A VISITOR STUDY OF

FAST ATTACKS AND BOOMERS: SUBMARINES IN THE COLD WAR

An exhibition at the National Museum of American History

October 2001

Smithsonian Institution
Office of Policy & Analysis
Washington, D.C. 20560-0405

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BACKGROUND

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Fast Attacks and Boomers: Submarines in the Cold War, a 3,200 square-foot exhibition at the National Museum of American History (NMAH), describes the role played by U.S. submarines in America's Cold War strategy from 1945 to 1991.

The exhibition examines the technology of undersea warfare and the people who made it work by featuring once-classified equipment and other objects from decommissioned submarines. Artifacts include:

- A maneuvering room and sonar consoles
- An attack center complete with two periscopes
- Crew dining and bunking areas
- A Mark 48 torpedo
- A Tomahawk cruise missile

A photographic timeline, video dramatizations, models, memorabilia, and a section on submarine families ashore complete the exhibition. The exhibition takes its name from two types of nuclear-powered submarines that the U.S. Navy developed. "Fast Attacks" were designed primarily to locate and track enemy submarines. "Boomers," or fleet ballistic submarines, were equipped to carry long-range nuclear ballistic

missiles. The exhibition is designed to convey, at least in part, the experience of what being inside a submarine is like.[1]

The exhibition focuses on three major themes.[2] One theme is the technology of submarines, including basic information on submarine operations sonar principles, nuclear propulsion, and submarine weaponry. A second theme is the vital roles of submarines, including the different types of submarines and their missions, nuclear deterrence, anti-submarine warfare, and covert activities. The last theme is the human experience of prolonged undersea voyage.

The exhibition opened as part of the centennial celebrations of the U.S. Navy's submarine force. In addition, NMAH felt the exhibition would fill a gap in the chronology of the Armed Forces Hall by addressing the Cold War and late 20th century military history. In developing this exhibition, NMAH collaborated with the Navy Submarine League, which, along with the U.S. Navy, provided expert consultation, artifacts, and primarily financed the exhibition.

THE STUDY

The study investigates two different parameters: <u>draw</u> and <u>quality</u>. The draw of an exhibition is its ability to attract visitors and is primarily dependent on the impressions of the exhibition in the minds of potential visitors. The quality of the exhibition is the

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[1] From NMAH Press Release. "*Fast Attacks and Boomers: Submarines in the Cold War* opens at the National Museum of American History in April." 12 January 2000.
[2] Johnston, P. & Hacker, B., "Exhibition Proposal: Nuclear Powered Submarines and the Cold War." 11 August 1998.

impact that it has on its visitors, that is, the range and depth of their experiences with the exhibition.[3]

For one assessment of quality, survey respondents were handed a card listing fourteen possible experiences. Each respondent was asked to select those experiences that he or she had found satisfying while visiting the museum or *Boomers*. From the list of experiences identified, respondents selected the one experience that they had found most satisfying during the visit. They were also asked where in the museum or exhibition they noticed the most satisfying experience.[4]

The fourteen satisfying experiences were clustered into four types of experiences:
- *Object* (Seeing real things, Seeing rare things, Being moved by beauty, Thinking about owning such thing, and Continuing one's professional development)
- *Learning* (Gaining knowledge and Enriching understanding)
- *Reflective* (Imagining, Reflecting on meaning, Recalling memories, Feeling a spiritual connection, and Feeling a sense of belonging)
- *Social* (Spending time with friends/family and Seeing children learning)

The study consisted of personal interviews with representative samples of three groups: people entering the American History museum; people leaving the American History museum; and people leaving the exhibition. Interviews conducted at the museum entrances and exits allowed for the comparison of baseline museum audience data with the data collected from the exhibition audience. Altogether, 1053 interviews were completed.

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[3] Office of Policy & Analysis. "*Music in the Age of Confucius*: A Study of Potential and Actual Visitors." September 2000.
[4] See A.J., Pekarik, Z.D. Doering, and D.A. Karns, "Exploring Satisfying Experiences in Museums." *Curator* 42(2) 152-173 (1999).

Appendix A consists of the questionnaires, Appendix B contains supplementary tables, and Appendix C describes the methods of the study.

KEY FINDINGS

Banners are an effective way to raise awareness among visitors.

Nearly half of the visitors who knew about *Boomers* when they entered the museum learned about it from the banners. One in five visitors found out about it as they wandered by the exhibition.

The title and its graphics communicated a different focus to the exhibition than was reported by exhibition visitors.

Less than one third of museum visitors expected one of the three major exhibition themes. The title, subtitle, and graphics did not emphasize the dimensions of the exhibition that visitors to the exhibition found most prominent (e.g., human experience and vital roles of submarines). Few museum visitors expected the exhibition to be primarily about the Cold War.

Boomers drew a specialized audience different from the NMAH audience.

Boomers attracted a predominately male audience. Boomers did not draw a new audience to the museum. Five percent of museum visitors came specifically to see *Boomers*; this is the same percentage of museums visitors came specifically to see the Star Spangled Banner.

Half of the exhibition visitors recalled one of the three major themes when providing descriptions of the exhibition.

Most visitors gave one primary description of the exhibition when asked how they would describe it to another person. One in five recalled the human experience of undersea voyage, and another one in five cited the vital roles of submarines. About one in eight mentioned the technology of submarines.

Learning and object experiences were the most prominent experiences reported by exhibition visitors.

The experiences of visitors in the exhibition closely matched most of the expectations of visitors entering the museum, both in the types of experiences and in their strength. Learning experiences were the most satisfying for visitors. Visitors who had experiences related to objects (learning about objects, being impressed by objects) rated the exhibition highly. However, the experience of the exhibition differs significantly from the experience of the museum as a whole. Visitors to the exhibition were less likely to report satisfying reflective experiences and satisfying object experiences and the strength of most satisfying experiences was lower than that of NMAH visitors.

"Life Aboard," which reconstructed the living spaces of a submarine, was the most successful part of the exhibition.

"Life Aboard" was a section that used objects as elements in a provocative design. Visitors could see the life-size scale of living spaces aboard submarines. More satisfying experiences happened here and more impressive objects were found here than anywhere else. The effectiveness of this section is probably the reason why more visitors described the exhibition as being about the human experience than anything else; one in five specifically reported learning about the human experience.

Exhibition ratings were not very high.

Only one in seven exhibition visitors rated the exhibition a "must see." In addition, *Boomers* visitors rated the exhibition at the top of the satisfaction scale less often than museum visitors rated the museum as a whole.

Being deeply impressed by a specific object in the exhibition contributed to positive ratings of the exhibition.

Visitors who were impressed by an object were more likely to feel greater overall satisfaction with the exhibition and to rate it a "must see" for other Smithsonian visitors than visitors who were not impressed by an object.

EXHIBITION DRAW

In order to examine the exhibition's attracting power, visitors in the museum who had not seen *Boomers* before were asked if they were interested in seeing the exhibition and what they would expect to see in it. To compare expectations for the exhibition to the actual experience of exhibition, visitors at the exhibition were asked how they would describe *Boomers* to someone who asked them what it was about.

