

**STILL THINKING ABOUT THINKING**

**A 1997 Telephone Follow-up Study of Visitors to the  
Think Tank Exhibition at the National Zoological Park**

**Institutional Studies Office**



**Smithsonian  
Institution**

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Think Tank Exhibition at the National Zoological Park**

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**April 1998**

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## ABSTRACT

In August, 1996 we conducted pre-visit and post-visit studies of visitors to the Think Tank exhibition at the Smithsonian Institution's National Zoological Park (NZP). Thirteen months later, we talked with 150 of the post-visit survey respondents in a follow-up survey. The telephone follow-up addressed visitors' recollections of the NZP and Think Tank visit, retention of information and attitude shifts.

One in ten respondents mentioned Think Tank as an exceptionally memorable part of their visit to NZP, and two in ten returned to Think Tank on a subsequent visit. Most visitors gave the same quality of response to questions about behaviors scientists might study to learn about animal thinking in both surveys. Kids' interest in working with animals, having thought about Think Tank and having returned to Think Tank increased visitors' retention of cognitive information addressed in a question about behaviors that scientists might study. The percentage of visitors who reported that the exhibition had influenced their thoughts about animals in the telephone follow-up was only slightly lower (51%) than in the original exit survey (56%) and increased if visitors had thought about or recommended Think Tank during the 13 month period (65%).

## ACKNOWLEDGMENTS

The 1997 Telephone Follow-up study of visitors to the Think Tank exhibition at the National Zoological Park (NZP) was undertaken by the Institutional Studies Office (ISO) at the request of the Think Tank exhibition team (Benjamin Beck, Melanie Bond, Lynn Dolnick, Melissa Gaulding, David Jenkins, Rob Shumaker and Lisa Stevens).

The study reflects the work, support and cooperation of numerous people in several organizations. At NZP, Lisa Stevens, Benjamin Beck and David Jenkins were our primary liaisons. The exhibition's curator, Lisa Stevens, encouraged the follow-up study. The questionnaire was designed by ISO staff and the Public Opinion Laboratory at Northern Illinois University (POL). POL conducted the telephone follow-up phone interviews. At POL, William McCready, Director, assisted with the questionnaire and preliminary analysis of the data. Robin Bebel, Director of Field Operations, supervised the fieldwork.

We would especially like to acknowledge the 150 visitors who again took the time to respond to our questions and offer comments. Without their participation, the study could not have been conducted.

Errors in interpretation are the responsibility of the authors.

Zahava D. Doering, Director  
Institutional Studies Office

## TABLE OF CONTENTS

Abstract.....	i
Acknowledgments .....	ii
Table of Contents .....	iii
Introduction and Objectives .....	1
Exhibition and Methods .....	3
Recollection of the Visit .....	5
Long Term Application of the Think Tank Experience .....	8
Comparison of Major Findings from the 1996 Visit and a Year Later .....	10
Additional Visitor Comments .....	17
Summary .....	18
1997 Telephone Follow-up Questionnaire.....	20
1996 Exit Survey Questionnaire .....	23
Tables .....	26

## INTRODUCTION

Think Tank, a permanent exhibition exploring the concept of thinking in animals, opened at the Smithsonian Institution's National Zoological Park (NZP) in October, 1995. In August, 1996 the Institutional Studies Office conducted pre-visit and post-visit studies of visitors to the Think Tank exhibition. Thirteen months later, we interviewed 150 visitors who completed the post-visit survey after visiting Think Tank. Our objective was to determine what they remembered from their visit, to find out how they had applied their experience since their visit in August, 1996, and to re-ask some of the questions from the post-visit survey.

Museum professionals and educators often hope that visitors will apply exhibition experiences to other experiences throughout their lives. Visitors' application of an exhibition experience ranges from casual to serious. Sometimes visitors may simply talk to other people about their experience. Other times they may apply their experience to other experiences, like school or reading. Science exhibitions might help visitors understand science stories in the media or provide a context for understanding science stories in the media. At the National Zoo, where children are abundant—adults visiting with children were the primary visitor group at Think Tank, comprising 65% of all visitors—the experience might inspire a sense of discovery or lead to an interest in a science or zoo career.

## OBJECTIVES

The original 1996 study assessed the saliency of the exhibition goals as visitors left Think Tank. The 1997 telephone follow-up addressed longitudinal aspects of some of the exhibition goals for Think Tank. We compared the results of the telephone follow-up to the results of the exit study to look for changes in how these goals were met. The three key educational goals we examined in both the 1996 and 1997 studies are described below.

**Motivation/Behavior.** Did the experience increase visitors' expressed interest in science? In both the exit survey and telephone follow-up studies we asked visitors to tell us what activities they engaged in during their visit to Think Tank. By comparing the results, we can tell if visitors recall the visit in the same way or if they remember different aspects of their experience.

**Cognition.** Did the exhibition add to the visitors' scientific knowledge? In the exit study we found that visitors acquired information while experiencing the exhibition. Using the same questions in the telephone follow-up, we assessed visitors' retention of information over time.

**Affect/Emotion.** Does the experience increase visitors' respect for animals? Are visitors' attitudes towards animals being influenced by the exhibit and, if so, in what ways? The exit survey posed a hypothetical question to address

possible attitude shifts. We asked visitors to tell us how they might think in the future. The telephone follow-up question asked visitors if they actually thought the exhibition had influenced the way they think about animals after 13 months.

Many researchers advocate follow-up studies to document "learning." Learning derived from a zoo or museum exhibition may involve the acquisition of information, the acquisition of knowledge to construct an appropriate framework for understanding related issues, the consideration of specific attitudes or opinions or the adoption of specific behaviors. Follow-up studies allow us to assess the impact of a zoo or museum exhibition visit after a longer period of time. A longer timeline offers a greater chance that what an individual "learned" or acquired in the exhibition changed or grew because other experiences in her or his life.

A common approach to learning and retention is based on the concept of memory. Visitors' recollection of information or a message in an exhibition is assumed to be most accurate immediately after leaving the exhibition and to decrease in accuracy with time, unless it is reinforced subsequently by other information or events.

Our report suggests that the impact of a museum experience cannot be explained simply by conventional learning theory. Some researchers broaden the concept of museum learning to encompass serendipitous and latent learning in order to allow for the chance that learning may require an additional trigger at some time after leaving the exhibition. For example, John Falk writes,

Evidence from a variety of investigations is emerging that shows that much of what an individual comes to discover about what he or she 'learned' in a museum only becomes apparent weeks, months or even years after the experience, and then only in relation to the individual's own personal construction of knowledge.<sup>1</sup>

We consider both conventional memory theory (i.e. accuracy of recollection decreases with time unless it is reinforced) and latent learning theory (i.e. that learning may require an additional trigger to become manifest) to frame our results. We explore the argument that "learning" was salient or became evident after the initial visit by comparing statistical findings from the original Think Tank study with the results of the telephone follow-up. We also discuss how visitors' comments, reactions and attitudes about the exhibition changed and how visitors reflected upon their experience at Think Tank in the 13 months after we first talked with them.

The first section of results provides information on how much visitors recalled from their visit to the Zoo and to Think Tank in August, 1996. The second section illustrates how these visitors applied their experience at Think Tank in the 13 months after their visit. The third section compares the major statistical findings

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<sup>1</sup> Falk, John. (1998) "Pushing the Boundaries: Assessing the long-term impact of museum experiences". *Current Trends in Audience Research and Evaluation* 1-6.

about shifts in 1996 visitors' attitudes toward and acquisition of information about animals from the same measurements in the 1997 telephone follow-up. The final section presents a brief discussion of the findings.

## THE EXHIBITION

NZP developed Think Tank, as well as several other new exhibits, as part of implementing a "biopark philosophy." The biopark philosophy combines aspects of botanical gardens, natural history museums, and art galleries in demonstrating the interconnectedness of life. Think Tank emphasizes concepts and relationships instead of traditional zoological exhibits which focus on animals and species. Visitors may examine animal cognition and the way in which humans negotiate, construct, and define their relationships to other animals.

