

Introduction

The National Museum of American History (NMAH), Smithsonian Institution, is redesigning its Transportation Hall and researchers from the Institute for Learning Innovation served as audience advocates on the exhibition team involved in the redesign; the new exhibition is tentatively being called *America on the Move*. The Institute's roles included:

- 1) Attend selected team meetings;
- 2) Develop instruments and protocols for a front-end evaluation study and train staff to collect front-end data to explore visitor response to the theme statement and big ideas for the exhibition generated by the team on April 20, 2000;¹
- 3) Facilitate a series of focus groups with educators to explore their response to the theme statement, big ideas and selected settings and to gather their suggestions for connections between the proposed ideas and the school curriculum and national history standards;
- 4) Conduct a literature review/telephone interview of best practices, both for transportation exhibitions, but also generally in history museums and other museums if relevant; and,
- 5) Based on these findings and the experience of the Institute, critique proposed plans for the exhibition treatments and make a series of recommendations, presenting potential ideas for interactivity, including both low tech options, as well as computers and high tech options.

This report summarizes the findings of the visitor study and the focus groups, the results of the best practices analysis and presents the critique and recommendations.

Visitor Study

Methodology

Data was collected from a random sample of visitors to the National Museum of American History for two hours on the afternoon of May 11, and for six hours on July 3, 2000. An Institute researcher, positioned outside the Road Transportation Hall, greeted visitors and invited them to provide feedback about the redesign of a new Transportation Hall.

To initiate the interview, participants were asked to read the short theme statement and, based on that description, to describe what they thought the exhibition would be about and what they

¹ Ultimately, it was deemed more efficient for Institute researchers to collect data than NMAH staff, and so Institute researchers conducted a visitor study in May and July, 2000.

might expect to do and see in the exhibition (See Appendix A). Visitors were then shown the seven big ideas generated by the exhibition team and given this scenario: “You have just walked into the museum and only have 10-15 minutes to be in this exhibition, consequently you can only learn about two of the topic areas. Which two would you choose and why?” Visitors were also asked to comment on any words that they did not understand or found unclear in either the theme statement or the big ideas.

During each interview, researchers also recorded demographic and psychographic information, including people’s gender, approximate age, social group, place of residence, prior visitation, etc. Families with children under age 6 were not selected since the interview was not age appropriate.

All interview data was categorized and coded by Institute researchers. Data was analyzed using Survey Pro software. Frequency analyses and cross-tabulations were employed where appropriate.

Results and Discussion

Sample Institute staff collected data from a total of 51 people to assess their response to the theme statement and big ideas for the exhibition. The demographics/psychographics for the sample appear in Table 1 and were fairly representative of groups in the museum the days that data was collected, bearing in mind that family groups with children under 6 were purposefully not selected.

Table 1. Demographics of sample interviewed about *America on the Move* themes and big ideas.

Gender	
Female	55% (n=28)
Male	45% (n=23)
Age	
<20	10% (n=5)
20-29 years	0
30-39 years	24% (n=12)
40-49 years	28% (n=14)
50-59 years	29% (n=15)
>60	10% (n=5)
Social Group	
Alone	6% (n=3)
Adult group	51% (n=26)
Family group	33% (n=17)
Teen Group	6% (n=3)
School Group	4% (n=2)
Visitation	
First time	58% (n=29)
Visited before	42% (n=21)

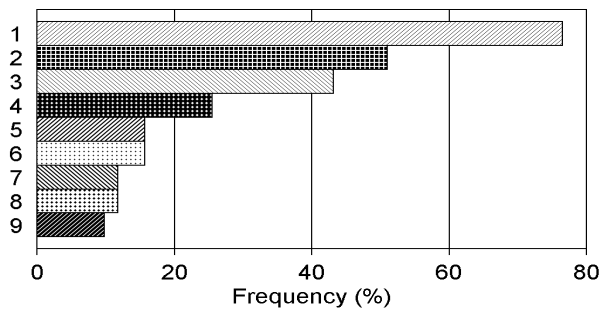
Residence	
Northeast	24% (n=12)
Southeast	36% (n=18)
Midwest	24% (n=12)
West	10% (n=5)
Outside U.S.	6% (n=3)
Interest	
High	20% (n=10)
Moderate	49% (n=25)
Low	31% (n=16)
Knowledge	
High	13% (n=7)
Moderate	47% (n=24)
Low	40% (n=20)

About half of the sample was composed of avid collectors or people who worked with cars in their professional lives including a Saturn worker and a car mechanic. All visitors seemed pleased to be asked their opinion, although a few people declined to be interviewed because of time constraints (data was collected late in the afternoon and many people were winding down their visits) or not speaking English well.

Visitors' responses to the theme statement

All visitors seemed to understand the theme statement, and a number of major trends emerged from the data relative to people's expectations for the exhibition. To begin with, the interview participants were asked to read the short theme statement and, based on that description, to describe what they thought the exhibition would be about and what they might expect to do and see in it (See Appendix A). Figure 1 below illustrates visitors' uncued responses to the statement; trends are described in detail below.

Figure 1: Visitors' responses to the theme statement



- 1 - Different kinds of transportation
- 2 - Transportation history and changes
- 3 - Impact on daily life
- 4 - Interactives
- 5 - Impact on economy
- 6 - Other
- 7 - Impact on landscape
- 8 - Future of transportation
- 9 - Chronology

* Note: Multiple answers can total over 100%.

Predictably, the majority of visitors indicated they would expect to see different kinds of transportation in the exhibition (77%, n=39). Thirty-seven percent of visitors (n=19) referred to transportation generally. For example, a man, 50s, visiting for the first time, said he would expect to see, “Every type of transportation that we’ve had so far, from what the rich used, to what the poor used.” The majority of visitors (61%, n=31) mentioned one or more specific types of transportation that they would expect to see, including walking, horses, carriages, wagons, bicycles, motorcycles, cars, trucks, mass transportation, trains, airplanes, and watercraft. People tended to list multiple examples of each type of vehicle, and one woman, 40s, a first-time visitor from Texas, commented, “I was disappointed to see that there was only one covered wagon. I expected to see more than one type.” Some visitors raised the possibility that the exhibition would also include examples of what transportation would look like in the future (12%, n=6). A man, 50s, visiting for the first time from Missouri, offered that the exhibition would include “things from the future. I would imagine we would have space cars, rails, fast trains, light rail. I would imagine some sidewalks, with moveable walkways, especially in downtown areas.”

Fifty-one percent of visitors (n=26) articulated that the exhibition would be about the history of transportation and how transportation has changed over time. A woman, 40s, a repeat visitor from New Orleans, explained, “I would think it would be [about] how transportation has developed from the early days, like cave men [and] how they walked, to the development of cars, airplanes, [and] trains.” Forty-three percent of visitors (n=22) felt the exhibition would be about how transportation has influenced people’s daily lives. A man, 50s, a first-time visitor from the Dominican Republic, felt the statement conveyed transportation’s “impact on people’s lives. [Transportation is important because it influences] getting to work, in terms of time.” Another man, 40s, a DC resident who has previously visited, related how before transportation became readily accessible, “people [used to go] shopping for a week at a time. Kids [would be] wondering if eggs in the grocery store came from chickens.”