The majority of NMAH visitors were coming for a general visit.
Approximately two in five museum visitors came to see something in particular, such as a specific exhibition, object, or topic of interest (38%).
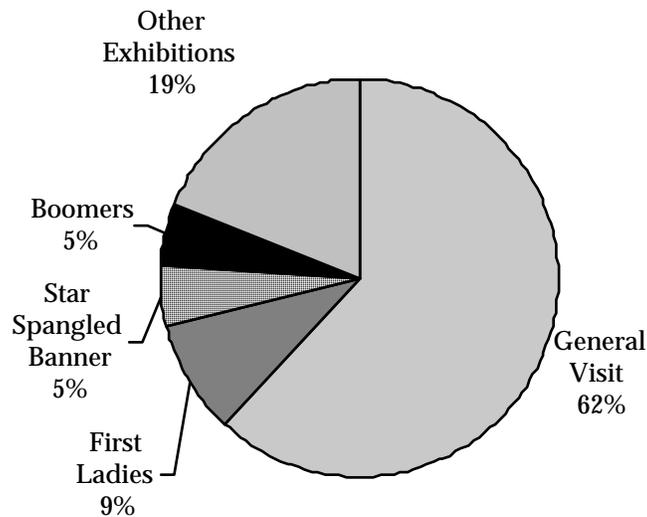
Figure 1. Visit Agendas of Museum Visitors

Boomers was the specific draw for some exhibition visitors.

Over half of the visitors interviewed at *Boomers* came to the museum to see something in particular (52%), but not necessarily *Boomers.* *Boomers* was the specific draw for almost one-quarter (23%).
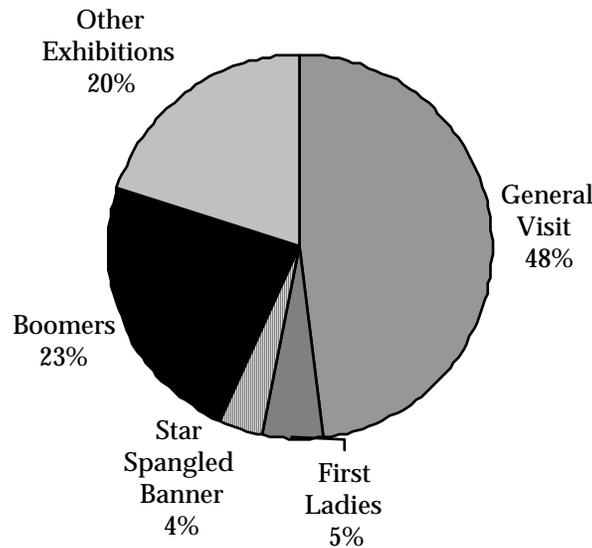

Figure 2. Museum Visit Agenda of Visitors Interviewed at *Boomers*

Repeat visitors were the most focused visitors.

Visitors who are familiar with the Smithsonian and NMAH have visit agendas that are more focused than less familiar visitors. One-third of first timers to SI come to see something specific, while two-fifths of repeat visitors to SI or to NMAH do.

The banners helped attract museum visitors to the exhibition.

Two in five entering visitors (42%) had heard of *Boomers* before, mostly from the banners outside the museum (28%).

More than a quarter (27%) of visitors exiting the museum saw *Boomers* during their visits.

The exhibition drew a different audience than did the museum as a whole.

The *Boomers* audience had more men, more recent repeat visitors, and more baby boomers than the museum audience but fewer older visitors and fewer tour or school group members. Both the museum and the exhibition drew young minority audiences; about half of the minority visitors were under the age of 36. Only one-third of the non-minority audiences were young.

The expectations of visitors for *Boomers* were very different from the descriptions provided by exhibition visitors.

Not only did researchers ask exhibition visitors how they would describe the exhibition to a person who had not seen it, but they also asked people in the museum who had not seen *Boomers* what they expected to see. Although visitors could be as descriptive as they wished, most visitors gave one primary expectation or description.
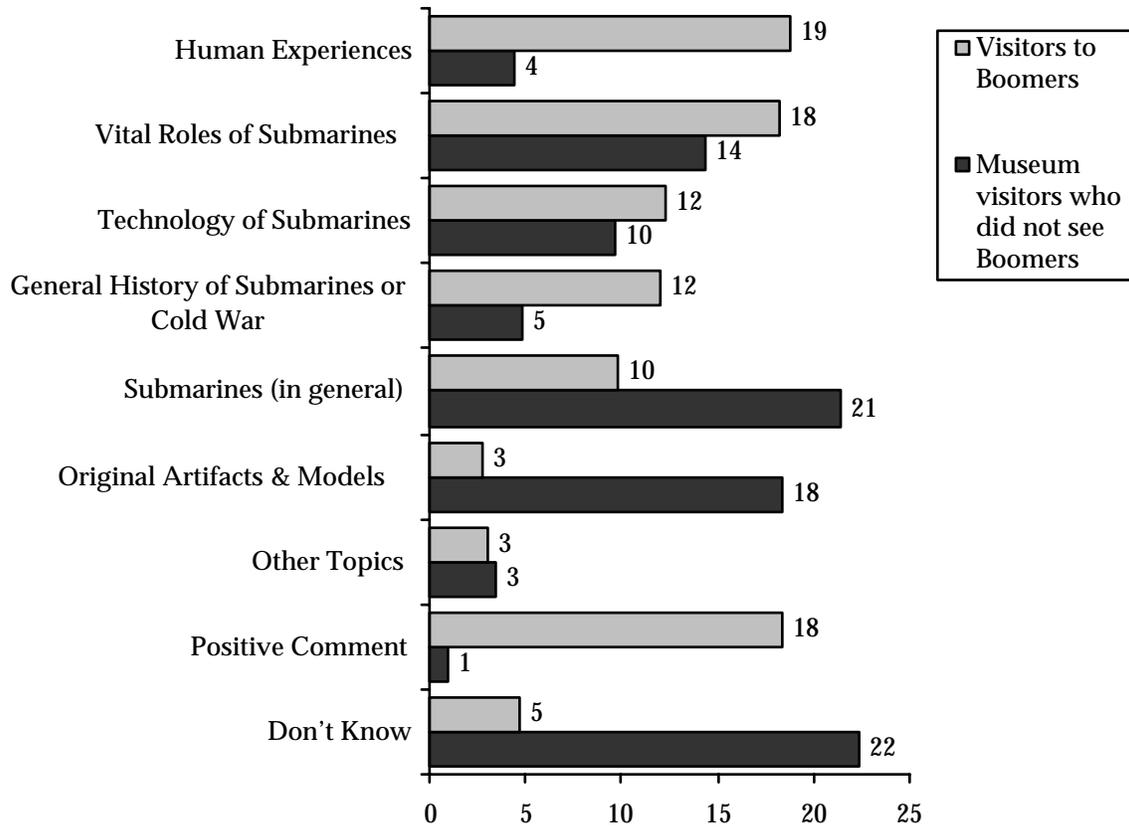
Despite the success of the banners in increasing awareness, nearly one-quarter of museum visitors did not know what to expect in the exhibition. Just 28% expected one of the three major themes articulated by the exhibition team (vital roles, technology, and human experiences). See Figure 3.

Museum visitors who came specifically to see *Boomers* more often expected to see original artifacts and models or the general history of submarines or the Cold War than other visitors.

There were differences between visitors' expectations and actual descriptions. Half of the descriptions given by *Boomers* visitors recalled one of the three major themes. About 19% of *Boomers* visitors described the exhibition as primarily about the human experience, vital roles of submarines, technology of submarines, or general history of

submarines or the Cold War. Ten percent of visitors said it was primarily about submarines, in general, or original artifacts and models.

Figure 3. Expectations for and Actual Descriptions of *Boomers*

(Percent)

Category	Visitors to Boomers	Museum visitors who did not see Boomers
Human Experiences	19	4
Vital Roles of Submarines	18	14
Technology of Submarines	12	10
General History of Submarines or Cold War	12	5
Submarines (in general)	10	21
Original Artifacts & Models	3	18
Other Topics	3	3
Positive Comment	18	1
Don't Know	5	22

Women described the exhibition as being about the human experience twice as often as men, while men said it presented general history of submarines or the Cold War twice as often as women.