Think Tank is a permanent 15,000 square foot exhibition which opened at NZP in October 1995. Its subject is animal thinking. Physically, it offers demonstrations, texts, graphics and several interactive components. The exhibition introduces visitors to the concept of animal thinking by presenting three factors necessary to establish the existence of thought:

- image,
- intention, and
- flexibility.

By image NZP staff mean a mental representation of something that is not currently present in the immediate surroundings. Intention denotes having a specific purpose or goal. It involves having a plan for obtaining or doing something. Finally, flexibility is the ability to devise more than one way to attain a goal.<sup>2</sup> In Think Tank, flexibility is considered the key to thinking because it can be both observed and tested.

Implementing this framework, the exhibition explores inquiry into three areas of animal thinking:

- tools,
- language, and
- social behavior.

These three areas of scientific inquiry can be characterized best by the questions which each addresses. Within the tool area, the primary question engaging visitors is "What is a tool?" Whether, and how, an animal uses a tool provides insight into whether thinking is involved in the behavior. The second major area

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<sup>2</sup> For example, a reader of this report sitting in her office decides on a pizza for lunch. She has a clear *image* of it and plans to walk to a nearby restaurant to get it. Walking to the restaurant is indicative of her *intention*. However, if the restaurant is too crowded she demonstrates *flexibility* by returning to the office and calling other places, driving elsewhere or settling on another food alternative.



highlights language and communication. Visitors are asked to consider language and the question "Are animals capable of language?" The third area in the exhibit focuses on social behavior—exploring deception, cooperation, alliance-building, innovation, and conflict among animals. The primary question posed is "Does social behavior require thinking?"

## METHODS

Data for the exit study were collected in personal interviews with two systematic scientific samples; visitors entering the Think Tank building (entrance survey, N=246) and visitors exiting the building (exit survey, N=352). Respondents were restricted to visitors age 12 years or older making a voluntary visit (school groups were excluded). Interviewing was conducted during a two week period in August, 1996.

The telephone follow-up questionnaire was designed by ISO staff and the Public Opinion Laboratory at Northern Illinois University (POL). POL conducted the telephone follow-up phone interviews over a two-week period from September to October, 1997—approximately 13 months after the exit survey. Interviews were completed with 150 individuals who had responded to the 1996 exit survey. An attempt was made to contact every exit survey participant with a telephone number (271 individuals). Only 33 (12%) of the potential respondents [or households on their behalf] refused to participate in the telephone follow-up survey. Other non-responses resulted from changed or incorrect telephone numbers or a former visitor simply not being available during the two-week period when interviews were attempted.<sup>3</sup>

All of the telephone follow-up questions were directed toward the original 1996 visit. Although the questions specifically asked for information about the 1996 visit, visitors who went to Think Tank on a subsequent visit to NZP occasionally were influenced by their repeat visit when they gave a response. We address these influences whenever there was a statistically significant difference between repeat visitors and one-time visitors or when we expected a difference, but did not find one.

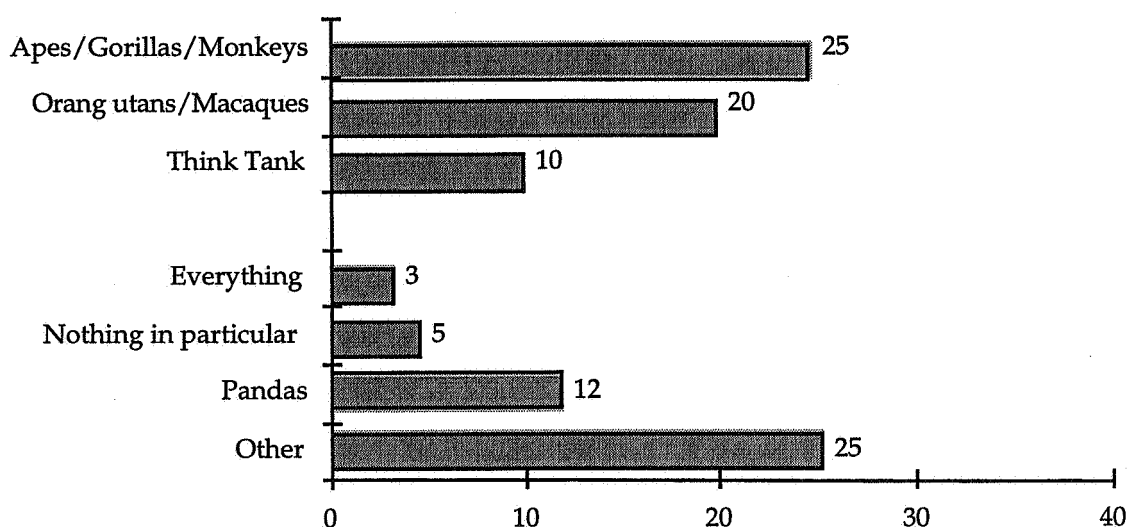
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<sup>3</sup> There were no significant differences between visitors who gave a phone number and those who did not. However, we did not collect or call visitors who live outside of the continental United States. Therefore, foreign visitors are not represented in the telephone follow-up. Excluding foreign visitors, significantly fewer minorities were contacted in the telephone follow-up. However, since race did not affect responses to any of the substantive questions in both surveys, the bias in the telephone follow-up is irrelevant.

## RECOLLECTION OF THE VISIT

**Overall NZP Visit.** One in ten respondents mentioned Think Tank as exceptionally memorable from their visit to NZP.<sup>4</sup> An additional two in ten mentioned the specific animals in Think Tank (orang utans or macaques) and one-quarter mentioned more generally the apes, gorillas or monkeys. Out of the remaining 46%, respondents mentioned the pandas most often (13%). Another 5% said that nothing in particular stood out and 4% said that everything was memorable. The final one-quarter of responses was a collage of NZP exhibits (See Figure 1).

Figure 1  
Recollection of August 1996 NZP Visit, 1997 Telephone Follow-up  
(in percent)



Visitors who returned to Think Tank on a subsequent visit to NZP were much more likely to identify it as an exhibit that stood out from their initial NZP visit (30%) than one-time visitors (4%). These repeat visitors were also mostly local DC or suburban residents.

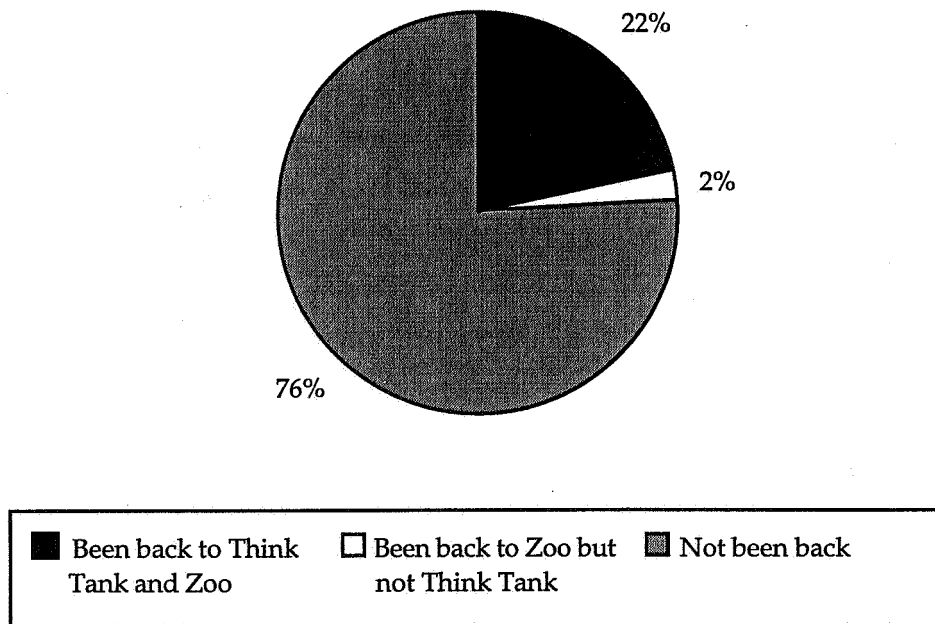
**Think Tank Visit.** While most respondents (94%) remembered an exhibition on orang utans or animal thinking, almost nine out of ten could not remember the exact name of the exhibition (84%). Four people (2%) could not recall the Think Tank exhibition at all even after interviewers reminded them of some of the special features and design of Think Tank, specifically the bronze brains, TV screens and the O-line.

