
**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

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July 2013

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



Executive Summary

The 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 studies¹ 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 spent no money on marketing, 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.

¹ Technically, post-visit studies and longitudinal studies can be the same thing, meaning that visitors to an exhibition are contacted later to ask questions relevant to that exhibition. In this case, the research was called a 'longitudinal study' because the original intent was to contact people more than once, following their perceptions over time. However, because of the difficulty in finding local residents who had seen the exhibition, the study was truncated to one round of interviewing; the term 'longitudinal study' was retained because 'post visit study' might have seemed as though people were contacted shortly after returning home, but most were interviewed more than a year after seeing the exhibition, which seemed more consistent with the term 'LONGitudinal.'

- 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;² 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.³ As detailed in Section D of this report, the characteristics of the control group were nicely comparable to the primary sample.

² The nine strategies were: 1) during normally-busy times, have a staff person or volunteer walk through the exhibition asking each visitor group for their zip code; anyone with a zip code in southeast Louisiana would then be requested to give name and contact information to be asked for their feedback at a later time; this strategy was disallowed because of staff cutbacks and reassignments shortly after the exhibit opened; 2) cashier-distributed invitation cards requesting contact information from local residents (quickly expanded to any Gulf Coast residents because of the lack of response or implementation), which yielded slightly more than 100 names over two years, and eventually resulted in 43 interviews of the sample of 100-or-so people who had seen the exhibition; 3) names sought from the Community Awareness Study (specifically the 'on the street interview' portion of that study in the summer of 2011) when interviewers encountered people who had seen the exhibition; 4) FaceBook ads, seeking people who had seen the exhibition ("Saw dat?") on the Museum's FaceBook page, linking to a separately designed page about the Living With Hurricanes exhibition; 5) emailed requests to the Museum's Friends organization; 6) emailed requests using the Museum's general emailing list; 7) asking Museum staff people to contact three friends who had seen the exhibition; 8) using a large online research company that maintains substantial panels of respondents for email/link surveys, who ran a feasibility test on about 1900 respondents in the New Orleans area and came up with 5 people who said they had seen the exhibition (however, since there was no guarantee that we could reach those people or that they would agree to be interviewed, the likely return on a full recruitment mailing was low and very costly per individual name); and 9) 'cold calling' of local residents, attached to other polling studies, which yielded interviews with about 40 of the people who had seen the exhibition and all 98 people in the 'control group.'

³ For this Longitudinal Study, 98 people who had seen the exhibition were interviewed using an interview form specifically designed for that purpose. However, in the 'control group' of people who were not expected to have seen the exhibition (calls to the general public, screened for having some experience with visiting any museum in the past year), 6 people were discovered to have seen the Hurricanes exhibit, but were in the process of being interviewed with a different form; eventually the data from those 6 interviews was moved to the primary sample, so some questions are based on 98 respondents and some are based on 104 respondents.

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 later⁴ 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 of 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 finding out 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 having generalized memories).

⁴ Most people interviewed in this longitudinal study had visited the exhibition over a year before. The time since their visit ranged from a few months to the 2½ years since the exhibition opened.

A. Affective Perceptions of the Exhibit Experience

This section of the report describes the emotional impact of *Living With Hurricanes* recalled in post-visit phone interviews with Gulf Coast residents. The key findings are:

- Most of the people who were contacted post-visit 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.
- On the positive side, the most prevalent feeling was empathy for others (92%). Many also indicated that they felt hope (72%) and that the exhibition was emotionally beneficial for them personally (62%).

A.1. Rating of emotional impact

OVERVIEW: 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). The difference in intensity between the two most-emotional descriptors ('extremely strong' vs. 'a great deal' as reported in the table below) can be explained by an important characteristic within the two samples: people who were directly impacted by Katrina comprised a greater proportion of this sample in the longitudinal study compared with the Louisiana residents contacted in the summative evaluation (see section D), and 46% of people who were directly impacted reported 'extremely strong' emotions compared with only 27% of people who were not directly affected by the storm.

| <i>Thinking about the whole experience of that exhibit, how much of an emotional impact did the exhibit have on you?</i> | Summative evaluation (LA residents only; n=38) | | Post-visit re LWH exhibit (n=104) |
|---|--|----|---|
| extremely strong | 18% | ** | 41% |
| a great deal | 58% | | 37% |
| a moderate amount | 21% | | 20% |
| a little | 0% | | 0 |
| none | 3% | | 2% |

In what sense did the exhibit affect you emotionally? (post-visit)

- 56% relive/remember
- 27% feelings of loss/sadness/helplessness/tragedy
- 19% empathy
- 5% worried about the future; planning, preparing
- 5% guilt; we had it better than others
- 3% outrage/anger; failure of government; didn't have to be this way
- 14% other
- 3% don't know; no response

Sample of answers

It brought back memories of the rushing water and the flooding.