EXHIBITION QUALITY

The quality of visitors' experiences was determined by asking questions from the satisfying experience instrument that has been applied previously in the American

History museum.[5] Additionally, visitors were asked if they learned something specific during their visits and if there was a specific object that deeply impressed them, to see if such experiences were related to the kinds of experiences they found most satisfying.

Visitors reported a wide range of experiences at the exhibition, with learning ones being the most satisfying.

On average, visitors chose three satisfying experiences from a list of fourteen. Eighteen percent chose at least one experience of each type (learning, object, reflective, and social). Thirty percent chose at least one experience within three of the four types.

One-third of visitors said that their sense of satisfaction with their most satisfying experience was "very strong." Nearly two-thirds (61%) said it was "strong" and only 5% said it was "not very strong."

The satisfying experiences most mentioned by *Boomers* visitors were gaining knowledge (70%), seeing the real thing (54%), and enriching understanding (54%).

Learning experiences were the most satisfying, followed by object experiences. Visitors' strength of satisfaction was highest with social and reflective experiences (55% and 41%, respectively, rating them "very strong").

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[5] See A. J. Pekarik, Z. D. Doering, and D. A. Karns, "Exploring Satisfying Experiences in Museums." *Curator 42*(2) 152-173 (1999).

Figure 4. Most Satisfying Experiences in *Boomers* and Strength of Satisfaction

(Percent)
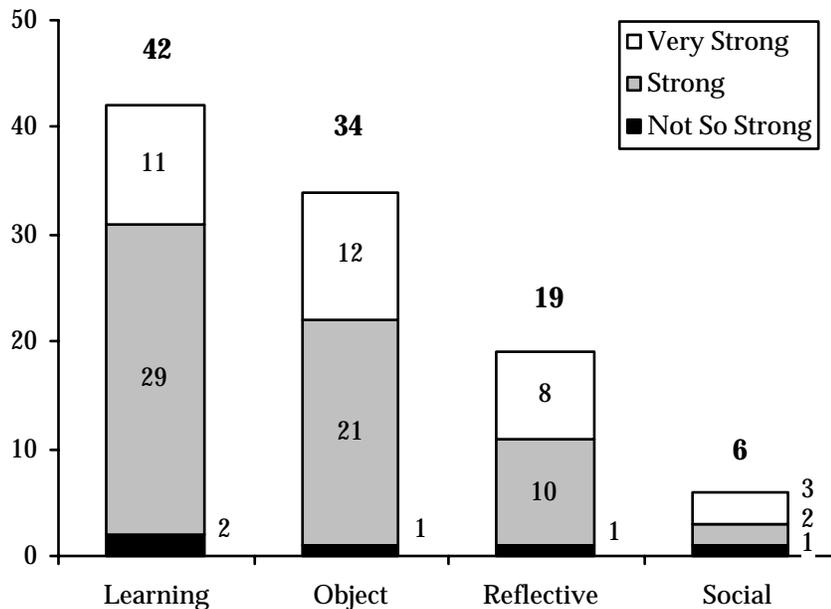
"Life Aboard" was a highly effective section of the exhibition.

Nearly one-third (30%) of visitors reported that their most satisfying experience occurred in the "Life Aboard" section. Another 12% said it occurred at the Control Center, 10% at the torpedo or missile, 9% at the Attack Center, and 8% at the Timeline. Individual specific exhibit locations did not elicit specific types of satisfying experiences.

Half of the visitors (51%) reported that a specific object deeply impressed them on their visits to *Boomers*. These visitors most often identified an 'object' in the crew quarters, specifically the bunks. Other impressive objects included the cruise missile and/or torpedo and the control console and/or attack center.

Having one's most satisfying experience in "Life Aboard" was correlated with saying *Boomers* was about human experience.

Two out of five visitors said they learned something specific in the exhibition.
One in five visitors (19%) reported that they learned object facts (i.e., how things look, how things are used, how things work, etc.). The other major area of learning was science and technology facts (8%).

What visitors learned was also categorized by theme: the technology of submarines (54%), the human experience (22%), general history of submarines or the Cold War (12%), and the vital roles of submarines (11%).[6]

Figure 5. Learning in the Exhibition

(Percent)
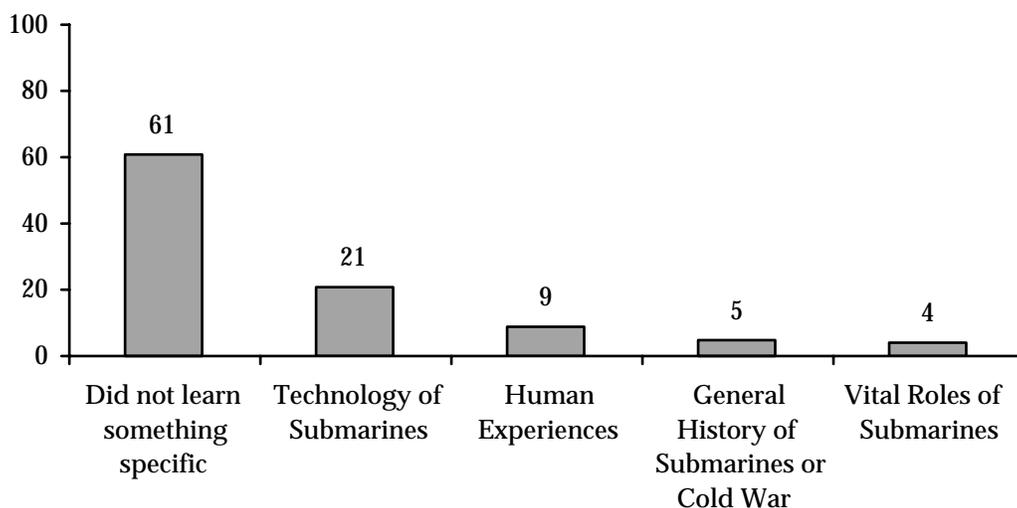
Visitors saying the exhibition was about the technology of submarines or the human experience were likely also to say they learned something specific (58% and 49%, respectively).

Few visitors rated *Boomers* a "must see" for Smithsonian visitors.
Fourteen percent of visitors interviewed at *Boomers* rated the exhibition a "must see" when asked how important it was for Smithsonian visitors to see it. The average rating

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[6] Other topics were mentioned by 2%.

on this scale, where 1 was "don't see" and 10 was "must see," was 7. Half of the visitors (54%) rated it either 7 or an 8.

Overall satisfaction with the exhibition was not very high.

One-quarter (25%) of the visitors said that the exhibition was "delightful," the highest score on a scale describing one's level of satisfaction. In other Smithsonian exhibitions studied, the percentage reporting satisfaction at the top of the scale was higher. Another 41% said it was fully satisfying. Half (52%) of those who were delighted with the exhibition also rated their most satisfying experience as "very strong." Baby boomers (36-54 years) and teens were most delighted by the exhibition. Delight with *Boomers* meant higher recommendations; those who found the exhibition "delightful" were twice as likely to rate it a "must see" than those less than delighted (23% vs. 10%).

Objects made the exhibition more successful for visitors.

Regression analysis indicates that being deeply impressed by a specific object is the primary indicator that contributes to both increased satisfaction with the exhibition and ratings of importance.[7]

MUSEUM QUALITY

Entering visitors were asked what experiences, from the same list of fourteen, they were most looking forward to having in the museum that day. On average, visitors chose four satisfying experiences from the list of fourteen. Thirteen percent chose at least one experience of each type. Twenty-seven percent chose at least one experience within three of the four types.

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[7] Data on file.

Exiting visitors were asked about their actual experiences that day and they also chose, on average, four experiences. However, their selections were of a broad range; 17% chose one of each type and 34% chose at least one from each of the three types.