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<sup>4</sup> It is possible that some respondents remembered giving their telephone number at NZP. In this case, remembering giving a telephone number and not their experience of Think Tank may have triggered their "memorable" response. See page 20 for the questionnaire and question order.

Almost one-quarter of the respondents had been back to the zoo and Think Tank at least once over the 13 month period. One in ten respondents had returned to the zoo two or three times (See Figure 2).

Figure 2  
Repeat visits to NZP and Think Tank, 1997 Telephone Follow-up  
(in percent)



**Behavior in Think Tank.** Visitors had the option of participating in a range of activities in Think Tank.<sup>5</sup> We asked what they remembered doing or seeing in Think Tank (See Figure 3).

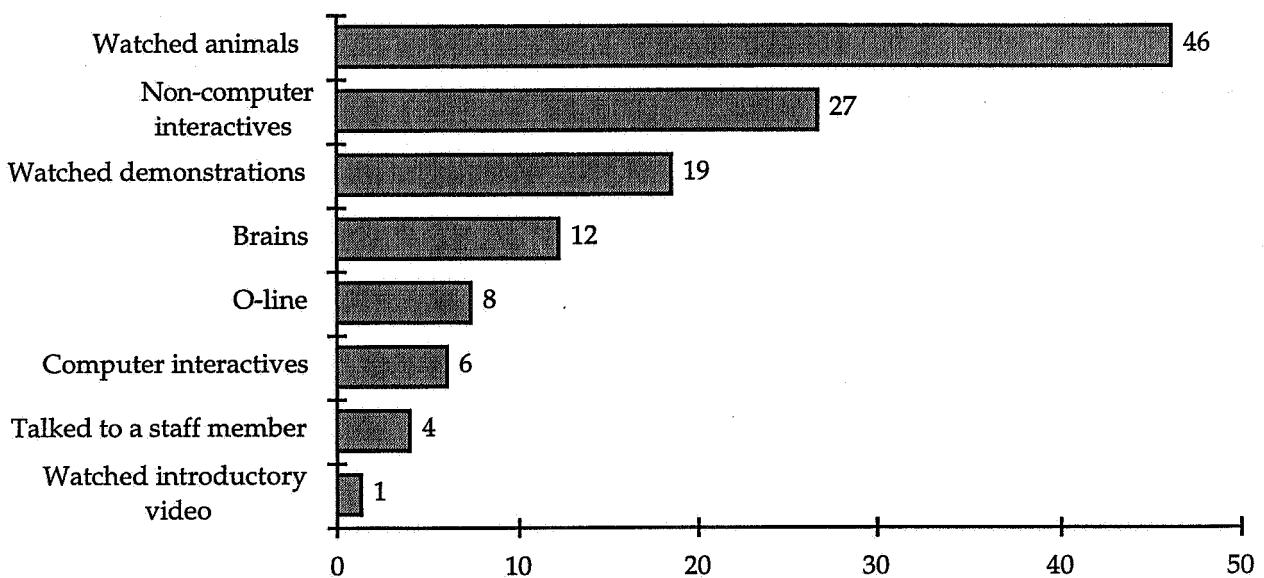
Nearly half of the 1997 telephone follow-up respondents mentioned watching animals (46%) during their 1996 visit to Think Tank. Next, respondents reported using non-computer interactive displays, e.g. the language game, the syntax wheels, the pull-out drawers (27%) and watching demonstrations (19%). One in eight

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<sup>5</sup>We had also asked respondents in the exit survey which activities they had engaged in. However, because of the difference in administering a phone interview and a face-to-face interview, there was a critical methodological difference between the telephone follow-up and the exit survey; exit survey respondents were handed a card with a list of activities to select from while the telephone follow-up respondents were not read a list.

respondents (12%) specifically remembered the brain display -- the exhibit 19% of visitors found most informative in the exit survey.<sup>6</sup> The rest remembered watching animals on the O-line, the Orang utan Transit System used by the orang utans to travel via cables between Think Tank to the Great Ape House (8%), using computer interactives (6%), talking with NZP staff (4%), and watching introductory videos (1%). Only 15% of the telephone follow-up respondents did not voluntarily mention an exhibition activity.

Figure 3  
Activities visitors remember doing during their 1997 visit to Think Tank  
1997 Telephone Follow-up  
 (in percent)



The demonstrations, brain display and interactive components continued to stand out for visitors after a year. Although fewer than half of the visitors mentioned watching animals and none mentioned reading exhibit text on the telephone, it may seem so obvious to people that they watched animals and read texts that they neglected to mention it as an exhibition activity.

Exhibition components that engaged visitors for a longer time, as measured in the tracking study, retained greater saliency. It could also be that the social interaction with others in their group or listening to a staff member strengthened a visitor's memory of certain components. For example, even though a small percentage of the visitors talked to NZP staff, the personal interaction seems to support the saliency of such an interaction.

<sup>6</sup> Because of the methodological difference in the original and follow-up surveys, visitors may have thought of the brains display as either a computer or non-computer interactive in the initial survey.

Repeat visitors to Think Tank had a stronger memory of the O-line than one-time visitors. Since the O-line transit system is not accessible to the orang utans all day and, even when it is open, the orang utans do not always use the cables, repeat visitors had a higher probability of seeing the orang utans use the O-line.

#### **LONG-TERM APPLICATION OF THE THINK TANK EXPERIENCE**

A majority of visitors (59%) said that they did not recall thinking about the exhibition during the year after their visit. Less than half of the respondents (41%) said they had thought about Think Tank at some point during the 13 month period.

While fewer than half of visitors said they thought about Think Tank, a majority (54%) indicated that they recommended it to someone else. The disparity between thinking about the exhibition and recommending it is probably due to the different levels of thinking implied by the questions. Thinking about the exhibition implies a deeper consideration than simply recommending it as an enjoyable experience for someone else planning to visit NZP. Repeat visitors did not recommend Think Tank more often than one-time visitors.

We also don't know when visitors recommended the exhibition. If they recommended it right after their visit, it would likely be part of a list of itinerary. If they recommended it later in the 13 month period, it might mean they had considered their recommendation more thoughtfully.

**Context for thinking about Think Tank.** The respondents identified a variety of contexts or situations in which they thought about Think Tank. We grouped the various contexts into eight categories. The four categories mentioned most frequently (rounded and based on all visitors) were:

- 7% A related television program stimulated thoughts about Think Tank.
- 7% It came up in conversations with other people.
- 5% Just thought—out of the blue—about something in the exhibition.
- 5% Thought about Think Tank during a visit to another zoo.

Other categories mentioned less frequently by respondents included:

- 4% Recommended Think Tank or reflected on trip.
- 3% Wanted to make a return visit or wanted to spend more time in the exhibition
- 3% Related Think Tank to education, profession or children's schooling.
- 2% Read something related to Think Tank
- 7% Other/don't know

Visitors who made a subsequent visit to Think Tank mentioned that they thought about something specific in Think Tank, went to another zoo or read something related to Think Tank more often than one-time visitors.

Visitors who remembered watching a demonstration were also more likely to have thought about Think Tank and recommend it to someone than visitors who did not remember a demonstration. Two-thirds (63%) of visitors who watched a demonstration thought about Think Tank and 74% recommended it compared to 35% and 47%, respectively, who did not.

**Context for recommending Think Tank.** One out of five (20%) of the visitors who recommended Think Tank to others said they recommended something specific about Think Tank. They mentioned the brains, watching the animals interact, seeing the similarities between animals and humans, the language project, the orang utans, the O-Line, or the demonstrations.

Another two out of five visitors (40%) who recommended Think Tank either said that Think Tank was enjoyable and worth seeing or that it came up as part of a general conversation about their visit. Some visitors described Think Tank as an interesting exhibition (15%), others said it was informative (8% or 4 people) and that it was good for the kids or had a lot of hands-on components (8% or 4 people). A few people told their friends they wanted to return to Think Tank (4% or 2 people). One person described the exhibition to someone as "evolutionary" in its approach.