A smaller group of people (16%, n=8) thought the exhibition would be about transportation’s impact on the economy. A woman, 30s, visiting with her family from Maryland, remarked that the exhibition might include “some links to consumer patterns or other things in the economy

that transportation made possible.” A few visitors thought the exhibition would be about transportation’s impact on the landscape (12%, n=6). These people, like one man, 50s, visiting from New York, would typically mention “the development of roads.” Another man, 40s, talked about “the degradation of urban areas into urban sprawl.”

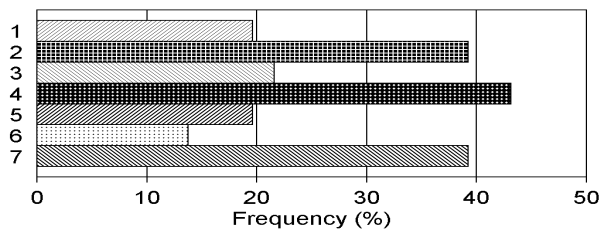
In terms of the experience visitors thought they would have in the exhibition, 25% (n=13) indicated it would be wonderful to have some interactive elements in the exhibition. Suggestions for interactivity included being able to sit in a car or on a bicycle and “get a feel for one.” A few visitors suggested it would be great to have more context for the times, such as the man, 40s, visiting from Kansas, who mentioned that it would be interesting to “sit at a counter in a diner.” Another man, 50s, suggested that, “maybe you could put a little train station, a small airport.” Three teens hoped that it would not just be reading, but that there would be opportunities to participate in mini-seminars or learn from people on the floor. Ten percent of visitors interviewed (n=5) indicated that they would like to see transportation presented as a chronology.

People’s interpretation of the theme statement varied depending on the age of the visitor. More specifically, visitors over age 40 were more likely to relate the theme statement with the history of transportation. People’s interpretation of the theme statement did not vary depending on gender, social group, visitation or residence.

Visitors’ responses to the big ideas

After responding to the theme statement, visitors were shown the seven big ideas generated by the team. Visitors were asked to imagine they had only 10-15 minutes to be in the exhibition, and so could only learn about two of the topic areas. Visitors were asked which two topics they would choose and why (See Appendix B). For the most part, visitors were readily able to identify two or more themes that were appealing. As illustrated in Figure 2, three big ideas emerged as the topics visitors would most want to learn about if they had limited time: *Transportation’s impact on daily life* (43%, n=22), *How transportation has changed over time* (39%, n=20), and *How transportation has changed the American landscape—urban (social)/rural/suburban/environment* (39%, n=20).

Figure 2: Visitors’ responses to the big ideas



- 1 - Transportation is important to many areas of American life.
- 2 - How transportation has changed over time; repercussions of choices and changes.
- 3 - People, places, networks over time.
- 4 - Transportation's impact on daily life.
- 5 - Transportation is important in American history/identity.
- 6 - The choices that were made and how we live with them.
- 7 - How transportation has changed the American landscape--urban (social)/rural/suburban/environment.

* Note: Multiple answers can total over 100%.

In terms of *Transportation's impact on daily life*, visitors mentioned the following:

Why we have roads, pay taxes, have road rage. –Hawaiian man, 40s, lives in Kansas, visiting with wife

This stuff is in us. Provide context. We have a 15-year-old son who is not just going to want to see things displayed. He wants to see the Conestoga wagon but also what was packed in it, how they found their way. –Woman, 50s, from Illinois, defined herself as an avid collector, living near stretch of old Route 66, visiting with husband

Great PBS special called American on Wheels, narrated by Hal Holbrooke, which would be a great resource. –Man, 40s, from Milwaukee and works for Saturn, visiting with family

Don't realize how important it is. My license was taken away for six months and then I knew! –Woman, 30s, from Atlanta, visiting museum with her husband on a day trip from Williamsburg

It's such an important part of daily life. I travel a lot, and I would hate to be without transportation. –Woman, 50s, from Michigan, visiting with her family

Three visitors also raised the need for mass transportation, and two specifically mentioned concerns about pollution.

In terms of *How transportation has changed over time; repercussions of choices and change*, visitors made the following comments:

[It has] evolved so much in all aspects. It is important to show from horses to the minivans/SUVs of the 90s. –Woman, 40s, visiting with her husband from Kansas

See progress. I lived through it! –Woman, 50s, visiting from New Orleans with her grandson’s Alabama school

In my life [there have been] so many changes. –Woman, 50s, from Chatanooga, sitting outside the exhibition with a friend, both waiting for their husbands in the exhibition

What it started out to be. –13-year-old girl from Tennessee

The automobile is very much part of American daily life. It’s basically the whole ball of American history. –Man, 40s, visiting from California

Going through the change from horse-and-buggy to today. Gasoline prices. The changes we’ve had to make. Getting rid of the big cars. –Woman, 30s, visiting from Tennessee with three friends

In terms of *How transportation has changed the American landscape—urban (social)/rural/suburban/environment*, visitors mentioned the following;

How it affects the landscape, what people see. –10-year-old boy, visiting with parents from Dominican Republic

With the highways, tunnels, bridges—it’s changed dramatically. On ramps, everything. The big dig in Boston. Everything is suppressed underground so you only see smooth pavement. – Man, 50s, visiting with wife from Massachusetts, works for MBTA

I watched it grow to superhighways from two-land roads. –Man, 50s, visiting from New York

Because of the history, it has changed some areas in ways it shouldn’t have. How it has changed the rural areas of the US. For me, [I think] of freeways. –Woman, 50s, visiting from Washington state

[It] might be interesting to see how, when roads [were] paved, what changed, what areas were populated and popular. –Woman, 30s, visiting from California with friends

Other theme statements were chosen, but not as frequently. Twenty-two percent of visitors (n=11) selected *People, places, networks over time*; 20% (n=10) chose *Transportation is important to many areas of American life*; 20% (n=10) chose *Transportation is important in American history/identity*; and 14% (n=7) selected *The choices that were made and how we live with them*.

Discussion

Visitors were delighted to share their opinions and clearly had a lot to say. For the most part, those interviewed were enthusiastic about the topic and many were quite knowledgeable. Many of these visitors were there to look at the collection, and a few indicated they hoped the hall would not be changed greatly. Clearly as the new exhibition is developed, attention should be

paid to balancing the highly contextual case study approach with enough objects, representing the breadth of the collection, to satisfy those visitors eager to see the museum's collection.