Anticipated museum experiences were different from actual reported experiences. Entering visitors were looking forward to gaining knowledge (69%), seeing rare and valuable things (48%), and seeing the real thing (48%). Over half of exiting visitors selected gaining knowledge (61%), seeing the real thing (61%), enriching understanding (52%), and seeing rare or valuable things (50%).

Object and reflective experiences were more satisfying than anticipated, while learning and social experiences were less satisfying.
More than two in five visitors were most looking forward to a learning experience and one in four an object experience. To contrast, exiting visitors were asked about their actual experiences that day. More than one in three said their most satisfying experience was an object experience, and slightly fewer said it was a learning experience.

Figure 6. Anticipated and Actual Most Satisfying Museum Experiences
(Percent)

	Learning	Object	Reflective	Social
Anticipated (Entrance)	43	26	14	17
Actual (Exit)	32	37	21	11
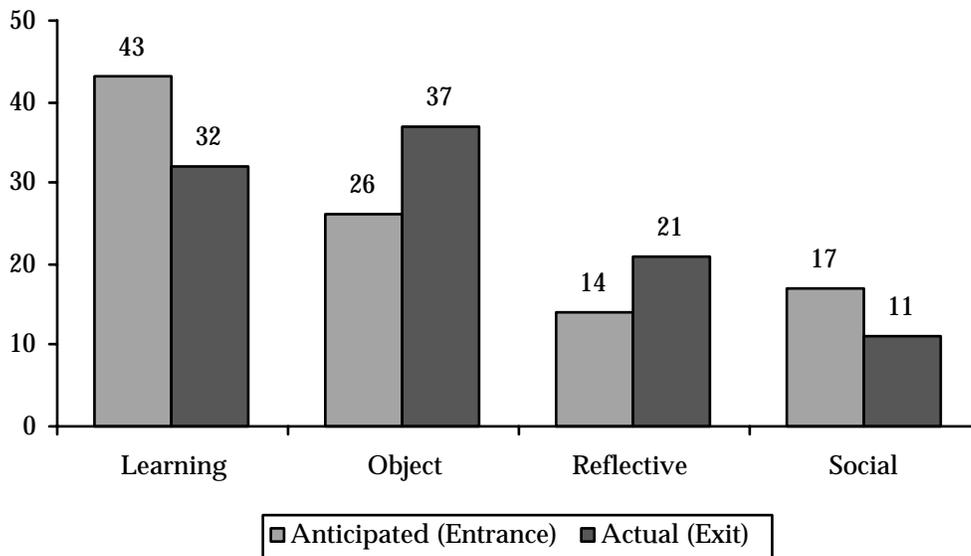
Visitors exited the museum reporting greater satisfaction than they anticipated upon entry.

Less than one-third of entering visitors "very strongly" anticipated their top choice, but the percentage who felt "very strong" satisfaction with their top choice increased to 42% on exit. Visitors' strength of anticipation was highest with social and reflective experiences (50% and 32%, respectively, rating them "very strong"). Again, visitors' strength of satisfaction was highest with social and reflective experiences (72% and 48%, respectively, rating them "very strong").

Figure 7. Strength of Anticipation and Actual Satisfaction
(Percent)
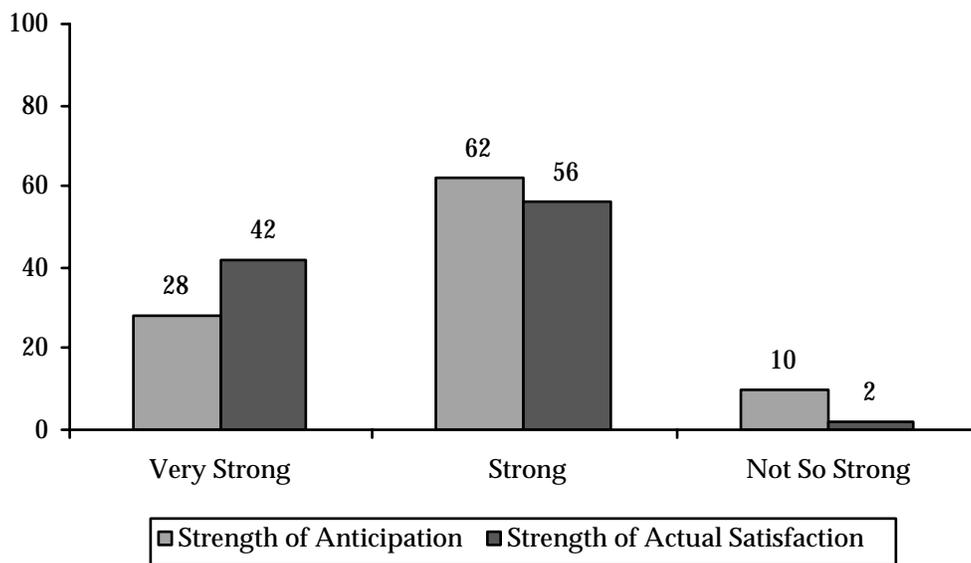
Over half of visitors' most satisfying experiences occurred in four exhibitions.

One in five exiting visitors reported, reading a list of exhibitions, that their most satisfying experience occurred in the First Ladies exhibition. One in eight reported that it occurred in the military exhibits (3rd floor East, including *Boomers*), one in ten at the Star Spangled Banner, and another one in ten in the transportation halls (including road

transportation and railroads). Object experiences were prominent in First Ladies (43%) and at the Star Spangled Banner (63%). Reflective experiences were more prominent in the military exhibits (34%) than in the other three areas. The transportation halls elicited the highest percentage of social experiences (24%).

Learning among museum visitors did not differ from that of exhibition visitors
Two in five exiting museum visitors reported that they learned something specific during their visit (40%). Visitors most often learned object facts, followed by science facts (mostly about Star Spangled Banner conservation), and people facts.

Figure 8. Learning in the Museum

(Percent)
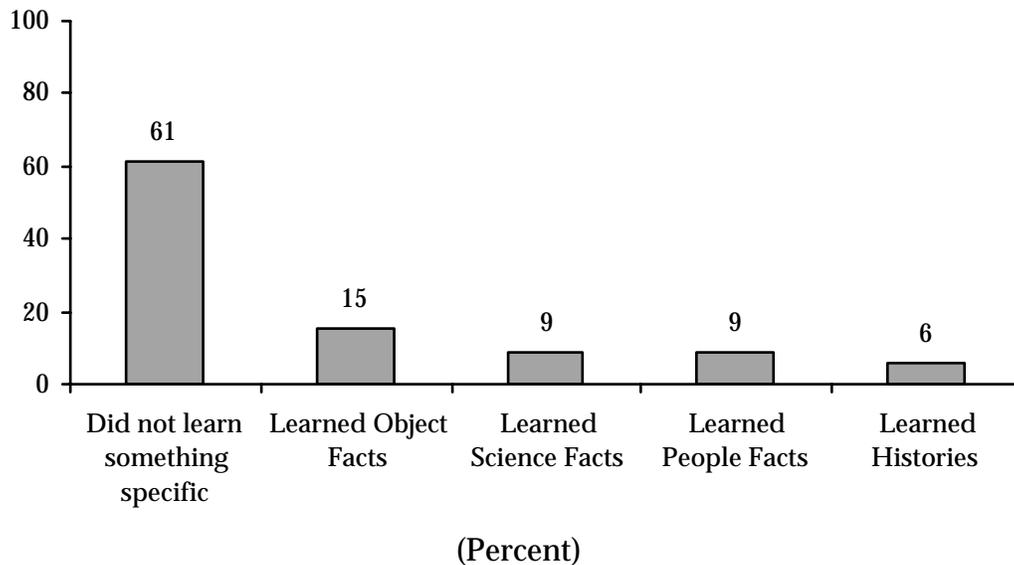
Over half of first time visitors reported learning something specific (53%), compared to 40% of those who have visited in the past 4 years and 32% of those last visiting more than 4 years ago.