**Children's interest in science.** In addition to how adult visitors thought about Think Tank during the 13 month period, we also found out that 44% said that the children (under age 16) they brought to the exhibition showed an interest in working with animals or in animal research, although their interests were varied and not necessarily related to Think Tank. Since the kids' interests in working with animals were not necessarily related to Think Tank, it is likely that kids already had an interest in animals and animal research. This could have been one of the reasons why their parents brought them to NZP in the first place.

According to the adults, the children most frequently mentioned marine biology, oceanography, becoming a veterinarian, working at the zoo, taking care of specific animals (dolphins, bugs, horses, snakes, pandas, monkeys) or a general interest in caring for or working with animals.

Here are some sample responses:

- "My daughter wants to be a dolphin trainer."
- "My child takes a notebook and takes notes and draws pictures at the zoo."
- "They both would like to go into a field where they take care of animals."
- "He speaks a lot about being a vet."
- "My oldest daughter wants to be a veterinarian. She just loves animals."
- "They talked about wanting to be vets or zookeepers."

Although we might expect that, among visitors living in the Washington, DC area, adults with children who were interested in working with animals would make

another visit to Think Tank or NZP, the data suggest that kids' interest in working with animals was not related to making a repeat visit to either.

#### COMPARISON OF MAJOR FINDINGS FROM THE 1996 VISIT AND A YEAR LATER

**Cognition: Acquisition and Retention of Information.** We asked visitors, in both the exit and telephone follow-up studies, to give examples of animal thinking behavior and examples of the types of behaviors that a scientist might study. The two questions were:

- Can you give me an example of animal thinking behavior? (Q7)
- Scientists who study "thinking in animals" focus on their behavior. Can you think of a behavior or several behaviors that scientists would study? (Q8)

In addition to categorizing responses by content (e.g. tools, language, social behavior, problem solving, etc.), responses were also coded for the quality of the answer using a four-part classification:

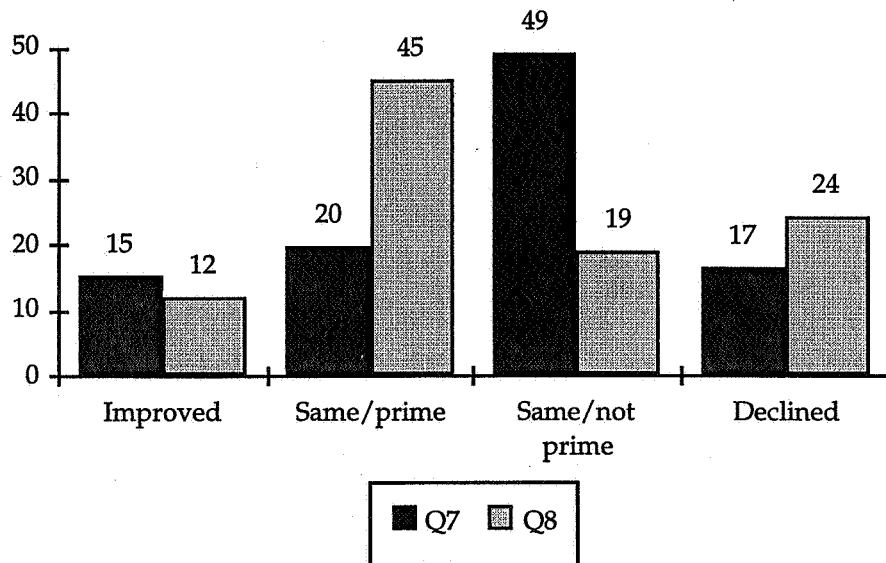
- Prime examples are those which reflect key animal behaviors discussed in the exhibition;
- Other examples are examples which show some thought about animal thinking behavior, but which are not emphasized in the exhibition;
- Unacceptable examples are those which are not appropriate examples of animal thinking behavior; and
- Don't Know answers mean the respondent was unable to provide any example.

The original 1996 study suggested that the exhibition improved the quality of examples visitors used to illustrate animal thinking behavior. The results of the original pre-visit/post-visit survey show that the most common example given by respondents who had not viewed the exhibition (pre-visit) was generally a vague, unacceptable response, while the most frequent response for those who had viewed the exhibition (post-visit) was something about tool use or social behavior, both prime responses.

As mentioned above, one of the goals of informal learning is that visitors retain and apply the information later in their lives. The quality of visitor's answers in the telephone follow-up were similar to their post-visit exit survey responses, with a few respondents offering better responses and a few offering worse.

For Q7—an example of animal thinking behavior—20 percent of respondents provided a prime response in both surveys. Nearly half (49%) did not give a prime response in either interview. Most interestingly, some visitors (15%) gave a prime response in the telephone follow-up survey although they did not give a prime response at NZP. The remaining 17 percent gave a prime response at the zoo, but did not give a prime response during the telephone follow-up survey<sup>7</sup>.

Figure 4  
Fluctuation in quality of responses to Q7 and Q8  
1996 Exit Survey, 1997 Telephone Follow-up  
 (in percent)



For Q8—an example of behaviors scientists might study—45% gave a prime response during both the zoo interview and the telephone follow-up interview. One-fifth (19%) did not give a prime response in either survey. One-quarter (24%) offered a prime response at the zoo, but not during the telephone follow-up. The remaining 12% gave better responses during the telephone follow-up survey than they had at the zoo.

<sup>7</sup> The association between responses a year apart is statistically significant ( $\chi^2 = 12.73$ ,  $df=1$ ,  $p<.01$ ), although the responses are not identical. Likewise, although the responses to Q8 are not identical, they are significantly associated ( $\chi^2 = 5.95$ ,  $df=1$ ,  $p<.02$ ).



Figure 5  
Responses to Question 7 and 8, 1996 Exit Survey and 1997 Telephone Follow-up.  
(in percent)

Q7. Can you give me an example of animal thinking behavior?				
Q8. Can you think of a behavior or several behaviors scientists might study?				
	Q7 1996	Q7 1997	Q8 1996	Q8 1997
<b>Prime</b>	<b>37 %</b>	<b>35 %</b>	<b>67 %</b>	<b>57 %</b>
Tools	17	11	3	7
Language	11	16	15	5
Social	9	8	33	45
2 or more prime examples	na	na	16	na
<b>Not Prime</b>	<b>63 %</b>	<b>65 %</b>	<b>33 %</b>	<b>43 %</b>
Instinctive	8	11	4	12
General unknown	19	11	16	10
General unacceptable	2	4	1	1
Problem solving	4	5	1	1
Looking, attending, responding	7	3	1	4
Human-like traits/qualities	9	3	0	4
Trainability/ability to learn	4	7	1	1
Don't know	<u>11</u>	<u>22</u>	<u>10</u>	<u>2</u>
n=140	100	100	100	100

Although the quality of responses was the same, the content of the example which individual visitors used in the telephone follow-up survey was often different from the ones they used in the exit study. Only 23% of visitors gave the same type of example for Q7 while more people used the same example for Q8 (between 33% and 45%). There were no patterns in how visitors changed their responses. Choice of example appears to be random. The retention of quality, yet randomness of visitors' responses suggests that visitors may have grasped the concepts of animal thinking behavior and the knowledge to apply it to several relevant examples.

In both the exit survey and telephone follow-up it seems that the message addressed in Q8—behaviors scientists might study—was more effectively communicated to visitors.

**Reinforcement of Cognitive Information.** According to memory theory, people should better retain information reinforced by later experiences. We explored potential reinforcements as a partial explanation for changes in responses to the substantive questions between the zoo exit interview and the telephone follow-up survey.

Four questions in the telephone follow-up survey suggested different kinds of reinforcement that a respondent may have experienced during the intervening year.

- Did you go to the Think Tank of any of your visits (to the NZP) since last summer? (Q32)
- At any time in the past year, did you think about the Think Tank exhibit? (Q33)
- Did you recommend or talk about the exhibit with anyone else? (Q37)
- Has the child you brought to Think Tank expressed an interest in working with animals or in animal research? (Q 54)

We focused our analysis on reinforcement of Q8 – behavioral indicators of animal learning. Reinforcement of Q7 – examples of animal thinking behavior – was also examined, however, the context of responses was often diffuse, often related to a recent activity by a domestic animal, and may reflect inter-coder unreliability. Responses to Q8 were more consistent in both studies and more closely linked to the Think Tank experience.

