

EXHIBITION

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EXHIBITIONIST

A journal of reflective practice, published by the **National Association of Museum Exhibition (NAME)**, the Standing Professional Committee on Exhibition of the American Association of Museums.

NAME

NATIONAL ASSOCIATION FOR MUSEUM EXHIBITION

www.N_A_M_E.org



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Exhibitionist is published by the National Association for Museum Exhibition (NAME), the Standing Professional Committee on Exhibition of the American Association of Museums (AAM). Opinions expressed in Exhibitionist are those of the authors, and do not represent the policies of NAME and/or AAM.

HOW TO CONTRIBUTE TO EXHIBITIONIST

Unsolicited contributions to Exhibitionist are welcomed from all concerned with museum exhibition. Guidelines for submission are posted on the NAME web site at <http://www.N-A-M-E.org>, or contact Jane Bedno, jbedno@uarts.edu or 215-717-6327.

Queries: Feel free to contact the editor with questions about the suitability of a proposed contribution, length, format, or other issues.

Where: Material for inclusion in "Exhibits Newline" should be sent to Phyllis Rabineau rabineau@chicagohistory.org. All other submissions should be sent to Jane Bedno.

How: We prefer to receive initial submissions electronically. If you don't have access to e-mail, use regular mail to send a hard copy accompanied by a CD or zip disc.

Artwork: Artwork will normally be requested after initial review of your submission.

Citations: Please follow the format used in the articles in this issue for citing sources and for listing "References Cited" at the end of the article.

Apologia: Due to space limitations, we can't accept all material submitted – but we are courteous when we have to turn something down. Accepted submissions may be edited for clarity and length.

HOW TO SUBSCRIBE TO EXHIBITIONIST

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Back issues of Exhibitionist may be purchased for \$15 each on our web site, www.N_A_M_E.org.



The NAME Board of Directors convened on Sunday, May 18 in Portland, Oregon to discuss questions and procedures concerning membership, finances, and

programming; and to review the activities of the past year. Thanks to the efforts of Leslie Cohen, 1st VP, Program Chair, NAME had a fine slate of sessions and programs at AAM-Portland. Over one hundred NAME members gathered together at the Issues Luncheon to hear Michael Sand, President, Rare Media Done Well address the issue of "special needs." Thank you Michael for providing us with an interactive lunch experience, which helped us, better understand the role design can play in accommodating special needs. The NAME Marketplace of Ideas featured "Museum's on the Go." Thank you to Tamara Biggs for organizing the Marketplace of Ideas.

Gretchen Overhiser did a splendid job of coordinating the 2002/2003 Excellence in Exhibition Competition. She has volunteered to manage this year's competition. Thank you to Whitney Watson, Senior Exhibit Designer, Missouri Historical Society, for serving as the NAME judge for the 2002/2003 Excellence in Exhibition Competition. Congratulations to the 2002-2003 competition winners:

Alice's Wonderland: A Most Curious Adventure, Children's Discovery Museum of San Jose <http://www.cdm.org/>

Invention at Play,
National Museum of American History
<http://americanhistory.si.edu/>

Jellies: Living Art,
Monterey Bay Aquarium
<http://www.montereybayaquarium.com/>

Joseph McCarthy: A Modern Tragedy,
Outagamie County Historical Society
<http://www.foxvalleyhistory.org/>

On Stage and Behind the Scenes,
Indianapolis Children's Museum
<http://www.childrensmuseum.org/>

Entries are being accepted for the 16th Annual Excellence in Exhibition Competition; information about the competition and entry forms can be found on the NAME Website (www.N-A-M-E.org). The deadline for entries is January 9, 2004. Questions regarding the competition should be directed to Gretchen Overhiser, Exhibition Competition Coordinator. Gretchen can be reached at gretchenoverhiser@yahoo.com.

Thank you Rick Sullivan and the Oregon Coast Aquarium for designing & fabricating graphics with a northwest coast flair for the NAME booth, and for setting up the NAME booth at the MuseumEXPO at AAM-Portland. NAME members from Louisiana who are interested in creating a New Orleans inspired booth for AAM-New Orleans should contact me.

NAME welcomes aboard Salle Tulchin as the new Mountain Plains Co-Rep. As many of you know, the Mountain Plains Region has been without a NAME Regional Representative for some time now; and many of the activities associated with that position have been in abeyance. If you reside in the Mountain Plains Region and would like to volunteer your time, energy, and skills to assist Salle, please contact her at stulchin@dmns.org or (303) 370-8283.

The upcoming year, 2004, is an election year. Several of the Officers and Board Members of NAME will be leaving their positions, as they have served the maximum terms as allowed by our operating bylaws. I will be one of the individuals who will be stepping down, as will Leslie Cohen, NAME's 1st Vice-President. NAME will need new leaders to fill these key positions. I encourage each of you to consider offering your skills and talents to benefit NAME. NAME needs individuals of diverse backgrounds passionate about exhibits and the profession and committed to the mission and vision of NAME. NAME needs individuals with experience in fundraising, marketing and public relations, and administration. Elections will be held in early spring for officers and board members to serve NAME for the period of August 2004 to July 2006. The nominating committee is at work to recruit people with vision and commitment to NAME and the profession.

The Chair of the Nominating Committee is Whitney Watson. Whitney can be contacted at wmw@mohistory.org or (314) 361-7356.

Kristine
Kristine L. Hastreiter
President, NAME



Dear reader;
In this issue, we focus on the newest developments in technology in and for the museum. In the physical museum environment, control is now possible to an extent unimagined fifty years ago. Digital interactives in exhibits become more and more sophisticated, and who remembers how recently the web became a part of the life of all of us? The National Constitution Center, for example, is almost without collections materials. It is a masterpiece of the use of interpretive devices which couldn't have been envisioned when I first worked in the museum environment. But digital presentation will never be better than its content, as the article on Bilingualism reminds us.

Next issue, we look at all the Senses in Exhibits, a subject which will also be addressed in an AAM/NAME roundtable session. And next fall, the International Exhibition Scene and international issues of which American professionals should be aware will be the central subject.

As always, we welcome submissions (see the specifics on the facing page).

Jane Bedno
Editor, Exhibitionist

WORDS FROM THE PRESIDENT

AND THE EDITOR



A More Perfect Union of Medium and Message



Four sheets of paper, filled edge to edge with writing, over 200 years old: when it comes to the United States Constitution, that's the artifact everyone is thinking of. It continues its repose at the US National Archives and Records Administration. When planning began for the National Constitution Center, a brand new museum in Philadelphia dedicated to honoring and explaining the U.S. Constitution, the most frequently asked question was, "How will you make that interesting? You don't even have the original Constitution!"

It could have been a memorial to the Constitution. It could have focused on being a history museum showcasing the historical relevance of the document. But just as the Founding Fathers had a mandate to create a framework of government that could govern and still keep power in the hands of the citizens, the founders of the National Constitution Center had the mandate to bring the Constitution to life in ways that would address the unique aspects of the Constitution, both historical and contemporary, and to do so in ways that would appeal to a broad spectrum of audiences including scholars, school groups, international visitors, and families. While the document itself may be small and old, its effect on the creation of America, and Americans, is broad-reaching, emotional, transfiguring, and contemporary. We needed to share those ideas with our visitors, to find ways to make the abstract feel real and accessible. With our Distinguished Scholars Board of top constitutional scholars, including three Supreme Court Justices and a Pulitzer Prize winning historian, ensuring that the content met rigorous requirements of scholarship, we had our work cut out for us.

Our solution was to create three paths along one 60,000 square feet doughnut-shaped hall. The outer path focuses on the historic significance of the Constitution

Article by: KAREN POLLARD
and JANET KAMIEN
National Constitution Center

Photography: ALEX FELDMAN

The National Constitution Center, on Philadelphia's Independence Mall, is the first museum in the world dedicated to honoring and explaining the U.S. Constitution through more than 100 interactive and multi-media exhibits, artifacts and film. It opened July 4, 2003



in a chronological fashion, utilizing video, story panels, immersive environments, and high tech interactive activities embedded in the reading rail. The inner path provides opportunities for visitors to engage with the museum and each other by posting their opinions on meta-questions like "What does it mean to be an American?" and "Have we established justice?" and to dig deeper into constitutional issues by exploring the Interactive Constitution, a web based, searchable, annotated version of the Constitution. The middle path spotlights contemporary constitutional issues and civic. At the center of the circle pulses the heart of the National Constitution Center and the first exhibit experience for visitors, a multimedia orientation production entitled Freedom Rising.

"It is a truly wonderful experience and it isn't like a boring history school lesson; it is more of an experience that will last forever in your mind"*

The utilization of audio/visual technology and computer driven interactives solved several problems for us. The high tech environment drives home the how current and contemporary the Constitution is in the lives of Americans, and also allows us to create powerfully emotional experiences. It gave us a way to allow visitors to engage in civic skills they could then put into practice in their own lives. The technology allowed us to build in ways to update the content so as to keep the exhibit current and fresh.

"A perfect blend of high tech and high touch, the Constitution reaches across the multiple intelligences to help all peo-

ple learn about the roots of our nation."* In order to make the exhibit come alive we relied heavily on our software providers, who provided inspired solutions and. A More Perfect Union, a consortium of software producers headed by Fred Brink, of Fred Brink Company, and Salvatore Raciti, of Animation Café, worked hand in hand with the National Constitution Center and our scholars to craft elements, both interactive and passive, that were content rich but also fun and moving. From the reverential Ubiquitous Soldier, a perpetually marching soldier whose image morphs through time, to the simple interactivity of the Balance of Power, where a computer animated president, congressman, and justice, vie for power on a three sided seesaw, A More Perfect Union sought to

blend high design and high content with a hearty dash of fun and whimsy.

Donna Lawrence Productions created an astounding production in our orientation theater experience, *Freedom Rising*, which is presented in the Kimmel Theater, a star-shaped, steeply raked theater in the round that seats 320+ visitors. It could have focused on men in powdered wigs and the drier aspects of constitutional law but instead used groundbreaking and unusual techniques.

These include utilizing a live (professional) actor as a contemporary storyteller who carries the narrative thread. Actors are able to interact with the audience in ways that a prerecorded voiceover could not. They address the audience directly and they move throughout the theater space adding surprise and movement to an otherwise static performance. The actor is not bewigged, but is dressed in contemporary clothes. The pool of actors we draw from is representative of America: men and women of different ages and races.

"Great use of multimedia throughout the museum. Very informative and thought provoking exhibits ... I particularly enjoyed the combination of state of the art multimedia and a live actor during the initial presentation in the theater. Fortunately I live in the Philadelphia area so I will be back to enjoy many more times. Fantastic!!!"

The element of surprise is important to this experience. Projections onto the floor direct focus into center of the theater. Visitors audibly gasp as the 360 screen which surrounds them bursts into life with flames signaling the start of the Revolutionary War. "*Freedom Rising*" includes never before seen technology, such as adding moving images to historical etchings so that the historical scenes appear to come to life. At a highpoint in the show, a scrim lowers creating a pillar of light sweeping the visitor up and moving them into the present then turns the show, and the Constitution, over to you, the visitor. The beauty of the imagery combined with the stirring and elegant score create an intensely emotional experience. As the document begins with those powerful words, "We the people," so does our presentation drive home that message by using the live actor to speak directly to the audience and utilizing images of Americans from all walks of life throughout the performance.

Try This at Home

The center path in the exhibit hall focuses on contemporary constitutional issues and civic education. One of our goals at the National Constitution Center is to allow visitors to familiarize themselves with different civic actions in hopes that they will be inspired to keep up active citizenship when they return home.

It was important to us to find ways to discuss civic duties, such as voting and jury service, and encourage visitors to practice them in their own lives. In all instances, we tried to keep the excitement and allure of

each of the experiences intact and to provide visitors with a substitute experience that would tantalize them and inspire them to "try this at home." We telescoped the essential elements of each experience allowing visitors to quickly pick up on the themes and ideas of each element.

In the voting section, we wanted to provide way to educate visitors about the candidates, cast a vote and see their vote make a difference. The idea of trying to recreate the close Kennedy/Nixon election was considered but was discarded as being off the message; since it was inaccurate to imply that new votes could affect the real historical outcome. Instead visitors are given a choice of ten deceased presidents and asked to vote for the one they feel was the most outstanding. Visitors are given the opportunity to research information on the candidates and to fill out an electronic ballot. Through use of a live tally, they can see immediately how their vote is affecting the outcome of the election.

"I had a great time! I especially enjoyed [sic] when we got to vote! I also



liked when I became president!"

In another area, exploring jury duty, visitors are seated in a real jury box. The large video screen they face is a window into an ordinary courtroom. As they watch, the court officer enters the room and begins to tidy up. He addresses the visitors as an assembled jury. The video starts off by addressing the most common inquiry of those called for jury duty, "How do I get out of this?" The officer responds by stressing how important the service is and why. This is all done in the informal courtroom setting, allowing the visitor to relax. The court officer is enthusiastic, wise and also funny. He is very passionate about the role of the citizen in court proceedings and uses historical and contemporary examples to persuade the "jury" of the importance of their task. At the end, a very stern judge enters the courtroom and dismisses the "jury" to continue their visit, warning them, "Don't expect to get off this easy when you are called for real jury duty." We hope this will create a positive response to a summons for jury service.

Within the exhibit, other opportunities of this ilk are provided through technology: Law Making Machines allows visitors to explore the business of making a law, and, especially popular with children, the Presidential Oath of Office in which visitors are able to be sworn in as president through the magic of blue screen technology.

Keeping It Current

Outdated information is the bane of any museum when changes in science, politics, or history can make the institution look old and out of touch before it even opens. Since we needed to keep our content very fresh, we built into the technology ways to keep content as accurate and up to date

as possible.