The Star Spangled Banner was the most impressive object for museum visitors.
Three out of five (59%) exiting visitors reported that they were deeply impressed by a specific object in the museum, slightly more than in the exhibition. The most impressive object, by far, was the Star Spangled Banner, cited by 18% of exiting visitors. Other impressive objects could be found in the railroads and road transportation exhibits and the military exhibits. The First Ladies' gowns were mentioned by 5%.

Delight with the museum visit was predicted by very strong satisfying experiences.
Regression analysis indicates that having a "very strong" satisfying experience is the prime predictor of increased satisfaction with the museum visit.[8] Delight was positively correlated with the strength of their most satisfying experience; 47% of those rating their most satisfying experiences "very strong" were also "delighted" with their

museum visits (compared to just 21% of those rating their most satisfying experience "strong" or "not so strong."

OTHER CHARACTERISTICS OF THE NMAH AUDIENCE

Visitors spent about the same time in the museum as they planned to on arrival.
On average, entering visitors planned to spend 97 minutes in the museum. The median time planned was 76 minutes. One-third planned to spend more than a half hour but no less than an hour and another third planned to spend over an hour but not less than two hours. These estimates were not far from how long exiting visitors reported that their visits were; the average time was 99 minutes and the median time was 79 minutes, with one-quarter spending a half hour to an hour and one-third spending an hour to two hours.

Former visitors spent the most time in the museum (130 minutes on average, 99 median); recent repeat visitors spent the least time (73 minutes, 58 median) and first time visitors spent 98 minutes on average (78 median).

The Star Spangled Banner was the most visited exhibition among exiting visitors. Exiting visitors were asked if they visited three exhibitions other than *Boomers*: First Ladies, the Star Spangled Banner (SSB), and Science in American Life (SAL). More than half of exiting visitors saw the SSB (58%) or First Ladies (55%). Two in five (39%) saw SAL.

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[8] Data on file.

Figure 8. Visits to Major NMAH Exhibitions
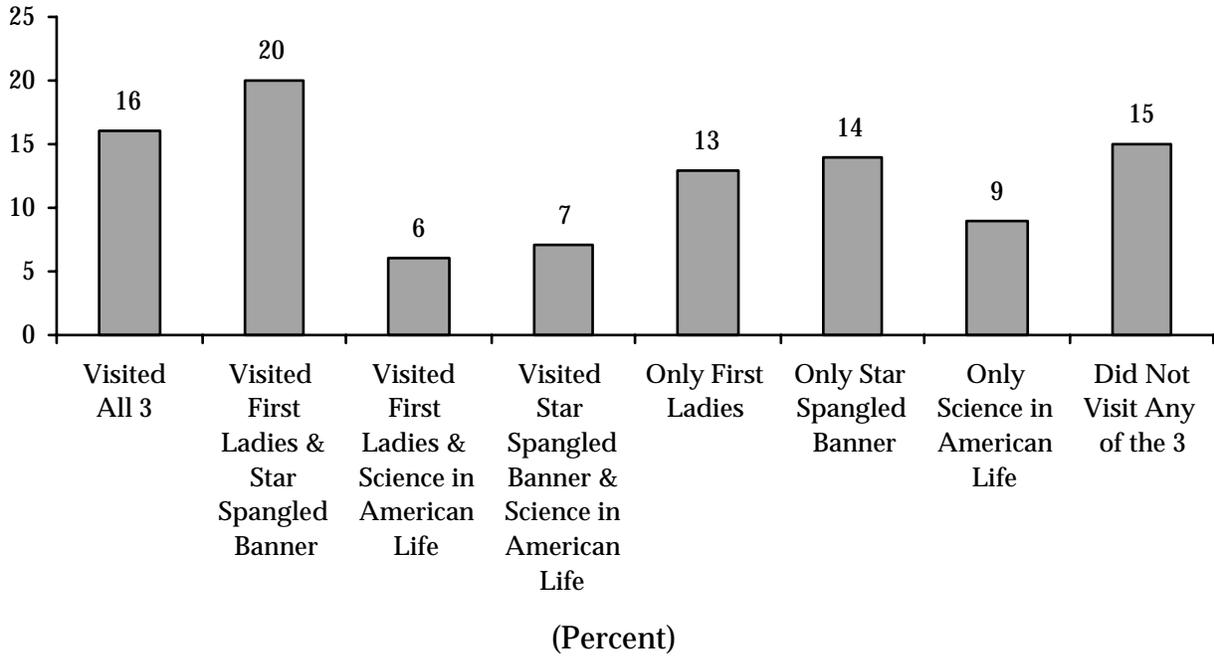
Sixteen percent saw all three exhibitions, 33% saw two, 35% saw only one, and 15% didn't see any of the three. Five percent saw all three and *Boomers*.

Museum Entrance

id ☐☐☐

interv ○ KD ○ AD ○ CP
○ WW ○ SS ○ EM
○ DK ○ KE

☐☐☐☐ zip

Count _____

Hi. My name is ____. I work for the Smithsonian. I'm talking to people about their visit today.

*1. Where do you live?   statecty ☐☐

○ Washington, DC   ○ Other US _____
○ MD/VA suburbs   ○ Foreign _____

2. Is today your first visit to the Smithsonian?

○ Yes: GO TO Q4   ○ No   q3atimes ☐☐

3. Have you visited this museum, the American History museum, before today? ○ No: GO TO Q4   ○ Yes

3a. How many times? _____
3b. When was the last time you were here?

○ within 6 mos.   ○ 7 mos-2 yrs   ○ 2-4 yrs   ○ 4+ yrs

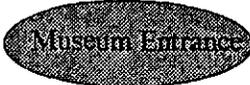**4. On this card are some experiences that people have told us were satisfying to them in the American History museum.** SHOW CARD **Which of these are you looking forward to having in this museum today? Choose all that apply.** Mark all **Anything else?**

○ g. spending time with
○ c. children learning
○ b. moved by beauty
○ r. seeing rare,valuable things
○ j. seeing real thing
○ o. thinking about owning
○ u. enriching understanding

○ k. gaining knowledge
○ w. reflecting on meaning
○ x. continuing prof. devel.
○ s. spiritual connection
○ i. imagining
○ m. recalling memories
○ f. feeling connected

5. Which one of those are you MOST looking forward to in this museum? (repeat selected items if necessary) If first choice is g or c, ask for 2nd.

1st____   2nd____   ☐☐ sat1st sat2nd

6. How strongly are you looking forward to it? Not so strongly, strongly or very strongly?

1st ○ 1 Not so strongly   ○ 2 Strongly   ○ 3 Very strongly
2nd ○ 1 Not so strongly   ○ 2 Strongly   ○ 3 Very strongly

7. Is there something in particular you wanted to see or do in this museum today?   partwhat ☐☐

○ No
○ Yes What? _____

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8. Have you heard of the exhibition, Fast Attacks and Boomers, Submarines in the Cold War?   firsthear ☐☐

○ No: GO TO Q9b   ○ Yes

8a. Where did you FIRST hear about it? _____

8b. Where else did you hear about it? (mark all)

q8bother ☐☐

○ banner
○ newspaper
○ military association
○ non-mil.friend/family

○ SI info
○ SI mag
○ Other _____

9. Have you visited the exhibition before today?

○ No: 9b. Do you plan to visit it?/Are you interested in seeing it?   ○ Yes   ○ No

○ Yes: Go To Q11   expect ☐☐

10.What would you expect to see in the exhibition?

_____
_____
_____

Now just a few questions about you ...