In order to undertake a statistical analysis, we divided the respondents into two sub-groups shown in Figure 6; respondents who gave a prime response to Q8 at NZP and respondents who did not give a prime response. Very frequently, a potential reinforcement affected the responses from one of the two sub-groups, but not both.

Figure 6  
Sub-groups of visitors based on quality of response to NZP visit  
1996 Exit Survey and 1997 Telephone Follow-up  
(in percent)

<b>Gave Prime Example in 1996 Exit Survey</b>	
Same: Gave prime example in 96 and 97	65
Worse: Did not give prime example in 97	<u>35</u>
n=92	100 %
<b>Did Not Give Prime Example in 1996 Exit Survey</b>	
Same: Not prime in 96 and 97	61
Better: Gave prime example in 97	<u>39</u>
n=41	100 %

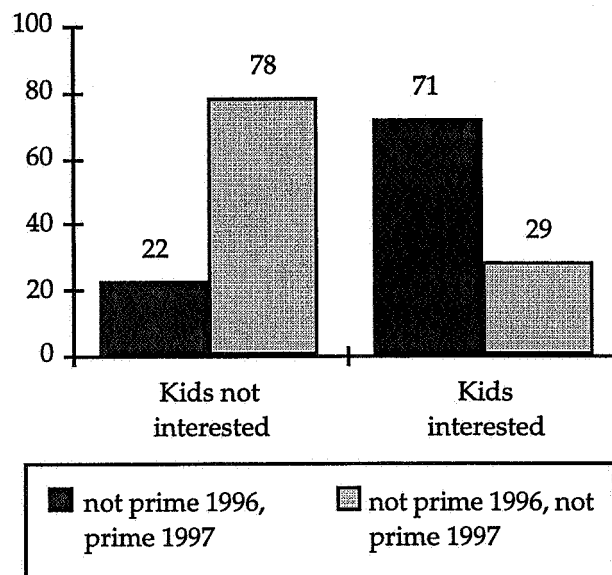
Overall, two-thirds of the respondents who gave a prime example at NZP also gave a prime example in the telephone follow-up survey (65%). Also as we might expect, visitors who did not mention a prime example at NZP were unlikely to mention a prime example in the telephone follow-up survey (61%).

Next, we considered the effects of each of the potential reinforcing experiences on visitors' responses to Q8. The summary of findings from the original survey, the tracking study and the telephone follow-up suggests that the presence of children in

a visitor group is an important determinant of how visitors interact with the exhibit components<sup>8</sup>. Analysis of the follow-up telephone survey shows that children in a visitor group also was a strong factor affecting the percentage of visitors who gave prime examples.

Slightly fewer than half of the respondents with children reported that their children had expressed an interest in working with animals (44%). As Figure 7 illustrates, of the visitors who did not give a prime example at NZP, those who brought children who expressed an interest in working with animals, were more likely to provide a prime response in the telephone follow-up survey (71%) than adults who brought children who were not interested in working with animals (22%).<sup>9</sup>

Figure 7  
Quality of response by children's interest in working with animals or animal research, 1996 Exit Survey and 1997 Telephone Follow-up  
(in percent)



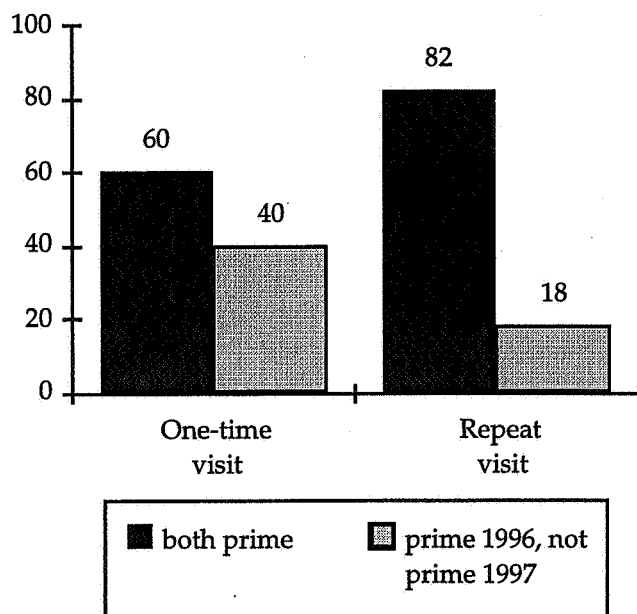
About one out of five of the telephone follow-up respondents had returned to Think Tank during the intervening year (22%). As shown in Figure 8, respondents who returned to Think Tank during the year were 22% more likely to give a prime response to both surveys than those who did not return to Think Tank.<sup>10</sup>

<sup>8</sup> The original study at the NZP contained three components, the entrance survey, and exit survey, and unobtrusive observation or tracking of the behavior of visitors visiting Think Tank (cite study tk).

<sup>9</sup> ( $\chi^2 = 6.997$ ,  $df=1$ ,  $p=0.008$ )

<sup>10</sup> ( $\chi^2 = 3.513$ ,  $df=1$ ,  $p=0.061$ )

Figure 8  
Quality of response by repeat visit to Think Tank,  
1996 Exit Survey, 1997 Telephone Follow-up  
 (in percent)



More than half of the survey respondents recommended Think Tank to someone else (54%). However, recommending an exhibition to another person may not imply the same depth of consideration that personally returning to the exhibition or thinking about it do. Therefore is not surprising that the statistical analysis of the telephone follow-up survey showed no association between having recommended Think Tank and the quality of response to Q8.

These results support the notion that visitors retain more information from zoo experiences when they actively engage in the exhibition or in discussion with others, such as their children and friends.

**Affect/Emotion: Influence on thinking about animals.** In the original survey, interviewers asked visitors leaving Think Tank if they felt that the exhibition would influence the way they thought about animals. We hoped to determine the degree to which visitors perceived any change, whether or not it could be measured by the survey instrument. The question was hypothetical at the zoo—how might they think in the future. The question in the telephone follow-up asked if visitors actually thought that Think Tank had influenced the way they think about animals during the intervening year.

In the initial study, over half (56%) of the visitors leaving Think Tank felt that the exhibition would influence the way they thought about animals. The percentage of

people who thought the exhibition had influenced their thoughts 13 months later was slightly lower (51%), but still very close to half.

These aggregate numbers don't fully explain what happened to individual visitors. We found that 70 percent of visitors gave the same response in the phone interview as in the exit interview (32% said no both times and 38% said yes both times-see Figure 9). Most of the visitors who changed their minds on this question had anticipated Think Tank would influence their perception of animals, but later decided that it did not (19%). About one in ten visitors decided later in the year that the exhibition did influence their thoughts about animals (11%).<sup>11</sup>

Figure 9  
Perception of animals, 1996 Exit Survey and 1997 Telephone Follow-up  
(in percent)

<b>Will (1996)/did (1997) the exhibition influence the way you think about animals?</b>	
<b>Yes. Influenced in 1996 Exit Survey</b>	
Same. Influenced in 96 and 97	38
Changed. Not influenced in 1997	19
<b>No. Not influenced in 1996 Exit Survey</b>	
Changed. Influenced in 97	11
Same. Not influenced in 96 or 97	<u>32</u>
n=110	<u>100 %</u>

As in the exit study, we asked the respondents to tell us why Think Tank did or did not influence the way they think about animals. The responses were similar to those in the exit interviews at the zoo. Examples of frequent responses were:

- Visitors learned something new.
  - "It was another addition to the information I already know about animals."
  - "Brain size isn't what really matters it just matters what type of thinking it does."
  - "I got a more realistic approach of their everyday living as opposed to what I see on TV."
- Think Tank influenced their attitude toward animals.
  - "Gives you a feeling of being more connected to the animal world and the modern world today."
  - "It made my image of animals more positive."

---

<sup>11</sup> The association is statistically significant ( $\chi^2=18.225$ ,  $df=1$ ,  $p=0.001$ ).

"My love for animals. It increased it. I do a lot of hunting and it helped me understand how animals exist in the wild."