In terms of the experience visitors thought they would have in the exhibition, all interviewed seemed to understand the preciousness of the objects and felt that they would mainly be looking. However, visitors were eager to have some opportunities for interaction—be it just sitting in a car, hearing appropriate sounds, “feeling what it was like.” Two words in the theme statement were raised as confusing or difficult to understand by a few visitors: “network” because of its association with computer networks, and “identity.”

Three big ideas emerged as the topics people would most want to learn about if they had limited time: 22 visitors chose *Transportation's impact on daily life*, 20 chose *How transportation has changed over time; repercussions of choices and changes*, and 20 chose *How transportation has changed the American landscape—urban (social)/rural/suburban/environment*. Many of the other five big ideas either seem related or are sub-themes. What is important is that these major themes resonated with people and they were able to connect to them on a variety of personal levels.

Focus Groups

Methodology

On September 16, 2000, an Institute researcher facilitated two focus groups at the museum. Focus group participants were asked to do three things: 1) read the description and the three theme statements and discuss their relevance to students they teach; 2) read the seven big ideas generated by the exhibition team and given this scenario: “You have been at the museum on a field trip focusing on another exhibition and only have 15-20 minutes left before needing to be back on the buses.” Which two topic areas would you want your students to learn about and why?;” and, 3) read the description of the three settings and order them in terms of the interest you think they would generate for your students and their relevance to the curriculum. Teachers were also asked to comment on any words that they felt their students would not understand or would find unclear in the big ideas. See Appendix C for focus group instruments.

Findings

Participants in the two focus groups included:

- 1) teachers at the pre-K to 6th grade level, including two administrators, one in a museum magnet school and the other in a Montessori school for at-risk children, a 6th grade math and social studies teacher, a middle school science teacher, an elementary art teacher, two teachers from a private school for privileged children and a home schooling parent, teaching elementary age children. Each of these teachers had some relationship to the NMAH; most participated on an Advisory Group of some kind.
- 2) teachers at the 4th grade through high school level, including a 4th grade Language

Arts and Social Studies teacher, a 6th grade Language Arts and Social Studies teacher, an English as a Second Language (ESL) teacher at the high school and adult level, an 8th grade U.S. History teacher, an 11th grade History teacher and a high school Physics teacher. As with Focus Group 1. Each of these teachers had some relationship to the NMAH; most participated on an Advisory Group of some kind.

Focus Group 1

This group of teachers was very enthusiastic about the three themes. In general, teachers felt that they represented a new way of teaching history that would be far more interesting to students than traditional ways that they (the teachers) had been taught history (“Turn to page 44, last paragraph”).

Given the fact that teachers in this focus group teach elementary age children, as well as a variety of different disciplines, all of them discussed the importance of interdisciplinary approaches, something they felt was possible with the current themes (“Transportation has affected scientific research and knowledge, for example”). They also were very interested in the museum helping to make intra-museum connections from the material in the exhibition to other exhibitions/experiences in the building and to also consider inter-museum connections, for example, formal or informal collaborations with the National Gallery of Art which has many pictures of railroad cuts, etc.

Although enthusiastic about the themes, with their possibilities for connections to the curriculum and interdisciplinary entry points or “hooks,” each of these teachers stressed the importance of making these complex, abstract ideas concrete for elementary-aged children, relating the ideas to experiences children have and making the experiences as interactive and engaging as possible (“History is a difficult concept for little kids—but specific exhibits, items and ideas help them gain a sense of history” “A sense of the chronology of history develops little by little over time for children and needs to start with their own history”). One possible hook suggested was the whole issue of movement—the seemingly fundamental need and drive for people to move. How do people move and why have people made the choices that they have over time to move in the ways that they do (there was also interest in cross-cultural comparisons given the large number of immigrant children they are teaching and the number of international visitors that attend the museum—for example, why were rickshaws never really used in the U.S.)? Related to the discussion of movement, these teachers also felt it was important to provide children opportunities to move themselves by providing some large motor activities such as possibilities for climbing up on trains or interacting with wheels or gears. They also felt it would be important for children to have opportunities to construct things. A couple of teachers described their approach to preparing children for an experience in the museum: “We use KWL (What does the child know? What does the child think they know? And what would they like to learn?) to organize their activities in the museum.

These teachers were curious about the dates for the exhibition, and hoped that references would at least be made to early native peoples, Colonial times and the Westward Movement, all topics covered in their social studies units. If the Colonial period was included, they hoped that an inter-connected story would be told—how would goods have made their way to Colonial

Williamsburg, Turkey Run, St. Mary's City and Mt. Vernon? Would these sites have been connected in any way?

They also hoped that the exhibition would look into the future, showing some of the choices and challenges we face as a nation today in the area of transportation. Teachers also felt it was important to deal with some of the new technologies, vis-à-vis transportation, such as how the Internet and hand-held palm pilots are transforming our sense of movement.

Theme 1 This group of teachers was very enthusiastic about the first theme (“Americans have battled over transportation choices. Those battles, and the transportation systems that developed in their wake, provide a window into the development of American society and culture.”), particularly its focus on choices.

Theme 2 They were also very enthusiastic about the second theme (“Transportation affects how and where we work, live and play. Transportation changes who can come and live in America, the shape of the nation's landscape (the cities and the country), our access to work, where we live and where our family lives.”). They discussed the importance of children realizing that it used to be a luxury to have a car and that there have been costs as cars have transformed the landscape. This group was very environmentally conscious and raised the issue of sustainability and “how free are we?” when we are so dependent on fossil fuels and also suggested that transportation has made us both “smaller” and “larger.” For although the space we can occupy is much larger and many of us have many more choices for where to live, work and play, our natural areas are shrinking. Teachers commented about how hard it can be to get away from a man-made environment these days—to escape into nature.

Theme 3 Theme #3 (“Transportation has shaped our economic choices. As people and goods can be more easily moved across the country, transportation affects our production and consumption patterns on both national and local levels”) was also a popular one with Focus Group 1 teachers. One teacher even commented specifically that the topic of economic choices is an “important issue for all schools now,” since it is one of the Virginia Standards of Learning topics. One important concept being taught and emphasized with elementary aged children is opportunity cost, a type of cost-benefit analysis which they thought would lend itself well to concepts presented in the exhibition. Teachers also felt that children might be able to relate well to potential stories in this section of the exhibition, for example, the economics of child labor. Discussing this theme was another place where international issues were raised—teachers suggested expanding the theme to encompass production and consumption patterns at the international level as well as national and local levels.

A discussion of economics raised the whole issue of who gets to move and why. For example, some of these teachers indicated that their students, at least the affluent ones, are much more mobile, taking trips internationally, for leisure and pleasure. Less affluent students may not have the same choices but take car trips, or if immigrants, may have experiences traveling across the world.