11. How long do you plan to spend in this museum today?

q11time ☐☐☐

*17. Who are you here with today? (code whole group)

○ Alone   ○ Adult(s) with child(ren)/teens
○ 2 adults   ○ 2+ teens
○ 3+ adults   ○ Tour/school group

*18. What is your age? _____   age ☐☐

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

○ HS grad or less   ○ Bachelor's degree
○ Assoc/Jr/Tech   ○ Some graduate study
○ Some college   ○ MA/Ph.D/Profess.

*20. What is your racial/ethnic identity?

○ African American/Black   ○ Hispanic/Latino
○ Asian/Pac. Islander   ○ Native Am./AK Native
○ Caucasian/White   ○ Multiple
○ Other _____

21. What is your zip code? _____

*22. Mark gender: **THANK YOU**

○ Female   ○ Male

ADMIN BOX   card ○ a ○ b ○ c   status

session ☐☐

segment
○ 1 ○ 4
○ 2 ○ 5
○ 3 ○ 6

location
○ Mall Side
○ Constitution

○ Interview ○ Ref. lang
○ SI staff ○ Ref. other
○ Inelig. _____

-A.1-

1543262968

Museum Exit

id ☐☐☐☐

interv: ○ KD ○ AD ○ CP ○ WW ○ SS ○ EM ○ DK ○ KE

Count _____

Hi. My name is ____. I work for the Smithsonian. I'm talking to people about their visit today.

*1. Where do you live?   statecty ☐☐☐

  ○ Washington, DC ○ Other US _____
  ○ MD/VA suburbs ○ Foreign _____

2. Is today your first visit to the Smithsonian?

  ○ Yes: GO TO Q4 ○ No q3atimes ☐☐

3. Have you visited this museum, the American History museum, before today? ○ No: GO TO Q4 ○ Yes

3a. How many times? _____

3b. When was the last time you were here?

  ○ within 6 mos. ○ 7 mos-2 yrs ○ 2-4 yrs ○ 4+ yrs

4. On this card are some experiences that people have told us were satisfying to them in the American History museum. [SHOW CARD] **Which of these were most satisfying for you in this museum today? Choose all that apply.** [Mark all] **Anything else?**

○ g. spending time with ○ k. gaining knowledge
○ c. children learning ○ w. reflecting on meaning
○ b. moved by beauty ○ x. continuing prof. devel.
○ r. seeing rare,valuable things ○ s. spiritual connection
○ j. seeing real thing ○ i. imagining
○ o. thinking about owning ○ m. recalling memories
○ u. enriching understanding ○ f. feeling connected

5. Which one of those was MOST satisfying to you in this museum? (repeat selected items if necessary) If first choice is g or c, ask for 2nd.

1st____ 2nd____ ☐☐ sat1st sat2nd

6. How strong was your satisfaction with that experience? Not so strong, strong or very strong?

1st ○ 1 Not so strong ○ 2 Strong ○ 3 Very strong
2nd ○ 1 Not so strong ○ 2 Strong ○ 3 Very strong

6a. Where in this museum did you most notice having that experience? (most, 1st only)

_____ ☐☐ q6a

7. Was there something in particular you wanted to see or do in this museum today? partwhat ☐☐

q8bother ☐☐
  ○ No
  ○ Yes What? _____

q8afirst ☐☐

8. Have you heard of the exhibition, Fast Attacks and Boomers, Submarines in the Cold War?

  ○ No: GO TO Q10 ○ Yes

8a. Where did you FIRST hear about it? _____

8b. Where else did you hear about it? (mark all)

○ banner ○ SI info
○ newspaper ○ SI mag
○ military assoc. ○ Other _____
○ non-mil.friend/family

9. Did you visit the exhibition today?
  ○ No: Go To Q10 ○ Yes

9a. Was that your first visit to that exhibition?
  ○ Yes: Go To Q11X ○ No: Go To Q11X

10. What would you expect to see in the exhibition?

_____
_____
_____

expect ☐☐

11x. On your visit today, did you see First Ladies, the Star Spangled Banner, or Science in American Life?

  ○ 1st Ladies ○ Star Spangled ○ Sci in Am Life

12. Was there something specific you learned during your visit to this museum today? q12a ☐☐

  ○ Yes 12a. What was that?
  ○ No _____
_____

13. Was there a specific object that deeply impressed you?

  ○ Yes 13a. What was that? q13a ☐☐
  ○ No
_____
_____

6081165995

14. What time did you enter this history museum?

_____   ☐☐☐☐ q14time

15. How would you rate your overall satisfaction with this museum today? Was it delightful, fully satisfying, satisfying, somewhat disappointing, or disappointing?

- O delightful
- O fully satisfying
- O satisfying
- O somewhat disappointing
- O disappointing

Now just a few questions about you ...

*17. Who are you here with today? (code whole group)

- O Alone
- O 2 adults
- O 3+ adults
- O Adult(s) with child(ren)/teens
- O 2+ teens
- O Tour/school group

*18. What is your age? _____   age ☐☐

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

- O HS grad or less
- O Assoc/Jr/Tech
- O Some college
- O Bachelor's degree
- O Some graduate study
- O MA/Ph.D/Profess.

*20. What is your racial/ethnic identity?

- O African American/Black
- O Asian/Pac. Islander
- O Caucasian/White
- O Hispanic/Latino
- O Native Am./AK Native
- O Multiple
- O Other

21. What is your zip code? _____

*22. Mark gender:

- O Female
- O Male

extra1

☐☐

extra2

☐☐

extra3

☐☐

extra4

☐☐

extra5

☐☐

☐☐☐☐☐ zip

THANK YOU

-A.3-

6058165999

id ☐☐☐☐

interv: ○ KD ○ AD ○ CP ○ WW ○ SS ○ EM ○ DK ○ KE

Count _____

Hi. My name is ____. I work for the Smithsonian. I'm talking to people about their visit today.

*1. Where do you live?   statecty ☐☐☐

○ Washington, DC   ○ Other US _____
○ MD/VA suburbs   ○ Foreign _____

2. Is today your first visit to the Smithsonian?

○ Yes: Go To Q7   ○ No   q3atimes ☐☐

3. Have you visited this museum, the American History museum, before today?   ○ No: GO TO Q7   ○ Yes

3a. How many times? _____
3b. When was the last time you were here?

○ within 6 mos.   ○ 7 mos-2 yrs   ○ 2-4 yrs   ○ 4+ yrs

7. Was there something in particular you wanted to see or do in this museum today?   partwhat ☐☐

○ No
○ Yes What? _____

9. *if Q3 is yes:* Have you visited this exhibition, Fast Attacks and Boomers, before today?   ○ No   ○ Yes

8a. Where did you FIRST hear about the exhibition? _____   q8afirst ☐☐

8b. Where else did you hear about it? (mark all) q8bother ☐☐

○ banner   ○ SI info
○ newspaper   ○ SI mag
○ military assoc. ○ Other _____
○ non-mil.friend/family

23. How would you describe this exhibition to someone who asked you what it was about?

_____
_____
_____
_____
_____

15. How would you rate your overall satisfaction with this exhibition today? Was it delightful, fully satisfying, satisfying, somewhat disappointing, or disappointing?

○ delightful
○ fully satisfying
○ satisfying
○ somewhat disappointing
○ disappointing

4. On this card are some experiences that people have told us were satisfying to them in this exhibition. SHOW CARD Which of these were most satisfying for you in this exhibition today? Choose all that apply. Mark all Anything else?

○ g. spending time with   ○ k. gaining knowledge
○ c. children learning   ○ w. reflecting on meaning
○ b. moved by beauty   ○ x. continuing prof. devel.
○ r. seeing rare,valuable things ○ s. spiritual connection
○ j. seeing real thing   ○ i. imagining
○ o. thinking about owning   ○ m. recalling memories
○ u. enriching understanding   ○ f. feeling connected

5. Which one of those was MOST satisfying to you in this exhibition? (repeat selected items if necessary) If first choice is g or c, ask for 2nd.