In the exit study many visitors said they thought their perceptions would be influenced because the exhibition "increased [their] interest" in animals or the subject matter. In the telephone follow-up, the "increased interest" responses disappeared. Most visitors (67%) who initially said the exhibition influenced their perception of animals by increasing their interest, were still influenced but gave different reasons why. The "interest" response may have been one way to satisfy the interviewer or may have been a way to express an overall enthusiasm or curiosity that the visitor could not fully articulate immediately after experiencing Think Tank. It's possible that, for these visitors, their need to satisfy the interviewer or overall enthusiasm may have matured into a deeper concern or feeling about animals.

In contrast, the third of once interested visitors who said in the telephone follow-up that they really weren't influenced (33%) were either those visitors who just wanted to satisfy the interviewer, who lost their immediate enthusiasm about Think Tank or who may not have experienced anything which encouraged them to feel a continued interest in animals.

**Reinforcement of Attitudes.** Visitors who said they had thought about Think Tank or recommended it to someone else were much more likely to say that Think Tank influenced the way they thought about animals (65% and 60% respectively) than visitors who had not thought about Think Tank or recommended it (35% and 40% respectively).

Accordingly, visitors who had not thought about Think Tank or recommended it were likely to say that Think Tank did not influence the way they thought about animals (59% and 61% respectively).

#### **ADDITIONAL VISITOR COMMENTS**

At the end of the telephone follow-up interview, respondents had a chance to make additional comments about Think Tank and NZP. Most people affirmed their positive experience at both Think Tank and the National Zoo.

We also asked visitors what exhibits besides Think Tank they recalled seeing during their 1996 visit. Their answers were as diverse as the animals living at the zoo. Large animals were mentioned more often than small ones. For example, visitors saw, in their words, "the elephants", "giraffes", "cheetahs", "hippos", "lions and tigers", "monkeys", "sea lions", and of course the "pandas".

Again in the visitors' words, the smaller animals they mentioned, were "birds", "fish", "prairie dogs", "reptiles and spiders". In addition to animal exhibits, a handful of visitors mentioned some exhibits by name such as "Amazonia" or "the Amazon

exhibit," the "Great Ape House" and "the Reptile House". One visitor remembered an unidentified new baby animal.

## SUMMARY

In the exit study we found that the exhibition experience improved the quality of visitors' knowledge about animal thinking behavior. Visitors were more likely to provide prime examples of animal thinking behavior and the ways that scientists would study animal thinking—main exhibition objectives—as they left Think Tank than before they entered. Visitors also thought that their experience in Think Tank would influence their perception of animals.

Visitor opinions a year later were very similar to the opinions which they expressed at NZP in 1996. A number of visitors reported having another experience during the intervening year that may have reinforced the effects of the Think Tank experience. Kids' interest in working with animals and returning to Think Tank were the strongest factors linked to visitors' retention of the of the cognitive information addressed in the question about behaviors scientists might study.

Our results support both conventional learning theory—accuracy of recollection decreases with time unless it is reinforced—and latent learning theory—that learning may require an additional trigger to become manifest. Conventional learning theory is illustrated in our data by the strong reinforcement of returning to the Think Tank exhibition. Returning to Think Tank clearly reinforced the visitors knowledge of key messages of the exhibition—82 percent of repeat visitors gave a prime example to Q8 in both the exit survey and telephone follow-up compared to 60 percent of one-time visitors.

Latent learning theory is supported by visitors' whose responses to Q8 improved over time. Visitors who did not give a prime example for Q8 but whose children expressed an interest in working with animals or in animal research were 53% more likely to provide a prime example in the telephone follow-up than in their response to the exit survey.

As we saw in the exit study, the actions of children influence the way adults report their experience of the exhibition. The telephone follow-up indicates that children's subsequent interest in things related to Think Tank also influences their adults companions' retention of information. Perhaps discussing animal or science related careers stimulated adults who visited with children to review the subject of animal thinking. They may have researched the subject of animal thinking to help answer the children's' questions. Whatever happened, adults who visited with children improved their cognitive framework for thinking about learning behavior in animals over the year when pushed by the children.

Besides retention or improvement of cognition, we also found that, overall, visitors held their initial feelings about how Think Tank would influence the way they

thought about animals. After a year, half of the visitors felt that they learned something new about animals from Think Tank and that it changed their attitude, in positive way, about animals. Although 30 percent of the visitors changed their mind, one in ten decided the exhibition would influence their thoughts about animals after all.

We also discovered that most people remembered the large animal exhibits, including Think Tank, and especially primate exhibits, from their 1996 NZP visit. Nine out of ten respondents remembered an exhibition on orang utans or animal thinking. Over half of the visitors said that either Think Tank, orang utans, macaques or apes and monkey stood out from their 1996 visit to NZP.

For Think Tank specifically, the data suggest that exhibition components which engaged visitors for a length of time or which encouraged social interaction among visitors or with staff were more salient than text panels, introductory videos or computers. Besides watching the animals in Think Tank, visitors remembered using non-computer interactive components, like the language game and syntax wheel, and watching demonstrations. The brains display was also, like in the exit survey, a popular display. The small percentage of people who remembered the O-line illustrates that even though it is a unique exhibit, the limited viewing time and unpredictable nature of the orang utans use of the cables limits the probability that visitors will see it. The telephone follow-up also showed that demonstrations were exceptionally memorable and increased the percentage of visitors who later thought about or recommended Think Tank. However, as we know from the exit study, only a small percentage of people were able to view demonstrations because of limited availability.

Overall, the visitors we talked to were enthusiastic about their visit to Think Tank. In fact, only two people of the 35 who returned to NZP during the 13 month period did not visit Think Tank again.



1997 THINK TANK TELEPHONE SURVEY

Hi.... my name is \_\_\_\_\_ and I'm calling on behalf of the National Zoo in Washington DC. May I speak to \_\_\_\_\_?

If R:

When you visited the Zoo last year, in August 1996, you gave us your telephone number . Today, I'd like to ask you a few questions about that visit.

When R comes to phone:

Hi.... my name is \_\_\_\_\_ and I'm calling on behalf of the National Zoo in Washington DC. When you visited the Zoo last year, in August 1996, you gave us your telephone number . Today, I'd like to ask you a few questions about that visit.

1. Have you been back to the National Zoo since last summer?

No [go to Q.2]

Yes: How many times?

Record: \_\_\_\_\_

The questions I am going to ask you are mostly about your visit last summer.

2. What exhibit stands out in your mind from your visit to the National Zoo last summer?

"Think Tank", skip to Q5

Orang utans, skip to Q4

Gorillas/Monkeys

Pandas

Nothing

Everything/All of it

Record: \_\_\_\_\_

3. Last summer, do you remember seeing the orang utans in a building with an exhibit on animal thinking?

Yes: skip to Q4

Yes and "Think Tank", skip to Q5

No: The exhibit had bronze brains, TV screens, computers, and the oranges entered by walking across cables to the exhibit building. Do you recall any of that?

Yes

No, skip to Q11.

**4. Do you recall the name of that exhibit?**

No: It is the Think Tank exhibit.

Think Tank

Other name: That is the name of another exhibit. The exhibit we were talking about is called Think Tank.

**5. Last summer, did you visit the Think Tank exhibit with children?**

No, skip to Q6

Yes. What was the age of the oldest child? Next oldest?...?...?

Record age 1: \_\_\_\_\_

Record age 2: \_\_\_\_\_

Record age 3: \_\_\_\_\_

Record age 4: \_\_\_\_\_

Record age 5: \_\_\_\_\_

**6. What do you remember doing or seeing in that exhibit, Think Tank?**

[Probe]: Anything else?

Watched demonstrations

Read text

Watched introductory video

Used or watched someone use a computer game

Watched animals

Used an exhibit interactive

Talked to a Think Tank staff member

Other: \_\_\_\_\_

**7. If R has been to the zoo since last summer: Did you go to the Think Tank exhibit on any of your visits since last summer?**

**8. At any time in the past year, did you think about the Think Tank exhibit?**

No, skip to Q9

Yes. What was the context? What brought it up?

**9. Did you recommend or talk about the exhibit with anyone else?**

No, skip to Q10

Yes: 9a. What did you tell them about it?