It brought back a lot of memories that I thought I had processed already.

It helped me remember and I was moved.

It made me really feel the tragedy of what really happened. I was in awe by the power of nature.

It brought back memories. We had friends whose houses were completely destroyed. When you know someone, it is a little more personal.

It emotionally brought out compassion for fellow men and how frightening it had to be for people involved. There was no way away from it since it happened so fast.

It touched our hearts. We had so many people that were affected, like friends, and relatives. It sort of made it sink in that a natural disaster could be anywhere in America and your neighbors are being affected right in your backyard.

It dragged up a lot of tender feelings that I still have.

It's impossible not to get emotional.

I lived through the whole thing with no electricity, trying to get to work, and trying to get across the parking lot.

I was moved through parts of it. I wanted to see the actual area.

It reminded me how devastating things were.

It was the loss. It wasn't only the houses, but trees, people, and animals.

It just made me remember my experiences with Katrina.

We lived through it and I wanted to see how it educated people. It brought back a lot of the emotional part of going through the aftermath for everyone that lived around here and returned or rode it out. It wasn't a negative thing. It just brought those emotions back and that is why I went to it, to see if people got that from it.

I was disappointed. A lot more positive things could have been brought up.

It just brought back a lot of memories. It just seemed crazy that it was something that actually happened and we all had to go through it. I left with the feeling that something needs to be done, so that it doesn't happen again.

I just thought about the suffering that people went through. It almost made me feel guilty that I had a chance to go and stay at a motel for a while and then with relatives.

I was not as affected as others.

We lost our house and stuff completely. It came down when the water hit.

People need to understand how to survive bad weather and also how to get together and help each other out.

It brought back some of the emotions that I had when I was either watching the news or when I first came back into town. Terrance Blanchard did the sound track to Spike Lee's movie "When the Levees Broke." They used that in one of the exhibits. It has just been as of this year that I wasn't tempted to cry when I hear that music.

I had flashbacks.

It was just sad that people had to go through that. They should have been able to get everyone out.

My wife had a grandmother that died in the storm and just reliving all of that.

It gave me outrage to see how slow help was in coming.

It brought back a lot of feelings of helplessness.

It just brought back the emotions and sadness that we felt when it was going on.

I liked that they didn't sugar coat it.

It just reminded me that we were a part of it and we lost so much. We are still rebuilding and it is seven years later. We are still trying to get back our schools.

It is hard to relive those things.

Because of having to go through the storm.

It was just going through it and the experience of it. I was reliving it in my mind.

I have friends that lost their homes. As a native of New Orleans, I could relate to the stories of people who had a total loss.

I was moved by the hopeful and positive outlook of those who returned to the community.

A.2. Descriptors of affect

OVERVIEW: After time passed, people chose 'empathy,' 'moved,' 'felt true to circumstances,' 'hope' and 'emotionally beneficial for me' to describe their feelings from visiting the *Living With Hurricanes* exhibition. People who were interviewed by phone later recalled feeling more empathy and more hope than visitors leaving the exhibition. These feelings are not associated with gender or degree of impact from Katrina.

