

**Evaluation of 'Living With Hurricanes: Katrina and Beyond'
An exhibition at the Louisiana State Museum, New Orleans
Final Report**



Photo by Jeff Hayward

People, Places & Design Research

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Executive Summaries of the series of evaluation reports

People, Places & Design Research
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July 2013

Acknowledgements

This material is based upon work supported by the National Science Foundation under Grant No. DRL 0813558. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.



There were many people who inspired, contributed to, collaborated with, and provided valuable practical support for the evaluation process, and we heartily thank all of them, including:

David Kahn, former Director of the Louisiana State Museum, for his leadership in initiating a process of audience research and evaluation on this project;

Karen Leathem, PhD, Historian with the Louisiana State Museum, and Principal Investigator on the NSF grant, for her complete support of the evaluation process, ensuring good strategic use of evaluation activities in relation to exhibit development decisions, and for her valuable advice and coordination over many years;

Doug Meffert, DEnv, former Deputy Director for the Tulane/Xavier Center for Bioenvironmental Research, and Co-Principal Investigator on the NSF grant, for his expertise on coastal science and other issues related to Hurricane Katrina;

the late Janet Kamien, the principal concept developer for this project, for her commitment to audience research and evaluation from the beginning, her collaboration on the Storyline Testing study, and her guidance and collaboration on the proposal to NSF, which inspired the evaluation plan that we then implemented;

Krent Paffett Carney (now called Experience Design), the exhibit design firm, and Jessie Rubenstein, the lead designer, for their creativity, genuine interest in audience research, and assistance with providing materials for some of the evaluation activities;

A More Perfect Union (Fred Brink and Salvatore Raciti) for their collaboration on formative evaluation of media interactives;

Jeanne Hurlbert, PhD, principal of Optinet Resources (and faculty member at Louisiana State University), for her expertise in studying community issues in New Orleans regarding hurricanes and Hurricane Katrina specifically, and for her ongoing collaboration in strategic thinking about and preparing for the longitudinal study;

Lisa Szechter, PhD, Psychology Department, Tulane University, for her help in thinking about and evaluating children's experiences in this exhibition;

Acknowledgements (continued)

Tanya Jones, EdD, Tulane University, for her help in conducting focus groups and finding people to do community interviewing, and being a good voice for the local perspective;

Victoria Coy and several other local assistants, who were very helpful in providing a team of high-quality interviewing, both at the Museum and in the community; the staff at the Louisiana State Museum, including Director Mark Tullos, former director Sam Rykels, Whitney Babineaux, Yvette Cuccia, Charles Chamberlain, Jeff Rubin, Patrick Burns, Tom Riley, Kacy Godso, Aimee Spangenberg, Gaynell Brady, Memory Seymour, Susan Moreau, Elizabeth Sherwood, Yvonne Mack, Celestine Washington, and other staff and volunteers who helped with numerous tasks such as facilitating the useful formative evaluations, interviewing people at the Museum and in the community, and the dozen other things that would have fallen through the cracks without their help;

The Louisiana Museum Foundation and its executive director, Susan Maclay, for always-timely support and administration of the project;

community organizations who provided sites for interviewing potential visitors, including the Jefferson Parish Library, the New Orleans Public Library, the New Orleans Museum of Art, the Historic New Orleans Collection;

Multi-Quest International of Metairie, and its owner John Grimm, for their dedicated and quality work with telephone interviewing and hosting community focus groups, as well as their insightful advice about developing samples of respondents which saved two studies that otherwise might not have been completed;

and ultimately, it's essential to acknowledge the many contributions of our co-worker, Brian Werner, PhD, who was a beacon of enthusiasm for this project from the outset, who immersed himself in understanding many issues from levee engineering to social-cultural perspectives in New Orleans, who did a great deal of the implementation of studies and data analysis for reports, and who left his files in such good order that we could find our way in them even after he was gone. Unfortunately, he did not survive his multi-year struggle with cancer to see this final product of our joint work.

Executive Summary

This is a report of audience research and evaluation pertaining to *Living With Hurricanes: Katrina and Beyond*, an exhibition developed by, for, and at the Louisiana State Museum in New Orleans. The process of investigating the perceptions of audiences and visitors was commissioned by the Museum, and was mostly designed to inform the interpretive planning process; then, after the exhibition opened to the public in late October 2010, the intent was to describe and assess the experiences of visitors.

Ten audience/visitor studies were conducted over a seven year period, five of which were designed to inform the planning process and five of which were conducted after the exhibition opened to the public in October 2010, designed to investigate the experiences of visitors and community audiences regarding the completed exhibition. In addition, a 'dissemination workshop' was held with an experienced group of museum professionals from around the country, seeking to use the evaluation findings to benefit other museums.

During the planning process, the audience research activities made several useful contributions. 'Front end' research identified a framework for different components of the potential audience, based on their relationship to the storm (directly affected, indirectly affected, not affected) – a framework that turned out to be useful for the rest of the project. Storyline Testing revealed likely strengths in visitor understanding of interpretive messages, including the science behind what happened. Formative evaluation of computer-based media indicated that children were likely to be engaged and interested in hurricane science, and would understand things about levees and storm formation that they had not understood before.

After the exhibition opened, the audience research process provided detailed descriptions of visitors' use and perceptions of the four main rooms, investigated and documented extensive STEM learning on multiple topics (especially about levee engineering and wetlands), discovered that the great majority of visitors to the exhibition were tourists and that few residents were visiting, that residents of the local area who normally visit museums were ambivalent about visiting this exhibition but many who could be interested were not aware of it, and that the experience was emotional and very worthwhile for local and tourist audiences who saw it. A topic of special interest in this process was the character of affective experience (feelings, emotions) and possibly its relationship to learning; a considerable amount of data about affect was collected, leading to the conclusion that affect is an interesting factor in understanding visitor experiences, but does not have a simple direct relationship with learning content.

Project Report

A. Overview of the evaluation process

To understand the point and value of audience research and evaluation activities on this project, it seems appropriate to begin by explaining the multiple stages of such research. Over seven years (summer of 2006 – summer of 2013), this project had a well-timed and thorough evaluation process, addressing various needs and goals. In chronological order, the specific studies conducted were these:

- ❖ **'front end' research**, consisting of focus groups and a three-city survey (New Orleans, Atlanta, Houston) using intercept interviews, investigating interest in an exhibition about Hurricane Katrina generally and in terms of specific topics, including the first effort at defining and analyzing people's relationship to this topic (resulted in three categories: directly affected due to the experience of having lived through the storm, indirectly affected due to close experience with others who were directly affected, and people who were not directly affected by the storm although they may have been intently interested in the news about it);
- ❖ **storyline testing**, consisting of individual interviews conducted in community settings using a sketchbook of the proposed sequence of the exhibition, investigating issues about likely extent of use of specific spaces, overall messages, possible differences between local residents and visiting tourists, as well as some specific concerns and issues such as whether humor should be included or not;
- ❖ **three formative evaluation studies**, focusing on exhibit development issues regarding (a) the ending [last room] of the exhibition, conducted by intercept interviews with adults; (b) the media approach to the most dramatic room of the exhibition [the aftermath of the hurricane], conducted with a multi-station mock-up of videos, using visitors to the Cabildo and passers-by on St. Peter Street; and (c) media interactives about hurricane science, conducted with 3rd grade and 7th grade students at three schools in the New Orleans area;
- ❖ **remedial evaluation**, involving a rapid assessment of visitor experience shortly after the exhibition opened, seeking to address staff concerns about specific parts of the exhibit experience as well as doing a preliminary investigation about how people were using the exhibit spaces and whether it was feasible to talk with them about their experience, in preparation for the summative evaluation;
- ❖ **summative evaluation**, consisting of a main study (exit interviews with 406 randomly selected visitor groups) and five 'mini-studies' (one about children's reactions, four about the hurricane science section of the exhibition), which investigated who visits the exhibition, patterns of use, overall reactions, STEM learning, affective reactions, the relationship between affective engagement and experience of the exhibition, as well as the use and reactions to hurricane science exhibits;

- ❖ **community awareness study**, prompted by the emerging finding during the summative evaluation that few local residents were visiting the exhibition, using 'on-the-street' community interviews as well as a phone survey to assess awareness of the exhibition among museum-going individuals and households in the New Orleans metropolitan area;
- ❖ **community focus group study to prepare for longitudinal evaluation**, needing to hear informal and unstructured comments about local residents' thoughts about seeing this exhibition, four focus groups (people who had visited the exhibition, people aware of it but hadn't visited, parents of young children who had not visited, newcomers who were not living in New Orleans when Katrina struck) investigated why people would or wouldn't want to see the exhibition, expectations about the exhibition if they hadn't seen it, and reactions to a slide show about the exhibition; and
- ❖ **longitudinal evaluation**, a study that sought information about how the exhibition might have affected people's thinking about hurricanes in their own lives, consisting of telephone interviews with approximately 100 people who had seen the exhibition and a control group of approximately 100 people who do visit museums but who had not seen *Living With Hurricanes*.

Separate reports were written for each of those studies, and the Executive Summary of each study is included in the Appendix to this report. The first two studies were commissioned directly by the Louisiana State Museum; the remaining eight studies were supported by funding from the National Science Foundation.

Over the course of this audience research process, a wide range of audiences was involved, contacting over 1500 people, such as:

- people who were directly impacted by Hurricane Katrina, including people who lost a house or a job (focus group in the 'front end' research);
- parents of school-age children, to find out what they were saying to their kids and whether they wanted their kids to see an exhibition like this (focus group in the 'front end' research, exit interviews with families as part of the summative evaluation, & non-visitor parent focus group prior to the longitudinal study);
- local residents and tourists contacted in community settings such as coffee shops, parks, libraries and other museums ('front end' research, storyline testing, community awareness study);
- elementary and middle-school students (formative evaluation of media interactives);
- visitors to the Museum (remedial evaluation, summative evaluation);
- greater New Orleans residents invited to focus groups 14 months after it opened; and
- local residents who had seen the exhibition and were later contacted by phone to talk about their perceptions and interests.

This array of audiences was one factor in ensuring a thorough evaluation process.

B. Informing the Exhibition Planning Process with Audience Research

One year after the catastrophic events of Hurricane Katrina in August 2005, the exhibition planning process had already been underway when museum Director David Kahn and exhibit developer Janet Kamien opened a conversation about audience research and commissioned the first study in this series: 'front end' research to explore the public's likely interests, knowledge about motivations to see an exhibition about Hurricane Katrina. The following year, a Storyline Testing study was commissioned to preview the concept that Ms. Kamien and the Museum's exhibit planning committee had created. Those two studies served as background information for the Museum's proposal to the National Science Foundation, and the process of developing the proposal yielded an evaluation plan for involving audiences in formative evaluation, remedial and summative evaluation, and a longitudinal study. That plan was implemented in more-or-less the same way that it was intended, with changes to respond to circumstances (i.e., one new study was created, another one had to revise the method and sample size).

In general, each audience research/evaluation study on this project was guided by specific issues that were relevant to the time at which they were conducted. For example, 'front end' research, the first of these ten studies, was designed to inform the intuitions of the Museum's exhibit planning committee regarding "where the audience is 'starting from' " about Hurricane Katrina, including two audiences (visitors to New Orleans and local residents) and three domains of questions (people's likely motivations to visit the exhibit, knowledge about Katrina, and interests or likely topics that might appeal to people). Those priorities led to a research design that consisted of two different research methods: a three-city study (New Orleans, Houston, Atlanta) using intercept interviews of people visiting museums or historic sites (quantitative analysis), and focus groups with local residents (qualitative analysis). Results pointed to themes that became enduring issues (such as local residents' desire for an uplifting story, and yet telling "the truth" so that other people would really understand what they went through) as well as recommending a framework for understanding audiences (people who were directly impacted by Katrina, indirectly impacted, and not at all impacted) to help understand different people's different perspectives on various topics. That study is just one example; all studies had defined purposes and results that informed the development of the exhibition or analysis of visitor experiences.

During the concept development period, the audience research process sought to provide the Museum's exhibit planning team with information about issues such as whether people would be interested? and *who* would be interested? how would the idea of science in a history museum be received? what misconceptions would the team have to deal with? what do people really know?

The audience research revealed findings about knowledge, attitudes, interests, stereotypes and blame... providing observations such as these:

Many people didn't understand how extensive the evacuation was before the storm: "only 27% of SE Louisiana residents and only 18% of out-of-area visitors thought that at least three-quarters of the population evacuated" (the figure has been estimated at 80-85% who evacuated). The 'front end' research also led to this conclusion: "It's fairly easy for exhibitions to be informative (e.g., to address the fact that residents know a lot about levees and pumping stations but out-of-area visitors don't know much), but the problem here isn't just a lack of knowledge of a few key facts, on some topics; the insider/outsider difference tends to reflect attitudes that may not change so easily." Specifically, "underlying the 'knowledge' about evacuating were some suspicions about the judgment of people who didn't evacuate."

In fact, negative perceptions were common: "naïve people outside the region... ask why are they rebuilding New Orleans anyway, because it's an ill-fated location" and will always be vulnerable. But meanwhile "residents had a completely different perspective on their attachment to a unique place and society that has been a keystone of economics and culture for at least a great chunk of the Midwest. So, is this exhibition likely to do enough to generate respect for residents as well as the rationale for rebuilding this city?"

Below the surface of being interested in the whole story of what happened, many people are primed to want to blame someone or something for the extent of the disaster beyond the normal destruction from a strong storm. Asked about their interest in four topics before seeing a sketchbook preview, people expressed very high interest in finding out about "how and why the levees failed" and "the idea that man-made factors made the flooding worse." [both could be interpreted to be about blaming someone]

The planning team responded to such observations, and the exhibition did a good job of addressing these negative perceptions: rather than being interested in further blame, one of the common descriptors that people chose in the Summative Evaluation was 'respect for people who acted' and the #1 descriptor in the Longitudinal Study of people contacted later was 'empathy for others.'

During the design development period, the audience research process consisted of formative evaluations on three topics: the concept of the last room (study A), a mock-up of the media content for the aftermath room (study B), and analysis of mechanical and media interactives about levees and hurricane science (study C).

Storyline Testing concluded that "The 'future area' (last room) lags far behind other exhibit areas. This is the least appealing area for both residents and visitors. In spite of the positive implications of this area, people were more likely to express anxieties than hopes about New Orleans' future." The planning team responded by designating this as a priority for formative evaluation, and among the results of that study were conclusions such as: the title of this room should be forward-looking (e.g., where do we go from here? Rather than 'lessons learned'; the exhibit team responded by naming it 'Changing the Game'); another conclusion was that focusing on New Orleans will be easier than making connections with other places.

Humor in the face of tragedy is part of the culture of New Orleans but not everyone understands that. A large majority (80%) of local residents said they accept and expect humor about a tragedy and many people from elsewhere acknowledge it as a coping mechanism. There will be, however, a notable proportion of visitors that will not be receptive to humor in this exhibition (although they haven't seen it yet, so we may be surprised). The use of humor could be part of the Soul of New Orleans area, the Returning Home section, and the Rebuilding area. Is there enough humor planned, and is it appropriate to the story and understandable to various audiences?

The design concept for Room 2, the aftermath of the storm, was creative but risky. Chaotic, dark, helicopter noises, exhibit structures looking broken – the idea was to provide an immersive experience that was not orderly, attractive, or pleasant. It needed testing. Four of the video stations were mocked-up on wood-slat pylons, introduced by large-format renderings of what the space might look like. The formative evaluation results were very encouraging: "Interest in the content is deeper and broader than what people saw in the preview. Most people stopped and listened to all four of the stations of the preview and for each of them some people found it to be the most compelling." "The overall emotional reaction [to this room about the aftermath] is likely to add gravitas to the exhibition. People leaving the simulated space thought it communicated sadness, respect for those who acted and empathy. The room also leaves people with a sense of wanting to see hope for the future recovery."

After *Living With Hurricanes* opened to the public, the audience research process continued to address the interests and concerns of the exhibit planning team but also moved ahead with investigating visitor experiences including affect and learning.

The Remedial Evaluation was designed to address 13 staff concerns about visitor use and experience of the exhibition. For example, about visitors' use of Room 2, the Aftermath, staff asked:

Do visitors get a reasonable "breadth of experience" in *Is This America?* or do they watch one story and pass through? Of 38 visitor groups interviewed, 32 of them stayed to listen to at least 3 video stations, and 21 stayed for more than that.

About the last room, staff worried:

In the 'Changing the Game' gallery, it seems like visitors sit down for the video and leave once it is over, missing the room-full of panels and interactives. Observations of visitors arriving in this room indicated that visitors who arrived *between* the showing of the video story were more likely to read a panel compared to visitors who arrived *during* the showings; museum staff considered adjusting the time between showings.

The Summative Evaluation was designed to systematically assess the composition of the audience as well as pursue the several indicators and impacts that had been proposed earlier in the planning process.

One of the proposed indicators: Visitors will be more aware of different phases of impacts: not just the force of the storm as it passes through, but also the extent of flooding, and impacted resources & services in the aftermath.

Evidence: Many visitors said they understood something better because of this exhibition. They cited levee failures, the timeline of what actually happened, the aftermath and how people were affected, the lack of preparation and evacuation plans, lack of response by the government, and other topics.

The Longitudinal Study was designed to find out whether anything about the exhibition had an enduring value in people's lives.

A substantial proportion of the people who had seen the exhibition (70%) said they took away lessons that they will apply in their own life (50% said 'definitely;' 20% said 'somewhat') – especially about disaster preparedness.

People who saw this exhibition, mostly interviewed over a year later, were more likely to think they better understand two STEM topics – the role of wetlands and levee engineering – compared to a control group of people who have also seen 5-7 years of news analysis and discussion since the Hurricane.

Visitors' affective recollections of the exhibit experience were enduring, almost exactly the same as when measured by the Summative Evaluation in the Museum.

C. How is the exhibition received by visitors?

Living With Hurricanes is well-received by visitors. The indicators of visitors’ experience include the amount of time spent, their rating of the overall experience, ratings of the main rooms of the exhibition space, and their sense of whether the exhibition is a good thing for New Orleans.

Visitors spend a lot of time in this exhibition, indicating that it is an engaging experience. The median duration was 58 minutes in the exhibition – half of the people stayed longer, half stayed for less time (self-report, often from looking at their watches). This amount of time is considerably longer than many exhibitions. Just walking through at a normal pace without stopping would take 3-4 minutes.