Big Ideas In terms of the hypothetical scenario of choosing only 1-2 big ideas for their students to focus on, three ideas emerged as most popular among these elementary level teachers, although there were many comments about how inter-related some were, for example, “How

transportation has changed the American landscape-urban (social)/rural/suburban/environment” and “Transportation’s impact on daily life.” Teachers did emphasize that whatever the big idea was it should be stated very explicitly and repeatedly in the exhibition so that visitors know what it is.

Six teachers chose “How transportation has changed the American landscape-urban (social)/rural/suburban/environment,” 4 teachers chose “Transportation’s impact on daily life,” and 3 chose “How transportation has changed over time; repercussions of choices and changes.” A few also chose “Transportation is important in American history/identity,” and “Transportation is important in many areas of American life.” Only one person in this focus group chose “The choices that were made and how we live with them” and no one chose “People, places, networks over time.”

Teachers did comment that presumably the big idea, “Transportation is important in many areas of American life” would be inherent in all the big ideas and depending on how it was shown it could be great for pre-K to elementary age children. As with some visitors in the visitor study, teachers thought elementary age children might have difficulty with the concept of identity, in part because it might be too vague (“Whose identity?). Teachers did caution that the only way this concept could be related to by this age child would be if it dealt with people’s identity, not transportation’s identity. In terms of the big idea, “The choices that were made and how we live with them,” teachers felt that this theme was very related to two other big ideas (identity and changing landscape) and hoped that the exhibition would ask why did we (and do we) make the choices that we did (do) (“Making choices is so important to each child, today as well. It is important to think about what causes people to make choices—fact/reason vs. heart/emotion.”). A few teachers did caution that this might be a difficult concept for the younger children (Pre-K to kindergarten).

When asked why they had chosen “How transportation has changed the American landscape-urban (social)/rural/suburban/environment,” teachers indicated that children would be able to contribute and relate to this topic experientially (“They can think about their community and how it fits into this ‘landscape.’ What kind of a society are we today? How did we get to be this way?”); that this is something that is being left out today and children really do not understand about environments other than their own—“My suburban children certainly do not know urban D.C. life or rural either;” that it is a topic with many broad links to science including the environment (how things are changed, are changes long-term or temporary, what was achieved by making these changes, was there unexpected knowledge gained because of these changes, did these changes result in bringing urban and rural communities closer together or did the differences/changes enhance/increase the separation, did these changes produce positive/negative results that had not been expected); that the impact of transportation depends on the choices that were made and they have an influence on pollution, the price of gas and cost of food; and, that this big idea could deal with the topic of the development of communities. A few teachers did caution that this might be a difficult concept for the younger children (Pre-K to kindergarten).

When asked why they had chosen “Transportation’s impact on daily life,” teachers indicated that children would be able to contribute and relate to this topic from their own experience (“It is immediate in the here and now for them;” it is a place in the exhibition where the dominance of

cars, both positive and negative aspects, could be presented; and, a timeline of transportation in different cultures could be shared;

When asked why they had chosen “How transportation has changed over time; repercussions of choices and changes,” teachers indicated that it is a place in the exhibition where the displacement of wildlife and landscape changes could be discussed; a science teacher suggested it could be approached as a historical study of machines—beginning with the earliest human transportation and also could include a search for the basics of simple machines and how those simple machines have influenced daily life; and, it could discuss changes in environment, with the advent of computers, and the resulting changes in costs such as pollution, price of gas, cost of food, etc.. However, teachers teaching pre-K and kindergarten did feel that the term repercussions might be too difficult and all encompassing an idea for children of that age. One teacher felt that several of the other big ideas (“People, places and networks,” “Transportation’s impact on daily life,” “Transportation is important in American history/identity,” and “The choices that were made and how we live with them”) could be encapsulated by this big idea. These teachers emphasized how important it is to discuss not only how transportation has changed over time but why it has changed.

Settings Teachers in Focus Group 1 were very enthusiastic about the settings which prompted many questions such as: “Will visitors be able to climb in or on to these vehicles?” Will we be able to hear them operate?” They also felt that the more accurate these settings the better, for example, they should be dirty and smell appropriately (“Sights, sounds and even smells, like smells of cow dung would be great!”).

In terms of ranking of these settings, the three were fairly equally ranked. Three teachers in Focus Group 1 chose the Washington, D.C., 1900 Streetcar City setting as their highest ranked; two teachers chose the 1890 Ellis Island and Angel Island Ocean Crossing setting; and, two teachers chose the 1903 Crossing the Continent by Automobile setting. In general, teachers felt that the settings were probably open enough to allow many of the themes and the big ideas to be thread throughout them and consequently, unlike visitors in the visitor study who had enjoyed the task, several teachers indicated that it was difficult to prioritize them. For example, a few indicated:

“I would find it very difficult to prioritize these settings. Each has links to the middle school curriculum content, even science. For example, the Washington, D.C. street car scene could be a study of where we live and why, the geology of the city stones and the geology of the land, as well as a study of history and government. Ellis Island could focus on immigration, but also sink/float/density and materials science concepts. Crossing the Continent by Automobile could include a study of geology, paleontology and bridge building, as well as the western movement.” (middle school science teacher)

“Any or all of these would work for our class. Our school does teach immigration and migration for 9-11 year olds but younger kids take history as all of a piece.” (K-1st grade administrator in a museum magnet school)

More specifically, teachers felt that children (and other visitors) would be able to relate concretely to the D.C. street scene (“If you are visiting D.C. you could go to that area to see how

it has changed since 1900”) and that it fit in best with the 4th-6th grade curriculum in Virginia and Maryland and the 3rd grade curriculum in the District. One teacher thought it was an interesting topic, but wondered if it would be somewhat limited by its local appeal.

In terms of the 1890 Ellis Island and Angel Island Ocean Crossing setting, teachers felt that immigration was an important concept, in particular, these ideas were taught in the 5-7th grade and higher in most school districts (only 7th grade in Fairfax County and 6th grade in the District). One teacher commented: “this is more relevant to slightly older kids—but there is something here for little kids too.” Given the makeup of many of their student bodies, teachers also felt children would be able to relate to the idea of immigration well. One teacher did suggest that it would be great if the immigration stories could include South America and Central America, not just Mexico, since many of the children in this area are from El Salvador and Columbia. One teacher also thought it would interesting to contrast the Ellis Island site (fairly large and spacious and dealing with mostly Europeans) and Angel Island (small and an entry point for Asians).

The Crossing the Continent by Automobile setting was also a popular one that teachers felt that children could relate to and that would fit into the curriculum at any level (“Changing landscape of America via the auto—I truly believe this particular one would cover more grade levels and be of more interest for teachers/children.” “Little kids love old cars.” “Cars and driving are a rite of passage [in our society] and this should be noted in some way [in the exhibition.”]). The home schooling parent felt that all of the settings would be relevant and useful to her family and other home schoolers, although it would be important to have access to information (by the Internet or actual materials) about specific objects on display especially in planning pre-visit activities and what “we will actually do in the exhibition space.”