In *Your States' Story*, visitors touch a state on a map of the United States and have revealed the state's representation. It includes the names of the Governor, the Senators, and the Representatives of each state as well as quirky information like the state bird. As changes to this list of individuals can happen at any time, *A More Perfect Union* crafted an update-able database that can be easily accessed. That way, no matter what has happened in an election or course of a year, we can always have accurate information available to our visitors.

Often our solution for staying current is low tech or no tech. The chronological path brings visitors from the pre-revolutionary moment up to the most recent year in history. At that point, visitors are invited to take their own place in history by using pencil and paper to discuss current issues posed by the National Constitution Center. Recent articles are posted, emphasizing the freshness of each topic. The response to this has been phenomenal. Visitors are leaving thoughtful and impassioned responses to issues such as gun control, the Patriot Act and posting the Ten Commandments in courtrooms. They are also interested in



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reading the responses of fellow visitors. These current issues areas accomplish two goals. One, visitors are reminded that the current interpretation of the Constitution is in their hands and, two, they are encouraged to get excited about issues and speak out both to us and to other visitors, a prime form of active citizenship.

"Very informative and entertaining. I also enjoyed the comment boards that were posted on the walls--what a way to represent free speech!"*

A public program space was built into the center path of the exhibit. Here the National Constitution Center is able to

encourage visitors to engage in staff guided discussion and debate about historical and current issues. This is also a space where we can respond immediately to current constitutional issues.

Touching Their Emotions

For most people, the Constitution is a dry document (and not very well understood). Visitors to the museum may expect to be bored and mystified. To overcome this expectation, we tried to make the Constitution's meaning clear and to involve people emotionally. Using technology, we were able to create moving experiences that reach beyond the cerebral mindset which many visitors bring to museums. Mingling historic facts with affective elements and the visitor's own experience, *Freedom Rising* orients visitors, not to the museum, but to the

greater American narrative. This production takes visitors from the pre-revolutionary moment and brings them to the present, then hands off the story of the Constitution for them to write the next chapters. The show is stunning and inspiring. It walks a fine line, but never crosses over into chest thumping patriotism. Another emotional highpoint is the Oath of Citizenship, a video piece that captures the excitement of 300plus people becoming citizens, an aspect of citizenship not many of us get to experience. This is a pity because few people are as proud to be Americans as those who have just taken the Oath of Citizenship. The camera lingers on individual faces and reactions, the nervousness, the fear, and the shining joy at the moment they are declared citizens. This video communicates this experience in a way no writ-

ten label or visitor recreation could have done. Not all the emotional elements are in the center path. There are emotional highpoints in the historical section as well. Sometimes what you know logically can be shocking when you experience it. Can You Vote is a perfect example. It's a simple questionnaire, repeated at different points in constitutional history, which asks questions like "Are you a man?" "Are you white?" "Have you paid taxes in this state?" Visitors use a touchscreen to answer yes or no and anytime they answer in a way that would have prohibited them from voting in that time and place, a payoff screen pops up saying "DENIED". This element received very positive responses during visitor testing. What we discovered, is that, while visitors might know intellectually that historically they could not vote if they were a woman or person of color, there is a visceral shock to being denied. During visitor testing, we discovered that visitors were not content to try only once to see if they could vote. They wanted to try again immediately with different combinations to see how the final response would change, so a "Try Again" button was added. This element is especially popular with kids who want to get to a "Yes" payoff screen. They will enter information multiple times just to see what combination of attributes was necessary in order to vote at each particular time and state.

Not everyone is comfortable with technology, so technology was not our only method of presenting information. Visitors get more out of an experience when provided with different ways of getting information. Our content is also relayed using exquisitely designed labels and images. We have

unique and meaningful artifacts on display. The exhibit gallery is staffed with interpreters who can expand on visitor experiences. Scholars and the interpreters conduct programs in our public program space located within the exhibit gallery. This human interaction keeps the technology from overwhelming the space.

"It was important to have the opportunity [sic] to express my opinions with the little notes and I enjoyed the artifacts on exhibit and getting to sign the Constitution."

Visitors also crave physical, tangible means of expression. Our signing moment is one of those times. Signer's Hall is occupied by statues of the 42 men who were present at the moment of signing (including three who were present, but refused to sign). In this room, we ask visitors to consider carefully and to add their names to the list of signers or dissenters. Though this experience was first conceived as an electronic signature, after extensive visitor testing at our remote "I Signed the Constitution" locations,* what really conveyed the gravity of signing the Constitution was the physical sensation of pen on paper, so that's what we did. Though we've accomplished much, the journey has just begun. Visitor response has been primarily positive. We are now faced with the great task: that of keeping the exhibit current, balanced, and focused on We, the People. Our plans include providing constitutional context for contemporary issues, being a forum for discussion and debate, and promoting active citizenship. These are the challenges of the future.

I Signed the Constitution: A program where, throughout the country on Constitution Day (September 17) stations are set up for people to learn more about the Constitution and to sign parchment paper that is archived in perpetuity by the NCC.





Quotes from our visitors

"I had a blast at the NCC; I only wish I had more time to spend there. I was incredibly moved by the film presentation, and I thought that the interactive exhibits were awesome -- I think it is a great way to get people actively involved in learning about the Constitution. As someone who never knew much about the details, the NCC created in me a much deeper appreciation for the origins of our country. It was also a great way to get more detailed information before visiting Independence Hall. I also loved the Signers"

"The exhibits were wonderful, the introductory presentation was powerful, there was almost too much to see and do! I will return."

"Fantastic interaction and interesting fusion of technology and how the Constitution affects our lives. Thank you!!!!!"

"Great job! Love all of the interactive technology!! It makes it fun!"

"I especially enjoyed the interactive amusements. As a kid I never enjoy museums to the full extent, but this was

different and fun! I hope to come back in the future!"

"Inspiring and excellent presentation of the meaning and the development of our most important document."

"There are a lot of artifacts, and demonstrations to help explain what the Constitution means and how it works."

"I really enjoyed the chronological run through of history with a slant on the constitution. Also the controversial issues at the end before the signers hall were very thought provoking, and presented without the raging nationalist sentiment prevalent since 9/11"

*Quotes from our Visitor Survey: All of the quotes are from our visitor surveys.

The web address for the National Constitution Center is National Constitution Center

<http://www.constitutioncenter.org/>



Karen Pollard
(uisgeaon@yahoo.com)

is the Exhibit Manager at the National Constitution Center. She is a graduate of the Museum Exhibition Planning and Design program at the University of the Arts.

Janet Kamien consulted as Director of Exhibits for the National Constitution Center and is an Independent Museum Consultant and a member of The Museum Group.



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PASSIVE AND ACTIVE: MICROCLIMATE GENERATION

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Article by:
JERRY SHINER

Perhaps there is a museum, someplace, where visitors can be trusted not to touch the objects on display, where the humidity is always stable, and the temperature is forever comfortable. With no dust or pollutants in the air, artifacts can be left naked to the elements, and conservators fret only over the occasional accident or new acquisition.

The rest of us must still deal with those less corporeal culprits: light, pollution, and moisture. Climate in a gallery may be made hospitable to visitors with some ease, but the conditions demanded by objects conservators are often much harder to attain. In the last few years attention has dramatically shifted to the display case as a device for creating and

maintaining a safe internal environment—often one that differs from the surrounding ambient air in temperature, humidity, or gaseous content—in short a microclimate.

Nested Shells

It may be useful to think of our environment, and even our objects and ourselves, as components in a series of nested shells. The first is our atmosphere, the next is shelters we build: homes, bus shelters, domed stadiums, factories, and of course, museums. Inside our shelters we keep dry, and try to heat or cool our rooms as needed. This shell game goes on, system nesting within system, until we reach the level of

living cells. A big part of the business of every living cell is to control the distribution of water (remember the pretty rainbow and the gentle showers?). Each tiny cell must carefully control its own internal micro-environment—too much or too little moisture can be deadly.

At the Bottom of It All is Moisture
Almost all the organic objects, and many inorganic materials in museum collections are composed of microscopic cells or fine structures. Whether dead or alive, these cells all contain moisture, and exactly how much moisture they contain is very important to their behavior. Most of us know that too much moisture will cause corrosion or oxidation, or encourage the growth of new life to feed on old (mold, etc.). Small changes in moisture content can also effect mechanical changes. The stresses created can be just as dangerous as destruction by an outside agent, and will vary with by frequency, size and duration of changes in moisture levels.



Controlling Humidity

We modify the air temperature in buildings to keep us comfortable. From a mechanical point of view, temperature control is easy. However, changes in air temperature introduce another set of variables: any change in temperature varies the air's ability to hold moisture. When air cools it can hold less moisture; if the air cools far enough, the moisture will condense as fog or dew (the temperature at which the water begins to condense out is known as the dew point). The opposite is true as well: when heated, the air's ability to hold moisture increases, and the air feels dryer. As a consequence, while the absolute moisture content of the air may stay the same, the saturation of the air varies with temperature. This is expressed as Relative Humidity (RH). In short, RH is a way of expressing how much water air DOES hold, compared to of how much water it CAN hold, at a given temperature. RH is always dependent on temperature. Here's an example: Air at 20 deg c can

hold a maximum of x grams of water in each cubic meter (before the water starts to condense out as fog or dew). A small room containing Xx cubic meters will then hold x grams of water if the air is at saturation (100% RH). If the air the same room contains only x grams of water at the same temperature, it will have a moisture content of only 50% (relative to the maximum it can hold)

Things start to get interesting when we raise the temperature of the air in the room, because warmer air can hold more moisture. For example, air at 25 degrees C can hold y grams of water per cubic meter. The XX cubic meters of warmed air in the room can now hold y grams of moisture, but the absolute moisture content is unchanged. The Relative Humidity (actual moisture content as a percentage of maximum possible moisture content) has now fallen to yy%.

In the oldest museums, with minimal heating and no air conditioning, changes in normal environmental cold and heat pre-

sent little danger for artifacts. When modern HVAC systems exist, and differences in relative humidity (RH) are compensated for, heat and cold have little effect on most objects. However, unless compensated for, RH levels will fluctuate with changes in temperature, and adding and removing just the right amount of moisture from the air can be a tricky business. It is not impossible to accurately control both air temperature and humidity in a large volume of air (a house, an office building, an arena, or a museum), but the energy costs can be very high. Worse, the high capital and operating costs of adequate climate control for a museum gallery can often seem a trifling in relation to the costs of designing or retrofitting building envelopes.

Microclimates

Given the expense and difficulty of controlling the climate in a some museums, other options have been found. The simplest solution for compensating for uncontrollable variations in gallery tem-

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perature and humidity levels is to closely control the humidity in the air immediately surrounding the objects: the case microclimate.

The first challenge, then, is to effectively contain a microclimate that can be modified and maintained to benefit the objects enclosed. The most obvious approach is to design or modify the display case to limit air transfer. Effective cases are made of relatively impermeable materials and designed with tightly sealed joints and access ports to inhibit air transfer to and from the larger environment.

With the recent trend towards the creation of controlled microclimate cases, case construction (and case modifications) aim for air-tight sealing. Although these very well sealed display cases provide substantially better isolation, they may create other problems such as air stratification, the trapping of gasses released by artifacts or the case itself, or the concentration of radiated heat (greenhouse effect).

Greenhouse heating, and its related effects may be an especial problem for cases using large areas of acrylic sheeting, which has an insulating value five times that of glass. Remember that changes in air temperature result in changes in RH. A six degree F change in temperature (from 70 degrees to 76 degrees) will result in a seven percent change in RH! This problem should not be overlooked in cases subject to large fluxes of radiant energy throughout the day. Both passive and active systems will be challenged to ameliorate this kind of variation.

Active and Passive Controls

Once a relatively well-sealed chamber is created, the atmosphere inside can be modified.

Occasionally the gas content and temperature are controlled, but generally the most critical and common concern is the maintenance of stable humidity levels. This is usually accomplished using "active" or "passive" humidity controls.

The distinction is between active and passive control is somewhat arbitrary, as some active systems use the same components as passive systems. If this isn't confusing enough, building engineers may refer to passive building climate control, which will still use fans or other active components. It is also true that the reactions in silica gel, zeolites, activated charcoal or other materials are chemically or microscopically "active".

After all, at some point, energy was applied to create the conditions needed for absorption, desorption or adsorption of water molecules. It can all get quite confusing.

All that said, the differences between active and passive can be put simply: Passive systems generally refer to arrangements that do not have any electrical power demands. Active microclimates almost always use fans or pumps to move air within, to, or from the system's components. A passive system generally does not need an outside source of energy to proceed.

Passive Systems

Consider a sealed box containing an object. Both the object and the air contain water. If the moisture level of the air in the case differs from the moisture level of the object, the object and air will trade water until equilibrium is reached. This is a simplified explanation of a complex process, but the result is that the object will either dry out, or take on water, depending on the initial differences in moisture content, and depending on the amount of moisture available.

Cloth, wood, and most organic objects themselves may hold sufficient moisture themselves to mitigate humidity changes in a small volume or a crowded display case, but this is only true in limited situations. This ability

to self-mitigate moisture changes in the surrounding air is easily overpowered by the sheer volume of the air in the case. Even if self-mitigation were adequate for the volume of case air, many cases have leakage rates resulting in case air being replaced more than once each day, quickly overwhelming an object's ability to modify its surrounding air.

A passive microclimate control system usually uses some sort of "moisture mass" that will buffer changes in case humidity. A good moisture mass holds a great deal of water relative to its own mass, and absorbs and gives it up freely. Silica gel is commonly used for this purpose, and it can be a very powerful tool for maintaining and mitigating moisture changes. Given an adequately sealed case, and enough silica gel, passive control of humidity can be an excellent means of controlling humidity variations.