Which of these feelings would you say this exhibition is likely to communicate to most people? [in-person interview, summative evaluation]

I'd like to read some terms that are about people's feelings from visiting this exhibit. When you hear one that describes your feelings from the exhibit, say yes. [telephone interview, longitudinal study]

| | Summative evaluation (LA residents only; n=38) | | Post-visit re LWH exhibit (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% |
| Emotionally drained | | | 46% |
| Felt like reliving old nightmares | | | 36% |
| Relief | | | 27% |
| Surprise | 16% | | 24% |

In this report, statistical significance is indicated by these symbols:

** = statistically significant comparison, $p < .05$

++ = borderline significance, not by the usual standard but might have some intuitive value, $p < .10$

B. Post-visit Benefits and Outcomes

This section summarizes the perceived benefits of seeing *Living With Hurricanes*, and presents results of outcome measures of understanding and lessons learned. The key findings are:

- Those who saw the exhibition were more likely to view it as 'a good thing' for the people of greater New Orleans compared to the control group of museum-goers who did not see it (81% versus 57%).
- They described personal benefits such as: *it made me better understand what to expect in the future, it showed people what we went through and did a good job of documenting it, and it was therapeutic.*
- People who saw the exhibition indicated that they now have 'a greater understanding of how wetlands destruction increases the damage that hurricanes can do' (87% versus 76% among the non-visitors) and 'a greater understanding of how and why the levees failed' (66% versus 54% among non-visitors).
- Half of the visitors reported that they 'definitely took away lessons that I will apply in my own life' such as: *it helped me with evacuation plans, I will be prepared and take it seriously, I have an axe in my attic and hurricane shutters for my house, and I support the wetlands restoration projects.*

B.1. Overall perception of benefit for the community

OVERVIEW: People who saw the exhibition were more likely to think that it is “a good thing” for the people of New Orleans, to a greater degree than people who didn’t see the exhibition. The power of negative or ambivalent expectations was assumed to be a factor in why local residents did not comprise a higher proportion of attendance at the Museum, with anecdotal evidence over the past couple of years suggesting that (a) people imagined that this exhibition would primarily be photographs of destruction, and (b) they worried that seeing the exhibition would be depressing, rekindling old nightmares. The results of this question confirm that people who haven’t seen the exhibition are more ambivalent about its value to the community, although slightly more than half of the sample of museum-goers imagine that it would be a good thing for the community but they haven’t seen it themselves. And these results also confirm that the exhibition is valuable for local and Gulf Coast residents who have seen it, because a huge proportion of them recall it as “generally a good thing” for the people of greater New Orleans.

| Perceived value of the exhibition | <u>Did not see LWH exhibit</u> (n=98) | | <u>Saw the LWH exhibit</u> (n=104) |
|---|--|----|---|
| <i>For the people of greater New Orleans, do you think the exhibition is...?</i> | | | |
| generally a good thing | 57% | ** | 81% |
| a painful thing | 32% | | 18% |
| or it has nothing to offer most people | 11% | | 1% |

B.2. Perceived benefits for individuals who saw the exhibition

OVERVIEW: People said the exhibition benefitted them with awareness of the need to be prepared for future hurricanes, and that it was important to tell the story. Some people felt it was therapeutic and it gave them hope to see that they were not alone.

What benefit or value did the exhibit have for you personally? [post-visit; n=98]

| | |
|-----|---|
| 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 |

Sample of answers

I think the knowledge. I thought if other people could see it, they would hopefully take it more seriously.

We came back and built our home and trusted in god to stay here because we love our home.

It didn't stop people from coming. There are more and more visitors coming every day.

Perhaps to reinforce buildings and not build in vulnerable places when possible.

It gave me more information and more sense of being there.

It gives you a better feel for it. It stresses the point that you need to be prepared. I can handle things better if I know why.

It gave me hope for the future. It gave me relief. I was able to relive it and get it out of my system.

Just to show the realism of it all.

It gives you a different perspective.

It made me better understand what to expect in the future.

It brought it all back together at the end.

It gave me a place to go back to process or reflect how grateful I am we as a city are still able to return. Even with the disasters, it gave me a place to reflect and be comfortable.

It helped me learn more about the wetlands, to share with children and educate them.

It was therapeutic.

Everybody got to tell their story.

I feel like it is not safe anywhere.

I think people are putting out more things about the season and what the hurricane is all about. It helped me understand what a hurricane can do.

We have been living in the hurricane zone for most of my life. There was a lot of stuff we already knew, but it was helpful to other people.

I like that it showed people what we went through. It did a good job of documenting it.

It reinforced people to be prepared. It reinforced for the city to be prepared as a city. When Betsy hit, the city was more prepared than they were when Katrina hit.

It makes you feel like you are part of a community.

It helped me understand the storm and the surge.