Positive remark/recommendation

Negative remark

Description

Other: \_\_\_\_\_

10. Do you think that the exhibit influenced the way you think about animals?  
No. What makes you say that? [use codes below]  
Yes. In what way? [use codes below]

11. The exhibit was about animal thinking.  
Can you give me an example of animal "thinking behavior"?

Record: \_\_\_\_\_

12. Scientists who study "thinking in animals" focus on their behavior. Can you think of a behavior or several behaviors that scientists would study?

Record: \_\_\_\_\_

13. If R visited with children: Has (have) the child(ren) you brought to Think Tank expressed an interest in working with animals or in animal research?

No

Yes. What has (have) the child(ren) mentioned?

14. Is there anything else you would like to add about the exhibit or the zoo?

Thank you for taking the time to help us. Good-bye.

EXIT  
INTERVIEW

				ID
--	--	--	--	----

		Interviewer
--	--	-------------

		Count
--	--	-------

### Think Tank Summer 1996 Visitor Study

Hello. My name is \_\_\_\_\_. I am a volunteer for the Smithsonian and would like to talk to you about your visit here today.

**\*1. Is today your first visit to this zoo?**

- ☐ Yes [GOTO Q3]      ☐ No ASK Q1a.

**1a. How many times have you been here before today?**

- ☐ 1-3      ☐ 4-9      ☐ 10+ \_\_\_\_\_

**1b. In the last year, how many times have you visited this zoo? \_\_\_\_\_**

- ☐ 1-3      ☐ 4-9      ☐ 10+

**2. Is this your first visit to this building?**

- ☐ Yes [GOTO Q3]      ☐ No ASK Q2a and GOTO Q3a.

**2a. When was the last time you were here?**

- ☐ In the last 3 months [GOTO Q3a.]  
☐ 3-6 months ago  
☐ 6-12 months ago

**3. Had you heard about this exhibition, called *Think Tank*, before today? ☐ Yes ASK Q3A.      ☐ No [GOTO Q5.]**

**3a. Where did you hear about this exhibition? [MARK ALL THAT APPLY]**

- ☐ Saw it on last visit      ☐ TV  
☐ Heard about it on last visit      ☐ Zoo staff/volunteer  
☐ Family/friend      ☐ Don't recall  
☐ Newspaper/magazine      Other \_\_\_\_\_  
☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10

**4. What do you recall hearing about it? [MARK ALL THAT APPLY]**

- ☐ Animal thinking      ☐ 1      ☐ 5      ☐ 9  
☐ Animal learning      ☐ 2      ☐ 6      ☐ 10  
☐ O-line      ☐ 3      ☐ 7      ☐ 11  
☐ Orangs/apes/monkeys: general      ☐ 4      ☐ 8      ☐ 12  
☐ Don't recall  
Other \_\_\_\_\_

**5. People have different feelings about science. On a scale of 1 to 10, where 10 is "very interested" and 1 is "not at all interested" where would you place yourself?**

Record number \_\_\_\_\_

--	--

**6. As you have seen, at this zoo, scientists study how animals behave. On the basis of what you have seen, do you believe that some animals show "thinking behavior"?**

- ☐ Yes [GOTO Q7.]      ☐ No ASK Q6a. and GOTO Q8.

**6a. Can you tell me why not?**

_____		
_____		
_____		

**7. Can you give me an example of animal "thinking behavior"? [PROBE FOR EXAMPLES]**

_____				
_____				
_____				

**8. Scientists who study "thinking in animals" focus on their behavior. Can you think of a behavior or several behaviors that scientists would study? [MARK ALL THAT APPLY]**

- ☐ Language      ☐ Don't know  
☐ Tool Use      Other \_\_\_\_\_  
☐ Social Behavior  
☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10  
☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15 ☐ 16 ☐ 17 ☐ 18 ☐ 19 ☐ 20

**8a. Was there anything in particular you saw in the exhibition that emphasized that?**

_____				
_____				
_____				

**9. What are some words you would use to describe apes and monkeys?**

_____				
_____				
_____				

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5  
extra1

☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10  
extra2

☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15  
extra3

52717



10. Do you think this exhibition will influence the way you think about animals?

- ☐ Yes ASK: In what way?  
☐ No ASK: Can you explain why not?


11. Overall, what in this exhibition interested you the most? [Animal, activity, demo, computer, text, graphic, etc.]


12. What part of the exhibition did you find most informative? [Animal, activity, demo, computer, text, graphic, etc.]


12a. What is the main idea it gave you?


13. On this card are some activities in *Think Tank*. Which of these did you have time to do? [SHOW CARD]

- ☐ 1 Watched demonstration(s) [MARK ALL THAT APPLY]  
☐ 2 Read exhibit text  
☐ 3 Watched introduction video  
☐ 4 Used or watched someone use a computer game  
☐ 5 Watched animals  
☐ 6 Used an exhibit interactive  
☐ 7 Talked to a Think Tank staff member  
☐ 8 None of these [GOTO Q14]

13a. Which of these did you find the most interesting?

	First Choice	
	Second Choice	

14. Is there anything in the exhibition that you would like to know more about?

- ☐ Yes ASK Q14a. ☐ No [GOTO Q15]

14a. What kinds of things would you like to know more about? [MARK ALL THAT APPLY]

- ☐ Information about specific animals  
☐ Brains ☐ 1 ☐ 5 ☐ 9  
☐ Animal tool use ☐ 2 ☐ 6 ☐ 10  
☐ Animal social behavior ☐ 3 ☐ 7 ☐ 11  
☐ Language acquisition in animals ☐ 4 ☐ 8 ☐ 12  
☐ IQ testing in humans  
☐ Don't know  
 Other \_\_\_\_\_

15. If you were the Director of this zoo, what things in the *Think Tank* exhibition would you improve, change or add? [MARK ALL THAT APPLY]

- ☐ Nothing ☐ Nothing + positive remark  
☐ More for children ☐ More animals  
☐ More demonstrations ☐ More hands-on  
☐ Critique of animal enclosures ☐ Don't know  
 Other/spec \_\_\_\_\_

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10

16. Was there anything about the exhibition that moved you? (emotionally)

- ☐ Yes ASK: What was that? ☐ No


Now a few questions about you...

\*17. Where do you live?

- ☐ Washington, D.C.  
☐ MD/VA suburbs  
☐ Other U.S. \_\_\_\_\_  
☐ Foreign \_\_\_\_\_

--	--	--	--

state/ctry

\*18. Who are you here with today?

- ☐ School trip ☐ Group of teens  
☐ Tour group ☐ Several adults  
☐ Adult w/child(ren) ☐ Child(ren)  
☐ Adults w/child(ren) ☐ Alone [GOTO Q20]  
☐ One other adult [GOTO Q20]

\*19. Including you, how many people are in your group?

Record number: \_\_\_\_\_

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52717



20. What is the highest level of education you have completed?

- ☐ Pre/grade school      ☐ Some college  
☐ Some HS                ☐ Bachelor's degree  
☐ HS graduate            ☐ Some graduate study  
☐ Assoc./Jr./Technical   ☐ MA/Ph.D./Professional

\*21. What is your age?

Record Age: \_\_\_\_\_

--	--

\*22. What is your cultural/racial/ethnic identity?

- ☐ African American/Black  
☐ Asian/Pacific Islander  
☐ Caucasian  
☐ Hispanic/Latino  
☐ Native American/Alaska Native  
 Other \_\_\_\_\_ ☐

23. We might like to talk to you again about your visit. Can we have your first name and a phone number where we would best be able to contact you at another time?

NAME \_\_\_\_\_

--	--	--	--	--	--	--	--	--	--

NUMBER/area (      ) \_\_\_\_\_

				-					-				
--	--	--	--	---	--	--	--	--	---	--	--	--	--

Is that a day or evening number?