It should also be noted that an improper installation of passive controls can exacerbate some problems: Too small an amount of silica gel, or too high a case leakage will deplete the capacity fairly quickly, and regular replacement of the materials becomes a concern. An accurate estimation of case leakage, a properly sized mass of silica gel, an adequate maintenance schedule, and a means of easily accessing, reconditioning, and replacing materials are all important.

Active Systems

Active microclimate control almost always involves the mechanical supply of air to maintain the desired microclimate in an enclosed space. At minimum, most systems involve fans to move air to and from the treatment device. They may also involve refrigeration compressors, steam generators, desiccant dryers, heaters, bubblers, air distribution systems, and sophisticated mechanical and electronic sensing and control.

In most active microclimate systems, air is passed through a mechanical device, usually referred to as a microclimate generator. The internal mechanics of different machines may vary widely. In any one device, the air may be humidified,

dried, or filtered. Preconditioned silica gel, other absorbent media, or cooled surfaces (to condense the water out of the air) may be used to remove moisture. Air may be humidified by being blown over wet media, or past misting devices or steam generators. A mechanical or electronic moisture sensor usually controls the unit's operation and dampers or valves may be used to control air motion. A number of different operating paradigms are used. Microclimate generators may recycle air from the cases, modifying the air with each pass through the generator. Other units may inject small quantities of air at high or low moisture levels to adjust general case humidity as needed, and may use an air pump rather than a fan. These units are usually of somewhat limited capacity. Constant volume generators simply inject a constant



stream of controlled humidity air to purge existing case air and protect from ingress through case leaks. Constant volume generators are usually of very large capacity.

In the microclimate generator, air may be humidified by passing over warm water, or blown over a relatively large area of moistened media. Ultrasonic misters or pressurized spray nozzles can be quite effective in smaller applications.

Extremely efficient electrically powered steam generators may be used in the larger constant volume generators. A variety of dehumidification strategies are used by various microclimate manufacturers, the simplest being blowing air past a drying medium (such as a bag of preconditioned silica gel). While there may be some advantage to a purely passive dehumidification, this is the most limited system, needing careful monitor-

ing and regular media replacement. When much larger volumes of air are used (as in one design of a constant volume generator), desiccant wheels may be used: Air passes through the desiccant wheel as it slowly rotates through a chamber, and the moisture in the air is adsorbed onto the wheel. The moistened material on the wheel then passes to another chamber, where it is dried by a flow of heated air.

Cold plates may be cooled either electronically or with a compressed gas (Freon) refrigeration system may be used to condense moisture from the air. Compressed gas systems must be very carefully designed to work optimally, and are generally only used in coolers or room air conditioning. Their large capacity and thermal mass makes them difficult to use to control fine changes in RH.

Plates may also be cooled electronically using "Peltier Cells" to provide a surface to collect moisture. While much easier to control, Peltier Cells are notoriously inefficient, and the capacity of microclimate generators using them is limited. They are, however, compact, quiet, and reliable (with no moving parts).

Perhaps the most interesting active microclimate control device combines both humidification and dehumidification in a proprietary system using dew point relativity.

A dew point relativity system must be programmed or supplied with both the ambient air temperature and the desired RH. The unit will then determine the theoretical dew point for the desired air temperature and RH combination, and cool the air within the generator to that temperature. The cold air is then humidified to its maximum holding capacity (100%



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RH) and reheated to the ambient temperature. As the air temperature rises, the RH will continue to fall until the air reaches ambient air temperature. At this point the RH will be exactly as programmed into the unit. This system uses no valves or dampers, evaporative or dehumidifying media, or mechanical evaporators in its operation, making it extremely reliable and needing very little maintenance.

Comparative Capacities

Passive systems are limited by the speed of natural air movements and by the transfer of moisture and gases to and from the moderating materials. They are also limited by the mass of water that the media can effectively hold. As case dimensions increase linearly, the volume increases as the product of the cube. If a 1 X 1 X 1 meter case needs 20 kg of silica



gel, a 2 X 2 X 2 meter case will need 160 kg!

Active systems use their components more efficiently than passive microclimate controls. Over a day, a small fan can move a very large volume of air, and the air modifying surfaces can be much larger too. Even the tiniest CPU cooling fan can move thousands of cubic feet of air every day! Most microclimate generators are distinguished by much higher capacity than passive systems, and even a small microclimate generator can effectively modify a very large volume of air. This relatively large capacity can be used to maintain a single large, well sealed volume of air, for many smaller cases, or to maintain constant conditions in relatively leaky cases. Although a larger microclimate generator can usually be used to treat a volume of less than its maximum capacity, generators start to become cost effective at cabinet sizes of about 2 cubic meters or more. When the cost of the silica gel needed to maintain a microclimate in a large volume of air is compared to the cost of a microclimate generator (in one or many cases), the cost of microclimate generation becomes very attractive. Whereas the cost of treating cases with passive systems remains fairly constant (cost of silica gel and maintenance), the cost of using a microclimate generation system falls with each added volume until the capacity of the machine is fully used. A large gallery or museum using a constant volume generator can reap substantial benefits in capital costs and operating cost savings for HVAC control as well as savings on case construction and design. No investment in silica gel, case modifications, or in silica gel maintenance is necessary. Filtered air will keep dust infiltration down, with less case cleaning needed. Of course, a constant flow of air scrubbed of corrosive gases and maintained at the optimum RH is safer for artifacts, and the very gentle air flow in the cases flushes out heat and prevents case stratification. Constant volume microclimate generation systems have been installed and proven in a number of museums over the past decade, and a new generation of these machines is now available.

Although a perfect room that contains visitors may be hard (or likely impossible) to attain, a near perfect situation for artifacts is not. A properly maintained passive microclimate control systems can easily modify a small, fairly well-sealed museum display case. Active systems can do this for large volumes or leaky cases, as well as providing other benefits. Either solution can provide constant, safe, and cost-effective conservation for objects on display. Microclimate case control allows for a comfortable environment for visitors and staff, while ensuring an excellent environment for our artifacts.

Jerry Shiner may be contacted at *Keepsafe Systems, Supplies and Solutions for oxygen-free and micro-climate storage*

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Article by:
CINE OSTROW



Rauschenberg screen on PDA courtesy of Jerry Tokar

MUSEUM EXHIBITS IN THE DIGITAL AGE:

HOW PDAs ARE HELPING TO RESHAPE MUSEUM EXHIBIT STRATEGIES

▼
The term PDA (Personal Digital Assistant) refers to any small, computerized device that acts as a communication tool for its user.

Museums are experimenting with the utilization of innovative PDA technologies as they can offer many more features than the audio guide currently in use. These may include, but are not limited to: audio and video abilities and wireless connections. PDAs may be used to break down traditional barriers between the museum and the visitor. It is the combination of these capabilities that make the application of PDAs in exhibitions so exciting.

Peter Samis, a program manager for interactive educational technologies at the San Francisco Museum of Modern Art, says that, "In many cases, you have the actual artist telling you about the work you're looking at...not some docent, not some curator but the actual artist on video. Now that's a radical concept."

This is a huge improvement over traditional text panels (but must it be on a small device?). The list of PDAs seems to lengthen daily, including the Palm Pilot, the RIM BlackBerry, the Toshiba Tablet PC, and Hewlett-Packard's iPAQ. Some museums have opted to design their own device as is the case of the Experience Music Project's MEG and The Dinosaur FACTory's FACTscope.

The personal digital assistants currently available represent a major advance over the capabilities of the tape players that preceded them. Not only are they tools for the visitor, many are capable of collecting information about the visitor (such as how they visit the museum.) New PDAs are lighter, faster, and wirelessly connect to a museum's network. They can sense your location in a gallery and provide you with information that pertains only to the object in front of you. You can type a question, send it electronically, and receive an answer from the museum staff or email yourself information you find interesting. And the best part is, some PDA software can tell museum staff when you are having trouble with the device!

The range of sizes and capacities is growing. For museum applications, screen size and the ease of carrying the device around an exhibit is crucial to a user's acceptance of the tool. Tablet PCs are increasingly available and offer larger screen size than a typical Palm Pilot, but are awkward for the museum visitors to carry. But the tablet PCs have touch-screens, potentially making them more user-friendly than their predecessors. Silvia Filippini Fantoni, a contributing researcher with the European center for Digital Communication, offers many useful insights about how computer technology can best be used in museum exhibits. Perhaps most intriguing is the ability for museums to offer voices of sources other than the curator and to allow the path of an exhibition to be personalized to each visitor. This, "move from a mass-oriented approach to an approach oriented toward the individual" Will definitely impact and influence how we, as exhibit designers, address the method of conveying information about our collections. Fantoni continues: "By giving their visitors the freedom to experience the exhibition the way they want, a new mode of interaction between visitors and museums is formed: museums transform their visitors from passive

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spectators to living elements of the exhibition; while the perception of the museum as an institution changes from a withholder or controller of information and stories to an open container where the narrative turns from a static or fixed entity into a living, limber thing."

This is wonderful news for the museum world, the advent of a technology that can eradicate the sensation of intimidation and break down the barriers between museum and visitor, and lead those visitors to establish connections

between issues and objects for themselves. If this can be achieved, then the efficacy of the educational effort can be improved.

PDA's are also capable of exhibiting flexible content using adaptable systems. As is often the case in museums, especially in the United States, print labels are typically provided in only one language. Rather than ignore the museum audience that cannot read the primary language of a museum, PDA's can be used to translate information into a variety of programmed languages. Similarly, PDA's can provide increased font size and audio programs for people with visual disabilities.

For museums that have not yet fully jumped on board by digitizing their collections, the potential is high for building



personal data
assistants

a single digital archive to be accessed by multiple users and purposes. That database can fulfill the needs of all other digital interfaces of the collection (i.e. web page, PDA in exhibits, kiosks). Because it is an adaptable system, different categories of users can use the PDA to extract the individualized information that is best suited to them. Presentation and organization of extracted information on a PDA should respond to the requirements of the specific category of user. The overall message should remain the same but the presentation can now be adjusted to match the needs of the audience.

As Garzotto (et al.) explains, other content-related considerations include repurposing the information in different formats; allowing geographically distributed authors to update database independently aiding the collaborative approach for scholars and experts; and remote accessing of content. Although this may

require a greater effort upfront, it will be well worth the effort.

Many projects which incorporate PDA devices are sponsored by the leading technology companies. Museums are attractive locations to test PDA's and similar instruments because exhibits are content-driven and socially interactive. As Mirjana Spasojevic, a Hewlett-Packard Lab project manager explained, "The museum setting offers a microcosm for studying the technological, psychological, and anthropological aspects of pervasive computing environments."

In other words, our museums are the guinea pigs for the rest of the world. On the cutting edge is a nice place to be for museums that frequently lack the budgets for "superfluous" elements. Creative teams of computer professionals are

reacting to brainstorming sessions with museum staff who are knowledgeable about how their audiences. According to Hewlett-Packard's online "m-pulse: A Cooltown Magazine", "As early case studies, museums will help provide answers to questions that will shape the future of pervasive computing."

The National Science Foundation has awarded a grant to a partnership between Hewlett-Packard and the Exploratorium in San Francisco, to test the integration of the physical museum and the wireless world. This research program recognized that preference for format depended on the content being delivered.

For example, video was most appropriate to explain new ways of using the physical exhibit space. Content, interestingly, also included "Exhibit Evolution" and "Behind-the-Scenes" sections.

In a space such as the Exploratorium, where a cacophony of sound is always a



factor, it is not surprising that some visitors had trouble hearing the audio portion of the content through the headset. Unlike other studies, the Exploratorium offers insight into visitors' preferences in noisier environments. The PDA also interfered with the user's ability to interact with the hands-on activities, of which there are many.

Dinosaur FACTory in Japan is an exhibit located within the Panasonic Corporation. PDAs are integral to the development of the exhibit. The advantage is that the equipment is integral to the development of the exhibit. Children, the intended audience of the FACTory experience, use PDAs to collect evidence about the dinosaurs they find. The exhibit is designed as an investigation; the children are cast in the role of the paleontologists and the PDAs act as notebooks and clue finders. Visitors can also use the PDAs to remotely trigger digital cameras throughout the exhibit to document their experience.

This is in keeping with what Antenna Audio found, that children use technology differently than older people and they are more comfortable using PDAs by themselves. Conversely, their research shows that older museum visitors prefer to share a single device when exploring exhibits. Continued analysis from Antenna Audio's 'TouchPol' kiosks, located in select museums, will provide additional insight on visitors' preferences for available accessible technologies.

There are a number of examples of the impact that technology is having on exhibition practice. A paper given by Nancy Proctor and Chris Tellis of Antenna Audio at this year's Museums and the Web conference entitled, "The State of the Art in Museum Handhelds in 2003," described Antenna Audio's project for the Tate Modern in London. Their project went beyond a mere exercise in how the museum audience would react to using PDAs in an art gallery; it was designed

instead to investigate differing methods of delivering content via the device. The Tate Modern Multimedia Tour Pilot (a.k.a. "MMT") utilized loaned Hewlett-Packard handheld iPAQ computers and PanGo Network technology to deliver information wirelessly. For the test pilot, the content presented on the MMT was geared towards a generalist audience with little knowledge of the art on display. The most wonderful aspect about using PDAs in museums is that the programmed content can include any level an audience member could ever need, from novice to expert, but some expectations by testers who were more familiar with the artwork on display were not met in this case. This problem would be easily amendable by including content specifically geared to a wider range of audience levels.