It is valuable and beneficial to me that this is a personal record of this. If there are children that are eight years old, it is ancient history. This is something that can educate people who were not present.

I know that I will not stay the next time we have a hurricane. After seeing everything that happened, I will not stay.

The people that I was with were not from here, so they got to experience a little of what we went through. After all the disaster, came a bright light.

B.3. Measured Outcomes

OVERVIEW: People who saw the 'Living With Hurricanes' exhibition held similar perceptions as people who didn't on three issues: the power of hurricanes, the personal and social effects of Katrina, and blaming government officials for some of the aftermath – all relatively generic issues, where the experience of living through Katrina (and Rita, Gus, and other storms) plus the ongoing news and discussion among residents would be a stronger factor than seeing this exhibition. However, despite the substantial elapsed time since seeing the exhibition, people who saw it were more likely to say they better understood the effects of wetland destruction as well as how and why the levees failed. Also, they are more cautious about thinking that they have sufficient information to prepare for a future hurricane, which could be attributed to this exhibition's presentation of the complexity of impacts and the difficulties of being fully prepared (e.g., you had a relative in the hospital and didn't want to leave).

| Potential benefits of seeing this exhibition | <u>Did not see LWH exhibit</u> (n=98) | Saw the LWH exhibit (n=98) | % saying "definitely fits for me" |
|---|--|--------------------------------------|-----------------------------------|
| <u>No difference attributable to the exhibition</u> | | | |
| I have a better sense of the power of hurricanes, and why they are powerful. | 66% | 65% | |
| I have a better understanding of the personal and social effects of Hurricane Katrina | 70% | 61% | |
| I feel more strongly that government officials were responsible for some of the effects in the aftermath of Hurricane Katrina. | 55% | 54% | |
| <u>Differences attributable to the exhibition</u> | | | |
| I have a greater understanding of how the destruction of wetlands increases the damage that hurricanes can do. | 76% | ++ | 87% |
| I have a greater understanding of how and why the levees failed. | 54% | ** | 66% |
| <u>Counter-intuitive difference:</u> People who saw the exhibition are more cautious; they realize it's not so simple to be fully "prepared;" storms bring unpredictability and chaos (see the categories of answers in sections B.2 and B.4 for how people express that preparedness). | | | |
| I have a greater understanding of how to prepare for a hurricane. | 67% | ** | 43% |

B.4. Personal lessons learned

OVERVIEW: Half of the visitors said they 'definitely' came away with lessons to apply in their own lives, primarily to heed evacuation warnings and to be prepared with a plan for dealing with future hurricanes. These were not explicit messages in the exhibition, so this outcome came from people reflecting on the overall experience rather than finding specific advice for individuals (the messages about future preparations were mostly beyond individual action, e.g., restoring wetlands, sustainable building practices).

| | |
|---|----------------|
| I took away lessons that I will apply in my own life. | 50% definitely |
| | 20% somewhat |
| | 11% a little |
| | 18% not at all |

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

(people who saw "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' to previous question) |

Sample of answers

Move to high ground

Get the hell out of town and leave everything

Just get in the car and drive away when told to

I think evacuating with things that we care about. I wouldn't want to chance that again.

I definitely feel like I'm not going to take officials word for something. I want to know more about the protection that needs to be provided. I expect more from my government.

Political pressure to make the government take action

When they tell you what to expect, I will be more likely to listen and follow their advice.

Looking out for my neighbors

Not living in a hurricane prone area

We prepare by buying can goods and water.

I have taken preparation more seriously since then.

The compassion for others

We're going to heed city officials warnings about evacuations.

I am going to the attic.

I just think to share the information with other people. The exhibit was trying to inform people and we need to go forward and inform one another.

*Be prepared, windows are boarded up, have enough food, and water, and watch the news
Pay more attention to hurricane evacuations, understand that hurricanes can be dangerous
and destructive, and evacuate when you are told to.*

Evacuate when they tell you to and listen to the forecasters

Plan to get out of here more quickly now

I would evacuate now.

I support the wetlands restoration projects.

I am watching the news a lot more often. I was not thinking much of it. I was in college. I will watch the weather and pay more attention. During hurricane season, I have paperwork where I can take it with me in my car. I am prepared.

It was probably realizing not to trust. You shouldn't put your trust in the stuff that government built to protect you. It is better to leave.