The table below presents some interesting findings. First, the average amount of time spent for a variety of different types of visitors is more-or-less the same (although these four comparisons are the most statistically significant differences identified during the analysis, but the big differences are only about 10 minutes),

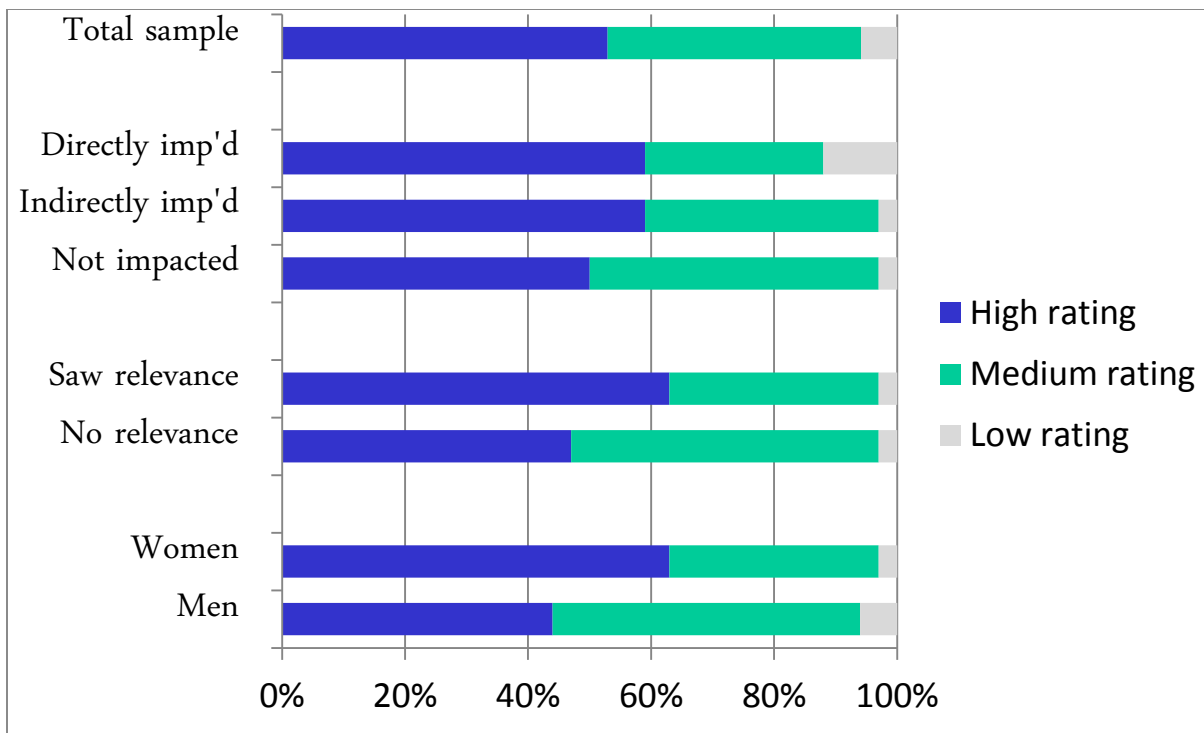
Visitor characteristic	Avg. minutes in the exhibition
<u>Extent of emotional impact</u>	**
If stronger ¹ emotional impact	61
If lesser emotional impact	52
<u>Place of residence</u>	**
Louisiana residents	49
Gulf Coast residents	62
Other U.S. residents	58
Non-U.S. residents	60
<u>How affected by Katrina</u>	**
Directly impacted by Katrina	48
Indirectly impacted by Katrina	59
Emotional connection with Katrina	58
Not impacted by Katrina	59
<u>Visitor group composition</u>	**
Adult-only visitor groups	59
Family groups	52

¹ “Stronger” emotional impact includes people who said its impact was “extremely strong” or “a great deal;” “lesser” emotional impact includes people who said its impact was “a moderate amount,” “a little” or “none.”

indicating that all types of visitors were engaged by the experience. Secondly, the data indicate that local residents and people who were directly impacted by Katrina tended to spend a little less time in the exhibition, compared with people from out-of-state and those who were not directly affected by the storm. This pattern suggests that the experience was probably too intense for some who had been directly impacted – an observation made about some visitors during formative evaluation when the ‘Room 2’ /Aftermath / “Is this America?” experience was mocked-up and people were seeing it for the first time. A similar indication of the intensity of the experience, possibly contributing to a shorter visit, occurred during the focus groups with people who had seen the exhibition, this being one of the emotional comments:

I was in the National Guard during Katrina, and I was in the Super Dome. It was a little tough to really talk about it ...So, that’s kind of the reason I didn’t go to see the whole thing. I just kind of was like, “It’s a little much.”

Visitors rated the overall experience positively, indicating that it was engaging and worthwhile. In the total sample of 406 visitor groups interviewed in the Summative Evaluation, 54% rated the exhibition a ‘9’ or ‘10’ on a 10-point scale (defined as ‘high rating in the graph below). Very few people gave the exhibition a low rating. And although the comparisons in this graph show statistically significant differences, the differences do not tend to be extreme, and there were numerous



other comparisons where the differences were not statistically significant. Despite the inhibitions of people who "lived through" Katrina to see this exhibition, and despite the slightly-shorter duration of their visits, it's a good sign to see that their ratings of the exhibition were slightly more positive than people who were not impacted by the storm (both the 'directly impacted' and the 'indirectly impacted' segments tended to give higher ratings: 59% gave a '9' or '10' on a 10-point scale). Among their recommendations during the planning process had been to hear "the truth" from this exhibition, see stories from authentic individuals, and have some hope for the future. Their positive ratings suggest that these desires were satisfied in the exhibition as it was designed.

Two other factors from the results about overall ratings are worth noting:

- ❖ People who "saw the relevance" means seeing the relevance of this story to their own lives, wherever they live. Although slightly less than half of the out-of-state visitors thought that the information in this exhibition was relevant for potential disasters where they live, those who did see the connection were much more likely to rate this exhibition highly (63%) compared to the ratings by people who didn't see the relevance (47% high). So although that difference was statistically significant, it also indicates that the exhibition was a reasonably engaging experience for people who did not necessarily see it as a story related to their own lives.
- ❖ Women rated the experience as more engaging than men did (63% vs. 44% high ratings). Stereotypes about women being more emotional than men do tend to apply to overall ratings like this, perhaps especially when the exhibition presents compelling human-interest stories as this one does. Results from the question of what kind of emotional impact this exhibition has showed a similar pattern: 72% of women said it had a strong impact on them ('extremely strong' or 'a great deal') compared with 49% of men who said that.

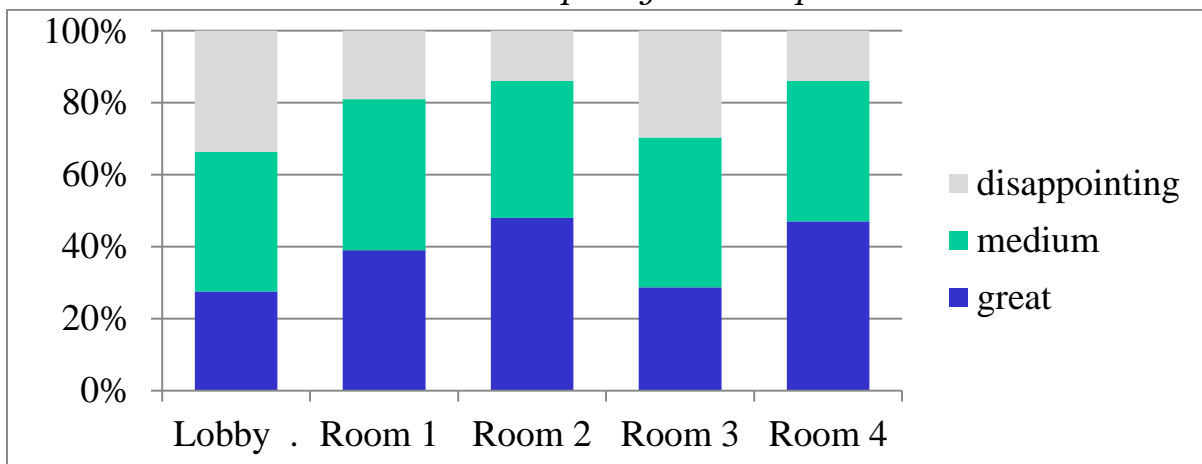
People who see the *Living With Hurricanes* exhibition are very supportive of its value for New Orleans residents. Repeated anecdotal evidence throughout the planning process and period of this evaluation revealed inhibitions about going to see an exhibition that might just be another view of all the destruction (from shortly after the disaster, bus tour companies made money by driving tourists around on "Devastation Tours" to see the wreckage, and that's primarily what other exhibits have shown too²). Now, even after the exhibition has been open for 2½ years, a sample of museum-going New Orleans area residents who

² Other exhibits about Hurricane Katrina were presented at the Historic New Orleans Collection, a National Geographic traveling exhibition was hosted at the Louisiana State Museum's Cabildo building, and a photojournalism exhibition was presented at the Ogden Museum of Southern Art – all were primarily photographs of destruction.

have not seen the exhibition (the 'control group' in the Longitudinal Study) were ambivalent about whether it would be "a good thing" for the people of New Orleans: 59% thought so, but 31% thought it would be a painful thing, and 11% thought it would have nothing to offer most people. However, among a sample of people who had seen the exhibition (the main sample in the Longitudinal Study), a strong 81% thought the exhibition is 'generally a good thing' while only 1% thought it has nothing to offer most people. A finding like this reinforces the fact that the exhibition is well received and has value for a variety of people.

Finally in this section is the question of whether there are some **parts of the exhibition that can be identified as clearly contributing to the engaging and respected experience that visitors are having?** Of course, the overall experience – from the history of New Orleans as a city of resilience, to the drama of the storm and the aftermath, the analysis of why the disaster was so catastrophic, and ultimately to stories of recovery and rejuvenation – is a full story and all parts probably contribute in some holistic way that can't necessarily be sliced apart. However, there is some data from the Summative Evaluation about how people perceived the sequence of gallery rooms, shown below, indicating that Room 2: 'Is This America?' (the aftermath) and Room 4: 'Changing the Game' (recovery & hope) were the most engaging and least disappointing. These represent the most compelling human-interest aspects of the story, from witnessing the chaos and tragedy after the storm to hearing how life goes on with upbeat perspectives that help us come full circle to the initial idea that New Orleans is a city of resilience that people love. Thus, the human story seems to be the cornerstone of the experience.

Rate each room ...how well or poorly was that presented?



D. Project goal: Attract local residents to this history museum

This section is an analysis of evidence regarding one of the Museum's principal goals associated with this exhibition.

Most history museums have two related problems regarding their audiences: first, *it's difficult to get audiences to visit more than once*, because people tend to think "been there, done that" especially about narratives that don't change and collections of objects that are always the same; and secondly, *it's difficult to attract local audiences*, because the subjects already seem familiar and there's nothing novel or fascinating about a story that seems ordinary, and also people often think that such a place is "for tourists" or school groups. Two quick examples illustrate the problem:

a) A historic site with a nationally recognized name found that 90% of its audience comes from more than 110 miles away. Although the national recognition is welcome and the parking lot can be full at peak times in the summer tourism season, the lack of local audiences means that the site is completely dependent on the tourist economy, and locals aren't paying attention and therefore don't think anything interesting is happening there.

b) An organization that has preserved the historic site of a utopian community found that 86% of its audience is visiting for the first time. Although it's laudable that the site continues to attract these new visitors, indicating that it has considerable appeal and public curiosity, the "other side of the coin" is that the organization has to essentially re-create almost its entire audience every year – that's the kind of marketing challenge that small history-oriented organizations are not prepared for.

The Louisiana State Museum is primarily a history museum, and its sites in the French Quarter – especially the two museums on the plaza at Jackson Square – face similar challenges. Prior to the *Living With Hurricanes* exhibition, the attendance data (zip codes collected by cashiers) indicated that only 15% of the visitor audience lived within 50 miles of the museums (the Cabildo & the Presbytere, where *Living With Hurricanes* would be installed). So naturally, it was a goal of this project to try to increase the local audience. Would exhibiting a major dramatic event relevant to the community's life be sufficiently appealing to attract them? 'Front end' research in 2006 investigated this question, and the results, shown on the following page, indicated that an exhibit about Hurricane Katrina would be interesting – as interesting as 'architecture of the French Quarter,' which is a popular topic. A Hurricane Katrina exhibit ranked 3rd of 6 ideas among Louisiana residents, and at a similar level of interest as (not statistically different from) likely visitors to New Orleans from Atlanta and Houston, for whom Hurricane Katrina was one of their top

three interests. Further evidence for likely appeal was seen in the lower data table, where people who were 'directly affected' by Katrina (mostly residents from the greater New Orleans area) were slightly more likely than others to be interested in seeing an exhibition about it.

These findings encouraged the development of the exhibition.

Here is a list of ideas being considered for new exhibits – they might be at a museum in New Orleans or they might be traveling to museums in other states. On a scale of 1 to 10, how interested would you be in going to see each one, wherever you might see them?

<u>Percent ratings of high interest</u> [3-city survey]	Overall Sample (n=252)		LA Residents (n=58)	Likely Visitors (n=86)	Unlikely Visitors (n=100)
architecture of the French Quarter	42%	**	55%	41%	33%
Hurricane Katrina	42%		50%	42%	36%
history of jazz	33%	**	40%	40%	25%
cultural mix of New Orleans	33%	**	59%	30%	20%
civil rights	33%		22%	29%	40%
the river as a life line	19%	**	36%	24%	5%

<u>Interest in Katrina, analyzed by</u> <u>how they were personally</u> <u>affected by the storm</u>	Overall Sample (n=252)		Directly Affected (n=49)	Indirectly Affected (n=62)	Not Affected (n=141)
high interest	42%	++	47%	39%	42%
moderate interest	31%		31%	21%	35%
low interest	27%		22%	40%	23%

** = statistically significant difference, p < .05

++ = borderline significance, p < .10

One year later, the Storyline Testing study investigated the issue again: would people – local residents and visitors to New Orleans – be interested in coming to an exhibition about Hurricane Katrina? The answer was about the same: about 5% higher among people in Southeast Louisiana who were most directly affected by the storm (47% from the lower data table on the previous page vs. 52% here), and about 10% higher among visitors to New Orleans, from anywhere (the previous study focused on likely visitors from Atlanta and Houston) – but again, a similar level of interest among local residents and visitors.

This finding also encouraged the development of the exhibition, with the hope that the level of interest might actually rise over time.

Interest in an exhibit about hurricane Katrina in a museum in the French Quarter

ratings of interest on a scale from 1 (low) to 10 (high)	total sample (n=138)	SE LA	
		residents (n=94)	visitors (n=44)
high interest (9, 10)	52%	52%	52%
moderate interest (7,8)	29%	26%	36%
low interest (4-6)	14%	17%	9%
very low interest (1-3)	4%	5%	2%

As fundraising proceeded, some people questioned whether it was “too soon” for such an exhibition, and precedents were sought by the Museum staff, such as an exhibition about the Kobe earthquake in Japan, but since the opening of an exhibition was years away, the hopeful data from those two studies was the only indication of how the exhibition might be received by local and tourist audiences. Over the next couple of years the evaluation process focused on formative evaluation studies to support the exhibit development process, although one study concluded that initial interest appeared to be declining over time.

After *Living With Hurricanes* opened in October 2010, attendance data (zip codes collected by cashiers) were collected again, and although the specific documentation seems to no longer be available, our recollection is that the first half of 2011 showed almost exactly the same finding as before: 15-17% of the visitor groups were from within a 50-mile radius. Attendance had increased, so there were *more* local residents, but the proportion was just the same.

Also during the Spring of 2011, the Summative Evaluation was being conducted. Exit interviews with 406 randomly selected visitor groups were analyzed, and the data about visitor characteristics indicated that 9% of that sample were Louisiana residents.³ That figure was in the same range as the admission desk's zip code data.

The absence of a substantial proportion of local residents visiting the exhibition posed a potential problem for the next phase of evaluation, namely the Longitudinal Study that was intending to follow-up with people who visited the exhibition to explore how it might have affected their thinking about hurricanes and the science about hurricanes. Were local residents not aware of the exhibition (a reasonable possibility since the Museum had inadequate resources for local advertising of it), or were they aware of it but didn't want to go see it (anecdotal evidence even from Museum staff suggested that their friends were aware of it but "didn't want to relive old nightmares")? To investigate those questions, a Community Awareness Study was created (unbudgeted in the evaluation plan) to find out about awareness and interest.

The Community Awareness Study was conducted in two parts: intercept interviews in various locations (coffee shops, parks, libraries, etc.), yielding a sample of 151 local residents who go to museums; and when that method had difficulty achieving the desired sample of 250 or so, a second method was used: telephone interviews with households in three Parishes,⁴ which added 924 people to the sample of local residents who visit museums. In the intercept interviews, the research goals were pursued with a full set of questions; in the telephone interviews, we were restricted to three questions, and we chose to ask about museum-going (there was no point in finding out whether non-museum-going households had seen the exhibition), about awareness of the Hurricanes exhibit, and about interest in seeing the Hurricanes exhibit (therefore, in that method we did not ask whether people had seen the exhibition). The in-person intercept interviews yielded a finding that 14% of randomly encountered museum-going respondents had seen the Hurricanes exhibit, and both interviewing methods indicated the same level of awareness of the exhibit

³ Analysis of visitor characteristics in the Summative Evaluation did not use the same 50-mile radius that had been used previously to analyze the Museum's attendance. The Summative Evaluation's category of all of Louisiana was much more inclusive than the 50-mile radius.

⁴ The expansion of the Community Awareness Study was only possible through the generosity of Multi-Quest International, the company that we had selected to do the telephone interviewing for the Longitudinal Study. Coincidental to our need to expand the sampling for the Community Awareness Study, we were in touch with that company to ask if they had any people we could hire to conduct intercept interviews; they did not. However, they were engaged with telephone polling in three Parishes, and their clients agreed to allow three questions to be asked at the end of their interview protocol, yielding a large sample of additional interviews.

in Orleans Parish: a surprising 64-65%, while the telephone interviews indicated substantially less awareness in two other Parishes (about 40%).

That Community Awareness Study drew this conclusion about "the big question:"

Why aren't more locals coming to see "Living with Hurricanes?"

The full answer to this question would require more in-depth discussions with museum-goers who haven't seen the exhibition, but this study suggests a few observations. Awareness of the exhibition is far from universal, but it is better than exhibitions at most other NOLA museums. The Cabildo and Presbytere have not been the most likely destinations for local museum-goers in recent years. Although many New Orleanians do not want to relive the horrors of the Katrina catastrophe, about half expressed high interest in seeing the exhibition. At 45-48% high interest, we interpret that as moderate-to-high levels of interest among New Orleans museum-goers (lower in surrounding parishes). There are many possibilities for why local museum-goers might not be seeing this exhibition (inconvenience, image of the museum, reservations about the imagined content, confusion with other Katrina exhibitions, don't know where the exhibition is being presented, etc.), but lack of awareness and aversion to the topic only account for a moderate portion of non-attendance.

A small piece of that "in-depth discussion with museum-goers who haven't seen the exhibition" was eventually possible in the Longitudinal Study. The 'control group' of 104 people was asked about their interests in several topics about hurricanes, which might be presented in a museum exhibit. Of four topics, their lowest interests were "what Hurricane Katrina actually looked like, from videos taken during the storm or from satellite photos" and "the aftermath of Hurricane Katrina – all the devastation and disruption" -- which is what we think most local residents imagine is in this Hurricanes exhibit. However, their highest interest is about hurricane science, although not using the word 'science:' "the physical and environmental factors that may have affected our vulnerability to Katrina – things like the design of levee walls, loss of wetlands and coastal deterioration."

Food for thought: if local residents saw pictures of the science interactives in the Living With Hurricanes exhibition, and therefore realized that it was not just a review of the destruction (they might be thinking: what else would it be in a history museum that doesn't have any other hands-on exhibits?), would they be more interested in coming?

