coordinator for the Education Department, in-person interview, November 10th, 2009

Elain Pusateri Cowan, Registration Coordinator, in-person interview, November 10th, 2009

Christopher Whitehead, Manager of Youth and Family Class Programs, in-person interview, November 12th 2009

Katrina Stacy, Assistant Curator of Education, interview by email, December 1st 2009

Jane Winchell, Director of the Art and Nature Center, Peabody-Essex Museum, telephone interview, October 23rd 2009

James Jenson, Exhibit Coordinator, Boston Children’s Museum, telephone interview, December 8, 2009

Visit to Smithsonian National Museum of Natural History, Washington DC, November 27, 2009

Silet, Emily. “DeCordova Sculpture Park + Museum”. (accessed Dec 10th, 2009)

<http://www.decordova.org/art/processgallery/>

<http://www.decordova.org/art/processgallery/images/ProcessGallery.pdf>

Appendix A: A brief description of the Worcester Art Museum:

The Worcester Art Museum was founded in 1896 by Stephen Salisbury III and opened its doors for the first time in 1898. Since then, the Worcester Art Museum has established itself as one of the largest art museums in New England. It also prides itself on educating the public about the history of art with their 35,000 piece art collection, spanning over fifty centuries. The Worcester Art Museum is a non-profit organization; it is guaranteed that all proceeds from admissions and classes, as well as donations, will go towards the advancement of the Worcester Art Museum, giving them the opportunity to develop new and interesting ways to educate the public.

The Worcester Art Museum stays true to the philosophy they have had since the creation of the museum. Their philosophy is, as quoted from the Mission, Vision and Philosophy statement received from Honee Hess, as follows:

“The Worcester Art Museum collects, preserves and exhibits original works of art for the purpose of sharing them with a broad public...It strives to integrate scholarship with effective interpretation, while continuing to emphasize links between the appreciation of art and the making of art...It respects the fact that each visitor comes to the Museum with a different level of knowledge and a variety of personal interests and needs...” (Worcester Art Museum).

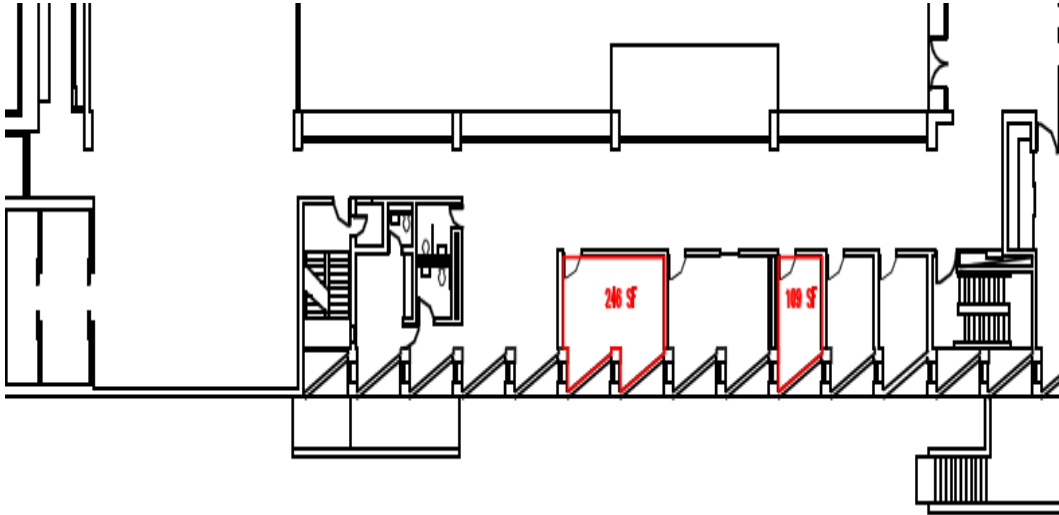
The Worcester Art Museum also has a seven point mission statement, along the same lines of their philosophy, and it emphasizes wanting to educate anyone that comes into the Worcester Art Museum on their collection and in general art knowledge to make they want to go to the museum again and again. The vision they give is: “A dynamic, audience-focused art museum providing enjoyable and enriching experiences,” (Worcester Art Museum).

Since the size of the building that the museum is located in is so is limited, only a fraction of their permanent collection is on view at the museum at any given time. The museum is also home to a very extensive library containing up to 45,000 titles. The Worcester Art Museum currently averages around 110,000 visitors per year (Worcester Art Museum).

Francis Pedone, the Director of Operations at the Worcester Art Museum, sent a list of information on the size of the museum from the aspects of people and monetary wise. The Worcester Art Museum get about 107, 000 visitors, have 3,400 number of members and all of this is organized by 230 employees, part and full time. The operating budget is \$8.2 million per year. Funding Breakdown: 60% of it is endowment, 20% is earned (café, gift shop, classes, and grants) and

20% is donations. This speaks to the size of the museum and how much it takes to keep it going and make it better.

Appendix B: Possible Floor Plan



Above, in red and the rooms that are the same as the red outlined ones, are the area proposed for this drop-in visitor center. The area measures about 817 square feet of space that we have to use. Since we do not know about which walls can and cannot come down, this space as it is will not work for a center where people can interact due to the confined space. However, if expansion from one cell to the others is possible, then the space would be acceptable to be used how it is proposed.

Appendix C: The Visitor Survey

What is your Zip code? _____

Museum Questionnaire

Your ideas and feedback are important to us in providing programs to you that are both educational and fun! Please help us with creating quality future programs by completing this form.

Are you a member of the Worcester Art Museum?

____ Yes ____ No

How many times have you visited the Worcester Art Museum this year?

____ First time this year ____ Two ____ Three
____ Four ____ Five ____ More than five

What was your reason for attending the museum today? (check all that apply)

____ Just browsing in general ____ Specific exhibit/event (which one below)
____ Art Class ____ Just something to do
____ Spending time with family ____ Other (explain below)

Is there anything you particularly enjoyed about your visit?

In contrast, was there anything you disliked about your visit?

Did you come here with your family today? (If No, skip to last question)

Yes No

How important were your children's needs in the decision to come to the museum today?

Very Important Important Not Important Didn't Consider

What were your main considerations for your children coming to the museum? (check all that apply)

Education Entertainment Family Bonding

Social Activity Other: _____

Do you feel the museum lacks in family oriented exhibits/programs?

Yes No
 Don't Know Could Be Better

Do you have any suggestions for interactivity in the museum? If you are with your family, think together.

THANK YOU FOR YOUR HELP!

Please drop this form off at the marked table.