I will be more prepared and make sure I have everything that is of value. There are some things you can replace and some you can't.

It helped me with evacuation plans.

We will be better prepared, have canned goods and water. We buckle down when hurricanes come. If it is big, we evacuate.

I will not be lax about a hurricane coming. I will be prepared and take it seriously.

It taught me to be better prepared and to pay more attention during the summer when things start stirring up in the Gulf.

I will make sure to evacuate.

I will prepare a plan.

I would have a strategy plan for evacuation.

I never left for a hurricane before Katrina, but now I would consider it.

I am thinking ahead for the future hurricanes and how important it is to have a plan instead of deciding the day before.

I will always evacuate.

I have really kept the storm drains clear down our street to keep them from flooding.

I know what to do in case a storm comes and how to act towards other people.

I just need to be prepared for the worst.

I keep my suitcase packed with all my important papers in it. I learned to listen to warnings.

When there is a hurricane, you go.

I know to make plans for me and my family to evacuate to.

I will be better prepared for a storm in the future.

I have an axe in my attic. I got hurricane shutters for my house. I have an extraction plan.

There is a whole lot of practice things I have after the exhibit.

B.5. Reasons for talking about the exhibition later

OVERVIEW: People who saw the *Living With Hurricanes* exhibition were asked about whether they had talked about it with anyone afterwards, and why. About two-thirds of this sample recommended that someone they knew should go see the exhibition, and about half said they described the exhibition to someone. A stronger impact was seen among one-third who said that the exhibition experience prompted them to talk about implications for the future, such as correcting mistakes, repairing levees and wetlands, and having a plan for evacuation.

| <i>After you saw the exhibit, do you remember talking about it with anyone, for any of the following reasons...?</i> | Post-visit, people who saw <u>LWH exhibit</u> (n=98) |
|---|---|
| Primarily to recommend going to see it | 69% |
| To tell someone about the exhibit | 54% |
| To talk about any implications for the future | 36% |

You mentioned that you talked about the exhibit with someone, about implications for the future. In what sense?

| | |
|-----|--|
| 9% | preventing a repeat; correcting mistakes |
| 9% | levee repairs/building codes; wetlands |
| 7% | evacuation/preparation |
| 7% | awareness/education |
| 4% | telling the rest of the story |
| 7% | other |
| 64% | didn't remember talking to anyone about implications |

Sample answers

Well, they could update and show the new pump systems and let people know about the building codes.

I think that everybody should see it. It is so well done. The whole history of Katrina is right there.

It was important for us to do something about it.

Whether or not it is possible to keep the levees from failing again despite everything they are doing

They were talking about the levees and what they need to do about them. After Isaac hit, the lapla flooded. They built up these levees to protect New Orleans..

I think they need to revise and revisit because I don't think the whole story is being told.

I work with volunteers from other parts of the country. I explained to them what happened after the storm hit. I tell them where we can go to help people get back in their homes.

I'm glad to know that it is going to be up for a while. The recent East coast hurricane is an example of why people need to remember. Even a Senator from Mississippi voted against federal relief for hurricane Sandy.

It could happen again and we need to be prepared.

The healing process documentation

How easily it could happen here or anywhere else

How do you prevent the flooding and how you prepare for a hurricane and the environment

I want the problem fixed, so that this can never happen again.

Getting people to come to New Orleans and spend their money, so we can rebuild.

I want it to help people outside of Louisiana to understand the storm.

We can correct the mistakes that were made.

We just need to try to prevent it from happening again. We need to talk to our politicians and let them know that we are important here in New Orleans.

My friends and relatives have had a lot of discussions about the future of New Orleans. We really did not plan for this, putting people back in the same low lying areas. We need to research hurricanes more.

They should go see it. I am hoping they have more details. It is fairly common news.

We need to learn how to protect Louisiana and get more wetlands. We are losing our protection right now.

Some people don't like to talk about it and they are wishing it don't happen again. I know they are trying to fix it all up, but I don't think they can fix everything better.

When they tell you to leave, you don't stay.

There is more local talking about evacuation plans.

They need to let people know the consequences if they choose to stay.

They don't need to leave anyone behind. We shouldn't get so attached to material things because it could happen again.

They need to talk about what has to be done differently or what has to be avoided.