E. Project goal: Educate people about hurricane science

Unlike other exhibitions about Hurricane Katrina – which primarily presented images of devastation – this one sought to educate people about scientific concepts and relationships that help to understand hurricanes.

The process of educating visitors about science faced some interesting challenges. For one thing, the Louisiana State Museum is primarily a history museum, and people don't expect to come here to learn about science. Secondly, in the face of the huge human tragedy left behind by Hurricane Katrina, a technical analysis of how hurricanes form or why the storm was so powerful might seem trivial or 'beside the point.' Thirdly, basic facts about hurricane formation and ratings of a storm's strength are quite common on The Weather Channel, so do people think they need any more information than that? – turn on your TV, watch the satellite photos. Fourth, thinking about "What Happened?" (the name of the science area in this exhibition), early findings from the audience research suggested that 'science' or scientific explanations were not as likely to be on people's minds as was 'blame' (why did so many levees break? why didn't the pumping stations work? why wasn't "the government" prepared to help people evacuate? where were the helicopters to help rescue people?).

With this context in mind, the Summative Evaluation investigated possible STEM learning from the gallery devoted to four science topics, comprising about one-fourth of the 6700 square foot exhibition. The four main topics in that area are:

- levee engineering
- hurricane science
- coastal environment /wetlands
- disaster management

Also on the "wish list" for goals about science learning was the issue of people's *interest* in science, and whether they could see the relevance of this kind of analysis of topics to their own community wherever they live.

In order to investigate and assess learning, it was necessary to define what was meant by 'learning.' Seeking a conceptual foundation for how people's experiences would be measured, these questions were considered:

❖ ***What counts as learning?*** Is it 'new' knowledge, a reminder of existing knowledge, a connection of previously unconnected thoughts? Would it count if

someone said they had a "better understanding" even if they couldn't identify specific knowledge or information that they had acquired?

❖ ***Does learning have to be conscious and expressed independently by a visitor?***

What if people aren't aware of how their perceptions have been informed, or shifted? Is 'recognition' of knowledge acceptable (e.g., seeing or choosing a content item on a list) or does learning have to involve 'recall' (e.g., expressing it on one's own, without prompting)?

❖ ***Is it sufficient if a visitor says they learned something, or does it have to be tested against a criterion?*** There may be some 'social desirability' for visitors to say they did learn something – a tendency to want to be cooperative with an interviewer, to seem smart, to claim learning happened even though the visitor is on a social outing and their primary purpose was not to take in and remember specific information – and some people are likely to say "I knew that already" just because it sounds familiar or logical.

❖ ***Do we care WHAT visitors learn?*** Does it have to be recognition of exhibit planners' messages? Note the irony: museums are about 'free-choice learning' but we then rely on "main messages" in a way that's like formal education (you visitors need to learn X, Y, Z; and if you didn't get the main message, someone failed: maybe it's the exhibit maker, maybe it's the visitor).

These questions could be debated for a long time, but we needed to make a reasonable resolution as to how we would define and measure learning. For this evaluation, our strategy was to measure learning in two ways:

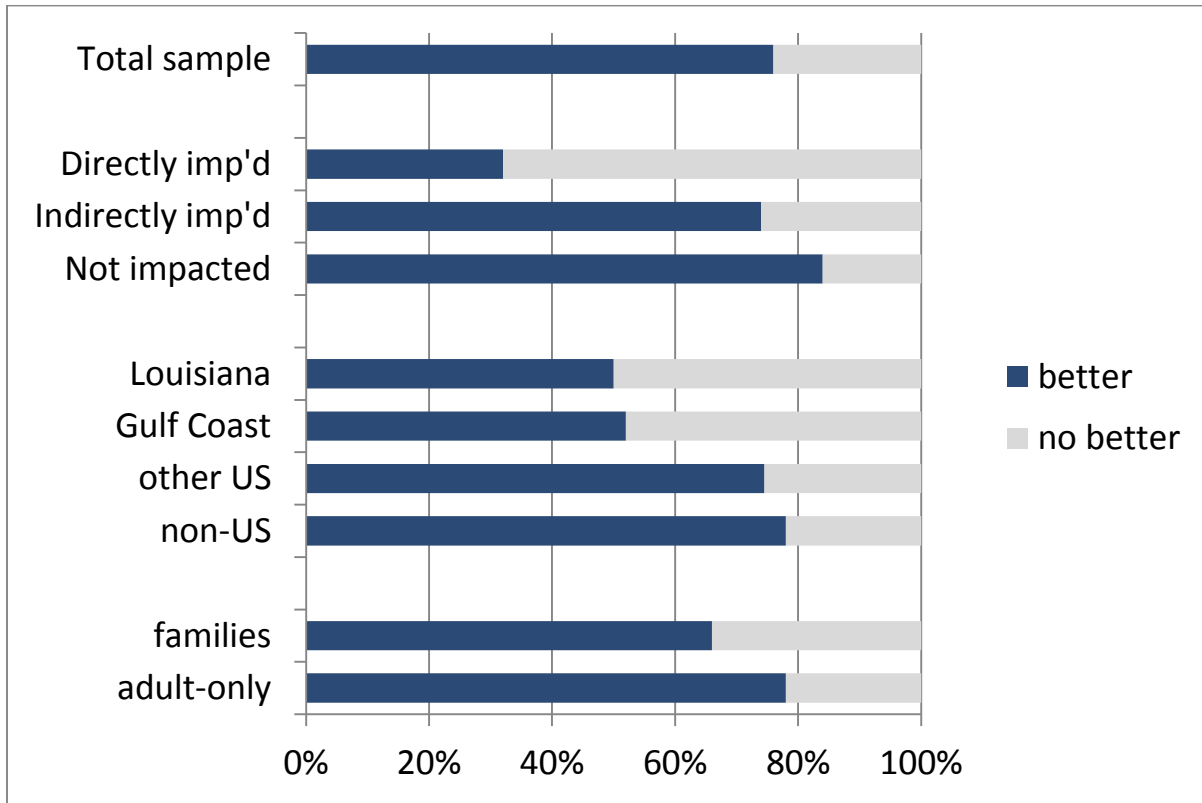
1. **an open-ended, broad sense of learning or understanding** – unrestricted by our content topics or STEM categories; and
2. **A focused assessment of several topics** – investigating content defined by the interpretive material in the exhibition, requiring some form of explanation to verify that there was some appropriate content involved, on these topics:
 - ♦ the path and strength of Hurricane Katrina
 - ♦ how hurricanes function
 - ♦ engineering and environmental decisions
 - ♦ how levees are designed and built and how they fail
 - ♦ ways that wetlands protect where people live
 - ♦ ways that wetlands destruction made disaster worse
 - ♦ how ocean temperatures affect hurricane strength
 - ♦ why some people didn't evacuate

1. Findings about learning in the broad sense of the word, defined by each visitor

Most visitors to Living With Hurricanes – 76% in the Summative Evaluation -- believe that they do understand something better due to this exhibition. That seems like an impressive number. "Understand better" is our criterion for free-choice learning, suggesting a synthesis or a clarity of relationships and possibly a more memorable grasp of content, which should be as respectable as more conventional measures of content acquisition such as facts or concepts or main messages. However, this measure is vulnerable to going astray from the intended content, as well as being limited by a person's own sense of prior understanding.

The graph below takes that overall number and examines differences among different types of visitors, revealing that people who were directly impacted by Katrina, as well as Louisiana and Gulf Coast residents, were less likely to think they understood something better. As noted earlier in section C of this report, however,

Is there something that you understand better having seen this exhibit, compared to what you understood before?



the people who were directly impacted were *more appreciative* of the exhibition compared to those who were not directly impacted, so therefore they are not insulting it by saying they didn’t understand anything better, they are probably thinking something like “I lived through it; this is a good representation of the story, but I understand far more than this.”

Beyond this broad sense of self-defined ‘understanding,’ of course we are all curious about the content and depth of that understanding. Is it relevant and appropriate, or vague and trivial? If people said they understood something better, the follow-up question revealed that virtually all of the content was relevant:

What do you understand better now?

26%	levee failures, engineering decisions
17%	timeline, details of what happened
14%	aftermath, stories of how people were affected
8%	wetlands
7%	lack of preparation, evacuation plan
7%	magnitude of storm
5%	lack of response by government, FEMA
4%	responders, rescues
3%	recovery
2%	how hurricanes form
2%	science
1%	feelings, sounds, visuals

A second perspective on a broad sense of learning comes from exploring whether people see a connection to their own lives and communities. Again, this question was open to whatever opinion people wanted to give it, and almost half of the visitors saw the relevance: 43% choosing the higher end of a 5-point scale.

On a scale of 1-5 — 1= not at all useful and 5= very useful — how relevant would you say the information in this exhibition would be for potential disasters where you live?⁵

not at all useful (1)	22%	
(2)	18%	
(3)	18%	
(4)	15%	} 43%
Very useful (5)	28%	

⁵ This question was not asked of residents of southeast Louisiana, therefore only six other Louisiana residents were asked this question.

Among the people who were most likely to see the relevance were: people who live along the Gulf Coast (72%), middle age people (age 45-64: 54%), and people for whom the exhibition had a stronger emotional impact (50%).

Following up with a question to explore how people defined ‘relevant,’ the results again showed that virtually all the content was appropriate – and all of these comments were articulated by visitors with no prompting. The categories of their answers in this data table illustrate that learning (understanding) is quite variable and presumably is personally meaningful.

What did you find out that might be useful or relevant for potential disasters where you live? (asked of people from outside the New Orleans area)

15%	importance of emergency planning, preparedness
7%	survival tactics, emergency kits (individual level)
5%	government response, don’t depend on government
5%	we live near the coast; we get hurricanes so it’s relevant
5%	we have earthquakes, tornadoes, storms
4%	we live near river/water, flooding
4%	evacuation, get out!
3%	listen to scientists, take action
3%	environmental issues / wetlands
3%	better levee systems
3%	importance of communications, coordination
1%	build strong, build high
4%	other
3%	blank
57%	[rated 1-3 “not very useful”]

A third perspective on a broad sense of learning comes from asking about people’s interest in science. Also from the Summative Evaluation, half of the sample of 406 visitor groups said they had an increased interest in the science behind natural disasters:

After your visit today, would you say your interest in the science behind natural disasters is more, less or the same as before your visit?

more interest	51%
same interest	49%
less interest	<1%

More likely to indicate a greater interest in science about natural disasters were these parts of the audience: young adults (age 18-44: 61% 'more interest'), men (56%), people who experienced a stronger emotional impact in the exhibition (55%), and people who live farther away than the Gulf Coast (53%).

The content of their increased interest in science was again varied but appropriate, suggesting that free-choice learning comes not only from messages and content that people see in the interpretation, but it is probably also shaped by the personal interests, expectations, and experience of the visitor.

[for visitors who said "more interest"]

In what sense?

14%	levees, engineering
12%	to be prepared for the future, to protect
9%	environmental preservation, importance of wetlands
7%	hurricane formation, prediction
5%	more aware, learned something (general)
3%	emergency management
3%	social political factors
3%	I understand how everything happened or why
2%	climate science, global warming
3%	other

Finally, a broad sense of learning was discovered to be enduring after visiting the *Living With Hurricanes* exhibition. As reported later in section G, results from interviews with approximately 100 people contacted in the Longitudinal Study (people who had seen the exhibition any time from a few months ago to over two years ago) indicated that most people (89%) believed that the exhibition experience had benefit or value for them personally, and that most (70%) said they took away lessons that they will apply to their own life.

2. Findings from a focused assessment of STEM topics

While the previous section focused on free-choice learning and demonstrated the value of investigating people's own assessment of whether they understood something better due to this exhibition, whether they saw the relevance of this exhibition's content to their own lives and communities even if they didn't live in a hurricane zone along the Gulf Coast, and whether they felt as though they were now more interested in the science of natural disasters, the connection with STEM learning was inferred rather than specifically tied to topics presented in this exhibition. This section takes a different approach to documenting learning by focusing on specific interpretive content that was prepared for and presented in the exhibition.

A different measurement approach was taken to assess learning about specific topics. A primary reason for this difference lies in the character of open-ended questions: for example, when asked "What do you understand better now?" 26% of respondents in the Summative Evaluation gave an answer that was coded in the category of 'levee failures, engineering decisions.' Although that was the most common category when coding all of the visitors' verbatim answers, a naïve interpretation of the result could be: is that all? only one-quarter of the people thought they better understood levee failures now? Of course not – those are the people for whom levee failures and engineering decisions are a 'top of mind' issue, and who could articulate that issue on their own. But to fully explore the extent of learning about levee failures, we need to ask people about that directly (i.e., ask everyone in the study, or ask everyone in a portion of the sample for the study), so that we will know whether half or two-thirds or whatever proportion of people understand something about that topic. While doing this, we need to be assured that people understand meaning of the terms (e.g., if they don't understand what a levee is, questions about levee failure won't make sense), and we need to avoid 'leading questions' (e.g., You must've seen something about levee failures, didn't you?), and we need to ask the question in a way that allows people to say no without making them feel stupid. One measurement approach to accomplish this goal involves showing people a list of topics and asking them to pick out the ones that they felt they found out something about; follow-up questions can then be asked to investigate what they found out (learned, understood).

To assess STEM learning from this exhibition, nine topics were introduced and investigated (not all topics were asked of each visitor interviewed, but every visitor interviewed was asked a selection of these topics). The data table below shows visitors’ recognition of the topics, as well as an assessment of effective learning on each. ‘Recognition’ means that visitors claimed to have seen the topic in the exhibition, and ‘effective learning’ means that they could give evidence of appropriate content about it; in this definition, any relationship to knowledge is considered valid, whether the evidence (content) cited is new knowledge or a reminder of existing knowledge. An example of how ‘effective learning’ was assessed is presented after the data table, on the following page.

STEM topic	Recognition of this topic	Effective learning
the path and strength of Hurricane Katrina	92%	82%
ways that wetlands destruction made the disaster worse	86%	74%
ways that wetlands protect where people live	83%	65%
how levees are designed and built and how they fail	83%	69%
engineering and environmental decisions	73%	66%
how hurricanes function	64%	52%
how ocean temperatures affect hurricane strength	43%	29%
Not specifically STEM content topics		
the Katrina disaster wouldn’t have been as bad if government officials had listened to scientists	81%	n/a
why some people didn’t evacuate	62%	49%

Example of how ‘effective learning’ was measured: The second STEM topic in this table refers to “ways that wetlands destruction made the disaster worse.” When visitors saw that item in a list (including some of the other STEM items as well as items such as “The individual people who helped rescue others from the flooding” and “How widespread the flooding was in New Orleans”), **86%** picked out this item as something they “found out about” in this exhibition. Sounds good, but did they *really* find out something about this, or did it just seem like they should pick it because it’s probably true? The follow-up question shows a considerable amount of specific evidence about the topic, all of which was in the exhibition; therefore,

whether this was new knowledge or whether people knew this already and it was reinforced by the interpretation here, the information was retained by the visitors and came out when they were unexpectedly interviewed at the exit of the exhibition. The text box at lower right explains the derivation of 74% 'effective learning'.⁶

What did you find out about ways in which wetlands destruction made the disaster worse?

22%	natural buffer, couldn't completely absorb surge
17%	how runoff, nutria and housing affect wetlands
14%	how levee/canal construction destroyed wetlands
9%	interactive with balls showed it [the wetlands interactive]
4%	wetlands are important
4%	map showing NOLA position below sea level
3%	video
2%	how to revive wetlands, future 2050
10%	other
3%	nothing new, already aware
9%	blank, don't recall
14%	didn't recognize this theme

The answer categories in this box at the left did NOT give evidence of anything that people "found out" – so 12% was deducted from the 86% recognition to arrive at 74% "effective learning."

Conclusion about STEM learning: These results indicate extensive STEM learning on multiple topics. The strongest findings – at least two-thirds of the visitor sample giving evidence about their learning – are about wetlands and levee engineering. Regarding hurricane science (tracking a path, categorizing the strength, relating ocean temperatures to hurricane strength), the evidence appears to be mixed, due to two possible explanations: 'how hurricanes function' may have been too ambiguous a term for some visitors to grasp, and the 'ocean temperatures' item was a small part of an interactive that was out of the main paths that visitors took in that space.

⁶ Considerable experience with this approach to assessing learning enables some perspective on these results: using follow-up questions to verify some degree of content, it's common to find a difference of about 10% +/- between recognition and explanation.

F. Evaluation goal: Explore affective experience, how to measure it, and how it relates to the rest of the experience

During the early exhibit development for this project, the following were the primary goals being discussed:

- To evoke a personal, emotional response in visitors that will lead to their taking action
- To encourage visitors to empathize with the plight of New Orleans, the state of Louisiana, and their diverse people
- To encourage visitors to think about how they would personally prepare for and respond to a similar emergency situation
- To encourage interest in rebuilding New Orleans and Louisiana
- To encourage visitor understanding of the scientific and engineering dimensions of the story.

Affective experience was pervasive in those goals, which is an important reason why this topic came to be emphasized in the evaluation process.

Over the course of the exhibit planning and then post-opening evaluations, there were two underlying themes to the investigation of affect:

- a) are people interested in coming? – is the idea of this exhibition appealing? what would get people excited about it, before arriving and at its threshold? and eventually: why are local audiences ambivalent about seeing it?, and
- b) does the overlay of a strong affective experience influence learning? – will the emotional reactions inhibit learning? will learning about the science-behind-the-storm help give some perspective or outlet for the frustration and tragic core of this story? could affect be an enhancer of learning?

The first of these themes was expected to be primarily manifest during the exhibit planning process but it became relevant after opening too; the second was expected to be primarily manifest after opening, but it arose during the planning process too.

Defining and measuring affect

'Affect' means feelings and emotions; 'affective experience' is the term that people in the museum field tend to use to talk about affect in exhibits, and it connotes a broader definition that often includes attitudes, perceptions, social experience, and so on. In the literature of psychology, the definition and measurement of affect is "all over the map" from self-reported emotional states to the details of facial expressions as indicators of affect. However, there are two things that academic

researchers seem to agree on: that affect varies by intensity (from weak to strong), and that there is a continuum of value and meaning from negative to positive.