In this case study, design support came from the museum's own design team and access to content was available in 14 of the Modern's galleries. The MMT evaluated its use simultaneously with aiding visitors. "Visitors generally see this technology as an exciting and inevitable part of the future landscape in museums."

Even though the MMT was able to evaluate certain aspects of the program and user interface, the Tate Modern hired Susie Fisher, an independent evaluator, to gain additional insight into the project. She recommended that museums, "Use the visual to do things which can only be done visually," and noted that visitors enjoyed selecting music to play simultaneous to their viewing of an artwork. They also enjoyed narration by artists, sitters, and other inside information like how the art was made. However, some visitors displayed impatience with the longer selections and concern for when the screen of the PDA went blank when not displaying information. They needed reassurances that they had not destroyed an expensive tool.

The results of the study suggest that:

- A help menu, be available at all times, as an assurance to the user;
- Key navigation icons should be accessible at all times as they serve to remind the visitor of all the choices and options available to them;
- Consideration must be given to having the PDA automatically access certain

information rather than requiring visitors to initiate process.

- An automatically generated menu of content should be provided at each threshold that prompts the user. James Evans and Pat Sterry working with the Fibres, Fabrics, and Fashion Gallery, an existing exhibit at the Museum of Science and Industry in Manchester, developed the content for display on the PDAs to explain how the machines in the exhibit functioned to make textiles. Prior to the implementation of the devices, front-end evaluations showed that visitors were having trouble understanding the processes discussed in the exhibit without seeing the machines actually working. The "experiment" also used PDAs to evaluate the efficacy of content delivery, but rather than automatically collecting data from the PDAs of visitors, evaluators of Fibres, Fabrics, and Fashion had their own PDAs which they used to collect qualitative information, based on researchers' observations, into a spreadsheet. The touch-screen controls allowed evaluators to spend more time watching the people around them instead of scribbling. This method improved the accuracy of data observed. The PDAs for that project recorded sections of the digital exhibit that was accessed and the length of time the visitor spent on each screen. PDA use in museum exhibits, however, is not without potential pitfalls. One such pitfall involves locus of control. Recent evaluations cited by Fantoni show that visitors appreciate the high degree of freedom and flexibility, selecting which objects to have info on and the level of detail provided a self-pathing experience that "made the museum more alive." How can a visitor broaden his or her knowledge if too much user control is exercised? As designers, we must be cautious. Complete absence of path and total dependency on computers can be overwhelming and seriously interfere with the exhibit's intended message. If you spend too much time on the World Wide Web, as I do, you realize just how far tangents can go in cyberspace. Infinite information dilutes a purposefully composed exhibit's intention. Conversely, it is exciting to unexpectedly discover connections between issues that seemed initially dis-

parate. Eliminating a set path fosters these relationships (but those relationships may be difficult to plan into your digital design.) Objects can be cross-referenced with other objects within a museum's collection or even with objects from a foreign institution.

Fantoni lists additional caveats for the would-be PDA designer. These include:

- Visitors appreciate unexpected information, however, total free navigation is not advisable for all categories of visitors;
- The design of electronic text is not a simply a translation of a text panel in a different format
- The use of a singular voice to deliver information is unacceptable

Other caveats involve content management. Amy O'Brien, a Technology Programs Manager for the Port Discovery Museum in Baltimore, notes that, "The technology part is easy. It's creating compelling content that enhances the visitor's experience and isn't just technology for its own sake."

In addition, Proctor and Tellis said that, "Together the interface and content should support the desired Tour Experience."

Certainly, the integration of PDAs from the conceptual design phase of an exhibit's development will create the most coherent tour experience. However, the question remains whether it is necessary for the interactive multimedia components have the same voice as the exhibit they support?

Unlike web pages, the PDA experience should not be a transportable digital catalog that does nothing to stimulate the visitor. Fantoni notes that, "It is far too easy for exhibition developers to use electronic media as in-depth encyclopedias or libraries."

There is a great danger in overwhelming our visitors with tangential information. A criticism of PDA usage mentioned repeatedly in the literature is the effect of isolating the museum visitor by introducing headsets into the exhibit environment. As we have known for a while now, many people seek social experiences when they visit the museum. Nancy Proctor and Chris Tellis pointed out that these very social, collaborative learning

experiences are crucial to the efficacy of the educational content. 1 Xerox's Palo Alto Research Center has learned through their research into people's preferences of new technologies in museum environments that audio is preferable to text. They have revealed through their testing that using only one earpiece leaves one ear free to socialize.

Technologically speaking, PDAs need to have faster processors than they do currently. All technology these days are replaced by a faster and more powerful options almost as soon as they hit the stores. The screens on existing models also use up too much power. The sure way to insure visitors have a charged device is to select a device with remov-



able batteries and purchasing extra rechargeable batteries to have on hand. In addition, selection of lightweight, "drop-proof" devices are preferable in all types of museums.

Like all tools in their infancy, we must learn through trial and error how they can be best utilized and what needs to be added to allow the information granted by these devices most easily accessible. Simultaneously, it takes time for visitors to gain confidence in using any new tool. We must pay close attention to how museum visitors use these new tools available to them because it will give us a crucial understanding of who our audiences are. Fantoni suggests that in doing so, audiences will foster, "...a dialogue with the institution that would finally replace ...the long lasting monologue that had characterized the relationship between museums and their audience for over a century."

How can we, as museum exhibition

designers, use what computer scientists and digital media specialists have learned to incorporate new media technologies directly into our exhibits from conceptual design and make them intrinsic to the exhibit, itself? The best chance for full integration of personalizing computer devices in an exhibit is for the museum designers to participate in the teams that are currently strategizing the next wave of programs. Designers of the physical installations know how to utilize PDAs in museum environments, and where and when utilizing them is appropriate. It is difficult to stay abreast of this technology because it requires attention of both the theoretical applications and products on the market. Traditional exhibition space will be greatly affected by the advent of these new technologies. As we are well aware, there are always physical limitations of what can be shown in a museum. The spatial opportunities for advanced exhibitions are limitless.

No longer will designers be responsible solely for the actual content of the physical space. Our roles should include responsibility for the virtual exhibits as well. Per Jane

Burton, Curator of Interpretation at the Tate Modern, "In the coming years, [the PDA system] will surely take its place alongside more traditional learning tools as a key strand of museum interpretation."

I was surprised that so few designers were publicly sharing information. Most of the press and papers are by and about digital media specialists and computer scientists, not designers or museum professionals. Many museums employ their own digital media staff, but people in these departments are typically without training as exhibition designers. There is a real difference between planning for an physical exhibition and creating virtual space, but I am convinced our studies of the interaction between our public and our messages will translate into the virtual world to produce compelling computerized experiences. The messages we send to our audiences in physical and virtual space must complement one

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another. (New concepts of how to "path" the visitor will be required in order to tell a story with your exhibit.)

The next challenge will be to socialize the PDA-based experience. Perhaps the next round of research projects will mirror advances in the gaming industry where companies like Nintendo have already developed methods for social interaction while allowing the user some independence.

Processors will become faster, and wireless networking ubiquitous. Content and interface will be the only issues to "design" prior to implementation. Imagine the potential of this technology if every cell phone and Palm Pilot was able to receive the information off of a museum's wireless network. This will be an exciting time for museum exhibit designers, if they are ready to accept the role.

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Architect Ciné Ostrow (ostrowc@e-uarts.net) is a graduate student in the Museum Exhibition Planning and Design program at The University of the Arts.

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> Museum Exhibition
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4

I WANT TO HOLD ▶ YOUR HAND (HELD)

Article by:
STEVE TOKAR

Museums in the United States have experimented with handheld computing devices since at least 1996, when the Minneapolis Institute of Arts invited 1,100 visitors to walk through its galleries using the Newton, Apple Computer's ancestor of the PDA.

In 1999, the Whitney Museum of American Art ran a test, limited to about 100 users, of tablet PCs as interpretive devices for its exhibition, "The American Century." In each case, the drawbacks of handheld technology as it then existed—dim screen, heavy weight, limited capacity, cost—outweighed the potential advantages offered by a portable, visual interpretive device [Mirapaul, 1999].

Points of Departure at SFMOMA: Providing Context.

From March through October 2001, handhelds began to come into their own in "Points of Departure," an exhibition at the San Francisco Museum of Modern Art (SFMOMA). Twenty-five Compaq iPAQ handheld computers, called Gallery Explorers, were made available to visitors at no additional cost during the entire run of the exhibition. Visitors could click on a simple text interface to watch and listen (over headphones) to two-minute video productions about artists featured in the show; there were three clips for each of the show's six galleries. All video content resided on the iPAQ's hard drive and played

through Windows Media Player. Most of the videos had been produced over the preceding eight years as part of the museum's "Making Sense of Modern Art" multimedia educational program.

"The iPAQs were really the artist in your hand," says Peter Samis, SFMOMA's Associate Curator of Education. And indeed, visitor evaluation indicated that the most popular clips were of artists creating and discussing either the actual pieces on display in the show or similar works. "People loved seeing the artist, and they wanted to see more, and know more about them," adds Deborah Lawrence Schafer, the museum's manager of Interactive Technology Audience Services.

Every gallery in "Points of Departure" also had what Samis calls "the curator in a box": touch-screen computers called Smart Tables, which featured curator comments and analyses, interactive visitor activities, and some of the same videos offered by the handhelds. "This is not radical for science or history museums," notes Susie Wise, formerly Senior Producer for Interactive Programs at SFMOMA. "But really radical for an art museum to have a computer actually in the gallery. Not adjacent." The Smart Tables were mounted horizontally so as not to distract from the art on the walls, and set at a "low murmur so it wasn't intrusive—as if it was someone talking over in the background," says Samis. Interested visitors could pick up sound wands to hear and interact with the Smart Tables in high fidelity.

How much did all that technology interfere with the art? According to Samis, hardly at all. "It's clear that people welcomed these interactive technology aids. They weren't felt as an intrusion." During evaluation, about 15 percent of visitors thought the iPAQs distracted from the art or were isolating. "But there was an 85 or 90 percent level of satisfaction with them." Notes Susie Wise, "People really liked to sit down with the handheld. It was very popular to sit on a bench, hold your handheld, watch the video, and look at the work." Nor, apparently, did the Smart Tables take away from visitors' direct experience of the art; the time spent at the tables was in addition to, rather than instead of, time spent wan-

dering the galleries. Plus, "It turned out most of them were looking around at the artwork while they were listening [at the Smart Tables]," adds Deborah Lawrence Schafer.

For Peter Samis, technologies such as the iPAQ and Smart Table are a way of "providing the context that the white cube strips away." In other words, the now-standard practice of displaying artwork—particularly work created in the last 50 years or so—in an unadorned, featureless gallery with minimal signage leaves out vital information, such as how an artist created a piece, what else he was working on at the time, what his contemporaries were creating, and the influence of his work on other artists. "Those are the kinds of things that make the artwork



live and breathe. And unfortunately, the pristine unmediated experience of the artwork in the white cube means you have to carry it around with you when you come into the gallery, or else you're out of luck." In that sense, notes Samis, handheld devices are a natural extension of audio tours, and could supplant them entirely.

But not just yet, cautions Deborah Lawrence Schafer. "Lots of small museums have called us, very interested in doing it in their museum. Typically, they don't have an audio guide, and they want to skip that step because they see handhelds being the next thing." But without extensive experience in multimedia production, not to mention a library of

already-existing audiovisual material such as the clips created for Making Sense of Modern Art, most institutions will have a hard time creating content for a handheld device. "Truly, the reason we were able to do the handheld project was because of Making Sense," says Susie Wise. "A lot of these videos were already in the bag." Deborah Lawrence Schafer speculates that in the future, most museums will find it more cost-effective to buy their handheld technology from outside vendors, much as they lease or purchase audio tour players today. "I think that's a better model, for an audio guide company to be in charge of the hardware, to have the expertise for making sure the hardware is visitor-proof and working—and in terms of updating the technology."

iGuides at the Exploratorium:

Extending the Visitor Experience
How can a handheld device be used at a hands-on science museum—particularly a noisy, disorienting museum with 650 exhibits? That's the question asked by the iGuides project at San Francisco's Exploratorium. iGuides, a two-year effort that began in October 2002, succeeds and builds on a previous research project called the Electronic Guidebook. Together, the two studies, both funded by the National Science Foundation, investigate how visitors might use handheld and wireless technology to extend their museum visit "beyond the walls of the museum," according to Sherry Hsi, the museum's Director of New Media Research & Evaluation and the project's principal investigator.

The researchers' model of the extended visit has changed over time. For the Electronic Guidebook project, the idea was that before coming to the Exploratorium, a visitor would log onto the museum's website to plan her visit and figure out what scientific questions she might want to investigate. At the museum, she would use a wireless handheld device—for testing purposes, the now-obsolete HP Jornada 720—to access deeper content, stored on a central server, about a particular exhibit or related scientific topics, and perhaps use the device's keyboard to type notes or questions for later study. After her visit, she would log onto her own personalized

webspace within the museum website, where she would find her notes, questions, and the deeper content she accessed earlier available for further investigation and reflection.

In practice, it turned out that “people oftentimes did not want to hold technology in their hands,” says Hsi. “It was too heavy, it was distracting, it provided a very isolating experience.” Colorful in-depth scientific content created for the Jornada competed with the noisy museum floor for the visitor’s attention. Visitors did not type their own notes or questions, because they found the thumb-operated keyboard too awkward to use. Plus, in a hands-on science museum, visitors tended to want to leave both hands free for the exhibits, or their children, or both. Based on those results, the current iGuides project is focusing on “some sort of lightweight device—either a small remote, a piece of jewelry, a bracelet, a card, which a visitor might carry,” says Hsi. The device will be keyed to each visitor through a password. At an exhibit of interest, the visitor will click, swipe, or otherwise activate the wireless device, which will in turn “bookmark” the exhibit. Later, at a kiosk within the museum or from her computer at home, the visitor can use the same password to access her personal or family webspace, where

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can explore deeper content by clicking on a bookmark. The system might offer suggestions for further inquiry and links to even more content.