1st _____   2nd _____   ☐ ☐ sat1st sat2nd

6. How strong was your satisfaction with that experience? Not so strong, strong or very strong?

1st ○ 1 Not so strong   ○ 2 Strong   ○ 3 Very strong
2nd ○ 1 Not so strong   ○ 2 Strong   ○ 3 Very strong

6a. Where in this exhibition did you most notice having that experience? (most, 1st only) ☐☐

_____
_____ q6a

☐☐ describe

ADMIN BOX   card ○ a ○ b ○ c   status

session	segment	location	
☐☐	○ 1 ○ 4	● Exhibition	○ Interview ○ Ref: lang
	○ 2 ○ 5		○ SI staff ○ Ref. other
	○ 3 ○ 6		○ Inelig. _____

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12. Was there something specific you learned during your visit to this exhibition today?

q12a [|]

    ○ Yes   **12a. What was that ?**

    ○ No   _____

    _____

13. Was there some specific object that deeply impressed you during your visit to this exhibition today?

q13a [|]

    ○ Yes   **13a. What was that ?**

    ○ No   _____

    _____

extra1 [|]

extra2 [|]

extra3 [|]

extra4 [|]

extra5 [|]

16. On a scale from 1 to 10, where 1 is DON'T SEE and 10 is MUST SEE how important is it for Smithsonian visitors to see this exhibtion?

_____   [|] q16

Now just a few questions about you ...

*17. Who are you here with today? (code whole group)

    ○ Alone   ○ Adult(s) with child(ren)/teens

    ○ 2 adults   ○ 2+ teens

    ○ 3+ adults   ○ Tour/school group

*18. What is your age? _____ age [|]

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

    ○ HS grad or less   ○ Bachelor's degree

    ○ Assoc/Jr/Tech   ○ Some graduate study

    ○ Some college   ○ MA/Ph.D/Profess.

*20. What is your racial/ethnic identity?

    ○ African American/Black ○ Hispanic/Latino

    ○ Asian/Pac. Islander   ○ Native Am./AK Native

    ○ Caucasian/White   ○ Multiple

                            ○ Other

[| | | |] zip

21. What is your zip code? _____

*22. Mark gender: ○ Female

                    ○ Male   **THANK YOU**

Appendix B. Tables

Table B-1
Sources of Information about the *Boomers* Exhibition
(In percent)

How did you first hear about *Fast Attacks and Boomers?*	Museum Sample %	Exhibition Exit %
Banners	55	39
Newspaper/Magazine	8	7
Word of Mouth	8	10
Smithsonian and/or Museum Information	13	16
Signs In the Museum	4	5
Wandered By	4	20
Other	9	4
Total	101	100

Note: Differences between museum and exhibition samples are statistically significant at the 0.05 probability level (chi-square).

Table B-2
Expectations and Descriptions of the *Boomers* Exhibition
(In percent)

(1) What would you expect to see in the *Boomers* exhibition? (2) How would you describe the *Boomers* exhibition?	(1) Museum visitors who did not see *Boomers* %	(2) Exhibition Exit %
Submarines (in general)	21	10
* Vital Roles of Submarines	14	18
* Technology of Submarines	10	12
General History of Submarines or the Cold War	5	12
* Human Experiences	4	19
Original Artifacts & Models (submarines, parts of subs, e	18	3
Other	3	3
Positive Comment (informative, excellent, etc.)	1	18
Don't Know	22	5
Total	100	100

* These are the three major themes intended by the exhibition organizers.

Note: Differences between museum and exhibition samples are statistically significant at the 0.05 probability level (chi-square).

Table B-3
Overall Satisfaction with Visit
(In percent)

How would you rate your overall satisfaction with this museum/exhibition today?	Museum Exit %	Exhibition Exit %
Delightful	32	25
Fully satisfying	37	41
Satisfying	29	31
Somewhat disappointing	1	2
Disappointing	<u>1</u>	<u>1</u>
Total	100	100

Table B-4
Anticipated and Actual Experiences
(In percent)

(1) Which of these experiences are you most looking forward to in this museum today? (2) Which of these experiences were most satisfying for you in this museum/this exhibition today?	(1) Museum Entrance %	(2) Museum Exit %	(2) Exhibition Exit %
Learning experiences	**81**	**74**	**83**
Gaining information/knowledge	69	62	70
Enriching my understanding	56	52	54
Object experiences	**72**	**81**	**68**
Seeing uncommon/rare/valuable things	48	50	25
Seeing the "real thing"	44	61	54
Being moved by beauty	18	16	2
Thinking what it would be like to own such things	6	12	7
Continuing my professional development	5	5	7
Reflective experiences	**54**	**73**	**53**
Imagining other times or places	36	41	29
Feeling a spiritual connection	9	13	8
Reflecting on the meaning of what I was looking a	17	26	22
Feeling a sense of belonging or connectedness	13	18	13
Recalling my travels/childhood experiences/ other memories	15	23	11

Social experiences	**36**	**32**	**19**
Spending time with friends/family/other people	28	25	13
Seeing my children learning new things	15	14	9

Note: Totals equal more than 100%, as visitors were asked to give more than one response.

Table B-5
Single Most Anticipated and Actual Experiences
(In percent)

(1) Which ONE experience are you most looking forward to in this museum? (2) Which ONE experience was most satisfying for you in this museum/this exhibition?	(1) Museum Entrance %	(2) Museum Exit %	(2) Exhibition Exit %
Learning experiences	**43**	**32**	**42**
Gaining information/knowledge	36	24	29
Enriching my understanding	6	8	13
Object experiences	**26**	**37**	**34**
Seeing uncommon/rare/valuable things	10	9	5
Seeing the "real thing"	12	24	26
Being moved by beauty	4	2	0
Thinking what it would be like to own such things	0	0	0
Continuing my professional development	0	1	2
Reflective experiences	**14**	**21**	**19**
Imagining other times or places	5	5	6
Feeling a spiritual connection	1	2	1
Reflecting on the meaning of what I was looking a	3	4	5
Feeling a sense of belonging or connectedness	1	5	2
Recalling my travels/childhood experiences/ other memories	3	5	4
Social experiences	**17**	**11**	**6**
Spending time with friends/family/other people	7	5	3
Seeing my children learning new things	<u>10</u>	<u>6</u>	<u>2</u>
Total	100	101	100

Table B-6
Strength of Experience
(In percent)

(1) How strongly are you looking forward to that experience? (2) How strong was your sense of satisfaction with that experience?	(1) Museum Entrance %	(2) Museum Exit %	(2) Exhibition Exit %
Not so strong	10	2	5
Strong	62	56	61
Very strong	<u>28</u>	<u>42</u>	<u>34</u>
Total	100	100	100

Note: Differences between museum exit and exhibition exit samples are statistically significant at the 0.05 probability level (chi-square).