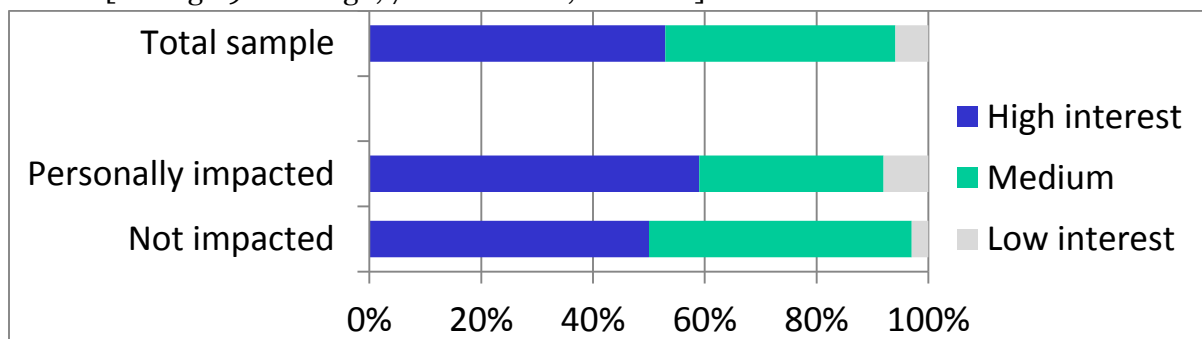
In this evaluation process, we knew that we had to investigate some parameters of affect that are typically used in exhibit evaluations, such as how 'interesting' visitors think the exhibition is, as well as some relatively uncommon issues such as the extent to which the exhibition experience has an emotional impact on visitors. A strong emotional impact could, we theorized, *undermine* learning if the exhibit experience was "over the top" for people, or it might be an *enhancer* of learning if the gripping story and human drama of Katrina was so engaging that visitors paid more attention and absorbed the details. In this relatively uncharted territory, it seemed prudent to use several measures of affect, and considering the eventual analysis of the relationship of affect to learning, the more quantitative the better. So, seeking to respond to the needs of the project, affect was measured in four ways:

1. overall ratings of the exhibition experience (how interesting was it for you?)
2. self-reported intensity of emotional impact (from 'extremely strong' to 'none')
3. word associations and descriptors (e.g., sad, frustration, hope, anxiety)
4. ratings of the individual galleries (how 'well done' were they?)

Results of the first measure, about overall interest, were presented earlier in this report, section C: How is the exhibition received by visitors? A simpler version of that graph is reported here:

"How would you rate the exhibit you just saw – '1' means not at all interesting, '10' means extremely interesting, or any number in between?"

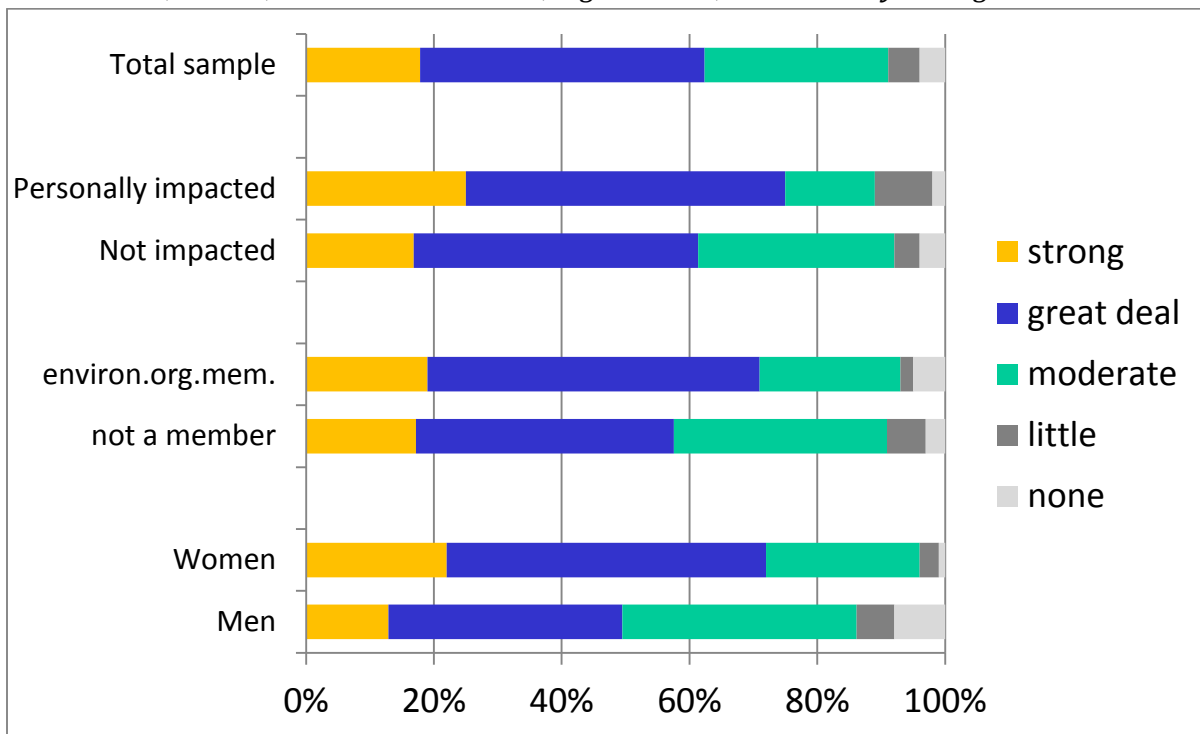
[coding: 9-10 = high, 7-8= medium, 1-6= low]



Since the exhibit team hoped to attract more local-regional residents to this history museum, it was good news to see that the people who were personally impacted by Katrina were rating it as being at least as interesting (actually, slightly more interesting) than the people who weren't personally impacted by the storm.

The second measure of affective experience asked people about an “emotional impact” on them. The results shown below support the expectation that this would be and is a moving experience: 63% of the visitors said that it was either an ‘extremely strong’ emotional impact or had ‘a great deal’ of emotional impact on them. Even stronger reactions were seen among people who were personally impacted by Katrina (75%), people who belong to some type of environmental organization (71%) and women (72%).

“Did this exhibit have any emotional impact on you, or not really? ...would you say: none, a little, a moderate amount, a great deal, or extremely strong?”



Trying to get into the meaning of these ratings, the 3rd affective measure used word associations to describe people’s feelings. This technique is useful for two reasons:

first, the alternative would be to ask people to come up with their own words, and a few people would think of one thing, a few people would think of another, and so on, with the usual problems of interpreting open-ended questions (i.e., some people actually said ‘empathy’ while more people might have agreed with it but didn’t say it, so the measure is really more like the tip of an iceberg and comparisons across types of audience would be unreliable); and

second, asking people to be highly articulate about words they would use to describe their feelings is not easy in most circumstances; when leaving an exhibit, thinking about the incredible story they’ve just witnessed, it’s not likely

to be any easier; therefore, giving people a list of words and asking them to choose which ones describe their own reactions helps visitors to see some options and choose the ones that most resonate for them.

The comparisons below show the results of word associations for Louisiana residents interviewed immediately after exiting from the exhibition (i.e., in the Summative Evaluation) as a fair comparison with the Longitudinal Study sample (mostly greater New Orleans residents, and a few Gulf Coast residents). For the six descriptors that were the same in both studies, four of them were selected by respondents to almost exactly the same extent, while two were significantly different (**). Specifically, exhibit visitors in the local region were more likely, over time, to associate ‘empathy’ and ‘hope’ with the exhibit experience. Considering the nearly-identical proportions of people who chose ‘sad,’ ‘anger’ and ‘frustration,’ this finding suggests that the exhibition has helped people see a broader picture than just their own experience.

	Summative <u>evaluation</u> (LA residents only; n=38)		Longitudinal <u>study</u> (n=98)
Empathy for others	74%	**	92%
Moved, emotionally			86%
Felt true to the circumstances			83%
Sad	76%		77%
Hope	42%	**	72%
Emotionally beneficial for me, in a way			62%
Anxiety about future hurricanes			50%
Anger	40%		47%
Frustration	47%		47%
Scary	41%		
Emotionally drained			46%
Felt like reliving old nightmares			36%
Relief			27%
Why didn’t people leave?	18%		
Surprise	16%		24%
Chaotic	8%		

The relationship of affective experience to learning

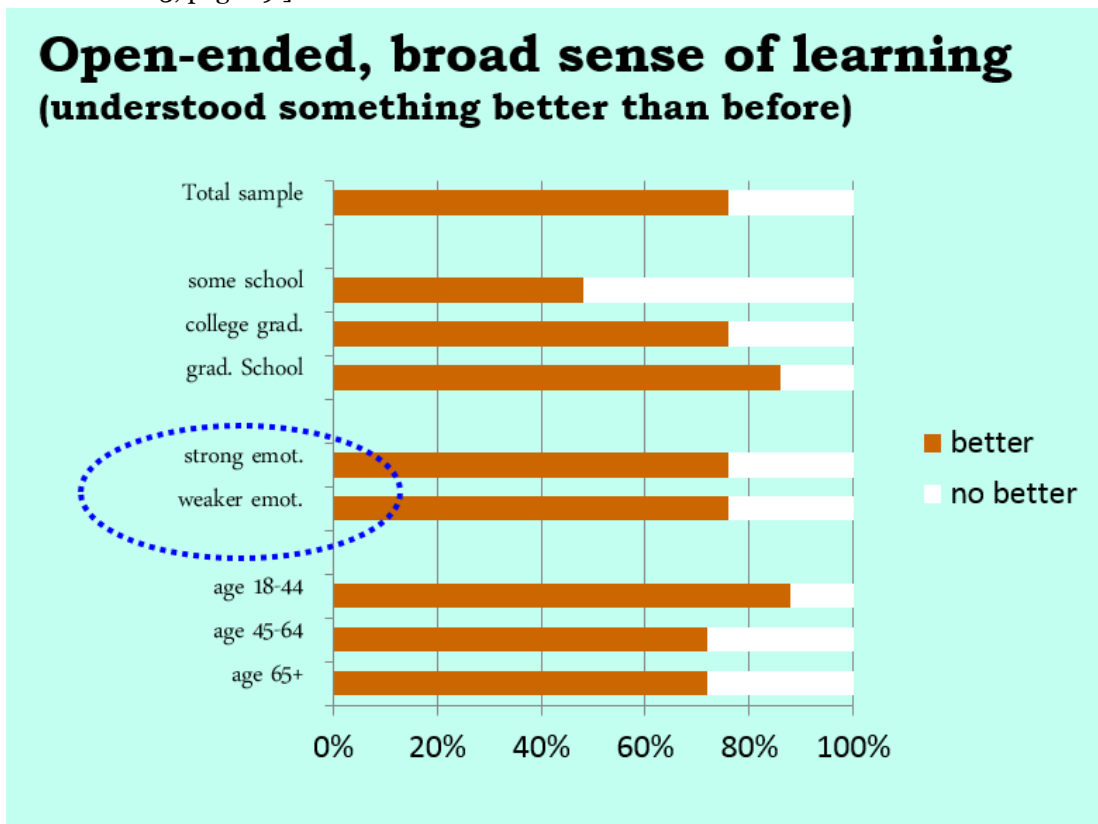
This topic was a central interest since the early exhibit goals were discussed: would the likely strong emotions and affective experience of this exhibition *inhibit* learning? *enhance* learning? or what? The results are consistent and clear:

- ❖ stronger emotions in the exhibit do not inhibit learning, and
- ❖ a weaker sense of emotional impact does not inhibit learning.

Not only are those conclusions evident from the detailed analysis of visitors’ overall sense of understanding something better (section E, page 19), but they are also evident from the analysis of 14 individual items about specific topics that people could have learned about in the exhibition (Summative Evaluation, page 28).

“Is there something that you understand better having seen this exhibit, compared to what you understood before?”

[This is an additional analysis from the same question that was graphed in Section 3, page 19.]



A further discussion about assessing affective experience in exhibit evaluation is available in a separate document: ‘Affective Experience Reconsidered: Results from the Hurricane Katrina Exhibition’ (working title of a manuscript by Jeff Hayward & Jolene Hart).

G. Evaluation goal: Investigate the impact of visiting the exhibition on people's perceptions in everyday life

This exhibition was not simply supposed to be an interesting and compelling story about a major event, it was intended to help educate people about hurricanes – understanding their strength and why that matters; understanding that many of the different ways that levee walls were designed in New Orleans were faulty; understanding that scientists had accurately predicted a lot of what would happen with a major hurricane in New Orleans a lot of what did happen, not only physically but socially (e.g., that about 80% of the residents would evacuate, and the final figure for Katrina was calculated between 80-85%) but that government officials took few actions based on scientists' predictions; and helping tourists to New Orleans understand the character and extent of this natural disaster, potentially helping them think about their own lives and communities in terms of what 'preparation' might mean.

One way to assess this educational role, of course, was to talk with people leaving the exhibition to see how they viewed it and what they gained from it. That was called the Summative Evaluation. But to see whether people were applying anything from the exhibit experience to their everyday life, we needed to contact them later. These were the strategic questions associated with this process:

How much later should we contact them? When the evaluation plan was written for the NSF proposal, the idea was that people would be contacted months later; there couldn't be an exact amount of time because names would be accumulated over a period of time and then a batch would be contacted at around the same time. (However, as it worked out, it was so difficult to find people who had seen the exhibition that we waited a long time to contact anyone.)

Who should we follow-up with? The choices were to study residents of the local area, tourists, or both. We chose 'local residents' because the Museum had a goal of attracting more local residents and because the planning team hoped to provide useful education for people living in a hurricane zone. Concurrently, we ruled out 'tourists' because we had discovered in the Summative Evaluation that even when exiting from the exhibit, shortly after being immersed in it, less than half of the people from elsewhere thought this had any relevance to their lives or communities; and also because the issues we would need to talk about might be very different depending on where the person lived. And therefore we ruled out 'both' audiences because of the

sense that it would be a very different interview (e.g., two studies rather than one).

How should we contact people? The conventional methods for post-visit studies are mailed questionnaires, emailed questionnaires, and telephone interviews. We chose telephone interviews as our primary method. However, because it was relatively "new territory" to explore how people might be applying any part of the exhibit experience or information to their own lives, we started with a qualitative method to inform the issues and language we used to study those issues (study #9: Community Focus Groups to prepare for the Longitudinal Evaluation).

Ultimately, the longitudinal study focused on a primary sample – about 100 people (mostly in greater New Orleans, but a few from other Gulf Coast states) who had seen the Hurricanes exhibition, most of them more than a year before – and a 'control group' – about 100 people from greater New Orleans who do go to museums but had not seen this exhibition.

The Longitudinal Study concluded that 'Living With Hurricanes' is a memorable and effective exhibition. That conclusion comes from these key findings:

- ❖ About three-quarters of the people who saw the *Living With Hurricanes* exhibition recalled it as having an 'extremely strong' or 'a great deal' of emotional impact. This finding indicates that the experience of the exhibition is enduring, since this is approximately the same proportion of people who reported a strong emotional experience when interviewed immediately after seeing it (comparing residents' reactions only).
- ❖ People who saw this exhibition thought that it had personal benefits for them and that it was 'generally a good thing' for the people of New Orleans to have the exhibition (81% thought it was 'a good thing' vs. 59% of the control group who had not seen the exhibition).
- ❖ People who saw this exhibition were more likely to think they better understand two out of three science topics they were asked about – the role of wetlands and levee engineering – compared to the control group (there was no difference in the science item about the power of hurricanes, a topic that is probably well-covered on The Weather Channel). Those two topics were also the strongest evidence for STEM learning from the Summative Evaluation.

These outcomes, directly attributable to the exhibition because of the comparisons with a reasonably-matched control group, are impressive considering the context of the extensive amount of information about hurricanes in general, and Katrina specifically, that permeated the news and people's everyday conversations in New Orleans for the past eight years.

Behind those broad conclusions it is interesting to see what's on people's minds about the value and lessons of seeing this exhibition. The two open-ended questions below present the coded categories from answers that people talked about in terms of personal benefits and lessons learned, and there is no doubt that they saw and are remembering implications for their own lives – especially the message to get up and go when an evacuation is recommended.

What benefit or value did the exhibit have for you personally?

- 28% more aware of destructive power, need to be prepared
- 26% that our story is being told
- 15% therapeutic, seeing that I am not alone, hope for the recovery
- 13% brought back memories, made it real
- 13% educational, accurate information, learned about wetlands, levees, etc.
- 5% other
- 11% none

A substantial proportion of the people who had seen the exhibition – 70% -- said they took away lessons that they will apply in their own life (50% said 'definitely;' 20% said 'somewhat'). They elaborated with answers that emphasize preparedness:

What lessons are you likely to apply to your own life?

(from seeing "Living With Hurricanes")

- 44% evacuate; heed warnings
- 34% be prepared/have a plan
- 9% empathy; concern for/help others
- 4% work to prevent repeat; protect wetlands, clear storm drains
- 4% need to oversee government action; don't trust government
- 2% document/share story
- 1% live somewhere else

- 29% not asked (answered 'a little' or 'not at all' about lessons to apply)

These personal benefits and implications are not all that people take away from this exhibition. More than half (59%) say that their interest in the science behind hurricanes increased (34% much greater interest, 25% a little more interest), and there were others who said they were interested before and they remain interested.

H. Critique and Commentary from the Dissemination Workshop

When considering the rationale for this being a nationally significant project worthy of funding from NSF, there was interest in going beyond the usual dissemination activity of presenting a paper at a national museums conference and posting the reports online. The idea put forth was to hold an Exhibit Developer's Workshop with the point being to have an in-depth conversation about issues which could then influence work on other projects at other institutions where those issues are relevant. 'Disseminating' and 'extending' were the primary goals; the issues to focus on were affect and science learning.

As preparations proceeded, the workshop was renamed as a 'Dissemination Workshop'⁷ but it followed the same spirit of the idea initially conceived. Eight experienced museum professionals were selected (people who specialize in exhibit work and have experience with thinking about affect in exhibits) who came together for a 2-day workshop in which they learned about the *Living With Hurricanes* exhibition and evaluation process, and discussed how they think about affective experiences in exhibits they work on. Half of the group represented science exhibits and half represented history exhibits, consistent with the fact that the Louisiana State Museum is a history museum but in this case has incorporated science themes and interactives in this exhibition. With the workshop hosted by the lead evaluator and by the Principal Investigator on the project, we hoped to benefit from the dialogue as well as gain some perspective on what the project had accomplished.

Feedback about the *Living With Hurricanes* exhibition

Although not the primary purpose for the workshop, this was a great opportunity to hear some professional reactions to the exhibition. They responded with praise and critique, as well as reflections of their own learning:

As a visitor from out of state, I thought I knew the basic story of Katrina. But I was struck by the exhibition's ability to get across 4 key messages that I hadn't realized: a) the astonishing speed of the flooding, b) the incredible lack of communication, c) the fact that many people knew it was a disaster waiting to happen, and d) the total commitment of New Orleans residents to rebuild the city and keep going.

⁷ Renaming the workshop was done in part because although all of the participants work with exhibits they represented a range of different perspectives: supplementing the actual exhibit developers were two museum directors, a director of education, special exhibits manager, and a former NSF program officer. The workshop was also renamed to emphasize that the primary purpose was not to critique or redesign this exhibition but to use this project, including the evaluation process, as an example to stimulate thinking on other projects.

I think it is very evocative of the horrors of Katrina, without being sensationalistic or gratuitous. It treads that fine line of showing a difficult truth without completely overwhelming visitors.

"Living with Hurricanes" shows brilliantly that both science and the humanities can not only coexist within one exhibit but may also have a multiplier or intensifying effect upon one another as the experience impacts the visitors. The exhibit shows us that such interdisciplinary exhibits have the potential to be more relevant and socially useful in the future than those bound by traditional disciplines and this has big, big implications for museums as they conceptualize exhibits, their missions more broadly, and seek to be useful to society at large.

The Katrina Exhibit gave me a real sense of the fear, horror, lack of communication and disorganization in the city of New Orleans when Katrina struck the city. It felt very real and scary. The exhibit also gave me an understanding of why the levee system failed and what could have made it a stronger system.