Research so far has indicated that visitors enjoy taking pictures of themselves and their families at exhibits. Thus, at certain exhibits, the visitor will be able to use her wireless device to activate a digital camera. The resulting images can be stored on her personal or family website as mementos, or even sent as electronic postcards. In the future, visitors will be able to capture other images as well,

such as specimens they have placed under a microscope or designs they have created at a drawing exhibit.

Meanwhile, the concept of using a handheld computing device on the Exploratorium floor did not end with the Electronic Guidebook project. It turned out that Explainers—high school and college-age staff members whose job it is to talk with and help visitors—found deep handheld content useful for learning tips, tricks, and scientific principles for less familiar exhibits. iGuides team members are working with Explainers to design a system that will allow Explainers to both tap knowledge about exhibits and add their own tips and tricks, with the goal of creating a wireless database of exhibit lore. “The information that we design will probably be useful for other museums as well,” says Hsi. “Smaller museums that lease or buy Exploratorium exhibits.” Like the Explainers, staff at those museums will be able to contribute their own knowledge and experience to the growing database.

Hsi notes that visitors in their twenties and younger tend to use wireless technology quite naturally and unconsciously. They chat online and send and receive



instant messages as standard ways of communicating, and thanks to growing up with computer games and instant messaging devices, are comfortable typing with their thumbs. To keep the system flexible, iGuides content is being developed to be compatible with any sort of wireless device—handheld computer, PDA, or cellphone.

Looking to the future, Hsi sees a time when wireless information networks will no longer be confined to individual museums or other discreet physical spaces but be ubiquitous throughout the world. She envisions a “global seamless learning experience... No matter where you are, there’s going to be instant access of information, as well as being able to capture what your experiences are, take notes, and have a lifetime record of where you’ve been, and be able to reflect on that.”

The GettyGuide at the Getty Center:

Just Enough Information

At the Getty Center in Los Angeles, a wireless handheld device called the GettyGuide will begin testing in fall 2003 and be available to all museum visitors in early 2004. The specific handheld platform has not been decided on yet—which is not really a problem, says Christina Olsen, head of the Getty’s Interactive Programs Department. Like the Exploratorium’s iGuides content, the GettyGuides content resides on a central server, to allow for changes in hardware over time. “We’re building these applications with the idea that they’re pretty

vanilla,” says Olsen. “They could really work on a range of platforms,” including, potentially, cell phones.

Like iGuides, the GettyGuides program is intended to extend the visitor’s museum experience before and after the visit through the use of bookmarking. But like the SFMOMA’s “Points of Departure” handheld device, visitors will carry the GettyGuide with them through the museum. When they click on the screen image of a work of art, the GettyGuide will give them

detailed audio information about the work. “But you don’t get, say, an animation describing how that work of art was made or anything like a movie, anything like what you saw in ‘Points of Departure,’” says Olsen. “And that was a very deliberate choice.” Over the years, the museum has produced an extensive library of detailed audiovisual content about its collection. However, research

indicates that most visitors to the palatial Getty campus feel “totally overwhelmed.” It was decided that viewing anything more visually complex than icons, text menus, and wayfinding information would simply add to visitors’ confusion—and take their attention away from the artwork. Instead, a work of interest can be bookmarked at the touch of a button. When the GettyGuide is docked at a nearby computer kiosk, the bookmarks will appear at the bottom of the kiosk screen; visitors can access deeper audiovisual information by simply touching a bookmark. Kiosks will be located throughout the museum in hallways and other spaces adjacent to galleries, as well as in a dedicated kiosk room. Alternately, visitors will be able to access bookmarks from their home computers by entering a password. A decision to visit to the Getty, which involves making reservations in advance, leaving your car at the bottom of the hill below the museum, and riding a tram to the top, is not made casually. “It’s obviously not a place you drop into,” says Olsen. “It’s a dedicated experience.” Since almost all visitors spend time outside the galleries looking at the architecture and the gardens during their average three to four hour visit, those outdoor features are included in the GettyGuide content. The system automatically senses the visitor’s location in the museum complex and offers appropriate choices of content. Every major museum feature and piece of art on display will be bookmarkable, although not everything will have audio messages associated with it.

For visitors who want a more structured visit, a button on the GettyGuide labeled “tours” will bring up a menu of predetermined tours. Visitors will be able create their own tours as well, by bookmarking potential points of interest on the web before their visit and saving their choices with a password. “When you get here and you check out your handheld device, [just] provide that password and that content will be accessible to you via your handheld,” says Olsen. Olsen acknowledges the precedents set by research at SFMOMA and the Exploratorium, and says, “I think we’re

going to be the first museum to do something as ubiquitous as this”—that is, offer a handheld device, available to all visitors, that draws its entire content from a server via a wireless network. With its deep financial reserves and ample reservoir of already existing audiovisual content, the Getty can afford to experiment, she notes. “We’re going to make all the mistakes, and we’re going to learn a lot. We’re going to do a ton of evaluation, and publish all of it, and allow for the field to learn from our mistakes.”



technology p d a

Conclusions

In the future, handheld content will reside on central servers and be fed to handheld devices over wireless networks. Content will be “vanilla,” as Christina Olsen puts it—readily compatible with a variety of platforms.

It is likely that art and science museums will use handheld technology differently. In art museums, handheld devices will be offered as a way of enriching a relatively dry gallery experience—“providing the context that the white cube strips away,” in the words of SFMOMA’s Peter Samis—without competing with the art. The GettyGuide might well provide a template that other museums follow: a device that offers maps, static illustrations, text menus, and audio content—a sort of augmented audio tour. Samis notes that such a device would be relatively easy to pitch to administrators and trustees, who are already familiar with audio tour players. In fact, of the technologies used in SFMOMA’s “Points of Departure” show, the non-mobile Smart Table represents a truly radical departure for an art museum, where interactive

computers are traditionally kept out of the galleries.

In hands-on science museums, visitors need their hands free. A small bookmarking device seems to make more sense than a PDA or small computer. It remains to be seen whether visitors use the web to prepare for their visits in advance or return to their bookmarks when their visits are over, extending their visits beyond the museum. Results from both the Exploratorium and the Getty may provide some preliminary answers. As tools to help deepen and broaden the exhibit knowledge of staff and explainers, handhelds seem to make a lot of sense.

Visitors may end up carrying their own personal handheld devices after all, as text- and graphics-enabled cell phones and wireless information networks become ubiquitous. Exploratorium researcher Sherry Hsi’s prediction of an information-saturated world might well come true, but still evokes a disturbing vision of a society in which people bookmark experience rather than live it. (um.edu/guidebook/index.html)

Steve Tokar
content-audio-client services may be reached at:
<http://www.stevetokar.com>
(415)759 6924

Web References:

Exploratorium Electronic Guidebook Project:
<http://www.exploratorium.edu/guidebook/index.html>

Getty Center:
<http://www.getty.edu/>


SFMOMA Points of Departure:
http://www.sfmoma.org/exhibitions/exhib_detail.asp?id=58

4



THE FARMER AND THE COWMAN
SHOULD BE FRIENDS
THINKING OF EXHIBITS AND
WEB SITES TOGETHER

Article by:
STEVE BOYD SMITH



**Oh, the farmer and the cowman should be friends,
Oh, the farmer and the cowman should be friends.
One man likes to push a plough,
The other likes to chase a cow,
But that's no reason why they cain't be friends.**

"The Farmer and the Cowman" from Oklahoma!

I've spent too much time recently talking to web people about the value of storytelling. Too many sites are just about data—a corollary to the old-style exhibit of objects in cases without context. But now I'm writing to my own peoples: exhibitionists, interpreters, context-givers, multi-media storytellers. And my message here is different: the web can be our friend ... if planned into an exhibit from its inception. The web can never replace an exhibit. A museum is fundamentally about the real thing, and on the web the real thing is no longer real (with a big asterisks that I'll get to soon). It's because of this realness that museums are trusted as one of the best sources for information—over the press, politicians, and the web, for instance.¹ As we also know, exhibits have the additional advantages of being social, enveloping experiences that engage any or all of the senses and several different lobes of the brain with the variety of media available to them.

The web, on the other hand, is considered to be full of junk. Its sites

have typically been fairly unemotional (except for the rants on discussion forums) and its educational value (measured unfairly in the more formal criteria of a classroom) has been debated. But it doesn't have to be this way. When it comes to "the real thing," photos, oral histories, video clips, **and stories** are just as real over the Internet as they are in a museum. And with our primary sources, museums have the opportunity to create a uniquely valuable niche in the online world.

But I ramble. The point of this article is that the farmer and the cowman should, can, and must be friends. That is, the web and the exhibit can and should work together to support each other. How might this work? Well, it depends entirely on the interpretive goals, message, and audience for your project. If you're working on a local history exhibit with an intended audience of people living within 20 miles, you may not want to spend the effort for a web site. But if your goals include reaching people out-state or across the country, you should take advantage of the web's reach, unlimited hours of operation, and possibilities of multiple languages. If you find that you've got too much

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information to fit in the defined square-footage of your space (and when have you not?), then maybe you want to take advantage of the web's unlimited space and deep layering. If you have particularly fragile objects that can't stay on exhibit for the run of the show; objects that deserve closer scrutiny than you can give in real life; or primary sources that need to appear in several parts of a story or even in different stories, take advantage of the web's virtuality. If you want to be able to update components regularly and cheaply, consider the web's change-

ability. If you want to encourage ongoing discussion, keep in mind an online forum....

Since it so strongly depends on the needs of the unique project, let's look at four specific examples. I'm not going to describe the projects in too much detail here, expecting that you'll go to the links and check the sites themselves. Also, keep in mind that these are not necessarily my all-time favorite storytelling sites (email me and, if you're really nice, I'll point you towards a few). These selections simply illustrate these points.

Example 1: Ballgame

<http://www.ballgame.org/>

The Mint Museum of Art in Charlotte, North Carolina had an idea for an exhibit they called "The Sport of Life and Death: the Mesoamerican Ballgame." As they considered their goals, they came to the conclusion that they wanted this information to reach a wider audience than just

Charlotte. So they turned it into a traveling exhibit that went to several cities and was visited by some thousands and thousands of people. They also published a catalog, which is useful mostly to scholars in the field. And they also planned a web site that would reach

schools and homes around the world. As they worked on the exhibit, they realized that there were certain parts of their story that they just couldn't fit in a museum—for instance the ability to play the game. They found also that certain objects needed to be interpreted in extreme close-up. Not possible when they're in a case, but very doable on a computer screen². By planning the web site at the same time, they could intelligently decide which parts of the story would be best told by an exhibit and which work best over the Internet.

The result is a web site and an exhibit that each stand alone but that beg the audience to visit both for an even stronger experience. The site became good publicity for the exhibit, creating new desires to see the real things. On the other hand, because it was publicized at the exhibit it was also a follow-up experience the provided ongoing opportunities for informal learning.

Example 2: September 11: Bearing Witness to History

<http://americanhistory.si.edu/sep-tember11/>

On September 11, 2002 the Smithsonian launched an exhibit of objects, images, and stories from that inconceivable day one year before. But that memorial belonged to more than the people who could make it to the Mall in DC, so they planned an online resource as well.

I won't go back over the advantages of an exhibit/web collaboration that we saw from "Ballgame;" everything that's true there is true here. But if you visit you'll notice that this is not a site with games—it is a wrenching, always growing database of stories that we observe, stories we build from the images we see, and stories that we can add. Visit this site and you'll never again believe that the internet can't be emotional. Visit this site and you'll see how the web can open up ongoing discussion and collection.

Example 3: Tempus Fugit

<http://www.nelson-atkins.org/tempusfugit/>

This site parallels an exhibit at the Nelson-Atkins Museum of Art. It's not the most extensive site in the world, but it demonstrates many of the fundamentals we know of telling an exhibit story: the value of good design, taking advantage of non-linear paths, pacing, and orientation. It, too, promoted the actual exhibit and reaches audiences well outside the Kansas City area. But I bring offer it as an example for two reasons: flexibility and eternity.

This exhibit no longer exists. Yet all the planning and work that went into its development is not lost—they exist as long as there are computers in the world. Furthermore, this site today looks different from as

² Yes, they could have put computer screens in the exhibit, but then they'd have had to invest in the hardware. Do the same programming and put it on a server, then let the home visitor provide their own hardware.

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Underlying it is a layer of primary sources, accessible in the context of the story or through an index. I bring up this site because it doesn't just relate to a single exhibit. It ties together the stories from three Minnesota Historical Society museums and one county museum in different parts of the state. It promotes visits to the individual places, but more importantly it extends the value of those visits by telling an uberstory that none of those museums can tell themselves (although a docent at the Forest History Center can say something about lumbering's relationship to farming on the open prairie, it seems out of place and meaningless when standing in the midst of a forest of white pine. Forests, Fields, and the Falls is not a direct corollary to an exhibit, it is its own story that supports exhibits through its

point (oh, and budget). The web, likewise, is its own unique medium with its own advantages and disadvantages. A virtual exhibit is a bad idea because it hits several of the disadvantages of the medium and avoids all of the advantages. Any planning for a web site must take into account what the medium does well and what it does poorly. We tellers-of-stories-through-different-media have a lot to teach the web world (how to organize ideas, how to pay attention to different learning styles, how to encourage useful interaction, the value of emotional engagement...). But we also have to recognize the web's unique characteristics before we can use it well. Visionary web folks know these (hacks don't) and should be involved from the earliest parts of exhibit development. We exhibit folks need to not hamstring



technology exhibits and the web

launched in 1999. Some of the exhibit's art had been on loan from elsewhere and the museum couldn't get the rights for them to be on the web beyond their loan time. So those works appeared during the run of the exhibit but were pulled afterwards. No walls had to be moved or empty spots filled with something else. The medium can be flexible and easily changeable as long as that changeability is planned in from the beginning.