Table B-7
Location of Most Satisfying Exhibition Experiences
(In percent)

Where in the exhibition did you most notice having that experience?	Exhibition Exit %
Life Aboard	30
Control Center	12
Torpedoes and Missiles	10
Attack Center	9
Timeline	8
Nuclear Power and Propulsion	4
Submarine Models and Classification	3
Navy Wives	3
Sonar	2
Other	<u>19</u>
Total	100

Table B-8
Location of Most Satisfying Museum Experiences
(In percent)

Where in the museum did you most notice having your most satisfying experience?	Museum Exit	Type of Experiences			
		Learning	Object	Reflective	Social

First Ladies	20	28	44	18	10
Military Exhibits	10	22	35	33	11
Star Spangled Banner	11	15	63	22	0
Transportation Halls	10	28	25	24	24
Other Exhibits	<u>49</u>	37	37	20	7
Total	100				

Table B-9
Visits to Other Exhibitions
(In percent)

Did you visit any of these exhibitions today?	Museum Exit %
First Ladies	55
The Star Spangled Banner	58
Science in American Life	39

Table B-10
Learning in the Museum and Exhibition
(In percent)

Was there something specific you learned during your visit to the museum/exhibition today? What was it?	Museum Exit %	Exhibition Exit %
No	**60**	**61**
Yes	**40**	**39**
(a) Object facts	*15*	*19*
Science facts (conservation, technology)	*9*	*8*
People facts	*9*	*7*
Histories	*6*	*5*
Had an emotional response (pride, empathy, etc.)	*1*	*0*
Total	*40*	*39*
(b) Technology of Submarines		*21*
Human Experiences		*9*
General History of Submarines or the Cold War		*5*
Vital Roles of Submarines		*4*
Other		*1*
Total		*40*

Note: Responses from visitors interviewed at *Boomers* were categorized in two ways:
(a) by type of information learned, and (b) according to the themes of the exhibition.

Table B-11
Impressive Objects in the Exhibition
(In percent)

Was there some specific object that deeply impressed you during your visit to the exhibition today? What was it?	Exhibition Exit %
No	**49**
Yes	**51**
Crew Quarters	*20*
Torpedoes and Missiles	*13*
Control and Attack Centers	*6*
Other	*12*
Total	**100**

Note: Responses were not specific enough to distinguish the Attack Center from the Control Center.

Table B-12
Impressive Objects in the Museum
(In percent)

Was there some specific object that deeply impressed you during your visit to the museum today? Where was it?	Museum Exit %
No	**41**
Yes	**59**
The Star Spangled Banner	*18*
First Ladies' Gowns	*5*
Transportation Halls	*8*
Military Exhibits	*6*
Fast Attacks and Boomers	*2*
Other	*20*
Total	**100**

Table B-13
Previous Visits to the Smithsonian and to NMAH
(In percent)

Visits made to the Smithsonian and to NMAH	Museum Sample %	Exhibition Exit %
No previous visits to SI or NMAH	38	35
No previous visits to NMAH, but repeat visitor to SI	19	21
Last visit to NMAH within the last 4 years	21	16
Last visit more than 4 years ago	<u>23</u>	<u>28</u>
Total	101	100

Note: Differences between samples are statistically significant at the 0.05 probability level (chi-square).

Table B-14
Number of Previous Visits to NMAH
(In percent)

How many times have been to this American History Museum before today?	Museum Sample %	Exhibition Exit %
No previous visits to SI or NMAH	38	36
No previous visits to NMAH, but repeat visitor to SI	19	21
1 to 3 visits	29	23
4 or more visits	<u>14</u>	<u>20</u>
Total	100	100

* Differences between samples are statistically significant at the 0.05 probability level (chi-square).

Table B-15
Residence of Visitors
(In percent)

Where do you live?	Museum Sample %	Exhibition Exit %
Washington, DC	3	3

Maryland/Virginia Suburbs	9	11
Other US State	76	73
Foreign Country	<u>12</u>	<u>13</u>
Total	100	100

Note: Differences between samples are statistically significant at the 0.05 probability level (chi-square).

Table B-16
Gender of Visitors
(In percent)

Gender	Museum Sample %	Exhibition Exit %
Female	53	31
Male	<u>47</u>	<u>69</u>
Total	100	100

Note: Differences between samples are statistically significant at the 0.05 probability level (chi-square).

Table B-17
Age of Visitors
(In percent)

Age	Museum Sample %	Exhibition Exit %
12 to 18	10	6
19 to 24	6	7
25 to 34	17	19
35 to 44	24	27
45 to 54	16	22
55 to 64	15	13
65 or older	<u>13</u>	<u>7</u>
Total	101	100

Note: Differences between samples are statistically significant at the 0.05 probability level (chi-square).

Table B-18
Visit Group Composition of Visitors
(In percent)

Visit Group Composition	Museum Sample %	Exhibition Exit %
Visiting Alone	19	23
2 Adults	31	36
3 or More Adults	13	17
Adult(s) with Child(ren)	21	15
2 or More Teenagers	1	1
Tour or School Group	<u>15</u>	<u>8</u>
Total	100	100

Note: Differences between samples are statistically significant at the 0.05 probability level (chi-square).

Table B-19
Racial and Ethnic Identification of Visitors
(In percent)

Racial and Ethnic Identification	Museum Sample %	Exhibition Exit %
African American/Black	2	1
Asian/Pacific Islander	3	5
Caucasian/White	87	89
Hispanic/Latino	3	2
Native American/Alaskan Native	0	1
Multiple Ethnicities or Other	<u>3</u>	<u>1</u>
Total	100	100

APPENDIX C.

STUDY METHODS

Data for this study were collected in personal interviews with respondents who were selected using a "continuous" systematic sample design.[8] Teams of three people, one to select respondents for interviewing plus two interviewers, were used. Interviewers administered a questionnaire with both pre-coded and open-ended questions and thanked participants with postcards from the National Museum of American History (NMAH) bookstore.

Data were collected from three systematic samples: (1) visitors exiting NMAH (Museum Exit), (2) visitors entering NMAH (Museum Entrance), and (3) visitors exiting the *Fast Attacks and Boomers: Submarines in the Cold War* exhibition (Exhibition Exit). Interviews were conducted between October 16, 2000 and October 29, 2000, a total of 14 days.

Interviews were conducted on each day of the week during the data collection period. Surveys were coordinated so that the same people would not be selected for both. Visitor cooperation with the study was fairly high – 90% in the Museum Entrance Survey, 82% in the Museum Exit Survey, and 91% in the Exhibition Exit Survey – for an overall response rate of 86%. Altogether 1053 interviews were completed (379 at the museum exit, 352 at the museum entrance, and 322 at the exhibition exit), out of 1227 attempts. The intercepted individuals represent a population of about 26,540 visitors during the survey period.

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[8] The procedure and its rationale are described in Z. D. Doering, A. E. Kindlon and A. Bickford, *The Power of Maps: A Study of an Exhibition at the Cooper-Hewitt National Museum of Design* Report 93-5. (Washington, DC: Smithsonian Institution, 1993).

COMPLETION RATES

Overall, 13% of the visitors intercepted (174 people) refused to participate in the survey. While 156 refusals were due to language difficulties, the rest (18) were for "other" reasons (e.g., visitors in a hurry, not wanting to detain companions, etc.).

An analysis of non-respondents showed the following:

- Visitors 18 and younger were more likely to refuse than others (21%) and those 55 and older were least likely to refuse (8-9%).
- Those interviewed at the museum exit were more likely to refuse than those entering or those at the exhibition (18% vs. 9-10%).

SAMPLE DIFFERENCES

The *Boomers* audience had more men, more recent repeat visitors, and more baby boomers than the museum audience but fewer older visitors and fewer tour or school group members. There were no significant differences in visitor residence, education, or race/ethnicity. There were few differences between the museum entrance sample and the museum exit sample. The entrance sample had more 19 to 34 year olds (17% vs. 30%), more DC residents (6% vs. 1%), more first time American History visitors (25% vs. 34%), fewer tour/school group members (6% vs. 22%), and fewer first time Smithsonian visitors (33% vs. 40%) than the exit sample.

The museum is attracting more women, more former visitors, more adult and child groups, and more members of racial/ethnic minority groups than it was six years ago

(October 1994)[9], but there are also fewer new visitors and fewer visitors coming alone or in an adult couple.

[9] Kindlon, A. E., Pekarik, A. J., & Doering, Z. D. (1996). *Visitors to History: A Report based on the 1994-95 National Museum of American History Visitor Study* (Report 96-3B). Washington, DC: Smithsonian Institution.