I think the exhibit was able to give a very inclusive and truthful picture of the experience of being trapped in a strong hurricane like Katrina without being blameful. The exhibit also did a good job of exploring the failures in engineering that exacerbated the effects of the Hurricane and some of the ways that New Orleans and surrounding countryside can be better prepared when the next hurricane strikes.

Workshop participants also suggested additions to the exhibition – of course! they're exhibit developers – and one idea in particular resonated through the group: the suggestion that visitors could leave comments and tell their stories, thereby hopefully creating a stronger connection with the community and inviting, acknowledging and validating the voices and stories of all individuals who see the exhibition:

I would have a place where people coming to the exhibit can add their own stories of being in a hurricane or another natural disaster and also have a place towards the end of the exhibit where people can put in their stories and photos of recovery. ...Perhaps, giving visitors a place to tell their own stories, and/or add their own questions would give us, as visitors, a chance to come to some closure or greater understanding of what might be learned from the experience.

There exists a political side to the story that involves the dispersal and reclaiming of property and sense of home that is not addressed that could help with outstanding feeling of abandonment and betrayal. This element could be part of the exhibition in the form of a talk back wall or similar technique to encourage the community to voice their thoughts and needs.

Let the people tell their stories of SURVIVAL, equally as much as the first responders.

The La. State Museum could lead the efforts to collect the oral histories for the 10th year anniversary. Using the Story Corp format. Simply ask: How are you doing now?

I wonder if deliberate opportunities for community expression, employed both in the process of creating the exhibit and within the exhibit itself, would've generated more buy-in from the community in the final result. Could a series of community forums, say, have been used to enhance the feeling of ownership New Orleanians might feel about the exhibition and the museum more broadly? Similarly, the chance to express oneself, either simply through some sort of talkback activity with cards or Post-its, or through some electronic talkback, crowdsourced or social media means might have given meaningful and shared public voice to some of the thoughts and feelings people had in the exhibition or more generally about the Katrina disaster. The museum as a forum for public discourse was an opportunity missed.

As we discussed at the workshop, reaching out to local residents for commentary on their lives today would add an important dimension to the exhibition--acknowledging that this is an ongoing story--and could open up a relationship between LSM and the community. (If feasible, perhaps include voices of people who have chosen to not return to New Orleans.) It would also offer a bit of a corrective to the ending AV program that, while very well done, gives a somewhat singular sense of hope after the storm. These interviews could be audio or AV clips, and could be present in the exhibition as well as on LSM's website or even in smart phone apps for greater potential outreach.

Feedback about the Dissemination Workshop and its connection to their own work

Participants appreciated the opportunity to broaden their perspective, particularly due to the combined conversation of history/humanities and science. They had differing opinions about the evaluation finding that visitors learned a lot from 'Living With Hurricanes' regardless of whether they felt a stronger or weaker emotional impact from the exhibition.

The workshop was very informative. It gave all of us an opportunity to hear how other museums interpret tragedy and death. I would like to hear from the designers of the 911 Ground Zero exhibit in New York. I am sure they have similar challenges. It was good to hear from the Holocaust Museum, the Minnesota History Center and the Miami Science Museum. Each had different perspectives about community and audiences. It is easy for other people to come into a community and tell you how to tell your story. It is not easy to tell the story when you have political restraints.

Being with colleagues who work on subjects from slavery, to the Holocaust, to aging, AIDS, Native Americans and the science of hurricanes, I came away with a sense of how much we have in common in exploring the fundamentals of good and great exhibits. We have been so walled off from each other in our designated boxes – science center versus history center. Here, there were no walls and that made us all see that the work we are doing is very similar and it can be enriched by sharing our work, our discoveries and our frustrations with each other.

Listening to [the description of] that new exhibit [at the Holocaust Museum], and thinking about exhibits I have developed and those that others in the room described during the workshop, I came to a new thought about exhibitions. What I realized is that it is important for all of our exhibits to view what we do in the light of what people from all different backgrounds can learn and take with them to enrich their lives and the lives of those around them. It's important, I think, that we do more than offer strong stories and learning on one particular subject or event. We need to bridge the distance between those events and particular subjects in history and science, and other parts of life. A story about Katrina needs to speak to all of us about how we should and can treat each other in a disaster. A story about Native American treaties continuously broken can also speak to us about the treaties and promises we should be keeping to the wide variety of less powerful groups in our society. When I write this, I'm not saying that we should move away from telling a specific and very particular human story in history or science. I'm saying that we can also do more. The way we do more is by drawing our audience in and helping them make personal connections between the exhibition and their lives. And I also realized that this is such an essential and important role for museums, at a time when money is tight, people are becoming more self involved, and less connected to each other and their environment as they communicate more and more through digital means.

I see much in this report and the workshop that affirms my previous impression that emotional content at least greatly enhances the museum experience for many people, which may carry enough efficacy irrespective of learning goals, but I continue to be restlessly curious about whether we have recognized all of the critical variables and their respective nuances, interactions and consequences. I understand the rationale that a science exhibition should have science learning outcomes, but what about humanistic or civic learning outcomes too?

I also want to be sure to acknowledge the great line-up of participants in the workshop. They were all great, and all of their presentations helped me integrate to varying degrees what we learned from the "Living with Hurricanes" study and the work going on in other museums.

The survey of various audiences was very helpful to see how audience responses vary given their relationship (or not) to the subject. Quite often when we conduct surveys, the tendency is to develop all the questions as a one size fits all type query and this workshop illustrated the value of taking time to generate questions that resonate with all or as many as desired visiting audiences. It is also always useful to be amongst peers discussing our challenges and insights regarding this work we present to the public, reminded of the sway we have and to its potential to enhance, stagnate, clarify or open up minds and lead to discussion.

Also thought provoking were the discussions about providing the community a voice in our exhibitions and institutions to deepen connections and affective engagement. The culture of each institution is different and raises questions about when an authoritative museum voice should be maintained and when it may be appropriate to include the visitor's voice. There are opportunities here to reconceive the relationship between museums and their public. We talked about the importance of developing personal

connections within an exhibition storyline, yet there is also the challenge of ensuring that our visitors are connecting with the institutions, too. What is the nature of our identity within our community and what do we want it to be? While I think in many exhibitions it's important to maintain an authoritative voice—museums are places to go where visitors can learn something from acknowledged experts or have experience authentic artifacts and artworks—visitors need to feel valued, and this means more than creating a comfortable environment. As we discussed for the Katrina exhibition, integrating community voices into the interpretation adds a dimension that deepens relevance and engagement and opens up paths for the museum to be perceived by people as a place that is specifically for them. This approach begins to break down potential issues of truth and trust (Who's story are you telling?).

There must be an authenticity to these approaches, and they can be built upon and move in creative and dynamic directions. When we develop connections with communities and target audiences we change the museum-visitor dynamic, introducing an affective layer that can put visitors in a more receptive exhibition-going mode. We also raise our profile and perceived value as places to spend free time where we may have deeply resonant experiences.

The experience of actually visiting this excellent exhibition and reflecting on it was much, much more powerful than seeing a presentation at a conference. We are, after all, an experiential field, and the experience creates a common benchmark that we could reflect on as a group. This seemed particularly valuable given the strong emotional component. The exhibition had many particular strengths that cement it in my memory for future reference and citing in professional conversations.

The summative evaluation findings were intriguing, and the group's attempts to jointly explore and explain them were highly engaging. In addition, I think all of us will remember the central finding that cognitive learning didn't correlate with level of emotional response in this case, and we'll be able to cite it in future professional discussions.

[This merits thinking about] the unspoken social contract by which museums that take us to the dark experiences must hold visitors in a safe container and bring them through to a positive resolution: through dialogue, through action (how to stop such things happening again) or through an emphasis on the resilience and achievement of those who survived. These themes [discussed in the workshop] were very different from the usual science-center emotions of whimsy, comfort, pleasure. It reminded me of Bruner's characterization of these as different fundamental modes of human thought: logico-scientific ("true") and narrative ("true to life") that have such different qualities and values.

Thinking back on the workshop, one thing that stuck with me is that it is more challenging to define and measure affective experience than I had expected. In the examples we discussed, it was hard to pin down or be sure of what was being measured or to make comparisons between visitors' experiences. I liked the word cloud from the US Dakota War exhibit because it was a simple and clear presentation of information. Jeff's finding that affective experience did not enhance learning was intriguing. This stirred up more questions for me, especially the idea that trying to separate the emotional and the rational into neat compartments doesn't work.

Another aspect of the workshop that I found hugely valuable was the opportunity to learn from history exhibit developers. My career has been completely in informal science learning. Discussing exhibit projects with peers doing the same kind of work, but with significant differences brought up many new ideas and interesting comparisons--like learning about a foreign language or culture offers new insights into your own that were invisible from within. The history exhibits we discussed were more serious and more open to risking negative affective visitor experiences, like sadness, shame, guilt or anger. This got me thinking about why this difference exists. Is it a difference in expectation? Do visitors expect history to include negative and positive stories and emotions? Is it because our ISE goals include promoting the STEM career pipeline, and we want science to always appear fun? Is it because science museums rely more on earned revenue and want to keep visitors coming back? Could a serious, dark science exhibit succeed and draw an audience?

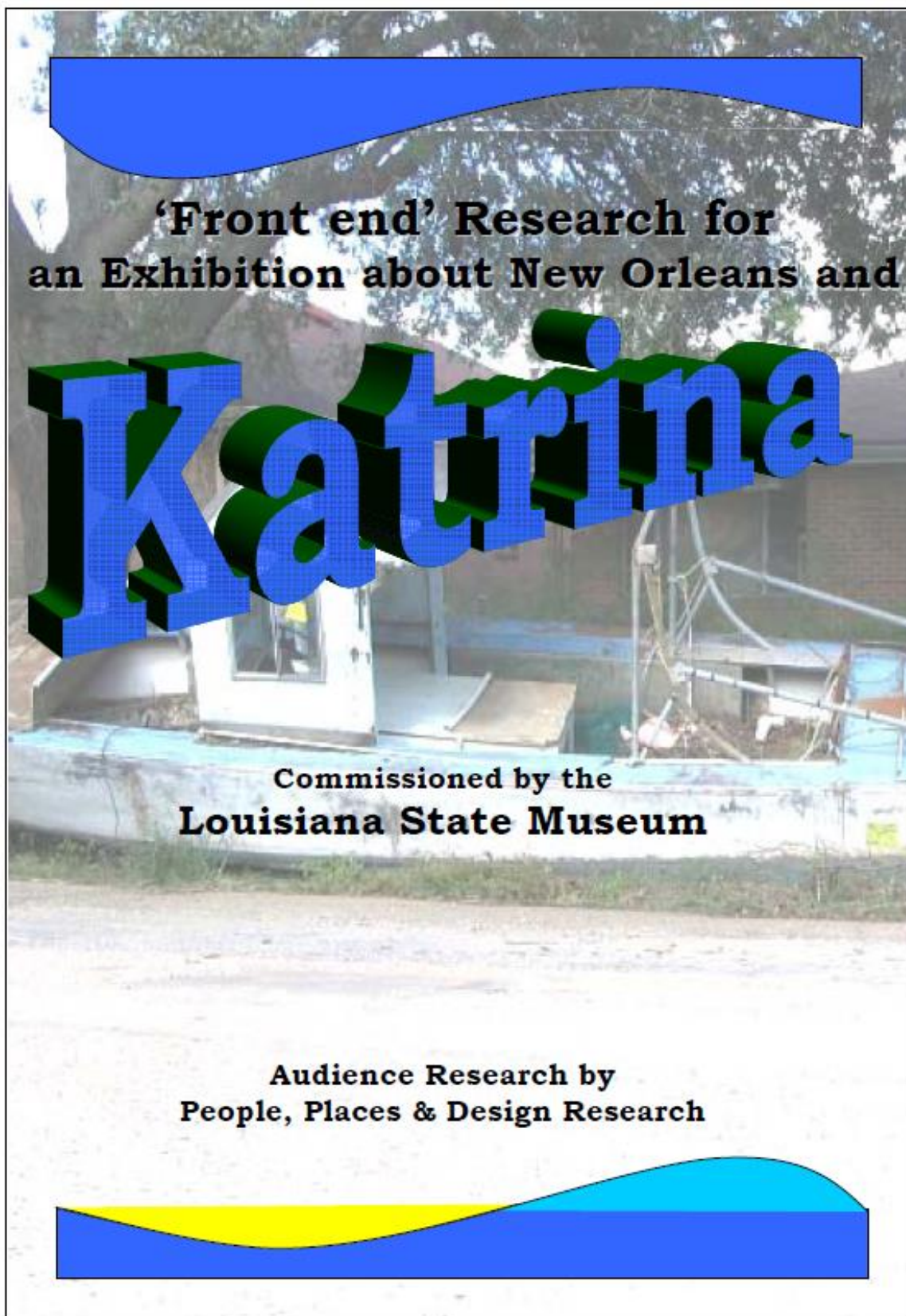
As all kinds of museums are striving to tell relevant stories, connect strongly with audiences, and address urgent global issues, we can all benefit from learning from each other across disciplines and collaborating on more interdisciplinary projects. This workshop gave me many more insights into the benefits of this kind of work, and I hope there will be more like it in the future.

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'Front end' Research for an Exhibition about New Orleans and Hurricane Katrina

Executive Summary

This audience research was commissioned to help inform the process of developing a new exhibition about Hurricane Katrina and its impacts on New Orleans. As "front end" research for exhibition planning, the goal of studies like this is to provide information about audience expectations and perceptions – colloquially: "where people are 'starting from'" – so that the team of people who are planning an exhibition can make decisions with the audiences' perspectives in mind.

"The audience" is not one homogenous thing; there are many different audiences with different kinds of perceptions that one could pay attention to. And there are many different topics and issues that could potentially be investigated to find out what potential visitors might know or be thinking about with regard to this topic. Therefore, this research began by building on the intuitions, concerns, and questions of the exhibition planning team (the Louisiana State Museum's Exhibit Development Committee, consisting of the Director and senior staff representatives of LSM, guided by the principal concept developer for this project, Janet Kamien). That team declared that there were two broadly defined audiences to be concerned with:

- ♦ visitors to New Orleans – most LSM visitors prior to Katrina were from out of state, and the team thinks this audience will be an important part of future attendance at the Museum; and
- ♦ local residents – although the Museum's attendance pre-Katrina was comprised of a relatively small proportion of local residents (defined in a previous study as within 50 miles), the team made it clear that they want to attract more of this audience; aside from the desire to attract and serve this important audience generally, the second rationale is that from the local point of view this exhibition is about "our story" and it should be appealing to "our needs and interests" not just the tourist interests.

Neither of these audiences should be stereotyped as being all of the same mind. Visitors to New Orleans (the "tourists") range from people who come here once for a convention to those who have a long history of coming here – perhaps visiting family and friends, perhaps just enjoying the music and food, or perhaps they used to live here. Local residents may share a lot in common – especially with regard to Katrina – but they are also a diverse audience, including a variety of cultural heritages,

different lengths of history here, different perspectives from the center city compared with the outer suburbs, and so on.

What would it be useful to know about these audiences as potential visitors to an exhibition about New Orleans and Katrina? The team set three priorities to help add to their intuitions:

1. motivations: why would people want to come to this exhibition? Insights about reasons for visiting could reveal expectations that will need to be satisfied, differing points of view in how people might react, and perhaps even subject matter that would be perceived as being relatively more important or less important.
2. knowledge: what do people know about this story and what don't they know? It's usually helpful to have a sense of whether some things don't need to be explained because most people know that, as well as whether there are substantial misconceptions that people think are true but need to be re-explained. Obviously, the range of potential audiences will arrive with a range of knowledge, but it would be nice to know if there are patterns of knowledge among visitors that the exhibit team can count on and can use to help shape priorities.
3. interests: what would really appeal to people; what would they come for? The point of this or most other exhibitions is not to just "give people what they want" but to educate and inform them about a particular subject or story; to do that, it's important to remember that visiting an exhibition is a voluntary experience so it would be nice to know what the public thinks would be sufficiently interesting to prompt them to visit, and what is likely to be especially appealing when they do visit.

These three domains of information about the perceptions of potential audiences represent the organizing framework for this research. And although they were a useful starting point, the results from talking with hundreds of people have fleshed out these topics and added a variety of other thoughts, opinions, and ideas. This Executive Summary highlights the principal issues and clusters of audience perceptions (beginning on the next page), and there is more detail available in the accompanying research reports.

Research Method

This research created and carried out a substantial investigation using two types of methods: *a three-city study using intercept interviews* of people visiting museums or historic sites (quantitative analysis, part I of the research report), and *focus groups with local residents* (qualitative analysis, part II of the research report).

Each method is summarized here to help clarify how and with whom the research was conducted.

Three-city intercept interviews: Seeking to understand the perspective of local residents as well as tourists, a study was designed to approach museum visitors in New Orleans, Atlanta, and Houston.⁸ We chose to focus on museum visitors because this is an exhibition project and we wanted people who would know what an exhibition is and not misunderstand that we were doing social service or asking for money for Katrina victims. A total sample of 252 adults were interviewed; details about specific locations and numbers of people per city are reported in the introduction to the Part I research report.

Focus groups with local residents: Four focus groups were assembled for local residents (all adults who indicated that they were 18 or older): a group of parents with children under 10 (to explore the experiences of children and how parents are dealing with that), a group of African Americans (to explore whether there are differences in perceptions associated with race), a group of people who live in the suburbs (to explore whether there are different views among urban and suburban people), and a group of people who had lost their house or job or both (to explore whether people with significant losses would be interested in an exhibition about Katrina or think it was trivial or for someone else). Some participants qualified for more than one group, so they had a choice of day and time when they might attend. The recruiting was conducted by networking (friends-of-friends, seeking to exclude anyone who knew someone at the Louisiana State Museum to avoid unnecessary bias or affiliations that might distract from or inhibit making honest comments). All four groups had a good number of participants and each was paid \$50 (for more detail about the groups see the Part II report).

Highlights of the Findings

The data from this research have been thoroughly analyzed to explore the public's likely perceptions pertaining to a Katrina exhibition. We believe the main findings are:

- ***Top-of-mind interest*** in a Katrina exhibition is good among local residents as well as potential visitors from other states – even without offering a dramatic title or any image of what it would be like.

⁸ Locations in Georgia and Texas were selected because these were two of the top four states of origin from a study of LSM visitors conducted by the University of New Orleans. Atlanta was chosen because there has been a history of migration back and forth with New Orleans and also because the Atlanta History Center seemed useful as a comparable experience, focusing on state and regional history. Houston was chosen because many New Orleans residents evacuated to Houston and the connections between the two cities and displaced residents seemed like it would offer a different perspective on a Katrina exhibition.