Example 4: Forests, Fields, and the Falls: Connecting Minnesota

<http://discovery.mnhs.org/ConnectingMN>

This site is an experiment in what it means to tell a story online. It starts with a short introductory movie that states the main message, then arrives at a decision point where you can choose between first-person stories edited from primary sources. Their stories are told in their own words combined with illustrated action (something of a graphic novel).

differentness. It can never replace a visit to the real place, but by engaging people in the stories, it hopes to encourage them to visit.

Example 5: Anonymous

This illustrates what not to do. I'm not going to name names, but if you look around you'll find this on many different museum sites. It's the virtual exhibit. Some people hear "exhibit on the web" and immediately picture a virtual walk-through of the existing exhibit. This can be a virtual world created in a 3-D graphics program through which you can navigate, looking at the objects in cases and so on. It can be a QTVR walkthrough where you move from point to point and view actual surround photos of the exhibit. It can even be a physical robot that you in Montana can move through the exhibit in Germany. In any case, it's usually a bad idea.

When we create exhibits we choose between objects, images, text, video, interactives, environments, etc. based on their own unique advantages and disadvantages relative to the goals at that

the medium by waiting 'til a few weeks before opening to start development with only the pitiful dollars left to the budget. We need to see it as part of the project to take real advantage of its potential. The results might even affect the exhibit by taking advantage of wireless connectivity in the gallery, pre-visit PDFs, post-visit activities, or other ideas that someone with experience with the medium can provide. And in the long term we might build benefit to museums and web communities by creating a world in which museum sites are a trusted first stop for information, not just a marketing tool.

Steve Boyd-Smith has developed exhibits at the Minnesota Historical Society and through Gerard Hilferty and Associates for over a decade. In 2000 he became the Curator of Online Interpretive Projects at the Minnesota Historical Society, where he led the production of five sites. He is currently on his own, telling stories through exhibits and the Internet. He welcomes ongoing discussion at steve@itellstories.net.



Article by:
NANCY OWENS RENNER

► TAKING THE BILINGUAL
LEAP

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You've made the decision to go bilingual.

You've considered all the good reasons why, and how it relates to your mission and audience, and you've realized that bilingual labels alone do not suffice as an audience development plan. You've talked about the benefits of accessibility, cultural awareness, and opportunities for learning. Now, the reality check—what will it cost in time and money? What media will be used? How will you accomplish the task?

In the last issue of *Exhibitionist*, "The Bilingual Dilemma: Should We or Shouldn't We?" discussed questions related to why and for whom. To clarify goals, expectations, and audience will inform decision making about what media to use and how to implement a plan—this article focuses on the what and how of bilingual exhibitions.

A few words of caution—not all non-English speakers want, require, or demand bilingual exhibits. Ask the community that you seek to serve what they will use. Observe visitors to see what they do use. Making good exhibits is difficult. Making good bilingual exhibits is even harder. We should ensure that our efforts are worthwhile! Like most things, bilingual exhibits take more time than we think they should. Adding a second language does not just add one more step, it doubles the text writing process and adds complexity to decisions about content, word choice, humor, cultural connections, design, and space constraints. A good rule of thumb—if you're taking the bilingual leap, listen to your audience and start small



with a pilot project. There is not one right way down the bilingual path. A framework is offered here to help chart a course. With a little forethought and planning, pitfalls can be avoided.

What interpretive methods will be used?

Make a list of available media. Brainstorm every possibility. Don't limit your ideas by your current resources. Now is the time to explore; later is the time to judge. Here is an initial list to get

you started:

- Every label bilingual
- Some labels bilingual
- Audio guide, wand or head set
- Video with narration and/or close captions
- Printed gallery guide
- Multi-lingual docents
- Computers, in gallery
- Website adjunct
- Others?

When thinking broadly, other questions arise. Will bilingual text be exclu-

sive to the exhibition? What about wayfinding signage? Museum programs and events? Return to why and for whom you are presenting bilingual information to help grapple with these issues.

Collaborate with other departments, institutions, and community organizations to find solutions.

Assess your interpretive options.

Few museums have unlimited resources. We make tough decisions every day trying to maximize our investment of time and money. Determine which media will best serve your audience's needs with your available resources. Use visitor studies to inform this process.

Some things to consider:

- Accessibility—Is equal access to information a priority? How easy or difficult is it to access second-language information?
- Customer Satisfaction/Comfort—Does the chosen media make second-language visitors feel like second-class citizens? Have you asked them?
- Audience Interest—What media do visitors prefer? You've planned a second language gallery guide for example... will visitors use it?
- Social Interaction Potential—Does second language media (like an audio head set) cut visitors off from their social group?
- Audience Development Potential—Can the community contribute to the interpretive process? Will marketing bilingual exhibits draw more visitors?
- Flexibility—How easy is it to modify the information? Is that a priority?
- Design Issues—Are you willing to focus and limit content to accommodate a second language?
- Expense—Are some media more expensive to produce than others? Is it worth the expense?
- Production Schedule—Will some media take more time to produce?

How to implement bilingual interpretation?

Establish clear goals.

After setting goals, accept that as knowledge and experience increase you may modify them. Let's take a step back again for a moment. Any bilingual effort will require significant time, energy, and

money. Take stock of the institutional commitment. Are your media and message goals realistic? Do you need to change your goals or try to rally greater support? Self-assessment is ongoing. Perhaps implementation takes place in phases.

Identify needs and assemble a team.

Think carefully about all the steps required to produce text in one language: research content, write, evaluate, and edit text, check for content accuracy. These functions are necessary for the second language text as well. Perhaps in an ideal world, two exhibit developers/writers would work side-by-side in the two different languages. Most commonly, English text is adapted to the second language. Avoid the literal translation pitfall! Find a bilingual writer (some say translator) who can negotiate the subtleties of language and meaning. Seek a writer who understands the unique demands of exhibit text and with knowledge of the exhibit content to avoid misinterpretations. (See more about the text writing process below.) Request writing samples and get opinions from multiple readers. To fill gaps in your in-house team, explore opportunities for collaboration and involvement with your community. Local colleges, universities, and com-

count based on readability, available space, and visitor research. (See Beverly Serrell's *Exhibit Labels: An Interpretive Approach*.) Bilingual interpretation forces stricter limits on the amount of content in order to avoid the "wallpaper of words" effect. Keep cutting until the text is readable and fits the space. Test sample label text in the graphic design format to find the appropriate word count. The second language may be longer than English due to differences in syntax.

Nevertheless, good labels translate better (and shorter). Use:

- Clear information hierarchy: e.g. headline, subhead, body;
- Short, concise text in digestible chunks;
- Simple sentence structure;
- Active voice;
- Logical progression of ideas;

sors to inform decisions. Your audience and advisors can evaluate the content for interest, understandability, relevance, and cultural connections.

Design bilingual media.

A primary challenge is to devise a plan to differentiate the two languages. Establish a pattern and remain consistent. You may choose to treat the two languages equally or make one dominant, present the text integrated on one panel or separated on two. Spatial relationships between images, objects, and bilingual text may shape your plan. Test your design with a diversity of users and modify as necessary.

Some effective strategies include:

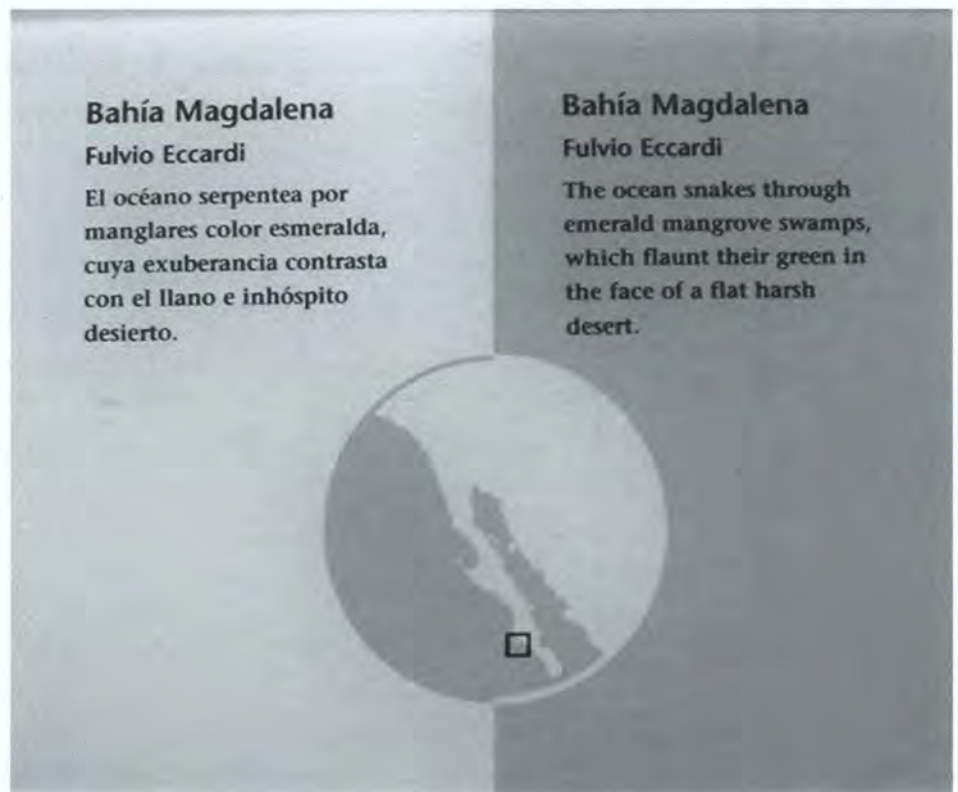
- Two distinctly different background colors to clearly designate two languages. Use consistent placement, e.g. English



munity centers are a resource for people and talent.

Write bilingual text.

Lay the foundation with a discussion of voice and a clear content outline. When generating bilingual text, allow for feedback loops in the process. If you write two languages simultaneously this is a natural occurrence. If English text is composed first then adapted to a second language, allow time for changes to the English text in response to new ideas from the "translator." Determine a word



- Links to objects and illustrations;
 - Carefully worded questions;
 - Guided interactions (look for, compare, describe...); and avoid literal translations!
- Ensure a consistency of voice in both languages and determine the flavor of your second language. Idioms, regionalisms, and dialects can present challenges. Consult your audience and advi-

always on the left. Put text on one panel or two.

- Two distinctly different type treatments for the two languages, e.g. bold and normal weight, two different type colors, or two different type sizes. Importing text files with accents (é), tildes (ñ), and umlauts (ü) is no longer that problem it once was. But don't forget to

proofread the second language as carefully as the first! Manage the project. What will it cost? How much time is needed? These questions are best answered by your team members to address your project specifics. Some translators charge by the word. (Another good reason for short labels!) Involving second-language community members in the planning and development will save time in revisions later and yield greater dividends in relevance to the audience.

Build a bilingual infrastructure.

Aside from completing a project, you are building a structure to smooth the way for future projects. Reaching out to the community, hiring diverse staff, connecting with advisors, providing language classes to staff—broad-based sustained efforts support the team to accomplish the bilingual mission.

If it seems overwhelming, don't despair. We don't need to do it perfectly the first time. Try something small, evaluate your efforts, and keep going. We have aspirations to make a difference, to reach out to a broader community. This is a learning process. The benefits of bilingual interpretation are manifold: greater accessibility of content; more welcoming to "second language" visitors; increased sensitivity to cultural diversity; opportunities for language learning; and greater learning in social groups with varying language abilities. With community input and a thoughtful plan, you can rise to the challenge and take the bilingual leap.

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of the authors and do not necessarily reflect the views of the National Science Foundation.

Nancy Owens Renner
develops exhibits, coordinates exhibit evaluation, and studies Spanish at the San Diego Natural History Museum.



Museum of Tolerance

News/Reviews compiled by:
PHYLLIS RABINEAU

▶ NEWS REVIEWS

Greetings Readers! Many thanks for your outpouring of response to our recent call for Exhibits Newsline contributions. This issue we offer you another great resource of items “new and recommended” ranging from high art to pop culture, from profound to profane, and from U.S. to Abroad. Let’s plunge right in.

Our first correspondent is Dan Spock, who writes, “A “brand” has been defined as ‘the promise you keep to your customers.’ Certainly one of the biggest trends in the past decade has been the proliferation of ‘brand’ museums, museums or museum-like experiences with the expressed purpose of extending a name brand in a high impact way. Up North here in Minnesota, we have three relatively new brand experiences with traits that are at least eerily familiar to museums, if not claiming to be museums in their own right. Cabela’s (<http://www.cabelas.com>), in Owatonna, is a sporting good store on steroids, an REI for folks who have no qualms about their place in the food chain. Hunters and fishermen are the target audience here and the inducement to shop is bolstered by a tour de force of the taxidermy arts that for sheer volume alone rivals any good-sized natural history museum. The mounts have been perfected in such a way that the peak expression of an animal is caught in mid-lunge, one foot only touching the ground, a pose repeated at Cabela’s countless times. The variety of mounts is staggering – domestic wild animals in abundance, but also African cats, exotics from

around the planet, the predators with fangs bared, claws flared and but one well-muscled hind paw propelling them into space. In fact the overall theme is a celebration of the beauty of predation, a mutual admiration society for hunters of all species. The centerpiece of the store is a 3-storey fiberglass promontory known as Conservation Mountain bedecked with dozens of unblinking specimens. The concatenated brand promise can only be seen as talismanic: A duck call purchased here sure can't hurt your chances to bag such magnificent trophies as these!"