It is the importance of taking care of the city from future damage by making sure the levees are well constructed. The second thing is making sure people have plans for future storms.

You shouldn't rely on what we heard or thought we knew in the past. Things have changed and we have to evacuate. My property is not important.

Things need to be done so that it never happens again.

C. Perceptions of Science

This section presents the findings relevant to the science room exhibits in *Living With Hurricanes*. Highlights of these results are:

- Most visitors (78%) recalled seeing the hands-on science exhibits, and many of these people said that their interest in the science behind hurricanes had increased as a result (59%).
- One-third of the people interviewed could remember something specific that they had learned from this exhibition about the science of hurricanes.

C.1 Interest in science among those who saw the exhibition

OVERVIEW: Many people (59%) who saw *Living With Hurricanes* said their interest in the science behind hurricanes had increased as a result of seeing the exhibition. About one-third of the visitors were able to recall something they had learned about the science of hurricanes, including: the importance of wetlands, how predictions are made, and how hurricanes develop. It's possible that the term 'science of hurricanes' made the question sound more daunting ('science' being a more sophisticated term than 'anything you found out'),

| | | |
|---|---|-------|
| | Post-visit, people who saw LWH exhibit | |
| | (n=98) | |
| <i>As a result of seeing this exhibit, would you say that your interest in the science behind hurricanes – that is, the details of what happens and why – has changed?</i> | if recalled science exhibit | |
| Much greater interest | 34% | } 59% |
| A little more interest | 25% | |
| The same /no change (incl. already interested) | 38% | |
| A little less interest | 1% | |
| A lot less interested | 1% | |
| (Didn't recall seeing science exhibits) | (22%) | |

What did you find out about the science of hurricanes? (asked of everyone)

- 9% wetlands
- 9% models/predictions/scenarios
- 8% how hurricanes form/develop/move
- 5% wind speeds/damage; categories of hurricane
- 5% warm water/heat/climate change effect on hurricanes
- 3% levees/canals
- 2% storm surge
- 2% other

- 64% don't recall; no response

Sample of answers

How they are formed and how they move

When they showed a house and how much wind it would take to blow the house, and how the force of the wind could do that damage.

Storm surges

Impact of MR-GO, how it brought the water in, and increased the flooding possibilities

How they react when they hit the land or what's left of wetlands

We lose a football field of wetlands every minute.

They were using sand and water showing the waves coming in and out, seeing how the dynamics work. That whole room was the strongest point of the whole exhibit.

How hurricanes first develop and the climate control

How hurricanes need warm water

How they are formed, how they develop, and how they can be hard to predict

The wetlands part of it, how the destruction of the wetlands allows them to sneak up.

The loss of the wetlands, how much impact it had on the city

About the levees. I don't have to worry about levees here, but it was interesting.

The wetlands mostly

They showed a simulation to educate people.

I remember how it is formed. We need to know how rapidly they form and how strong in a short amount of time. They don't always take the path they predict.

I learned about how warm water affects the atmosphere and weather patterns.

I learned about the wind speeds.

I learned how warm water makes it stir more and brings it to a burst more.

How a storm develops

The wetlands play an impact on surges.

I remember something about the hurricane, the movements of the hurricanes.

I learned how hurricanes start and how they categorize wind speed.

The wetlands exhibit

I was interested in the way the levee structures protect the coast.

They had models of the different variables.

It was showing the receding coast lines and the different scenarios of what happens.

I found out about the leading edge of the storm.

It was not to worry about what the category is. It is more important to know the movement of the hurricane. You can't look at the category to determine the devastation.

I found out that when it is a real hot hurricane season, it would be more active.

It was the exhibit that showed what the destruction of the wetlands did.

C.2. Interest in hurricane & science topics, among the control group

OVERVIEW: Greater New Orleans residents who have not seen the exhibition expressed high interest in the science topics – ‘the physical and environmental factors that may have affected our vulnerability to Katrina’ – more so than in the recovery or seeing videos taken during the storm or the aftermath. Unfortunately, with the lack of marketing of the exhibition combined with general public expectations that the exhibition is probably just a documentation of disaster, potential visitors don’t know that this underlying science (‘physical and environmental factors’) is presented in *Living With Hurricanes*.