- **Motivations** differ, but the reasons that people want to see this exhibition (e.g., to tell “our story,” to find out what really happened, to get hope from information about the city’s recovery) can be fulfilled within the capability of a creative and thoughtful exhibition experience.
- Among locals, the level of **knowledge** of basic facts about this story (e.g., the city’s infrastructure, extent of damage) is of course pretty good. However, local residents do not necessarily feel that they know “what happened” and why; they are interested in details and explanations. Potential tourists (at least from the South) are reasonably knowledgeable about some of those basic facts, but people who were not affected by Katrina tend to have some substantial misperceptions – such as the extent of evacuation – and informing them will be an important role for the exhibition.
- Analysis of people’s **interests** in the content and potential experiences to be presented in this exhibition has revealed some interesting patterns. Some people were clearly interested in *uplifting* ideas (e.g., stories of rescue and heroism, the future, examples of hope in the neighborhoods) and we encountered ambivalence about the possibility of an excessive focus on depressing images (which people think is what they’ve seen in existing Katrina exhibitions that show images of the physical aftermath, although some people think this is needed to adequately communicate the extent of impacts on them). Secondly, local residents are clearly interested in a public admonition about how much went wrong (from levee design to poor planning to insufficient government responses) as well as telling “the truth” about what happened (the facts, scientific explanations, and acknowledgement of misinformation).

These main findings provide the context, but their meaning needs to be elaborated – which is the goal of the remainder of this Executive Summary.

❖ The idea of an exhibition about Hurricane Katrina has moderately high top-of-mind appeal. In the three-city intercept interviews, people expressed the highest interest in two of six exhibition topics related to New Orleans, namely: Hurricane Katrina, and the architecture of the French Quarter. People who were directly affected by Katrina were slightly more interested than other people, and a Katrina exhibition was the best-rated topic among people who live out of state. These results suggest the likelihood that this exhibition will indeed serve both local and tourist audiences.

❖ While there is no way to foretell the future interest in a Katrina exhibition (e.g., does interest in life-altering natural disasters fade over the years? or if another disaster hits in 2007, would people be less interested in knowing something about the 2005 events?), the data from this research suggest a couple of reasons why interest in Katrina is likely to continue. For one thing, the focus group discussions with local residents showed that the psychological and emotional ‘recovery’ is only

partly underway and it seems obvious this catastrophe will be shaping people's lives for years (by the way, there were frequent mentions of memories and family stories about Hurricane Betsy, which was 40 years earlier). Secondly, the intercept interviews indicated that this would be a strong interest for people who repeatedly visit New Orleans as well as people who rarely visit; many visitors to New Orleans will be familiar with the city and want to know more about the details of what happened, and presumably over time there will also be many first-time or infrequent visitors who will be interested in an overview of this dramatic story.

❖ The team also wanted to get some perspective on people's motivations for seeing this exhibition. The first thing that seems appropriate to say about such motivations is that local residents want this story told so that the world will understand the magnitude of the catastrophe, what they went through, and the huge impacts on this vibrant city. They hope that this exhibition will continue to tell the story for a long time and to tell it in a compassionate, humanistic, multi-dimensional way. Underlying that desire is the fact that many of the local residents who participated in focus groups felt invisible, uncared for, and unable to communicate to their friends around the country the meaning and extent of the impacts (e.g., "the only way I could get my friends in New York to understand [the catastrophic after-effects] was when I told them that McDonald's closed at 3 o'clock" – then they understood how serious things were here). The opportunity to have "our story" told reflects their feelings of being trivialized and ignored – e.g., the President flew over and didn't come to visit until there was an uproar, and the national media focused on the Superdome story and showed pictures of devastation but the real life stories of recovery and depression are no longer "newsworthy."

❖ The difference between the motivations of local residents and that of people in other states is well illustrated in the intercept interviews. Using an open-ended question as well as a structured list of options to help people identify and articulate their likely reasons for visiting a Katrina exhibition, locals essentially said that "it's my life," "we lived through it," and that they wanted to get some answers. Potential visitors from out-of-state were much less personally involved and tended to express or choose reasons that were more abstract, such as: it was a huge tragedy, it's a historic event, or curiosity of knowing something more about it (e.g., how people cope, what happened with the hospitals, the full story of the devastation, how people are succeeding in recovery). These different degrees of engagement with the story are not incompatible, although the strength of motivation and the emotional overlay will be different. We also need to note that there are small proportions of people in each type of audience who are not motivated to see this exhibition. Some people express disinterest because it's a painful subject and they don't want to relive it,

some are tired of thinking about it ("let's move on"), and some are so distant from it that their doubts overwhelm their curiosity (e.g., "makes it seem as though New Orleans was the only place hit," or "why do they want to rebuild the city knowing that it's going to happen again?").

❖ The issue of what people know was also pursued in both the quantitative (interviews) and the qualitative research (focus groups). In general, the results suggest a great deal of familiarity with the basic overview about Hurricane Katrina and the infrastructure of New Orleans, but they also suggest some important differences between local residents and potential tourists who were not involved. Most people contacted tend to be familiar with the idea that some of New Orleans is below sea level, and that it has a long history of needing protection against the elements through levees, canals, pumping stations, etc. Beyond that, big differences appear between locals and tourists: almost all LA residents think that changes to the wetlands for industry and economic development made it easier for storms to cause destruction, and most know that there were more deaths after the storm than during it – but only half to two-thirds of people from other states know this. Even bigger differences in knowledge were found regarding the extent of devastation and an understanding that most New Orleans residents did evacuate before the storm – only about one-quarter of out-of-state people were reasonably knowledgeable. Here again, however, the differences are not in conflict: locals would want to see this kind of information in the exhibition so that their story is told well, and tourists need to have this told to them because they don't know it.

❖ An important dimension of 'knowledge' – primarily expressed by local residents, either in interviews or in the focus groups – is their desire for this exhibition to "tell the truth." That means several things: a comprehensive presentation, a factual account of events, documentation of disputed information (e.g., the number of deaths, suspicions about the levees being bombed, and perceptions of government waste in the rebuilding), and for some people, an acknowledgement of the lack of information, lack of action, and lack of vision. Cynicism, disappointment, and frustration run high among some audiences – most of these people seem quite knowledgeable about what's gone on; the conflicts may be prompted by different sources of information and a longstanding mistrust of government. This exhibition will have to walk a fine line between presenting scientific information (e.g., that the levees were not bombed) and appearing to be the arbiter of truth from the powers-that-be (one person's conspiracy theory may be another person's truth). By the way, when it came up in conversation in the focus groups, people thought that Spike Lee's documentary did a credible job of telling the truth – using a variety of people telling their own stories from their points of view.

❖ Ultimately, visiting an exhibition is a voluntary experience, and people are attracted to go based on a perception that they will see something interesting, something that they can't see elsewhere, and have an experience that will be a worthwhile outing for everyone in their group. Therefore, it was quite appropriate that the exhibit team wanted this research to investigate people's interests in the content: what will appeal to people? what will they want to see? are there some topics that are less interesting to people? The results from both of the research methods suggest these patterns of interests:

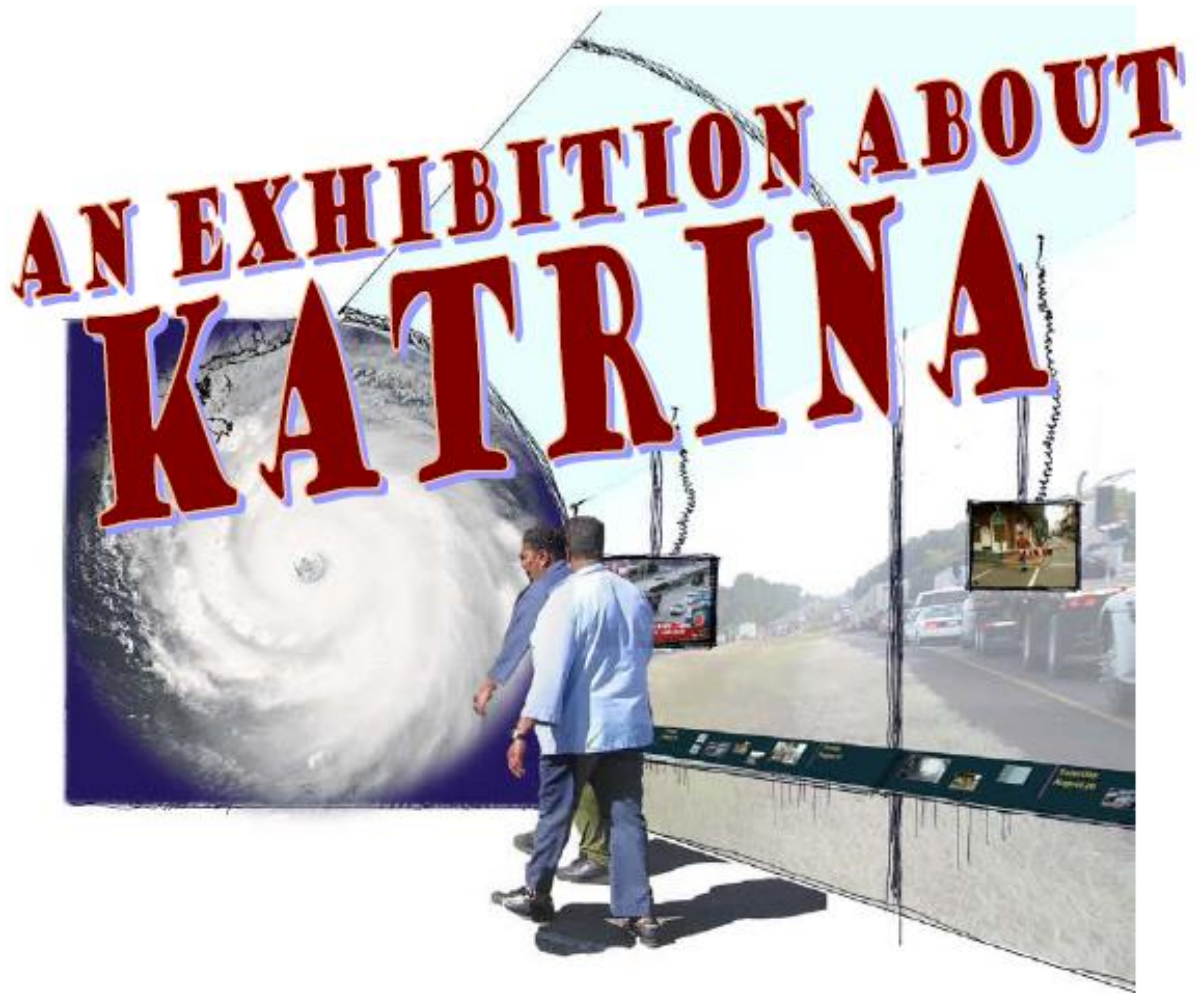
- ◆ Many people expressed a strong interest in uplifting topics and experiences: 'stories of rescue and heroism' and 'the future of New Orleans' were the top two interests overall in the intercept interviews, and across most subgroups in the sample (local residents, people directly affected, people not affected, out-of-state likely visitors, etc.). Also, 'hands-on activities for kids involving arts and stories' was a strong interest among people who were directly affected. In the focus groups, this theme was reflected in people's suggestions about highlighting positive signs that life is returning to normal – whether that means street signs, a new neighborhood shop, or a school reopening.
- ◆ Another pattern of interests is about the tragedy. There may be some ambivalence about re-experiencing the storm, but people would feel that something is missing if the exhibition does not communicate the power and dramatic impacts of this catastrophe in some way. What one participant in the focus group called her 'morbid curiosity' with being drawn to every Katrina exhibition she knew about, others expressed in a variety of other ways meaning essentially the same thing: that they were interested in a 'scientific explanation of the disaster' (especially LA residents and people who were directly or indirectly affected), or 'the tragedy and impacts in one neighborhood as an example' (similarly high level of interest across all subgroups except for people who were unlikely to ever visit New Orleans), or 'the physical landscape in the aftermath of the storm' (higher interest among those directly affected, less interest among others). While some locals have memories of gruesome details and are probably tired of the photos of people on rooftops waiting to be rescued, they also think that the tragedy needs to be shown and explained so that other people will understand the devastation.
- ◆ It also seems likely that people will come if they think this exhibition tells the human side of the story. The many different evacuation stories (from the massive exodus, inability to evacuate, forced evacuation, going to unknown destinations, being hosted by relatives or strangers, losing track of family, finding out about your own house and possessions, deciding to return or not) represents one dimension of that human side that is of interest to all

subgroups in this research. Other dimensions include the theme of people helping people (an aspect of which was mentioned above in the 'uplifting' theme: stories of rescue), acknowledgement of the emotional impacts (frustration about the pace of rebuilding, feeling invisible and uncared for, depression and suicide, why people are angry at the failures of planners and government), and other normal human interest stories (the experience of kids, stories about pets, lucky or ironic outcomes, the person in one of the focus groups who took 'before' pictures of the inside of their house just before rushing out the door to evacuate).

- ◆ A fourth cluster of interests can be inferred primarily from the focus groups: the community dialog that needs to take place but is apparently not taking place. Some people are cynical about the process of recovery, the formal programs and commissions established to address redevelopment, and rumors that developers will turn New Orleans into an 'entertainment city' with more casinos and tourist spots. They are depressed about their financial losses (house, job, lack of insurance reimbursement), the loss of community networks, and little confidence that 'lessons learned' from Katrina will prevent major disasters from happening here again. The opportunity to share some discussion with others around a table in a focus group did not resolve their depression but some said it was helpful to hear what other people are going through, to know that you're not the only one, to validate your experiences and opinions. If this exhibition could prompt some kind of discussion – in the exhibition as well as some way of carrying the discussion back to their friends and neighbors – it might help play a role in helping people to move ahead with their lives.

The technical research report that follows is presented in two parts: (part I) quantitative analysis of the three-city intercept interviews, and (part II) qualitative analysis of the focus groups with local residents.

Audience Research:
Testing a Preview of the Storyline for



research report prepared by:
People, Places & Design Research

Executive Summary

This research was commissioned by the Louisiana State Museum to evaluate the content and likely perceptions of the proposed concepts for an exhibition about Hurricane Katrina.

Research strategy

Two types of audiences were identified to represent potential visitors to an exhibition about Hurricane Katrina: residents of southeastern Louisiana and visitors to New Orleans from elsewhere. Several museum staff were trained in conducting this type of intercept interview (referred to as Storyline Testing), who then interviewed visitors at the Cabildo, the Presbytere, libraries, coffee shops, the Historic New Orleans Collection, the New Orleans Museum of Art and other sites around New Orleans.

For this study, 138 people were shown a preview of the exhibition (using photographs, sketches and verbal/written descriptions) and interviewed regarding their initial interests and reactions to exhibit areas and the exhibition as a whole. Analysis of their responses to structured and semi-structured interview questions form the majority of this report.

Highlights of the Findings

This overview summarizes the principal dimensions of reactions to the proposed exhibition.

Expectations

- ❖ Initial interest will be moderately high. Interest in seeing "an exhibition about Katrina at a museum in the French Quarter" elicited solid interest among both residents of southeastern Louisiana and people visiting from farther away.
- ❖ The exhibition title faces a challenge. The only exhibitions so far about Hurricane Katrina have been focused on what the devastation looked like, and people may be imagining that this exhibition will be more of the same. The simple title 'Katrina' would be least able to communicate a broader story, and perhaps not coincidentally it was

substantially less appealing to local residents or tourists. Two other titles tested with "forward-going" words — 'resilience' and 'lessons' — were more appealing and could potentially influence people's expectations. Such a shift would be important so that people who are ambivalent or not interested (e.g. "I'm sick of it" or "It's time to move on") could possibly imagine that this exhibition is a broader story (in fact, it is about moving on) and not dismiss it as soon as they hear about it. The titles tested in this study were not highly appealing but the clue about people wanting something "forward-going" suggests that better titles are possible (e.g. surviving Katrina, or Surviving Katrina in a City of Resilience).

❖ Before seeing the preview, people suggested a range of subjects they would like to see addressed in this exhibition. The most frequently mentioned are: stories of real experiences, the recovery effort, and efforts to prevent similar disasters in the future.

Overall interest

❖ Overall interest increased somewhat after seeing the preview. Most people's level of interest did not change greatly after seeing the preview: those who were already highly interested stayed highly interested and most of those with low/moderate initial interest remained at that level. The preview increased the level of interest for some people (18%) and decreased the level of interest for only a handful (7%). After seeing the preview, approximately 63% of visitors and local residents expressed high interest in seeing the exhibition.

❖ Visitors will likely experience strong emotions in this exhibition. After seeing the preview, the large majority of people said that they would probably feel some emotions: for local residents these would be primarily *sadness, hope, and anger*; for visitors to the area the emotions would be primarily *sadness, hope, and respect*. The "13 Days" area (with topics including attics and the Superdome) will likely be a focal point for strong emotions.

Reactions to preliminary exhibit areas

❖ The science area will be a highlight of the exhibition. The science area evoked strong interest in learning about science topics related to Hurricane Katrina and the aftermath. This is one of the most interactive of the areas and people seem receptive to several dimensions of the content proposed for this area.

- ❖ The rescue area will be another highlight. Although most people did not express a top-of-mind interest in the trauma and devastation, this area is a clear attraction for many people. The proposed attic and Superdome areas are compelling for most visitors, but less so for residents of the area.

- ❖ Rebuilding will be an important part of the mix of exhibit areas. In many ways, people appear eager to feel that healing has begun and will continue. The "What Have We Learned" area represents a process that includes both hope for the future and frustration at the speed of the process. People are interested in both the rebuilding of structures as well as the rebuilding of people's lives, but few are interested in sharing their own stories. For many of the people interviewed, those who were most affected were least eager to share their stories. This reticence may be even greater with posting a personal story for the public to see.

- ❖ The "Reinventing Our World" area lags far behind other exhibit areas. This is the least appealing area for both residents and visitors. In spite of the positive implications of this area, people were more likely to express anxieties than hopes about New Orleans' future. People want to know: What will be the consequences of today's decisions? Can the city be rebuilt? How has the environment been affected? Some people are just ready to forget about it and move on. Some people (about one-fifth) did express hopeful thoughts and recognition of the New Orleans' resilience. For most, however, the rosier picture in this area meets a skeptical and worried mindset.

Good connections to the audience

- ❖ Many visitors will arrive with a personal connection to the events associated with Hurricane Katrina. Many residents of southeastern Louisiana and other parts of the Gulf Coast experienced the story first-hand, and a large number of "visitors" to the area also felt the impact. Some "visitors" to the area are former residents who were driven away from New Orleans by Katrina's aftermath. Other visitors to the area are people who helped with the recovery or have family who were affected by Katrina.

- ❖ There are several ways in which visitors will be interested in this exhibition. Although it may seem unusual for a museum that has been primarily about history, people expressed strong interest in learning about science topics (although they did not necessarily call those topics "science"). The drive to *know what-happened-and-why* as well as the opportunity for interactive exhibit experiences combines to suggest that the science area will be quite engaging. People are also likely to be engaged by *media that*

give a "you are there" feeling without needing a lot of background or reading – people had moderately positive reactions to "The Storm" experience as well as the "Do You Know What It Means?" even though the material presented was only suggestive of those experiences. A different angle on why visitors will be interested is *the desire for* (and the promise likely to be delivered by this exhibition regarding) *human stories* associated with events during and after the storm. Potential visitors to the exhibition say they will be interested in the stories of individuals – evacuation, rescue, returning and rebuilding – and part of the interest in human stories could include shared feelings about political actions or inactions as well as frustrations felt from FEMA and the federal government. Thus the multiple ways in which people may connect to the content and the variety of types of experiences presented should help to make the exhibition more broadly appealing.