Dan continues, "The Cereal Adventure (<http://www.cerealadventure.com>), ensconced at the Mall of America) where it has recently replaced a miniature golf course, has General Mills xeroxing a page out of the children's museum brand cookbook. Admission has plummeted from an opening high of \$8 for an adult ticket, to \$5 on a recent follow up visit. In an elaborate tribute to the centrality of General Mills breakfast cereal in our lives, kids can take a fanciful climb-through journey from ersatz field to ersatz factory, winding up in a heaping bowlful of Cheerios without the milk. Alas, keeping true to the children's museum brand, the great variety of interactives provided are either impossible to understand or have been loved to an untimely death. By far the coolest available activities are the opportunity to have one's picture matted onto a box of Wheaties and the chance to make your own blend of breakfast cereal by liberally combining tubes full of Cocoa Puffs, Trix, Lucky Charms, etc. – each for an additional fee. My eight-year old's verdict? 'It would've been better if you let me do the thing where I could make my own cereal.' Apparently the brand promise is only as good as a parent's willingness to pay for it at The Cereal Adventure."

Winding up his report from Minnesota, Dan writes, "Of these museums, by far the best and most sophisticated brand experience turns out to be the SPAM Museum in Austin (http://media.hormel.com/anrm/templates/spam_museum.asp?articleid=8&zoid=11). (Admittedly, free admission helps this favorable impression.) Hormel, the producers of SPAM, the unassuming,

bland, pink meat product, seems to have grasped a fundamental truth about the SPAM brand. The most notable thing about SPAM is how perfectly ridiculous it is. Sure, the museum takes us through a history lesson which, with a kind of spoofy gravitas, lingers on SPAM's finest hour in WWII (America's Greatest Generation of lunchmeat?), but we are also amazed to learn that the Hormel company was, embarrassingly, nearly bankrupted by an embezzler in its early years. (We discover this by eavesdropping on gossip over the company telephone switchboard.) We also learn that SPAM is composed of hog parts (mostly) and per capita consumption of SPAM in the U.S. is led by Hawaii of all places.



There is a nostalgic show about the SPAM Girls, an all-female touring orchestra of yore (think A League of Their Own with brass instruments and you get the picture). Surviving SPAM Girls share their charming memories with us. There are interactives galore: pack cans of SPAM, hoist a crate of SPAM, and the most successful electronic group participation interactive we have ever seen (hosted by no less a personage than a canned Al Franken – it is hilarious). And all were in excellent working order. There is SPAM artwork. There is a how-to program for exotic SPAM recipes from around the world (my favorite was for Japanese SPAM futomaki). The café serves nothing but SPAM sandwiches. The gift shop has an acre of SPAM emblazoned merchandise. (I went for the blaze orange knit cap: in Minnesota you never know when you might encounter an armed Cabela's customer while strolling in the forest). But the piece de resistance is the lovingly recreated set

for the infamous SPAM sketch from Monty Python's Flying Circus. These guys know their brand! Given the generally high quality of conception and execution of the exhibit, I found myself puzzling over whether a history exhibit can truly be great if the content, no matter how well researched and presented, has in fact little historical significance. Content hawks will be troubled, no doubt, that Hormel's abysmal record of labor relations is buried in a tiny fragment of label copy. But why get bugged about it? Have another slice of SPAM!"

Just to demonstrate the range of interests among Newsline readers, let's move on to an exhibition sent in by **Leslie Bedford**, who contributed the following endorsement: "A wonderful exhibit opened this month at the Clark Art Institute in Williamstown, MA., Turner: The Late Seascapes (<http://www.clarkart.edu/turner/>) is a stunning series of paintings by J. M. W. Turner, Britain's greatest landscape painter of the nineteenth century. These works from Turner's later years are abstracted and modern yet romantic and deeply emotional visions of an awesome natural world. They stop you in your tracks. Typical of the exhibits that Clark has mounted for several summers in a row, the Turner show is perfectly calibrated to appeal to the well-educated and well-heeled Berkshire resort-goer. A manageable size with pithy and informative labels, the show draws on the comforting familiar but with a new twist. Like two previous exhibits on Renoir and Orientalism, the show deepens one's appreciation of the Clark's permanent collection as well. In this case a video showed us how one work, *Blue Lights and Rockets*, had been conserved. Meanwhile, behind the scenes, the Institute's Department of Education sponsors an ambitious outreach program to the surrounding communities including school children and teachers. A small exhibit of the museum's ambitious plan for a new building designed by Tadao Ando testifies to their success." Still another dimension comes from Doris and Geoff Woodward, who want to share the announcement of an exhibition they recently designed for the Museum of

Tolerance in Lost Angeles (<http://www.wiesenthal.com/mot/index.cfm>). Finding Our Families, Finding Ourselves is the largest exhibit in the museum's 10-year history, and the latest effort in its ongoing mission to promote tolerance as the educational arm of the Simon Wiesenthal Center. Through an array of multi-media experiences, the exhibit explores the personal histories of well-known Americans including poet Maya Angelou, comic Billy Crystal, musician Carlos Santana, baseball manager Joe Torre, basketball star Kareem Abdul-Jabbar, author Sherman Alexie, skater Michelle Kwan, journalist and talk show host Cristina Saralegui, and NFL Player of the Year and Superbowl champion quarterback Steve Young. In more than 10,000 square feet, the exhibition shares the diversity within each family and the stories, lives and dreams that inspired these famous individuals. The overarching objectives of Finding Our Families, Finding Ourselves are "to celebrate the shared values, aspirations and struggles uniting all American descendants, to invite us to see ourselves in each other, and to seek out our own histories, mentors and heroes."



I recently received comments on two exhibits from our regular correspondent Andy Merriell. "I just visited the Freakatorium, or El Museo Loco and it was a pretty good experience. The 'gallery' is probably all of 200 square feet, if that, on Manhattan's Lower East Side. It's owned, and staffed, by professional sword swallower Johnny Fox (who will perform that feat for you during your visit), and presented in the spirit of the old Bowery dime museums of the P.T. Barnum era. It's his personal collection, some of which he acquired from his own associations with other sideshow performers. His personal tour was the best part of my visit. Highlights included Fri and Frak, a live two-headed turtle (\$1,000 if not real and alive) and Sammy Davis' glass eye." You can check out the Freakatorium at www.freakatorium.com, where you will learn about its collection of over 1,000 artifacts and curiosities, "many available for loan to museums, photographers, filmmakers, and event planners." An unusual plan for managing a collection and generating revenue!

Andy also got my attention when he mentioned the Phallogical Museum in Reykjavik, Iceland. We covered this attraction many years ago, but the new and improved museum is now represented online at <http://www.ismennt.is/not/phallus/ens.htm> where its curators unassailably assert that it is "probably (sic) the only museum in the world to contain a collection of phallic specimens belonging to all the various types of mammal found in a single country." (It goes without saying that country would be Iceland.) The website continues, "Now thanks to the Icelandic Phallogical Museum, it is finally possible for individuals to undertake serious study into the field of phallogogy in an organized, scientific fashion. The Museum contains a collection of over one hundred penises and penile parts belonging to almost all the land and sea mammals that can be found in Iceland. Visitors will encounter thirty specimens belonging to twelve different kinds of whale, one specimen taken from a rogue polar

bear, eighteen specimens belonging to seven different kinds of seal and walrus, and fifty one specimens originating from sixteen different kinds of land mammal: all in all, a total of one hundred specimens belonging to thirty six different kinds of mammal. It should be noted that the museum has also been fortunate enough to receive a legally-certified gift token for a future specimen belonging to Homo Sapiens." (No doubt the most unique application yet, of the principle of planned giving.) You can check out this museum's collection online, too, where you will find proof of the museum's motto: Seeing is Believing.

Next, **Sheryl Woodruff** wrote on behalf of the Museum of Television and Radio in New York and Los Angeles, describing two recent exhibitions. Antagonism Over the Airwaves: A Look at Controversy on Television and Radio explored controversy on TV and radio "since their inception, whether pushing the barriers of language and taste, exploring the boundaries of political criticism, or advancing the public's understanding of important social issues like abortion and gay rights. . . . The screenings, which are divided into six topics: censorship, ethics, violence, politics, race, and social issues, explore both historic and contemporary instances of censorship and contentious programming. Many of the clips in the series are surprising, not because they're inherently shocking, but rather for how uncontroversial they seem to current sensibilities. The clips challenge our conceptions about freedom of expression—what should be permissible and what should be taboo—and shed new light on issues that are currently being debated. Each part raises important points about the roles, both positive and negative, that television and radio have played in reflecting, mediating, and changing American culture, thought, and sensibility."

Another recent exhibit at the Museum of Television and Radio was "Blast From Your Past: What Gen X Watched 1969-1985," targeted at those who learned how to spell bologna from Oscar Mayer's commercials, and about conjunctions from Schoolhouse Rock. This was the first generation to watch Sesame Street, play home video games, and grow up with a collective set of pop culture references heavily influenced by a media-saturated world. According to the museum's press release, programming accompanying the exhibit will feature shows "from the ABC Afterschool Specials to Zoom. . . [inviting] Generation X to celebrate television — the defining medium of its childhood."

The following item was contributed by **Dianne Hanau-Strain**: "I found a 'wow' in eMotionpictures an art exhibit developed by the American Academy of Orthopedic Surgeons. (Did you know this is the 'Bone and Joint Decade?') The works are by artists, doctors and lay people, and deal with injury and pain in a profoundly moving way." We don't have information on a current venues for this exhibit, but its website is worth checking

out at <http://emotionpictures.aaos.org>.

First-time contributor **Claire Pillsbury** alights from globe-trotting long enough to offer news from her recent travels. "In February I visited Amsterdam and had the pleasure of stopping in at the Katten Kabinet (<http://www.kattenkabinet.nl>), otherwise known as the Cat Cabinet. The collection is housed inside an elegant old style canal facing mansion with period furniture rooms. Paintings of cats, drawings, prints, statues etc. However the atmosphere is completed by the presence of real live cats who wander around, meow for attention, nap on the sofas, and leap up on the fire-place mantel. Most of the art isn't all that impressive but they do have a Picasso print and some lovely Japanese paintings. I also traveled to Dresden to see the Deutsches Hygiene Museum (<http://www.dhmd.de/>). No, this is not a museum about proper flossing but is broadly about medicine, public health, and related social history issues. DHM established its reputation and fame many years ago by inventing and fabricating the Visible Man, Visible Woman and other classic museum anatomical models. While their permanent exhibition is being completely redesigned they are presenting special exhibitions. At the time of my visit the exhibit was *Man and Beast: A Paradoxical Relationship*." (Claire leaves us hanging in Dresden

on that tantalizing note, but I will look forward to more details in her forthcoming review in *Curator*).

news

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Claire's report ends in the mid-East. "In July, in Jerusalem, I visited the Museum of Taxes (http://www.mof.gov.il/museum/english/index_e.htm). With archaeological finds so plentiful, even this small museum had some ancient pottery shards as tax receipt specimens. The most interesting items were related to customs and importing crimes. These tributes to human ingenuity and the desire to avoid paying duty included: a coat that had hundreds of silk scarves stuffed in its lining, a book carved out to smuggle a transistor radio, and wooden shoes that had jewels hiding in a hollowed-out section. Finally, this craze for artist-customized public art has now spread to Jerusalem. This is their second year of commissioning artists to customize lions (the symbol of Jerusalem). The lions were enjoying the sun in the public park of Safra Square and predictably kids were running around to climb and ride them. My favorite was painted like an x-ray with a human skeleton inside labeled Daniel." I am grateful to all these contributors, and have a couple more really good, and very unusual, installations to add to our current survey. I saw both of these great projects in Portland during the AAM conference.

Illumination No. 1, a multi-screen rear projection installation created by animator **Rose Bond** and presented by the Old Town History Project. (<http://www.awn.com/mag/issue1.2/articles1.2/streetbond1.2.html>) Projected behind the windows of an abandoned building (the Seament's Bethel Building dating to 1881) in a near-downtown district of Portland, the installation used animated drawings that moved and connected



Museum of Tolerance

across the windows, portraying silhouettes of people and fragments of their material culture, sketching an overview of the successive occupancies of the building over more than a century and passing from commercial to resi-

dential uses and back again across a spectrum of very diverse communities. It was a bravura, innovative performance, demonstrating the power of site-specific art to reveal forgotten lives and history. A brief blurb in the project's brochure explains, "*Illumination No. 1* is an exploration of identity [evoking] the past, the peoples, and the accretions of memory. [calling] up 120 years in 12 minutes, [drawing] from six epochs specific to the site: Early Seamen and Sailors, North End Laborers and Merchants, Japantown, Chinatown, Roma (Gypsy) Family, Derelict Roost." The brief (6 nights only) run of the show was a catalyst for gathering enthusiastic viewers, who clustered on the sidewalk to watch the vivid images and listen to the audio track of musical fragments and sound effects. I saw it first with a group of museum colleagues and was so moved that I returned the next night with friends native to Portland, who delighted in the depth of understanding their city's history that was so effectively yet wordlessly communicated.