We know that hurricanes are a fact of life along the Gulf Coast, but some people are more interested in certain aspects of hurricanes than other people are. I'd like to know how interested YOU are in the following topics – just tell me whether it's "a high interest," "a medium interest" or "a low interest."

| | Did not see <u>LWH exhibit</u> (n=98) |
|--|---|
| | <i>Percent "HIGH" interest</i> |
| The physical and environmental factors that may have affected our vulnerability to Katrina – things like the design of levee walls, loss of wetlands and coastline deterioration | 68% |
| The ongoing recovery – the hopeful spirit Of people in recovering and the fact that some people and areas are still struggling | 55% |
| What Hurricane Katrina actually looked like, from videos taken during the storm or from satellite photos | 47% |
| The aftermath of Hurricane Katrina – all the devastation and disruption | 41% |

Lower interest in these two topics reflects the inhibitions that people have about seeing an exhibit of destruction and reliving old nightmares.

C.3. Curiosity about additional information

OVERVIEW: Both groups (those who did and did not see the exhibition) had similar levels of curiosity about the science of hurricanes. One-third of the people expressed interest in knowing more about how they form, how to better predict their paths, and what factors affect their destructive power.

Is there anything about the science or functioning of hurricanes that you would like to know now – something you’re curious about – or do you feel that you know everything you need to know?

| | <u>Did not see LWH exhibit</u> (n=98) | <u>Saw the LWH exhibit</u> (n=104) |
|--|--|---|
| Know everything I need | 54% | 61% |
| Would like to know /curious about | 33% | 33% |
| Don't know | 12% | 6% |

Sample of answers [DID NOT SEE]

- I would like to know what research we are doing to lessen the intensity of storms.*
- I am curious about what the engineers are doing with plans for prevention of more flooding*
- I would be curious about the causes of hurricanes and specifically the effect of wetlands loss*
- I would like to know about the effects of the lack of trees on hurricanes*
- It would be good if they could be more predictable*
- It would be interesting to know about the surge that comes with the hurricane*
- I would like to know when they specify if you should make reservations. I want to know what causes them and the conditions*
- I want to know how the storm determines its path*
- I am curious about the coastal erosion and how to repair that. I don't know why more isn't being done about that*
- I would like to know how we could get back sooner if we are ever evacuated again. I had roof damage and a great deal of damage was done because I couldn't get back home. It could have been avoided if I was able to be here*
- I am curious to know how they gauge the strength of hurricanes*
- I used to be glued to the TV when storms were out there and now I am not sure about what they say.*
- I want to know the difference between El Nino and La Nina and how global warming is affecting them*
- I want to know what the size is ahead of time and more scientific things*
- I would like to know how they form*
- I want to know why some weather models are more accurate than others*
- Every season they come up with new things that they discover about hurricanes. It is a good thing to keep up with these new things because it's important, and don't give up*
- It would be nice to have a display about how they begin*

I would like to know where we stand and if it's possible to evacuate certain areas instead of the entire city. It was the levees that were failing so there were some areas that were not affected

I would like to know more about the meteorological conditions that cause the storm

Why we can't come up with something that we can drop in the middle of a hurricane and stop it since we have so much technology

How they determine the path it is going to take

Sample of answers [SAW EXHIBIT]

How we can help the environment

About restoration of wetlands. I didn't walk away with any ideas on what was being pursued to make it happen

Hurricane Isaac was a category one and it caused a lot of flooding. I would like to know how they factor in the different components of the hurricanes. I read where they were going to change that because the insurance pays on how they are rated

Rating them and the impact

Why we go for years without having them. Some are more destructive than others. What is the origin of them?

How they can last so long when they come off the African coast, even after they hit land and how much damage they can do

More attention needs to be made as to the size of the storm surge, instead of wind speed

How they form and the difference between hot and cold water

Tropical storms, upper level disturbances, and what causes them

There's still more to learn about hurricanes

What determines their path?