❖ The realism of this exhibition is likely to be an important factor. Although this exhibition focuses on an event and consequences that cannot be fully recreated in an exhibit space, there are quite a few examples that seem likely to make it real for people: the immersive storm theater, actual clips of TV news, a piece of a real levee (?), real refrigerators, a rescue boat (a "stolen" boat! adding to the unpredictable and ironic layers of the story), Superdome seats, and a simulated attic and hotel room, among other examples, seem likely to give people a sense of being grounded in this place, connected to that time when the tragedy unfolded. Also, the real stories of individuals (primarily their stories after the floods) are compelling for many people. There is a strong interest in hearing "the truth" and stories from individuals seem especially authentic. Few people want to tell their own stories, perhaps because they were not directly affected, or perhaps because they don't imagine a message that's worth posting. However, people are likely to be interested in reading *other people's comments* — the personal touch of individuals will add another layer of real experience to this story.

Interpretive challenges

❖ Insider/outsider perspectives are different. It's fairly easy for exhibitions to be informative (e.g., to address the fact that residents know a lot about levees and pumping stations but out-of-area visitors don't know much), but the problem here isn't just a lack of knowledge of a few key facts – on some topics the insider/outsider difference tends to reflect attitudes that may not change so easily. For example, many people don't understand how extensive the evacuation was before the storm (only 27% of SE Louisiana residents and only 18% of out-of-area visitors thought that at least three-quarters of the population evacuated) – underlying this 'knowledge' are some

suspensions about the judgment of people who didn't evacuate. Also, people who were not personally affected by the storm probably have little idea of the day-to-day stress of the diaspora, decisions about returning or inability to return, and how the lack of resources (from fewer, less well-paying jobs, if you can return) has impacted people who were renters. Naïve people outside the region (who may not be visiting New Orleans anyway, but one would hope they come eventually) continue to ask why are they rebuilding anyway, because it's an ill-fated location, while residents have a completely different perspective on their attachment to a unique place and society that has been a keystone of economics and culture for at least a great chunk of the Midwest. So, is this exhibition likely to do enough to generate respect for residents as well as the rationale for rebuilding this city?

❖ Below the surface of being interested in the whole story of what happened, many people are primed to want to blame someone/something for the extent of the disaster beyond the normal destruction from a strong storm. Asked about their interest in four topics before seeing the sketchbook preview, people expressed very high interest in finding out about "how and why the levees failed" and "the idea that man-made factors made the flooding worse." For many people, variations of these themes continued to emerge throughout the interviews. The urge to blame is somewhat stronger among visitors to southeastern Louisiana, suggesting that perhaps most locals have worked through whom to blame or need to get beyond blame and just get on with their lives. Do the last two sections of the exhibition do enough to channel this sense of frustration and blame?

❖ People want to have some hope for the future. Hesitancy about visiting this exhibition is somewhat rooted in the perception that it may be a rehash of what the devastation looked like. And even before seeing the sketchbook preview it was evident that people would be drawn to stories of real experiences, the recovery effort, and efforts to prevent similar disasters in the future. And through the interviews it was clear that people's interest extends beyond just "telling the story" of Katrina – they want progress, acknowledgement, substantial and effective funding from the federal government, and confidence that good things will happen even if it will take a long time. Is this exhibition likely to do enough to give people a sense that progress is happening and possible?

❖ People want to see more discussion of politics, but this is the Louisiana State Museum. Whereas Americans often shy away from political discussion and authoritative opinions, many are interested in seeing more about politics in this

exhibition. The most common interests focus on knowing which politicians failed New Orleans. How can the Museum deal with people's frustrations with politics/politicians without directly blaming them? (Are there examples of politicians who are clearly helping the recovery process, or would that also be "playing politics"?)

❖ Humor in the face of tragedy is part of the culture of New Orleans but not everyone understands that. A large majority (80%) of local residents accept and expect humor about a tragedy and many people from elsewhere acknowledge it as a coping mechanism. There will be, however, a notable proportion of visitors that will not be receptive to humor in this exhibition (although they haven't seen it yet, so we may be surprised). The use of humor could be part of the "Do You Know What It Means?" area, the "Coming Home" section, and the "What Have We Learned?" area. Is there enough humor planned, and is it appropriate to the story and understandable to various audiences?

❖ The interests and emotional reactions of visitors to the area and local residents are similar in many, but not all dimensions. Residents' and visitors' initial interest in the exhibition topic and their overall interest in seeing the exhibition (after they have seen the preview) are nearly identical. Their interest in the specific exhibit areas are also very similar (visitors to the area may be somewhat more interested in the rescue exhibit area than local residents, a similar result to the findings of the 'front-end' research where heroes and rescue were a high interest). Although residents and visitors both anticipate feeling 'sadness' and 'hope,' residents are more likely to also say they will feel 'anger' and visitors are more likely to add 'respect.' The largely overlapping interests and reactions suggests that the museum need not create an exhibition that appeals to two widely differing audiences.

Formative Evaluation of Gallery 4

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June, 2009

Executive Summary

This research was commissioned by the Louisiana State Museum to explore the proposed content and experience of Gallery 4 for an exhibition about hurricanes, Katrina and others.

Research strategy

Two types of audiences were selected to represent potential visitors to an exhibition about Hurricane Katrina: residents of Louisiana and visitors to New Orleans from elsewhere. People were interviewed at the Cabildo, the Presbytere, libraries, coffee shops, the Historic New Orleans Collection, a park and other sites around New Orleans.

In all, 122 people were shown a preview of the exhibition (using photographs, sketches and verbal/written descriptions) and interviewed regarding their initial interests and reactions to the components of Gallery 4. Analysis of their responses to structured and semi-structured interview questions form the majority of this report.

Highlights of the Findings

This overview summarizes the principal dimensions of the reactions to the content presented.

Overall interest

- Initial interest appears to be declining over time. Interest in seeing "an exhibition about Katrina at a museum in the French Quarter" elicited high to moderate interest during a similar study (of the overall storyline) in 2007. In the data presented here, initial interest is moderate among both Louisiana residents and tourists.
- The title of this room should be forward-looking. Given a choice of three possible titles for this room, people had a definite preference for the forward-looking choice (Where Do We Go From Here?) as opposed to one that seemed analytic (What Have We Learned?).
- Compared to the other galleries, people find Gallery 4 comparable in interest. Louisiana residents find it a little more interesting, tourists find it a little less interesting. The former think the information will be useful (they lived through the dramatic events) and the latter prefer the drama and excitement of the earlier galleries.

Interpretive challenges

- Louisiana residents and tourists are more similar than different in their interests.

In terms of content and overall enthusiasm, Louisiana residents and tourists expressed mostly similar levels of interest in the various content ideas.

- Focusing on New Orleans will be easier than making connections with other places.

Both tourists and Louisiana residents expect New Orleans to be the focus of this experience. Most tourists consistently showed little interest in content that connected to natural disasters where they live and efforts they or their communities might take to prepare. The lack of interest in their own doesn't reflect ignorance of natural disasters elsewhere — they just don't care to be in New Orleans learning about other places. Likewise, Louisiana residents want to know what is being done to protect New Orleans from future hurricanes, not how other places might have similar threats.

- The most compelling question for Louisiana residents and tourists is "What has New Orleans done to prepare for the next hurricane?" There is substantial interest in other questions (such as climate change and building safer houses) but New Orleans and the next hurricane is most compelling.

- There is broad interest in the four content areas of Gallery 4 (Levees and Infrastructure, Disaster Management, Sustainable Building for the Future and Climate Change and Rising Sea Level). While there is some variation, none of the four areas appears to be a signature experience and none seems to be the weak link that could be sacrificed. Louisiana residents and tourists expressed somewhat different interests but the least compelling (Disaster Management) was rated only slightly lower than other areas.

- The question format for each area is somewhat more intriguing than the unadorned topic format. The perspective and the subjects of the questions matter, but a mild pattern of results suggests that people are somewhat more likely to respond to a question format; perhaps questions seem more like an invitation to explore, compared with a topic that is simply presenting more information.

- People will agree on two conclusions after seeing this gallery:

First, they realize that natural disasters happen everywhere. Most people agree with the statement "The Katrina story has several lessons for communities, no matter where they are located," and reject the idea that "Large scale natural disasters like Katrina are not likely in most places." People understand intellectually that the lessons of Katrina apply elsewhere (and that natural disasters can happen where they live), but tourists do not seem to want to hear about it on a museum visit in New Orleans. Perhaps this lack of

enthusiasm for applying the lessons of Katrina reflects a level of familiarity with their own natural disasters, the exoticness of other people's natural disasters or the desire to have a completely "New Orleans experience."

Secondly, they will confirm their critical view of poor planning and management around Katrina. People are very likely to agree that "Better hurricane planning could have saved many lives in New Orleans" – sensing that planning can mitigate the effects of natural disasters.

▣ Personal involvement or actions are not on the agenda for most people. A small portion of the people interviewed expressed an interest in learning what they can do to protect themselves and their community, but the majority are more interested in what the government and others should do. This challenge suggests that something very engaging needs to be offered in order for people to put themselves in the picture, to take some implications from this story.

▣ People will walk in with an idea about who is to blame for the Katrina disaster. For the most part people blame the government, poor planning or simply the failure of the levees.

Living With Hurricanes / Louisiana State Museum
Formative Evaluation / People, Places & Design Research

Study #
Room 2

B

**Evaluation of "Is This America?" Preview
for "Living With Hurricanes: Katrina & Beyond"
Louisiana State Museum**

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September, 2009



The visitor evaluation process for the "Living With Hurricanes" exhibition is funded by the National Science Foundation, Informal Science Education division. Conclusions and opinions expressed in this report are solely those of the authors, with no implication that this material is intended to represent the views of the National Science Foundation.

Executive Summary

This study was initiated to evaluate the likely interest, understanding and affective reactions to the "Is This America?" gallery (Room 2) of the exhibition "Living With Hurricanes: Katrina and Beyond." Two target audiences were sought for this study: Louisiana residents and out-of-state visitors to New Orleans. Their reactions are intended to answer questions raised by the exhibit team: Will this room engage visitors? Will it be frightening and upsetting? What stories do they want to hear told? Will visitors get the message of a chaotic time?

The preview and interview process

A total of 216 people were recruited at two locations to view a preview of "part of an exhibit about Hurricane Katrina" (four separate stations plus visual and auditory context). In the Arsenal (adjacent to the Cabildo) we sought primarily a tourist audience (recruiting people while viewing exhibits in the Cabildo and Presbytere, as well as from public spaces around Jackson Square and on St. Peter's Street in front of the Arsenal); at the Jefferson Parish Library we sought an audience of local residents. People were selected without regard to any apparent characteristic and directed to the site of the preview. Some people found the preview through signs posted on St. Peter Street (for the Arsenal) and the doorway from the café to the main entrance to the Jefferson Parish Library. Some invitations were distributed by hotels, carriage drivers and the visitor center. In general, there was reasonable enthusiasm and virtually no difficulty in recruiting people to see the preview. Anecdotally we can report that some local people declined because they were tired of hearing about Katrina. Coincidentally, the timing of the preview geared for locals coincided with the anniversary of Katrina's landing in New Orleans.

Before seeing the preview visitors were asked about their initial interest in an exhibit called "Living With Hurricanes: Katrina and Beyond" and given an orientation to the intended location (first floor of the Presbytere) and shown images representing prominent exhibits in the first gallery (historic time line, hurricane theater and attic walk-through). People were then shown the designers' conception of Gallery 2 and invited to spend as much or as little time as they would like at the prototype exhibits. Upon exiting the exhibit area, people were interviewed regarding their interests, understanding and affective reactions.



orienting visitors to the preview



interviewing people after the preview

How the preview was set up at the Arsenal



Orientation to the preview (on the right), and entry to the preview (on the left)



The preview was set up as a long space, with 4 stations (each with a digital photo frame and an audio speaker overhead, helicopter cut-outs on the ceiling, a background soundtrack of a radio station and occasional helicopter sounds).



The four stations: Superdome, Ordinary Heroes, Hospital, and First Responders

Principal Findings

Engaging the public

This exhibit area promises to be an asset in engaging visitors with the exhibition. Although initial interest in an exhibit entitled "Living with Hurricanes: Katrina and Beyond" was relatively high among Louisiana residents and only moderate among visitors to New Orleans, interest in this part of the exhibition among visitors was high and comparable to that of Louisiana residents after seeing the preview. This suggests a couple of likely patterns: first, despite some ambivalence among residents who lived through Katrina, these data suggest that there will be local interest; secondly, word of mouth and other informal and formal communications about this area (friends, family, concierges, tour guides, exhibit posters and advertising etc.) will be important and probably effective for attracting tourists.

An emotional impact

When the exhibition opens, this room is certain to have an emotional impact on visitors. People reported one or more emotions that were communicated by just the four prototype stations (10 stations are planned). The predominant emotions are likely to be: sadness, respect for those who acted, and empathy. Louisiana residents are somewhat more likely than New Orleans visitors to anticipate feeling sadness. This set of emotions is likely to lend legitimacy and a sense of seriousness to the rest of the exhibition.

Authenticity

Although not a major question anticipated for this round of audience research, it was readily apparent that people were impressed with the authenticity of the stories told in this exhibit. They commented positively on hearing the stories of individuals, the sense of being there, the faces of individuals and the sense that the truth was being presented. Only one of the 216 people interviewed suggested that some of the stories might be part of the storyteller's agenda and nobody suggested the stories were being mediated by the museum or anyone else.

Identifying highlights

Virtually everyone could identify a highlight and they were varied in their opinions. The highlights were the stories of individuals ("actual people"), hearing them tell their stories and seeing the images (although a few people were under the impression that the images showed the individuals speaking on the audio recording). Each of the four prototype stations was a highlight for some of the visitors.

Selecting stories

Locals and tourists have somewhat different interests in which stories they expect to find most compelling. The top choices for locals are hospitals, ordinary heroes and Coast Guard rescues. While not all of the individual stories will be uplifting, this grouping of stories suggests an interest in celebrating people who helped others. The top choice for tourists is the Superdome; this and various comments from tourists suggest that many will be looking

for points of familiarity like the Superdome and a curiosity about some of the more traumatic events during the catastrophe.

A chaotic environment

The preview intentionally included some of the chaotic aspects of the plan for "Is This America?" The lighting was dark (even more so at the Jefferson Library Parish where there were no spot lights), the entry had audio of helicopter sounds and a radio broadcast, and the audio from the four stations overlapped considerably. In spite of this unwelcoming atmosphere, very few people hurried through the preview and most people stopped at all four stations. Some people made the connection of the chaotic environment and the conditions in post-Katrina New Orleans.

Even if people were willing to tolerate the chaotic environment, they did not necessarily like it. Some people complained about the noise level at both locations, but the problems were more evident at the Arsenal with its cobble stone floors, smaller space and lower ceilings. The majority of people interviewed at the Arsenal said they couldn't hear well enough, and while the noise level was also problematic at the Jefferson Parish Library (a much larger room, high ceilings and carpeted floors), most people said they could hear well enough. Some confusion came when there was a large group or more than one small group at one station. The limited space covered by the targeted audio system was not clear to visitors. Perhaps markings on the floor (e.g., a dashed-line semicircle at 3' from the pole or central structure of a station, or a series of concentric semicircles like sound waves emanating out for 3-4') could indicate that the audio range is close in to the physical station.

Bringing children

The set-up of the room (images and audio) is unlikely to appeal to young children and few of the children in attendance were observed looking or listening during the four days of testing. Most of the relatively small sample of parents (22 of 27) thought that they would be willing to bring their children to exhibits like these. One possible worry was that two parents mentioned seeing images of dead bodies, but it was not confirmed whether this image was present or a misinterpretation of an image.

'Talk back' stations

People (especially local residents) were very willing to share their stories related to Katrina and tourists were very forthcoming with their hopes for the future of New Orleans. They might be receptive to 'talk back' stations where they can share their thoughts with other visitors.



**Evaluation of "Hurricane Science" Exhibit Prototypes
for "Living With Hurricanes: Katrina & Beyond"
at the Louisiana State Museum**

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June, 2010

Formative Evaluation 'C', 2010 Evaluation of "Hurricane Science" Exhibit Prototypes

Executive Summary

This study was initiated to evaluate the interest, understanding and reactions of children to four exhibit prototypes for the hurricane science gallery of the exhibition "Living With Hurricanes: Katrina and Beyond." Students from two levels (3rd and 7th grades) engaged the exhibits and provided feedback. Their reactions are intended to answer questions raised by the design team – Will these specific exhibits engage children? Will they be understood in terms of appropriate use and learning outcomes?

The preview and interview process

A total of 104 students in 3rd and 7th grades at three schools (Matas Elementary and Harris Middle School in Metairie, and St. Paul's Lutheran in New Orleans) were invited to use four interactive exhibit prototypes at their school. In periods of approximately 15 minutes, four to six students came to the room where the prototypes were set up, using the exhibits as much or as little as they wished (they were encouraged to at least "check out" each exhibit). At the end of the 15-minute period, students were interviewed individually about their interests and understanding of the exhibits. Groups of students were brought in sequentially as the school schedule allowed.

Principal Findings

Katrina Path exhibit

This exhibit promises to attract children visiting the exhibition, but a few tweaks would improve its value to Museum visitors. Among the positive results, most children seem to understand that this is about hurricanes and the controls have something to do with the storm's progress through the Gulf. They most enjoy seeing the animation of the house incurring damage as the storm intensity increases.

A few aspects of the exhibit could be improved. The storm and ocean temperature screens are very abstract. The concept of hurricane impact on Gulf/ocean temperature appears to be lost in this interactive and already known by most 7th graders. This exhibit has the look of a video game and children will be looking for an objective, a

target outcome. The current design (regardless of controller) only allows the user to move the hurricane forward and backward in Katrina's path and takes several minutes to follow that path. The exhibit would benefit from either simpler controls or more ambitious objectives and alternative user inputs. The relevance of the house animation to the hurricane's progress could be clearer (is there really house damage when the hurricane is hundreds of miles out to sea?).

Wetlands Tables

This exhibit seems to provide straightforward conceptual information about the importance of wetlands as protection from hurricanes and storm surge. Students enjoyed the moving BBs and their rush into the cities.

This exhibit could benefit from rethinking the physical structure. Almost none of the students understood that they should press down the "city" end of the table top to simulate the storm surge – younger children simply pushed the BBs with their hands while older children and adults lifted the entire cabinet. Very few students figured out how to rest this exhibit and when they did BBs rolled into the interior of the cabinet and onto the floor. Although not mentioned by students, the design deceives the intended comparison: the healthy wetlands side has a levee wall (the other side does not) and holes even in the "Gulf;" the compromised wetlands side has no levee wall and no holes in any part of its wetlands.

Levee Soils

This exhibit was a hit for younger students who wanted physical play. Although they used this interactive in ways that disregarded the intended objectives or uses, they enjoyed using it for their own purposes. Older students were somewhat less enamored with the exhibit but about half got the intended learning outcome (type of soil matters in the strength of levees).