- ☐ Day                ☐ Evening

\*24. Gender (MARK DO NOT ASK)

- ☐ Female            ☐ Male

#### Admin. Box

<b>STATUS:</b>		<input type="radio"/> Interview
<b>Reason for refusal/inelig.</b>		<input type="radio"/> SI staff/contractor
_____		<input type="radio"/> Ineligible
_____		<input type="radio"/> Refusal: Language
_____		<input type="radio"/> Refusal: Other
_____		
_____		
_____		
	<b>Segment</b>	<b>Shift</b>
	<input type="radio"/> 1	<input type="radio"/> 10:30-12:00
	<input type="radio"/> 2	<input type="radio"/> 12:45-2:15
	<input type="radio"/> 3	<input type="radio"/> 2:30-4:00
<b>Session</b>	<input type="radio"/> 4	<input type="radio"/> 4:30-6:00
	<input type="radio"/> 5	
	<input type="radio"/> 6	

Comments:


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☐ 16   ☐ 17   ☐ 18   ☐ 19   ☐ 20

☐ 21   ☐ 22   ☐ 23   ☐ 24   ☐ 25

extra4

extra5

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Table 1  
Recollection of the August 1996 NZP Visit  
 1997 Think Tank Telephone Follow-up  
 (in percent)

---

<b>What exhibit stands out from your August 1996 visit to NZP?</b>	
Think Tank	10
Orang utans/Macaques	20
Apes/Gorillas/Monkeys	25
Pandas	12
Other	25
Nothing in particular	5
Everything	3
n=150	100
 <b>Do you remember the name of that exhibit?</b>	
Can't remember name	81
Already said Think Tank	10
Think Tank	6
Name like Think Tank	1
Another name	3
n=145	100
 <b>Have you been back to the Zoo or Think Tank?</b>	
Been back to Think Tank and Zoo	22
Been back to Zoo but not Think Tank	2
Not been back	76
n=145	100
 <b>How many times have you been back to the Zoo?</b>	
None	76
One	10
Two	8
Three	2
Five	1
Seven	1
Ten	1
n=145	100

---

Table 2  
Recollection of the August 1996 Think Tank Visit  
 1997 Think Tank Telephone Follow-up  
 (in percent)

<b>What do you remember seeing or doing at Think Tank?</b>		
	<u>1996</u>	<u>1997</u>
Talked to a staff member	7	4
Watched demonstrations	14	19
Watched introductory video	19	1
Computer interactives	27	6
Other exhibit interactives	41	27
Watched animals	83	46
Brains	na	12
O-line	<u>na</u>	<u>8</u>
	191	123
<b>At any time in the last year, Did you think about the Think Tank exhibit?</b>		
Yes, thought about it	40	
No, did not	<u>60</u>	
n=150	100	
<b>What was the context? What brought it up?</b>		
Wanted to make return or longer visit	7	
Reccomendation/reflecting on trip	9	
Talking with others	16	
Thought about something specific	12	
Related to school/profession/kids school	7	
Went to another zoo	11	
Read something related	5	
Television program	18	
Other/don't remember	<u>16</u>	
n=57	100	



Table 3  
Application of the August 1996 Think Tank Visit  
 1997 Think Tank Telephone Follow-up  
 (in percent)

---

<b>Did you reccomend or talk about the exhibit with anyone else?</b>	
Yes, reccomended it	54
No, did not reccomend	<u>46</u>
n=150	100
 <b>What did you tell them about it?</b>	
Something specific	20
Good for kids	5
General info	19
Compared it to another exhibit	1
Want to return	4
Evolutionary	1
Other	4
Hands on	3
Informative	8
Interesting	15
Enjoyable/worth seeing	<u>20</u>
n=75	100
 <b>Have the children you brought to Think Tank expressed an interest in working with animals or animal research?</b>	
Yes, kids interested	44
No, kids not interested	<u>56</u>
n=90	100

---

Table 4  
Retention of Cognitive Information  
 1997 Think Tank Telephone Follow-up  
 (in percent)

<b>Q7. Can you give me an example of animal thinking behavior?</b>				
<b>Q8. Can you think of a behavior or several behaviors scientists might study?</b>				
	Q7 1996	Q7 1997	Q8 1996	Q8 1997
<b>Prime</b>	<b>37</b>	<b>35</b>	<b>67</b>	<b>57</b>
Tools	17	11	2.8	7.2
Language	11	16	15.3	5
Social	9	8	33.3	44.6
2 or more prime examples	na	na	16	na
<b>Not Prime</b>	<b>63</b>	<b>65</b>	<b>33</b>	<b>43</b>
Instinctive	8	11	3.5	11.5
General unknown	19	11	16	10.1
General unacceptable	2	4	0.7	1.4
Looking, attending, responding	7	3	0.7	4.3
Human-like traits/qualities	9	3	0	4.3
Trainability/ability to learn	4	7	0.7	1.4
Problem solving	4	5	0.7	0.7
Don't know	11	22	10.4	9.4
n=140	100	100	100	100
<b>Gave Prime Example in 1996 Exit Survey</b>				
Same: Gave prime example in 96 and 97	65			
Worse: Did not give prime example in 97	<u>35</u>			
n=92	100			
<b>Did Not Give Prime Example in 1996 Exit Survey</b>				
Same: Not prime in 96 and 97	61			
Better: Gave prime example in 97	<u>39</u>			
n=41	100			

Table 5  
Reinforcement of Cognitive Information  
 1997 Think Tank Telephone Follow-up  
 (in percent)

<u>Quality of Answer 1996, 1997</u>	<u>Not interested in animals</u>	<u>Kid interested in animals</u>
both prime	65	65
prime 1996, not prime 1997	<u>35</u>	<u>35</u>
n=92	100	100
not prime 1996, prime 1997	22	71
not prime 1996, not prime 1997	<u>78</u>	<u>29</u>
n=41	100	100
	<u>Didn't think about Think Tank</u>	<u>Thought about Think Tank</u>
both prime	66	64
n=92	<u>34</u>	<u>36</u>
	100	100
not prime 1996, prime 1997	36	42
not prime, not prime	<u>64</u>	<u>58</u>
n=41	100	100
	<u>One-time visit</u>	<u>Repeat visit</u>
both prime	60	82
prime 1996, not prime 1997	<u>40</u>	<u>18</u>
n=92	100	100
not prime 1996, prime 1997	38	43
not prime, not prime	<u>62</u>	<u>57</u>
n=41	100	100
	<u>Not recommended</u>	<u>Recomended</u>
both prime	65	65
prime 1996, not prime 1997	<u>35</u>	<u>35</u>
n=92	100	100
not prime 1996, prime 1997	21	55
not prime, not prime	<u>79</u>	<u>45</u>
n=41	100	100

Table 6  
Reinforcement of Attitudes  
 1997 Think Tank Telephone Follow-up  
 (in percent)

<b>Will (1996)/did (1997)the exhibition influence the way you think about animals?</b>		
Influenced in 1996 and 1997	38	
Influenced in 1996 but not in1997	19	
Not influenced in 1996 but influenced in 1997	11	
Not influenced in 1996 or 1997	<u>32</u>	
n=110	100	
	<u>Didn't think</u>	<u>Thought about</u>
	<u>about Think Tank</u>	<u>Think Tank</u>
Influenced in 1997	41	65
Not Influenced in 1997	<u>59</u>	<u>35</u>
n=145	100	100
	<u>Not recommended</u>	<u>Recomended</u>
Influenced in 1997	39	60
Not Influenced in 1997	<u>61</u>	<u>40</u>
n=145	100	100

Table 7  
Respondents' Examples of Animal Thinking Behavior (Q7) and  
Behaviors Scientists Would Study (Q8)  
 1997 Think Tank Telephone Follow-up  
 (In Percent)

	Q7	Q8
	Can you give me an example of animal thinking behavior?	Can you give me an example of behavior(s) scientists might study?
After 13 months....		
<u>Quality of answer</u>		
Improved	15	12
Stayed the same/prime	20	45
Stayed the same/not prime	49	19
Declined	<u>17</u>	<u>24</u>
Total	100	100
<u>Content of answer</u>		
Different	74	55
Same	<u>26</u>	<u>45</u>
Total	100	100

Table 8  
Respondents' Perceptions of Animals  
 1997 Think Tank Telephone Follow-up  
 (In Percent)

	<u>First Study</u>	<u>Follow-up</u>
	Will the exhibition influence the way you think about animals?	Did the exhibition influence the way you think about animals?
Influence	55.7	49.1
No influence	<u>44.3</u>	<u>50.9</u>
Total	100.0	100.0
<u>After 13 months respondents....</u>		
Gave different answers		29.2
Stayed the same		<u>70.8</u>
		100.0