The discussion of settings also initiated a conversation about what would make this exhibition engaging for school children. Suggestions included:

- 1) the use of stories and oral histories (in fact one teacher indicated that oral histories are actually a part of the curriculum at the 4th and 6th grade level);
- 2) developing hooks and making the ideas concrete, for example, tracing a single object’s journey, such as an orange, from its origin to someone’s home;
- 3) including eye-catching visuals such as friezes and pictorial timelines;
- 4) developing postcards, passports, train tickets or other props that children (and other visitors) use as they make their way through the exhibition (maybe they even make them);
- 5) animating the experience in some way using actors/actresses that bring the history to life, real things, models, soundtracks of vehicles operating or period music, straightforward videos that are not too long (about 7 minutes max);
- 6) computer interactives that allow children to have more in-depth experiences like “seeing” what the results of making certain transportation choices would be;
- 7) experiential activities such as river stones that you can walk on to feel what early pavements felt like or sitting in the different vehicles either real ones, reproductions or through virtual reality (“important for kids to feel the physical sensation” “what about a virtual journey on Route 66?”);

- 8) early photos of what something looked like and then a time series, showing changes over time; and,
- 9) Susan Tolbert was interested in how to make the highway infrastructure case study interesting and engaging to elementary age children and teachers suggested focusing on car trips (“How many hours to Disney World?” “Car games” “Photos of ‘South of the Border.’”).

In terms of space within the exhibition, teachers felt it was important to have some classroom space, but not hidden away but right there, perhaps multi-purpose space that could be closed off if needed for special groups, but open at other times. They also recommended quiet areas in the exhibition where children have an opportunity to engage in a quieter sort of activity that paces their attention and engagement.

Ann Rossilli specifically asked whether an introductory video would work as a way to introduce children to the main ideas of the exhibition and teachers thought that it might as long as it was not too long and it was a choice, not a requirement. Ann also tried to discuss the merits of an Object Theatre which teachers were enthusiastic about once they had an idea of what one was. Ann also tried to discuss how realistic and intricate the settings needed to be, the importance of a chronology and the optimum number of objects that might make sense to this age child. These were difficult questions for teachers, particularly the one about settings, but they did feel that chronologies were useful for upper elementary aged children (4th-6th grade) and that fewer objects which could be used in a more in-depth way would make sense. In fact, they suggested that different themes that could focus on a different set of objects each time might make sense and would allow the exhibition to be used in a variety of ways on multiple visits.

Teachers in Focus Group 1 thought it would be helpful to have a pre-visit activity packet or preparatory video, which would include relevant questions for children, providing a purpose to their museum visit. They also thought it would be great to have discovery boxes that could be checked out prior to, or after visiting, that would allow more in-depth investigation. Teachers also felt that the museum should make extra effort to include high quality and affordable (under \$10) items in the gift shop that relate to the exhibition which children could buy to extend their exhibition experience, as well as lists of suggestions for things children can do back at home (maybe in a brochure form);

Focus Group 2

Themes As with Focus Group 1, this group of teachers was very enthusiastic about the three themes, which they discussed more generally than specifically. They sensed that the themes provided great potential for problem-solving activities and a discussion of environmental issues, which are of great interest to their students (“How we can/should organize where we live.” “Contrast past images of future with now.” “Leisure versus work transportation.”).

In contrast to the pre-K to kindergarten and elementary teachers, who focused a lot of their general conversation on approaches to teaching these topics, Focus Group 2 teachers tended to discuss content. They thought that these exhibition themes afforded opportunities to study a number of topics including modern day piracy; maritime issues (one teacher was very interested

in boats and maritime history); Henry Ford; science and engineering themes, such as the development of electricity and its impact on transportation; cost-benefit analyses; Route 66; forced transportation such as the case of Native Americans; and, the development of the railroad. They wondered whether there would be a discussion of flight and space. Discussing these themes with secondary teachers also brought up the issue of an international perspective (“Will this exhibit be U.S. centric?”), with these teachers strongly recommending that an international perspective be presented. Independently they raised the same question as Focus Group 1: Why were rickshaws and other common forms of transportation in other countries never really used in the U.S.? Like Focus Group 1 teachers, they were very interested in the museum making intra-museum connections between exhibitions/experiences in the building and to also consider inter-museum connections to other buildings.

The discussion of themes also initiated a conversation about what would make this exhibition engaging for middle school and high school students. Suggestions included:

- 1) hooking their interest and allowing them to research some aspect of transportation history with no necessarily right or wrong answer, i.e. exploring ways to make the experience very project-based and problem-focused;
- 2) multidisciplinary approaches, for example, creating situations in which students are using math and science skills, perhaps creating databases that are used later at school or are downloaded from a web site or seeing foreign language ads advertising for immigrant help;
- 3) including lots of different media to create a multi-sensory experience (for example, this age child loves old commercials, advertisements, period music, etc.);
- 4) developing paper and pencil activities that ask leading questions that students pursue in groups during their visit;
- 5) activities that deal with the future in some way such as cars of the future;
- 6) hands-on activities even for the older high school students in the group, like packing the suitcase to come to America;
- 7) living history and stories work well with this age group, even sitting down and listening to a story within the exhibition;
- 8) developing cards like at the Holocaust Memorial Museum which represent individuals or role-playing experiences like participating on the line in the cannery at the Baltimore Museum of Industry, both examples which personalize the exhibition;
- 9) including diary/journal accounts, letters and other primary source materials;
- 10) opportunities for students to compare and contrast, for example, comparing and contrasting Irish and Chinese railroad workers;
- 11) opportunities for experiential activities like getting into the streetcar and ringing the bell, meeting the engineer, etc.;
- 12) including popular culture items like billboards, bumper stickers, etc., and,
- 13) including eye-catching visuals and lateral presentations of objects and ideas rather than hierarchical ones.

Big Ideas In terms of the hypothetical scenario of choosing only 1-2 big ideas for their students to focus on, three ideas emerged as most popular among these secondary level teachers. Five teachers chose “How transportation has changed the American landscape-urban

(social)/rural/suburban/environment,” 3 teachers chose “Transportation is important in American history/identity,” and 3 also chose “How transportation has changed over time; repercussions of choices and changes.” A few also chose “The choices that were made and how we live with them.” “Transportation’s impact on daily life” and “Transportation is important in many areas of American life” was chosen by one teacher each. In general, teachers felt that the big ideas were broad enough to allow a variety of entry points and that which ones you chose would depend on what you were teaching at the time.