The exhibit presents some conceptual challenges for many children; it was the single greatest source of confusion reported by students. Although most students recognize the wooden structures as levee walls, they are unclear about what the balls represent. For many, the balls represent water being contained by the levees (after all that is the function of levees). Few younger children ever tested both levees, so the lessons from comparing the two are unlikely. Although not mentioned by children, the size of the reservoirs makes it time-consuming to fill them in less than two minutes. Once filled, most students were at a loss as to how the reservoirs could be reset. Even after using this exhibit and the others in this evaluation, many students are unclear about what

constitutes a levee. For some it is an earthen dam and for most others it is a rigid wall-like structure.

Levee Failure

The Levee Failure exhibit provided excitement for some students, but overall was not a highlight for many of them. The falling tree, crashing boat and overtopped levee animations elicited lively conversation among some students. Showing the impact of erosion was interesting for some students. The interface was intuitive and needed little instruction.

In spite of these positives, this exhibit was the least often mentioned as a favorite. This may in part be due to the lack of any objective or goal, or any variable control by the user (this is not really interactive except as multiple start buttons for brief animations). This exhibit could be made more dramatic by enlarging the animation to full screen or supplementing the animations with actual video footage.

The relative unfamiliarity with what constitutes a levee hinders the effectiveness of this exhibit. Younger students often don't recognize the dirt mounds as levees, and because many of the animations are this type they sometimes are unsure of what the water is pushing against.

Living With Hurricanes: KATRINA & BEYOND
at the Louisiana State Museum in New Orleans

Remedial Evaluation



Conducted by People, Places & Design Research
in collaboration with the staff of the Louisiana State Museum

Executive Summary

As part of the process of Remedial evaluation, observers and interviewers from People, Places & Design Research spent two days in the Living with Hurricanes exhibition at the Louisiana State Museum. The objective for remedial evaluation is to help 'fine-tune' the exhibits and not address broad questions about effectiveness or if visitors like it — which will be addressed during summative evaluation.

The remedial evaluation process began with consultation with LSM staff regarding questions they have about the visitor experience in the exhibition. Using these questions as a starting point for investigation, we made systematic observations and asked questions of visitors. The findings of this report are the product of those observations and discussions with visitors. In addition, some of the suggestions come from a second group meeting with LSM staff, reviewing the data from visitors and brainstorming possible actions.

Our two days of observation lead us to suggest that visitors seem to be very engaged by many parts of this exhibition. Each of the four major rooms has one or more exhibits at which visitors spend considerable time. As with any new exhibition, there are some areas which could benefit from fine-tuning. The rest of this report provides observations and suggestions in response to staff concerns.

Staff concerns and suggestions about improvements

Staff concern: The Lobby ambiance is too loud.

Observations and suggestions: The sounds in the lobby come from several sources and yes it is an issue worth addressing. It could be partially addressed by enclosing the space behind the security desk and synchronizing the Evacuation video soundtracks.

Staff concern: The Spirit of Resilience is a "slow start."

Observations and suggestions: The first exhibit area in the first gallery is a slow start for visitors, impacting circulation, but that is not necessarily a bad thing. Visitors spend time reading and watching videos. The shape of the exhibit allows many visitors to watch and read but still allow others to move forward. Visitors seem engaged in the exhibition right away.

Staff concern: The Evacuation hallway is a frequent bottleneck.

Observations and suggestions: As visitors stop to watch the monitors and read the timeline, they block this narrow hallway. They often watch repeated scenes on the second monitor expecting that it is different from what they just watched. If the videos were synchronized visitors would be able to move forward while reading the timeline and without missing the video content.

Staff concern: The sounds from the Storm Theater interfere with listening to the videos in the Evacuation area.

Observations and suggestions: The sound volume problem is less about Storm Theater and more about the three monitors in the Evacuation area playing asynchronously, without which the Storm Theater sound (which is much more undefined) might seem more like background noise.

Staff concern: Visitors don't understand that the white walls in the Storm Theater represent levees.

Observations and suggestions: Visitors do not get that these are flood walls and many have little understanding of what a levee looks like or that there are many different kinds. Missing this meaning is unlikely to affect the quality of a visitor's experience. Because visitors seem to like spending time in this room, the second levee wall could be removed to make space for another bench.

Staff concern: Do visitors get a reasonable "breadth of experience" in Is This America? or do they watch one and pass through?

Observations and suggestions: Visitors spend a considerable amount of time in Is This America? with most people watching/listening to three or more stations plus independent looking around at images, artifacts and panels while they are not illuminated. Independent readers (people who are not just following the spotlight) could be better accommodated with extra lighting for the labels in this room.

Staff concern: Visitors don't recognize the Hurricane Rita content as distinct from Hurricane Katrina content.

Observations and suggestions: Unless visitors get past the headlines of the exhibit panels in the Hurricane Rita hallway, they are unlikely to realize this is not a continuation of Hurricane Katrina material. Moving the descriptive label to the front of the first exhibit (it is currently behind the last exhibit case) might lead to greater awareness before visitors see the exhibit cases and panels.

Staff concern: The entrance to What Happened is frequently obstructed by visitors watching the Dynamic Map video.

Observations and suggestions: Placing a bench close to the monitor was observed to encourage people to sit and others to move forward — this cleared space for new arrivals to the room.

Staff concern: Visitors pay little attention to the interactives in What Happened?

Observations and suggestions: Adult visitors spend very little time with most of the physical interactives (other than Levee Failure and Wetlands Tables). All of the interactives could benefit from repositioning the directions directly onto or in front of the interactive. Having an interpretive lesson (e.g. A "T" shaped levee is much more stable than one that is "I" shaped.) would at least explain why two of the interactives don't actually move in any way.

Staff concern: Visitors don't understand the purpose of the Wetlands Tables.

Observations and suggestions: Most visitors readily grasp that the vegetation (some understand these as "wetlands") help protect the city from water (some make the connection with storm surge). This fairly good level of understanding could be improved by breaking up the explanatory label and placing parts directly onto the tables.

Staff concern: Coming Home is another bottleneck for visitors.

Observations and suggestions: This area is a narrow hallway with exhibits on both sides, causing occasional congestion. This congestion could be alleviated somewhat by changes which would slow entrance to this area (already planned labeling for the garage door), speed exit (attractive exhibits past this area) or reducing exhibits in this area (moving some cases from the left-hand wall to the end of the hall or around the corner).

Staff concern: Upon entering the Changing the Game room, visitors sit down for the video and leave once it is over, missing the room-full of panels and interactives.

Observations and suggestions: The large majority of visitors spend at least some time reading panels in this room — most people who arrive between multimedia shows read something before the show and most people who arrive during a show read at least something before and/or after the watching the show. Although not measured directly, it seems that visitors only spend a small amount of time reading, leaving a great deal of the potential of this room unexplored. Increasing the time between shows would probably increase the amount of time visitors spend exploring the panels. Improved lighting (or blocking competing lighting from doors and windows) might make it easier for visitors to read panels. Larger titles which are easily read from across the room might encourage visitor attention to topics which received high interest in previous audience research.

Staff concern: Visitors spend very little time using the interactives in Changing the Game.

Observations and suggestions: Moving the Faces of Change and URI website computer to the back of the room (near Reducing Risk) might increase their usage and provide another focal point to the room. The screensaver on the URI computer should be suspended.

**Living With Hurricanes: KATRINA & BEYOND
at the Louisiana State Museum in New Orleans**



**Conducted by People, Places & Design Research
in collaboration with the staff of the Louisiana State Museum**

Summative Evaluation, 2011

Executive Summary

The purpose of this Summative Evaluation was to assess visitors' use and perceptions of 'Living with Hurricanes: Katrina & Beyond' at the Louisiana State Museum (LSM) as an informal science experience. The exhibition is distinctive in that it is presented in a museum which has been primarily focused on history. The overall experience, affective impact and learning were evaluated for visitors leaving the exhibition. More specific questions of science learning were evaluated in mini-studies in Room 3. This report also examines the degree to which emotion affects informal learning in the museum environment.

Research Method

Several methods were used to investigate visitors' experience with the 'Living with Hurricanes' exhibition. The principal method for this evaluation consisted of intercept interviews with randomly selected visitors leaving the exhibition. This method is the most common and accepted method for summative evaluations for important reasons: it makes sense to visitors, and therefore almost all visitors cooperate with the process (in this example, over 95% of the visitors approached agreed to participate in an interview); secondly that broad cross-section of the audience helps create a valid evaluation, because with almost everyone participating the sample will include people who were highly impressed or not so impressed, people who learned a lot or didn't learn much; and thirdly, this is a point at which the exhibit experience is fresh in people's minds, and they are able to answer a variety of questions about specifics as well as overall impressions (put another way: if they haven't picked up on the main interpretive messages by the time they leave the exhibition, it's very unlikely that they will get them later; therefore, this moment of measurement does not confuse visitors' ability to grasp the interpretive story and messages with the recall of those messages later). In these exit interviews with randomly selected visitors, people were asked about their overall opinions, the messages learned and their emotional reactions to the exhibition. LSM staff and other interviewers (former or current graduate students in social sciences) conducted 406 interviews with adult visitors exiting the Living with Hurricanes exhibition.

In addition, five 'mini studies' were conducted to supplement that primary method, involving a study of children's reactions to the exhibition and four studies of the Hurricane Science section. The study of 67 children's reactions was conducted in a similar manner to the exit interviews except the interview was much briefer and questions accessible to young children. The four studies that were specifically

focused on the Hurricane Science section (room 3 of the exhibition) consisted of two interview studies focused on exhibits and messages (30 visitors interviewed about that section overall, and another 30 interviewed about the Levee Engineering area), a study of affective response and time spent in science learning was based on observations and brief interviews with 78 visitors. Lastly, systematic observations regarding 72 visitors to describe the use of exhibits and time spent in that room.



Annotated plan of the exhibition space

Major Findings

Who's visiting? The large majority of visitors to this exhibition are from outside the Gulf Coast region and therefore few were directly affected by the Katrina disaster. Many visitors are less familiar with hurricanes as one would experience them in the Gulf of Mexico. Compared with museum audiences in general these visitors are similar in some ways, such as that they are highly educated and there are

more women than men. However, this audience differs from most history museum audiences, attracting a wide age-range not just older adults.

Patterns of use of the exhibition. The exhibition is designed so that visitors experience a linear series of rooms. Anecdotally, it's clear that visitor groups sometimes divide and some backtrack through parts of the exhibition. Regardless of some changes in direction, it is still a mostly linear experience: almost all visitors enter the designated entrance and continue to the end, exiting to the lobby from the last room. Thus people have the opportunity to see the entire exhibition even if they choose to skip certain exhibits. On average, visitors report spending about 60 minutes in the exhibition, which is a long time compared to most exhibitions.

Reactions to the exhibition. Visitors expressed moderately positive to very positive ratings for the exhibition as a whole. The most engaging rooms are Room 2 (the aftermath of the storm, called "Is This America?") and Room 4 (the last room, focusing on recovery, called "Where Do We Go From Here") -- both of which present factual information but are dominated by human stories related by individuals in multi-media presentations.

STEM learning. Visitors reported learning a great deal during their visit. Three-quarters of the visitors interviewed said they understood something better having seen the exhibition, compared to what they understood before. People living outside the Gulf Coast region were even more likely to say they learned something, whereas Gulf Coast residents claimed to have learned less, while young adults and more-educated visitors reported learning more. About half of all visitors said the exhibition increased their interest in learning about the science of natural disasters.

Learning about levees. Top-of-mind statements and recall of major themes suggest that STEM learning is greatest with regard to engineering levees and how they failed. The depth of learning about levee failures is greater than other STEM learning. Visitors cited poor construction and design (depth, I-walls, soil), lack of maintenance, and the multiple ways they can fail.

Learning about wetlands. Although learning about wetlands was perhaps not as deep as learning about levees, it was broad in that the large majority of visitors indicated learning something about wetland destruction and the importance of wetlands in mitigating the impact of hurricanes and storm surge.

Learning about hurricanes. Relatively few people reported learning something about how hurricanes function (the local bias toward "I already know about that."). Most of what visitors indicated they learned about "hurricane science" was descriptive: the path, categories of intensity, damage caused and impact on people.

Learning about emergency management. For the most part, people were aware of emergency management issues, but were unclear about them. They noticed problems with emergency management in Room 2 (the aftermath) and to a lesser extent in Room 3 (the "What Happened?" /science room, where emergency management issues were more systematically analyzed). Most visitors blamed the government for the severity of the disaster but failed to see how the lessons from this disaster applied to their own lives since they don't live in a hurricane-prone area.

Other learning The timeline of events and the geography of New Orleans seemed to be essential background that most visitors from other states and countries lacked before their visit to the museum, but they became aware of that content here.

Affective reactions. The exhibition provides a "moving experience" for most visitors who thought that it evoked moderate to strong emotions – primarily "sadness" and "empathy," but half also chose "respect for people who acted," "hope" and "frustration" as good descriptors. Louisiana State Museum/ Living with Hurricanes: summative evaluation 4 People, Places & Design Research
The emotions that most contributed to stronger emotional reactions were "anger," "respect for people who acted," "sadness" and "scary." "Hope," "surprise," "frustration" and "empathy" had less influence on how visitors reported the intensity of emotional experience.

Relationship between affective engagement and the exhibition experience. Emotional impact from the exhibition had substantial impact on other aspects of visitors' experiences. People who had a stronger emotional experience rated the exhibition more highly (65% of those gave it the highest ratings), were more likely to say they learned something new about hurricanes and disaster management, and saw greater relevance to their own lives. They were not, however, different in recognizing major themes and did not spend more time or less time exploring Room 3 ("What Happened?" /the science room) than people who experienced less emotional impact.

Relationship between experience in Hurricane Katrina and the exhibition experience. People who had direct experience of the Katrina disaster

seemed to be less engaged by the exhibition, but even more pleased. The data showed that people who were directly affected by the Katrina disaster tended to spend less time in the exhibition, had less emotional impact and learned less, but (along with people indirectly affected during Katrina) they rated the overall experience higher than other visitors. These visitors appear to have brought some emotional and intellectual guardedness with them, but were still pleased with the exhibition.

Engaging science exhibits. The most engaging science exhibits in Room 3 ("What Happened?") are primarily interactives and media at the entrance and on the shortest path through the room. The levee break video is the first exhibit that most visitors notice upon entering the room; along with being visually interesting and presenting audio with compelling stories, it answers a question that many visitors have: where did the water come from? The Emergency Management area is farthest from the entrance and engages the fewest visitors. It appears that some visitors are either overwhelmed by the content at this point, or simply not interested in science and interactive exhibits and therefore pass through as quickly as possible.

**Longitudinal Study of Visitors to
*Living With Hurricanes:
Katrina and Beyond***

**at the Louisiana State Museum,
Presbytere building in New Orleans**

Research report by
People, Places & Design Research

Executive Summary

This research presented in this report was the tenth and final study in a multi-phase evaluation plan for "*Living With Hurricanes: Katrina and Beyond*," an exhibition created by the Louisiana State Museum and installed at the Presbytere building. The exhibition opened in October 2010; a remedial evaluation was conducted in November 2010; the summative evaluation was conducted in the spring and summer of 2011; preparations for this longitudinal study began in the fall of 2011, the telephone interviews were conducted in the spring of 2013.

Purpose: Unlike most other longitudinal studies, the purpose was not to see what people remembered from the exhibition, this study was designed to find out whether the exhibition had an impact in people's lives. Of particular interest were these topics:

- perception of benefit for the community;
- perception of benefit for people who saw the exhibition;
- understanding the influences on, and effects from, hurricanes /Katrina;
- whether people talked about the exhibition with others, and why; and
- interest in the science associated with hurricanes.

Research method: Post-visit and longitudinal studies are typically conducted using one of three methods: mailed questionnaires, emailed questionnaires, or telephone interviews. The strategy for this study called for telephone interviews for several reasons, including (a) we worried about people's participation, and interviewing gets a much higher cooperation rate than questionnaires; (b) we thought that people would be more likely to talk about their perceptions (informally) rather than making the effort to write them (feels more formal); and (c) open-ended questions tend to get a lower rate of completion in written questionnaires than they do in spoken interviews, where an interviewer can prompt people to say something. The logic of this longitudinal study was based on whether and how this exhibition made any difference in the perceptions and lives of people who saw it. However, finding local residents who had seen this exhibition was a big challenge, for reasons including:

- Like most history museums, few local residents are visitors.
- The Museum had an inadequate amount of local advertising, so the only sources of awareness were the initial free publicity about the opening, the ongoing basic newspaper listings of things to do, and presumably some 'word of mouth' discussion.

- Name-capture strategies that have worked at other museums and with other subjects met with little success here. In fact, we used or attempted nine strategies to try to find people; two of the strategies produced most of the few dozen people who saw the exhibition.

To provide some perspective on the analysis of perceptions of people who had seen the exhibition and were being interviewed later, a 'control group' of approximately 100 people was interviewed at about the same time. People in that comparison sample were contacted as part of other polling that was taking place in the greater New Orleans area, and were screened for being museum go'ers (visited at least one museum anywhere in the last year), and screened for whether they had seen this Hurricanes exhibit or not. As detailed in Section D of this report, the characteristics of the control group were nicely comparable to the primary sample.

Highlights of the Findings

Results from this analysis indicate that "*Living With Hurricanes: Katrina and Beyond*" is a memorable and effective exhibition. With an average visit of an hour or so, reflecting on the exhibition a year or two later people recalled the experience as emotionally powerful and as beneficial for them in their own lives. Also, these residents of greater New Orleans (and some other Gulf Coast states) who saw this exhibition were more likely to better understand two out of three STEM topics they were asked about (wetlands and levee engineering). More than half of the people interviewed also reported an increased interest in the science behind hurricanes as a result of seeing this exhibition. These outcomes, directly attributable to the exhibition, are impressive considering the context of the extensive amount of information about hurricanes in general, and Katrina specifically, that permeated the news and people's everyday conversations in New Orleans for the past eight years.

Affective perceptions

Most of the people who were contacted later recalled strong emotional reactions to the exhibition. For many, the experience brought back painful memories, flashbacks, and sadness for everything that was lost in Katrina. From a list of terms to help describe their feelings and emotions, people in this study were more likely to choose 'empathy for others' and 'hope' compared to the people who were interviewed as they were exiting from the exhibition. These people also recalled being 'moved emotionally' and more than half recalled the experience as 'emotionally beneficial for me.'

Post-visit outcomes and benefits

People who saw this exhibition thought that it had personal benefits for them and that it was 'generally a good thing' for the people of New Orleans to have the exhibition. Half of the visitors reported that they 'definitely took away lessons that I will apply in my own life.' Compared to a control group of people who go to museums but who had not seen this exhibition, a higher proportion of visitors to the exhibition said they have 'a greater understanding of how wetlands destruction increases the damage that hurricanes can do' as well as 'a greater understanding of how and why the levees failed' during Hurricane Katrina. They were no more likely to say they better understood the simpler and more generic topic of 'the power of hurricanes and why they are so powerful,' which was only a partial feature of one on the interactives in the exhibition.

Perceptions of science

Most visitors recalled seeing hands-on science exhibits in *Living With Hurricanes*, and many of these people said their interest in the science behind hurricanes had increased as a result. One-third could recall seeing something specific that they had learned here (although there is no easy way to put that in context, the memorability of an hour in the exhibition is so minor compared to years of hearing about Katrina and other hurricanes that it's nice to know that some things are recalled accurately rather than just have generalized memories).