The science behind the storm surge

They always said they can prevent them by shooting diamonds in the air or plane propellers. I don't hear much about that anymore

I want to know where people go during a hurricane and how they can be notified. I live in a mobile home and I want to know who to call when they say it is time to leave

The number of the hurricane can't tell you the experience that you are going to have. It is complicated

More information on the temperature of the Gulf waters and how that plays on the size and strength of hurricanes. I want to know how we can control that

To know if any progress has been made

I am curious about the storm surge

A lot of the exhibits in the science room were broken or dismantled. I would like to use them and have them functioning. I would like to see the environmental and science information expanded

How to keep the house safe and how to build safely. I am doing renovations and would like to know the materials and what difference it makes

I would like to be able to better predict hurricanes. I think they could improve accuracy on land fall

How they know what strength it is going to be, and when is the best time to get out

D. Characteristics of the Sample

Demographic characteristics are summarized and compared for the three samples used in this research report: Louisiana and some Gulf Coast residents who saw the exhibition and were interviewed later by phone (n=104), a 'control group' of New Orleans area museum-goers who didn't see this exhibition (n=98), and Louisiana residents who were interviewed leaving the exhibition as part of the summative evaluation in 2011 (n=38). The key findings are:

- Aside from the fact that the post-visit group included some out-of-state residents, there were no statistically significant differences between them and the 'control group' of museum-goers who did not see the exhibition.
- There was a major difference between the post-visit sample and the summative evaluation sample with respect to whether they were personally impacted by Katrina – 75% of those interviewed by phone later reported being directly impacted compared with 58% of LA residents leaving the exhibit. This difference could influence some of the affective results reported in Section A, but would have no bearing on the outcomes and benefits compared with the 'control group' in Section B.

D. Characteristics of the Sample

OVERVIEW: The sample of 104 Gulf Coast residents who saw the Hurricanes exhibit was demographically similar to the 98 New Orleans area museum go'ers who did not see this exhibit. Compared with the 38 Louisiana residents interviewed during the Summative Evaluation in 2011, this new sample included more women (a common occurrence with phone interviews), higher education level, and more likely to say they were impacted by Katrina.

| | Summative <u>Evaluation</u> (LA residents only; n=38) | Did not see <u>the exhibit</u> (n=98) | Saw the <u>LWH exhibit</u> (n=104) |
|--------------------------------------|---|---|--|
| Sample characteristics | | | |
| <u>Location of residence</u> | | | |
| | | | ** |
| Louisiana | 100% | 100% | 83% |
| Texas | | | 7% |
| Florida | | | 5% |
| Alabama | | | 2% |
| Mississippi | | | 2% |
| <u>Affected by Hurricane Katrina</u> | | | |
| Directly impacted | | 82% | 75% |
| Indirectly impacted | | 12% | 16% |
| Not personally impacted | 42% ⁵ | 6% | 9% |
| <u>Gender</u> | | | |
| Male | 45% | 31% | 23% |
| Female | 55% | 69% | 77% |
| <u>Education level</u> | | | |
| High school | 8% | 11% | 6% |
| Some college | 29% | 30% | 24% |
| College graduate | 37% | 29% | 27% |
| Graduate school | 26% | 31% | 43% |
| <u>Household type</u> | | | |
| Adults only | 72% | 83% | 72% |
| Families with children | 28% | 17% | 28% |

⁵ This was asked as a 'yes' or 'no' question in the summative evaluation, so there are no comparable data about indirect or direct impacts.

| | Summative Evaluation (LA residents only; n=38) | Did not see the exhibit (n=98) | Saw the LWH exhibit (n=104) |
|--|--|--------------------------------------|-----------------------------------|
| Sample characteristics | | | |
| <u>Ethnic /cultural heritage</u> (multiple answers allowed) | | | |
| White /Caucasian | n/a | 71% | 80% |
| African American | | 15% | 18% |
| Cajun | | 11% | 6% |
| Creole | | 5% | 6% |
| Hispanic | | 6% | 5% |
| Asian | | 2% | 2% |
| other | | 5% | 5% |
| <u>Museums visited in past 3 years:</u> | | | |
| New Orleans Museum of Art | | 71% | |
| World War II Museum | | 61% | |
| Ogden Museum of Art | | 34% | |
| Old U.S. Mint | | 33% | |
| Cabildo | | 25% | |
| Presbytere | | 21% | |
| African American Museum (in Treme) | | 9% | |
| <u>High interest in types of museum exhibits:</u> | | | |
| History | | 52% | |
| Art | | 40% | |
| Events like Hurricane Katrina | | 35% | |
| Culture | | 29% | |
| Nature | | 24% | |
| Science | | 17% | |