When asked why they had chosen “How transportation has changed the American landscape-urban (social)/rural/suburban/environment,” teachers indicated that this theme could encompass discussions of urban sprawl, pollution and impacts on Native Americans; would be a good topic for those teaching ecology/environment units; and, could link older parents (40+) and this age student through a “in my day” kind of hands-on exhibit;

When asked why they had chosen “Transportation is important in American history/identity,” teachers indicated that this is an important idea to convey to students:

“As a country very dependent on the car, our culture is such that we don’t have much community interaction, whereas a country that walks/bikes everywhere perhaps has a better social community?” (8th grade History teacher)

“The concept of identity is a common theme in literature and English as a Second Language (ESL) courses so if I wanted to be able to make connections I’d choose this.” (ESL teacher at the high school and adult level)

When asked why they had chosen “How transportation has changed over time; repercussions of choices and changes,” teachers indicated that one can discuss the impact on the economy, population patterns and how technology is involved; that this demonstrates in a very tangible way the biological “Law of Unintended Consequences” which works well as a discussion in history but also can be worked into science (for example, considerations of entropy in Physics); and, that this big idea ties in well with 4th grade science study of the environment and ecology (“how people’s choices affect where they live;”

In terms of the big idea, “The choices that were made and how we live with them,” one high school Physics teacher commented: “I like to investigate factors affecting resource exploitation and factors impelling creative and inventive acts in science and technology—I think this would be covered in this big idea.”

In terms of the big idea, “Transportation’s impact on daily life,” teachers felt that this is always an interesting topic for students because it deals with real life, can be immediately identified with and might require less pre-teaching. It was also perceived as much more experiential:

“I want students to experience the differences between transportation ‘back then’ and transportation today, so that they have an awareness of the world they live in.....history helps them to see today.” (6th grade social studies and language arts teacher)

In terms of the big idea, “Transportation is important in many areas of American life,” the 8th grade history teacher suggested this topic provides an opportunity to look at the “overall scope of transportation’s effect:

“Did you realize it affects mail, people’s movements, the movement of ideas, recreation, natural resources. I believe many of my students take transportation for granted and don’t realize how it affects them.”

Discussing these big ideas also prompted a conversation about standards, particularly the Standards of Learning (SOL) in Virginia, which are dictating much of what is being taught (“I skipped the Spanish American War last year so that I could get to the Reagan era.”). Virginia teachers said that it will be important for the museum to acknowledge these standards and others around the country as they develop the exhibition (“maybe even attaching the SOLs to the appropriate themes.”). Museum staff indicated that they are using the National History standards as guidelines, which seemed to assure the Focus Group teachers. Teachers also said that many of the standards emphasize process as well as concepts:

“For example, in Maryland we need to stress maps, charts and graphs.” (6th grade social studies and language arts teacher)

“We need to allow students opportunities to use databases and primary source documents, and teach them critical reading skills—all of this is supported well by the museum experience. (High school Physics teacher)

Settings As with Focus Group 1 teachers, these teachers were very enthusiastic about the settings. Like the elementary teachers, these teachers felt that the more accurate the settings the better, for example, they should be dirty:

“I want my students to be historians and to perceive the changes. I like when the objects are arranged in such a way that the exhibit tells the student how transportation has changed. What I want here is what I can not do in my classroom. It is important to provide students a visual and multi-sensory experience like *Field to Factory*. Through music and a rich context the story is told.” (6th grade Language Arts and Social Studies teacher)

In terms of the ranking of these settings, three teachers chose the Washington, D.C., 1900 Streetcar City setting as their highest ranked; two teachers chose the 1890 Ellis Island and Angel Island Ocean Crossing setting; and one teacher chose the 1903 Crossing the Continent by Automobile setting. Teachers felt that the Washington, D.C., 1900 Streetcar City setting would be the most immediate and familiar but that many students would easily identify with the immigration stories also (“It helps them to see themselves.”) and that that setting brought in the global perspective. Most felt that the Crossing the Continent by Automobile setting was probably the most uniquely American, covering all of the 20th Century with a lot of pop culture tie-ins (Ho Jos, Motel 6, etc.), which work well with students of this age. However one teacher cautioned not to romanticize the automobile story too much.

Discussion

There was a great deal of agreement among both focus groups regarding the proposed exhibition. They were very supportive of the themes and big ideas, while cautioning the importance of communicating these ideas concretely and experientially to visitors of all ages. They were enthusiastic about the potential for an interdisciplinary approach and the exhibition's focus on local and real world perspectives as told through the period settings. The focus groups did raise the issue of the need for balance and tough discussions about the realities of economics, the impact of choices and the consequences of human action and population growth on transportation.

All groups felt that the exhibition should build on what students already know and projects they are already engaged in at school. There was also general agreement among groups on the preferred strategies for teaching students about the history of transportation, with a strong desire to have the curriculum be relevant, "real" and involve "critical thinking and problem-solving." They strongly supported proposed learning strategies such as project-based learning, the appropriate use of technology and living history. Focus groups also felt that the exhibition should emphasize "process," such as being historians, asking good questions, analyzing primary source materials, etc.

Best Practices Analysis

Another task of this front-end study was to conduct a literature review/telephone interview study focused on best practices, both for transportation exhibitions, but also generally in history museums and other museums if relevant. Accordingly, Institute for Learning Innovation researchers collected data from a group of history museums, historical societies, historical sites and other collections-based institutions including a natural history museum. Interviews with ten museum professionals and a search of current literature provided information about best practices and established general concepts and specific techniques that contribute to exemplary exhibitions and programming. The results of this small study are not conclusive, nor comprehensive, but do identify some common characteristics of best practices in exhibitions and programming.

While each interviewee emphasized differing elements of an exemplary program, there was some commonality in the responses. The following six characteristics were identified in more than half of the interviews as critical to an effective exhibition:

- Relate to people's prior knowledge and experience
- Utilize rich narratives and stories
- Provide clear advance organizers and orientation
- Adopt multiple, multi-sensory presentation approaches and make options clear
- Create relevant context for artifacts and concepts
- Design a variety of spaces which afford flexibility and comfort

To identify current thinking about the topic of best practices and to provide specific examples of current techniques various museum profession journals and publications were examined.

Multiple key word searches of various databases (Library of Congress, Smithsonian, ERIC, Museum Learning Collaborative), as well as the index of the Journal for Museum Education provided sources for the bibliography. An annotated bibliography of selected current literature was created based on the results of the search. A copy of the bibliography is included in Appendix D.

Interviews were conducted either in person or over the telephone. Discussions were generally free-flow, with the survey instrument (Appendix E) used to clarify the interviewees' points. Sixteen people participated in the study, the majority of whom were education staff at various museums – typically, history museums or historical societies; some museum directors and educators at universities were also included. Interviewees were selected based upon their acknowledged expertise in the field and/or based upon the recommendation of study staff. A list of the interviewees is in Appendix F. Initially, interviewees provided details about one specific program that they considered exemplary; the scope of the survey was later widened to gather information about multiple programs.