My absolute favorite experience in Portland was another exploration of identity, a low-tech but high-minded interactive installation by artist **Amos Latteier** in the Portland Building. Centered on the façade of this downtown postmodern civic office building which was designed by **Michael Graves**, is a 36-foot tall sculpture of a woman holding a trident and reaching out to the masses bustling below; she is *Portlandia*, the representation of Portland who appears on the city seal. Installed in 1985, the sculpture is widely-known throughout the city, and locals still recall the to-do that surrounded her transport and installation. In the lobby of the building,

Latteier created a background environment simulating Graves' architecture, supplying a trident, camera, lights and cable release so that visitors could Be Portlandia, step into the setting, pick up the trident, strike a pose and snap their own picture as the spirit of the city. An array of prior visitors' photos was assembled on the wall, and the artist's statement was posted nearby: "What is a figurehead? How does a city, a monument, or a photograph represent someone? I want to explore these questions and at the same time provide some fun by allowing people to take their own photos as Portlandia. I invite you to try on the role of representing Portlandia for yourself, rather than leaving this duty to a statue." After the project, Latteier posted photos on his website (<http://latteier.com/beportlandia/>), and added further thoughts: "A city is not a single entity, but a collection of unique people. I wanted to demonstrate this fact by bringing the symbol of Portland within the reach of the citizens. Participants responded with a variety of ways from mockery, to timidity, to exultation. I think that the photos produced by the participants provided an interesting a provocative document of the living citizens in conversation with their monument. Around 800 people participated." I hope you enjoy the attached photographs showing the original sculpture, and your devoted columnist Being Portlandia. In closing, I want to share just a couple of items from the Newsline Archives; unfortunately, the sources from which I obtained these leads are now lost in the cobwebbed recesses of my arcane filing system (apologies to all you anonymous informants) but I still want to pass them along to our readers. Most timely is the exhibition *Illegal Art: Freedom of Expression in the Corporate Age* (www.illegal-art.com), on view at this writing in San Francisco at the SFMOMA Artist Gallery, and headed for Philadelphia. The premise of the exhibition is that "the laws governing "intellectual property" have grown so expansive in recent years that artists need legal experts to sort them all out. Borrowing from another artwork--as jazz musicians did in the 1930s and Looney Tunes illus-

trators did in 1940s--will now land you in court. If the current copyright laws had been in effect back in the day, whole genres such as collage, hiphop, and Pop Art might have never have existed. . . . Where do the First Amendment and 'intellectual property' law collide? What is art's future if the current laws are allowed to stand?" The exhibition and its website explore these questions; the website demonstrates the provocative nature of the work and I recommend you take a look. About a year ago, the Children's Museum on Deafness (<http://www.icodaarts.org/cmd.html>) opened in Northbrook Illinois. Affiliated with the International Center on Deafness and

them to acquire appreciation for the contributions of people who are deaf and hard of hearing. Visitors' experiences include interactive components showing how sound waves move through air and water, and what causes deafness; live performances of an original play titled *Anything is Possible*, and a workshop where kids can make a take-home memento of their visit to the museum. Winding up on the usual offbeat note, next time you're visiting Independence, MO you could stop by Leila's Hair Museum (<http://www.hairwork.com/leila/>) to take in a phenomenal collection numbering some 2,000 pieces of jewelry made from human hair. The Museum is also headquarters for the Victorian Hairwork Society. Not too far away is one of my favorite cities – Memphis, TN – where I'm looking forward to seeing the new Stax Museum of American Soul Music (http://www.soulsvilleusa.com/flash_intro.cfm). Since opening earlier this year, I haven't heard any news about this museum, so if any of our readers can share their perspectives on it, please drop me a line and let me know what you saw, did and remember. You can reach me with news of this, or any other exhibition experience you'd like to share, at rabineau@chicagohistory.org



*Phyllis Rabineau
as Minerva in
Portland*

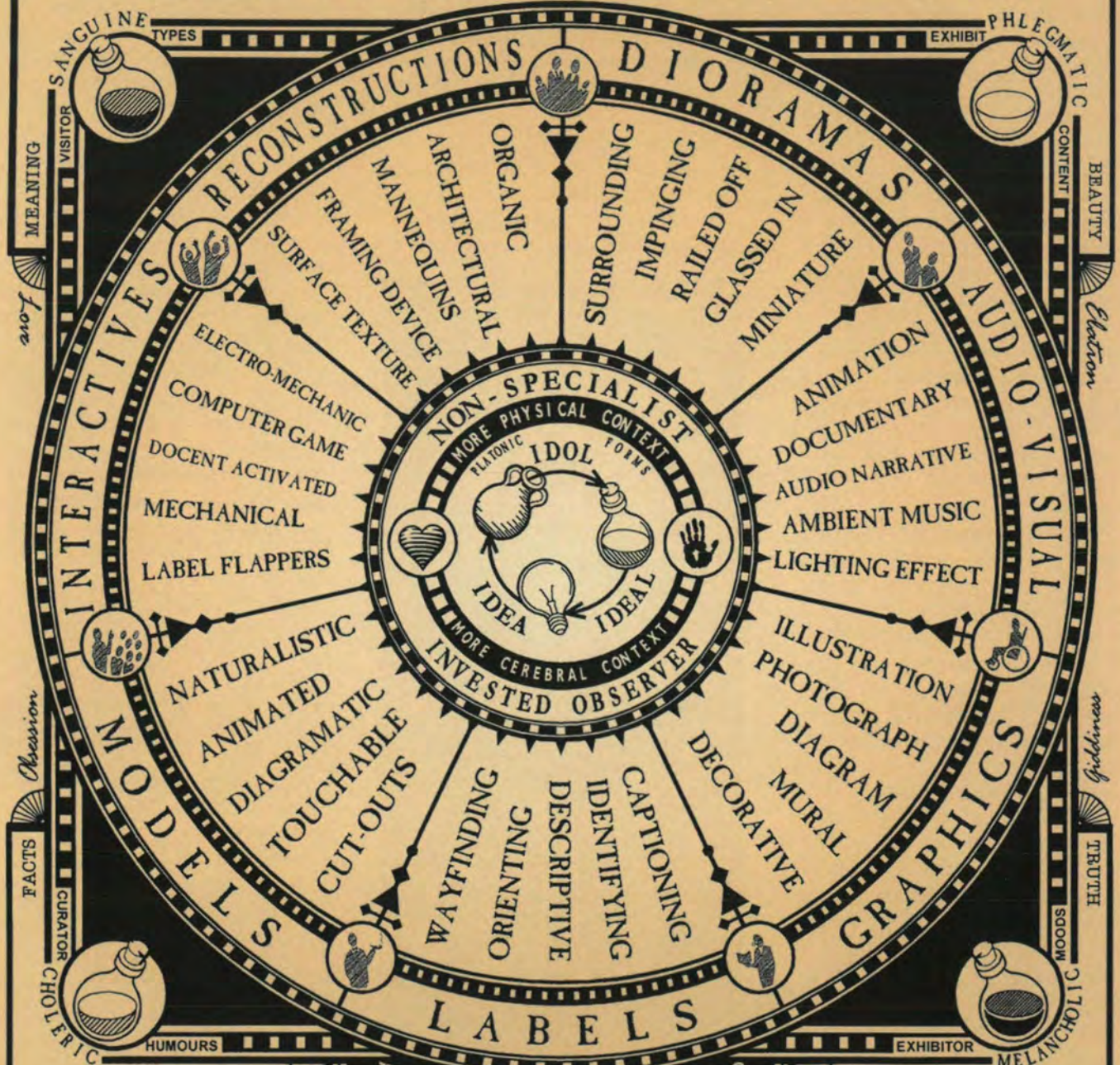


the Art, and intended for deaf and hearing children alike, the museum's purpose is to introduce kids to the culture of deafness, the science of hearing loss, and for

WHEEL of DEPENDENT IMPLEMENTATION

A MEDIA GUIDE EXPLORING THE WORLD EXHIBIT TECHNIQUES

- Choosing appropriate exhibit techniques will depend upon:
- 1) **CONTENT:** Objects and the Ideas you want to talk about.
 - 2) **AUDIENCE:** Who you want to reach and inspire? First Timers, Families, Repeat visitors, or just the cogniscent?
 - 3) **PACING:** Varied exhibit techniques will reach different learning styles, a larger-varied audience, and keep visitors engaged.
 - 4) **BUDGET:** In reality your choices will be limited by what you can afford, but on any budget, the variety of media you create will ultimately depend on your creativity.
 - 5) **QUINTESENTIALLY:** Have fun. If you don't, you visitors won't either.



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Sixteenth Annual Exhibition Competition

Read the Competition

About the Competition

The Sixteenth Annual Excellence in Exhibition Competition recognizes outstanding achievement in the exhibition format from all types of museums, zoos, aquariums, botanical gardens and any other types of non-commercial institutions offering exhibitions to the public. The competition is the joint project of the following AAM Standing Professional Committees (SPCs): Curators Committee (CURCOM), the National Association for Museum Exhibition (NAME), the Committee on Audience Research and Evaluation (CARE) and the Education Committee (EdCom).

Eligibility

Any non-commercial institution offering exhibitions to the public may participate. Exhibitions may have been designed by a commercial firm for a non-commercial institution. Entrants need not be members of AAM. The exhibition must have opened to the public between November 29, 2002 and November 29, 2003. To be eligible, exhibits may not have previously won this competition.

Entry Fees

A \$60 fee is required for each exhibit entered. Make checks payable to the AAM Curators Committee. For multiple entries, submit one check for the full amount.

Notification and Awards

Each winning exhibition will be featured in a program at the 2004 AAM Annual Meeting in New Orleans and a representative from each winning institution will be asked to do a short presentation. Winners will also receive national recognition in the AAM publication *Museum News*.

Competition Policies

The SPC sponsors are not responsible for lost or damaged entries. All entry materials become the property of the SPC's and cannot be returned. Entrants agree to allow AAM and SPC sponsors to use photographs of winning exhibitions, at no charge, in AAM publications. Entrants warrant that they have the right to allow such use. Institutions will be credited in any published reference to winning entries. All materials (with the exception of exhibit budgets) will be displayed as part of the Annual Exhibit Competition Booth at the Market Place of Ideas at the 2004 AAM Annual Meeting in New Orleans.

To Enter

Include four copies of your entry in four separate binders. Entries must be submitted in 2" or 3" binders. All materials must fit in this binder. Entry materials must be submitted in the order listed below with binder tabs identifying each section.

The following documents (referred to below) are available at:
www.N-A-M-E.org
or from the competition coordinator.

Entry Form
Standards for Museum Exhibitions
Exhibition Budget Worksheet

Entry Form: complete and place at the front of the binder

Narrative: addressing the Standards for Museum Exhibitions and Indicators of Excellence. Not to exceed 10 double spaced pages.

Exhibition Staff: List both in house and contracted staff and their role in the exhibition planning process.

Exhibition Walkthrough: May be submitted as a set of not more than 20 Slides or CD-ROM still images. Each slide/CD should be clearly labeled with the institution's name. Each image should be clearly keyed to the exhibition floor plan (see below). Include a 2-3 sentence explanation for each image. The purpose of the slides is to give a sense of the exhibition as a whole. We strongly encourage you to submit images of the public interacting with your exhibition.

Floor Plan: A single sheet keyed to walkthrough. Include square footage and scale.

Exhibition Budget Worksheet: Only final exhibit budgets submitted in this format will be accepted.

Evaluation: Provide a one page summary for each evaluation (formal or informal study, focus group, remedial evaluation, etc.) with the intended or actual audience. Summary should include: Purpose of study, who conducted it, methodology (how it was conducted), number of participants, results, and actions taken because of the evaluation. Include forms, questionnaires, etc. If post opening/summative evaluation is not finished in time for entry, send a brief summary of your evaluation plan as well as a schedule for conducting the study.

Educational Materials: Respond to the following three questions (responses not to exceed a total of 9 pages). You may attach up to three samples of educational material used with the exhibition. Samples must fit into your entry binder.

How were the education programs developed with the intended audience in mind?

How was the community (teachers, youth groups, elected officials, colleges/universities, etc.) involved in developing the educational programs for this exhibit.

How were the goals for these programs accomplished? Explain how the education program worked in tandem with the exhibit goals.

Labels: Include the introductory label (as you define it) and 5 labels that best communicate the look, feel and content of the exhibition. Labels should be sized to fit into the binder in graphic form as they appear in the exhibition, not just as text.

Exhibition Development Process: A two page explanation of your process, however you choose to define and present it.

Entry Form

Name of Your Institution/Organization _____

Address _____

City/State/Zip _____

Phone/Email _____

Contact Person _____

Exhibition Title _____

Date Exhibition opened to the public _____

Date Exhibition closed or will close _____

Institution's operating budget for the most recently completed fiscal year _____

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Traveling
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Is your institution a 501c-3? _____

Are you a member of AAM? _____

Please send entry materials in four collated sets to:

Gretchen Overhiser
Exhibition Competition
Coordinator
23 Academy Street
Princeton, NJ 08540
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ALL ENTIRES MUST BE POSTMARKED
BY January 9th 2004

There will be no exceptions to deadlines or exhibition competition policies

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This form may also be accessed electronically at <http://www.n-a-m-e.org/member.html>

For all members: Please indicate those areas in which you would like to be listed as an information resource or commercial provider.

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| FI | Fabrication, installation, prototyping | PM | Project management |
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Graphics & Publications

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Midwest

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Diane Gutenkauf
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stulchin@dmns.o

Western

Mary Beth Trautwein
mbtrautwein@getty.edurg
Beth Redmond-Jones
beth@redmond-jones.com

▶ EXHIBITIONIST STAFF

STAFF

Editor

Jane Bedno
University of the Arts
320 S. Broad Street
Philadelphia, PA 19102
v. 215-717-6327
e. jbedno@uarts.edu

Exhibits Newsline Editor

Phyllis Rabineau
Chicago Historical Society
1601 N. Clark Street
Chicago, IL 60614
v. 312-642-4600
f. 312-266-2077

e. rabineau@chicagohistory.org

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Director, Museum Education
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