Relate to people's prior knowledge and experience

Across the board, the literature reviewed and museum professionals interviewed suggested that effective exhibitions and programs successfully take into account people's prior knowledge, interests and beliefs when developing the critical "hooks" or entry points that will enable people to relate to the new information being presented in an exhibition or program. Visitors want to be able to "see themselves" within an exhibition or program, so either consciously or unconsciously, they are seeking ways to connect this particular exhibition or program to who they are, what they need and/or are curious about.

All agreed that the challenge is designing exhibitions/programs for a mass market, which simultaneously accommodates the unique prior experiences and interests of all potential users and they recognized the unique challenge of doing so at the National Museum of American History. All interviewed recommended utilizing front-end evaluation (evaluation designed to assess what people knew about or were interested in knowing about the topic conducted at the beginning of the exhibition development process) and formative evaluation further along in the process of development to assure that as more specific messages are crafted and presentation strategies developed that they also make sense to visitors. This project has made a good start at integrating evaluation into the process. There is a good sense of how the general public and teachers feel about the current proposals but it will be important to continue to assess this along the way.

All also agreed that the evidence for the success of any exhibition or program is not that every visitor walks out of the experience knowing some specific pre-determined new facts or concepts, but rather that the exhibition or program affords every visitor the opportunity to connect and learn or reinforce at least one new thing that is personally relevant to them. It is a given that visitors will be entering and exiting the exhibition with differing agendas and purposes; the effective exhibition or program permits, in fact, encourages visitors to bring their own understandings and interests to the experience.

Utilize rich narratives and stories

For a long time there has been a feeling in the museum community that it is important to convey information through rich narratives and stories and now new developments in neuroscience research are providing the evidence for why such strategies might be effective. Research suggests that human brains are constructed in such a way as to gather and process information utilizing scripts and other narrative forms. This is particularly the case for children but probably adults as well. The implications of this research are quite straightforward--if we really want someone to attend to, understand and remember an idea or set of concepts the best way to communicate them is through a story or other narrative form.

Fortunately many museums are exploring how to use the narrative form more effectively in exhibitions and programs. Case studies, oral histories, object theatres and more traditional museum theatre are all narrative devices that are being used with varying success at a variety of institutions. Advice from those interviewed suggested it is not enough to utilize rich narratives and stories in exhibitions and programs. The stories need to be ones that people can relate to, using a level of vocabulary and concepts that people understand and to which they can relate. People of different cultures and backgrounds are familiar and comfortable with different narrative forms so a variety of them should be used (and formatively tested) to ensure that they communicate well.

In addition to seemingly gathering and processing information in these ways, another powerful component of rich narratives and stories are their ability to touch us emotionally (probably also hard-wired). Many interviewed felt that effective exhibitions and programs impact participants emotionally. Research suggests that emotion is a vital aspect of learning and problem solving and, consequently, it is an important dimension of any successful learning experience. Capitalizing on emotion is an important key to successful educational exhibitions and programs. Fun, excitement, joy, mystery, sadness, surprise, pathos, anticipation and empathy are all emotional experiences that can and should be considered fundamental constituents of learning and efforts to utilize them appropriately into exhibition and program content should be explored.

One other aspect of effective exhibitions and programs that consistently was reinforced in the literature and interviews was the role of real live humans, as actors, facilitators, interpreters, etc. Certainly this was the case when discussing the role of stories and other narrative forms. Whether working with school, family, or tour groups, institutions had found that efforts to facilitate interactions with visitors by using real people was fairly consistently rewarding both personally and intellectually for visitors. Clearly this strategy has tremendous human resource implications for what is needed to develop and implement an effective exhibition or program but it needs to be considered nonetheless.

Several of the interviewees reported using theater and first person interpretation as a way of transmitting their message. At the Minnesota Historical Society, first person characters stroll through the galleries making themselves available for questioning by the visitors. At the Ohio Historical Society Michael Follin developed scripts that present information tailored to the specific area and/or topic. These presentations ranged from portrayal of citizens in the Civil War, to providing hands-on depiction of early pottery techniques. At the Western Pennsylvania

Historical Society, Anne Fortescue used theater to discuss the impact of the Vietnam War on the lives of people in that geographic region. She believed that using theater as a medium served as an icebreaker to facilitate audience discussion, particularly for difficult and sensitive topics such as the Vietnam War. At both these museums, as well as others, the audience has the ability to talk directly with the characters or actors (in contrast to providing a “set piece”). This was perceived to be an enhanced way to connect the audience with the topic.

Those interviewed felt that oral histories and personal stories conveyed through museum theatre, video, film and other narrative forms can be immediate and powerful vehicles for presenting history, as well as communicating important present-day information and encouraging visitors to reflect upon the implications of these ideas for the future. However, such efforts work effectively only when the effort is based on solid historical research (oral histories or primary source documents), and the development of a story or a series of stories that resonate well conceptually and emotionally with the target audience(s). A great deal of thought also needs to go into how these experiences are integrated into the total visitor experience. Are there separate theatre or film spaces or are these narrative forms integrated within the exhibition space in alcoves, for example? Is the visitor a passive watcher or active participant in the theatre or film piece? Each of these questions and others need to be addressed as the interpretive plan is developed.

Provide clear advance organizers and orientation

Another consistent finding from the literature review and interviews was the importance of effective advance organizers and orientation, at three different levels: 1) if possible, prior to visiting the museum; 2) once inside the museum but not at the exhibition; and, 3) within the exhibition itself.

As suggested, people felt that the sooner the visitor could be provided advance preparation for the experience the better and, consequently, discussed the innovative use of web sites and advance marketing which can give people a sense of what to expect from an exhibition or program experience even before they arrive at the museum. In terms of scheduled school groups and other organized groups, museum professionals thought it was essential to provide some sort of pre-trip materials which can serve to orient the group to the experience.

Once inside the building visitors need to know what their exhibition/programming options are, where the *America on the Move* exhibition is and how it might fit into their visit. Virtually every museum professional interviewed indicated that their institution provides visitors with some sort of map or orientation sheet that describes the general floor plan and contents of the museum. But museum staff felt that many of these efforts fell far short of the ideal, primarily because maps are difficult for many visitors to use and the techniques are not well integrated into the museum experience itself. Stationary maps that incorporate graphic elements into them such as architectural features of the building or icon objects and clearly helped people know where they were at the moment seemed to work well, as did paper maps incorporating similar elements. It was important for paper maps to not only be distributed at an information desk, but throughout the museum, since some people only use maps when they are unsure of where they are. Good

signage was also seen as an essential element of orientation and it was seen as critical that maps and signage systems be formatively tested while under development.

Research also suggested that visitors are interested in knowing not only the content of what they will see (i.e. an exhibition about the history of transportation in the U.S.), but what they will get to do and see in the exhibition as well. Museum staff that felt their institutions were doing well in this area had explored ways to incorporate images either of objects or people interacting with objects or both into their maps and orientation materials.

Once at the exhibition, visitors also need to know what it is about, how to make their way through it, what their options are in terms of the experience, etc. In looking at the literature and talking to museum professionals, no clear strategies emerged as ones that always work. The challenge seems to be that different people prefer different types of orientation. Some, for example, like introductory films or panels that tell them what the exhibition is about, others prefer to make their way through on their own figuring out the central ideas themselves. The bottom line is probably that the best strategy is to use a variety of orientation options that are available, but not required. This means not producing an introductory film experience that everyone has to see before entering the exhibition but perhaps making one available as an option.

For truth be known, a great deal of effort in orientation has concentrated on the entryway to exhibitions and has resulted in disappointment when visitors do not linger to read long introductory panels or watch introductory videos. The Institute's suggestion is to consider decentralizing the notion of an introduction and insuring that the major idea or ideas are repeated, clearly and explicitly, throughout the exhibition. You probably still want a brief introduction of some kind at the entryway (some visitors do like and need this), but it need not be long and involved. By incorporating advance organizers into the entire design you free up space at the entrance to make an inviting threshold, a contextualizing portal into the real "stuff" people came to see.

Adopt multiple, multi-sensory presentation approaches and make options clear

Consistently, the literature and interviews suggested that effective exhibitions and programs utilize a variety of presentation strategies, including but not limited to, traditional exhibitry, photographs, film, video, theatre, computer interactives, hands-on discovery areas, etc. What was important was to offer a variety of experience options and to make these options as clear as possible to visitors. For example, Ellen Willenbecher at Hillwood Museum indicated that they always include "reflective space" in an exhibition to encourage visitor contemplation and reflection. She also mentioned the use of computer-based information access systems--whether in stationary kiosk areas or as hand-held devices, which enable visitors to have more in-depth experiences or access the information that is personally relevant to them.

A number of interview participants talked about the importance of providing hands-on activities in exhibitions, a recognized popular activity for both children and adults. For example, the Maryland Historical Society has developed haversacks containing activities and additional information about a variety of topics presented in their exhibitions. Although planned for use by family groups, adult visitors have used them as well. The contents of the haversacks are

designed to aid the visitor as they travel through the museum by highlighting points of interest and/or providing background information. A number of home activities are suggested as well, enabling visitors to extend their experience once they leave the museum.

Several participants mentioned establishing new ways of looking at objects and adding a multidisciplinary approach to an exhibition. For example, an adult program at the Maryland Historical Society used paintings in its collection to spur discussion of 18th century life. The museum called on experts in fields such as geography, urban design, engineering, etc. and asked them to examine and interpret paintings for meaning in their particular fields. Round table discussions were used to share the information. Staff indicated that audience response to this program was positive. They appreciated access to the archives to view the paintings and enjoyed the unique perspectives that the experts provided.

Several people talked about the use of technology in exhibitions, particularly computer interactives, suggesting that technology can be a wonderful tool for better looking at and understanding objects and ideas. Although they felt that technology is an important element in an effective exhibition, it should be viewed as a tool, not an end in itself. Since computer interactives are expensive and time-consuming to produce well, they should be used judiciously, not as dumping grounds for all the information that did not make its way into the exhibition. For example, technology can be used well to place people in role-playing situations where their choices result in a variety of consequences. Technology can also personalize information or allow visitors to access the collection in new and unique ways. All uses should be formatively tested and it is important to remember that people like to participate in these experiences in groups as well, so providing adequate seating is important. Some people prefer to watch and participate indirectly, so large overhead monitors that people can watch from are beneficial also.

Create relevant context for artifacts and concepts

The literature and interviews strongly supported the fact that there are few educational media as effective as quality, well-designed exhibitions and programs. The immediacy of real things, set in well-designed, appropriate contexts, provides tangible and readily accessible images that are memorable and enrich and extend meaning for visitors. Increasingly, one way that museums maximize the use of design, is through the creation of immersion experiences. Few museum experiences are more compelling to visitors than immersion experiences; experiences that envelop the visitor in the sounds, smells, sights, textures and even tastes of a place or event. Immersion experiences take many forms depending upon the nature of the site and its collections.

What seems to be important is to provide a variety of these settings, some of which can be walked through and interacted with, others looked at from a distance, with clear guidelines about which is which. These immersive spaces also need to be balanced by other presentations: interactive and contemplative spaces for children and adults, environmental treatments and computer interactives, objects with graphic panels, etc.

Once again staff and volunteers can play an important role in all of this as well for humans RE great facilitators of context. What this requires though is re-thinking roles for docents or floor

staff as facilitators of experiences, rather than disseminators of information, and making such a commitment requires changes in the training and mentoring of staff and volunteers, but research suggests that the effort to do so is worth the effort.

Design a variety of spaces which afford flexibility and comfort

The literature and interviews suggested that in order to implement an effective exhibition and set of programs a variety of spaces are required including spaces that support groups and some that allow for individuals to interact, quiet spaces for reflection and contemplation and awe-inspiring spaces.

The best practices analysis suggests that the following configuration of spaces would be optimum in the new exhibition:

- 1) At least two alcoves, one with satellite link/multimedia capabilities (one of these could be a proposed node with the capability of being closed off). These would be dedicated educational spaces suitable for self-guided experiences with objects/activities and facilitated activities with gallery interpreters, etc.
- 2) one to two set-aside flexible spaces, for classroom/senior/camp group activity, which will accommodate groups of 30, at least one within the exhibition. The desire is for these spaces to not be traditional classrooms, particularly the spaces within the exhibition, which might actually be themed and have glass windows that visitors could see into. These would be dedicated educational spaces suitable for presentations by educators/historians, public programs (e.g. family programs) and talks by historians.
- 3) one amphitheatre size spaces that will accommodate 60. This could be a theatre style space with seats or a multi-tiered space with carpeted seats. These would be dedicated educational spaces suitable for lecture presentations by historians, films, theatre programs

Beyond the specific spaces, the key requirements for space discussed were 1) adequate and flexible space, including moveable walls and modular furniture if possible and 2) plenty of room for storage to support hands-on workshops and other activities.

Recommendations

Based on all aspects of the front-end study the following recommendations are made:

- 1) Utilize multidisciplinary approaches to the content
- 2) Include different media to create a multi-sensory experience that animates the history (experiences that envelop the visitor in the sounds, smells, sights, textures and, if possible, even tastes of a place or event. for example, this age child loves old commercials, advertisements, period music, etc.)
- 3) Develop hands-on activities for children and adults
- 4) Utilize living history and other narrative forms to tell powerful stories that conceptually and emotionally connect to people

- 5) Include diary/journal accounts, letters, oral histories and other primary source materials;
- 6) Create experiential activities that allow visitors to experience history firsthand
- 7) Develop hooks and make ideas concrete, for example, tracing a single object's journey, such as an orange, from its origin to someone's home