Space Fantasy and Social Reality:

A Study of the *Star Trek* Exhibition at the National Air and Space Museum

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Acknowledgments

In Fall 1992, Mary S. Henderson, Curator of Art and Culture, National Air and Space Museum (NASM), suggested a study of the *Star Trek* exhibition. This report summarizes that study. Its purpose is to share with the museum community what we did and what we found as our part of an effort to improve the visitors' experience at NASM and at the Smithsonian. We also hope that colleagues throughout the country will find both the research approach and the results helpful.

The study reflects the work, support and cooperation of numerous people. At NASM, Martin Harwit, former Director, and Wendy Stephens, former Deputy Director, provided resources for the study. Mary Henderson worked very closely with us as we developed the questionnaire, collected data and interpreted the results. She was, in every respect, an ideal client. Walton Ferrell, from NASM's Office of Public Affairs, encouraged the participation of some of his colleagues in the data collection and provided helpful comments on this report.

NASM staff members, volunteers, and interns willingly gave their time and energy to the data collection. From NASM, in addition to Mary Henderson, Barbara Brennan, Walton Ferrell, Linda King, and Walter Rostron assisted with the data collection. Mary Case, Robert Craddock, Dagny Glover and Kathryn Moore also conducted interviews. Their conscientious efforts are reflected in high visitor participation rates (80%). We truly appreciate their efforts.

In the Institutional Studies Office (ISO), Ann Ziebarth and Lassa Skinner coordinated the data collection and entry. Most importantly, we would like to acknowledge the 1365 visitors who took the time, in the midst of a museum visit, 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.

Summary

Between February 28, 1992, and January 31, 1993, the National Air and Space Museum (NASM) presented an exhibition in conjunction with the 25th anniversary of the creation of the television series, *Star Trek*. About 885,000 visits were made to the exhibition.

The presentation of the exhibition emphasized the relationship of various *Star Trek* episodes to the social changes and issues of the 1960's, in particular, racial relations, gender equality, the Vietnam War, and superpower conflict. By emphasizing the television show's involvement with these pressing concerns, Mary Henderson, NASM's Curator of Art and Culture, sought to demonstrate the importance of the series as a influence on public attitudes. In addition to the explicit theme (Star Trek as social commentary) the exhibition had an implicit theme (commemoration and celebration of the TV series and its messages of hope and tolerance). The implicit message was conveyed through the reverent context in which props were exhibited, the opportunities to place oneself in the stage set, and the closing section of the exhibition film.

This study investigated the composition of the audience, the extent to which visitors recognized and responded to the exhibition theme, and the relative effectiveness of the exhibition elements and presentation strategies.

The Audience

- o In the eleven months that the exhibition was on view, one in ten visits to NASM included seeing the *Star Trek* exhibition.

- o Most exhibition visitors came to NASM for other reasons.
  -- 30% came specifically to see the exhibition, primarily local visitors.

- o *Star Trek* drew a few new visitors to NASM.
  -- 4% of the visitors made their first visit to NASM in order to see *Star Trek* (12% of all first-time visitors to NASM).
  -- Three out of four of these first-time NASM visitors who came to see *Star Trek* were also first-time visitors to the Smithsonian.

- o Individuals familiar with the Smithsonian and NASM were most likely to visit NASM specifically to see *Star Trek*.
  -- The exhibition provided many individuals who had previously visited NASM with an opportunity to re-visit.
  -- As the period of time since a respondent's last visit to NASM decreases, the proportion of respondents wishing to see *Star Trek* increases.

This is the only exhibition study that we have conducted at NASM. Although attendance for this exhibition was unusually high, we cannot evaluate whether the patterns of audience response, such as the percentage of new visitors who came because of the exhibition, were typical for this museum or not. We believe, however, that most Smithsonian museum exhibitions primarily attract local, frequent visitors.

Messages

- o Nearly two-thirds of all respondents (63%) thought that the exhibition had a message.
  -- Watching the exhibition film increased the probability of seeing a message by 9 percent.

- o One-third (31%) identified messages reflecting the content of the *Star Trek* television series (primarily optimism about the future and racial tolerance).
  -- Being older (between 45 and 54), and watching the film increased the likelihood that an individual would see one of the themes of the *Star Trek* series itself as the message of the exhibition by 3 percent and 6 percent, respectively.

- o Almost three-tenths (28%) of visitors identified messages reflecting the curator's explicit theme of social commentary, i.e., seeing *Star Trek* as a reflection of the social and political issues of the 1960's.
  -- Respondents who had previously visited other Smithsonian museums were 5% more likely to find a social commentary message.

- o Almost three-tenths (28%) of visitors identified messages reflecting traditional museum goals of communicating information and educating visitors.
  -- Visitors who watched less than half of the film were 7 percent more likely to see this kind of message in *Star Trek*.

- o Some visitors (13%) could not articulate any message or gave one that did not fit the three main categories.
  -- First-time SI visitors were 4 percent more likely to choose a message that was neither the message of *Star Trek*, the curator's message, nor the general NASM message.

Individuals who were new to NASM or the Smithsonian had more difficulty deciphering the curatorial message. Conversely, experience with different types of museums helped visitors to recognize the intended theme. This result may reflect the level of expertise needed to decode the museum medium. It may also reflect the different aims of new visitors to NASM, who are primarily attracted to the museum as a national icon and would be expected to give less attention to analytical approaches.

Thought-provoking Sections

Approximately half of the exhibition's 18 sections emphasized social commentary, while the other half focused on *Star Trek* itself and could be seen as reinforcing the implicit, celebratory ("commemoration") message of the exhibition.

- o Forty percent of all respondents said that "commentary" sections were most thought-provoking, and 60 percent chose "commemoration" sections.
  - -- Visitors ages 24 and under were 5 percent more likely to choose a commentary section.
  - -- Having a Bachelor's or graduate degree increased the probability of choosing a commentary section by 9 or 8 percentage points, respectively.
  - -- Watching the exhibition film increased the probability of choosing a commentary section by 8 percent.

- o Women were 15 percent more likely to cite Sexuality/Gender sections of the exhibition than men, and men were 8 percent more likely than women to consider a Politics section as thought-provoking.
  - -- Visiting NASM specifically to see the *Star Trek* exhibition reduced the probability of noting a Sexuality and Gender section by 6 percent.
  - -- Likewise, as one's level of involvement in, and experience watching *Star Trek* increases, the probability of citing one of these sections falls.

The more abstract and analytical subject matter of the social commentary sections apparently resonated more strongly with the best-educated visitors. The strongest correlation in the study, however, was between women visitors and sections discussing sexuality and gender in *Star Trek*. Similarly, the attraction of men to political discussions was the only other time in the study that gender was a significant factor in predicting response. Those most dedicated to *Star Trek* were noticeably less interested in sexuality and gender issues, probably because they fully accepted the assumptions about these issues that were embedded in the series itself.

Appropriateness

- o Of all respondents, 92% thought that it was appropriate to present the *Star Trek* exhibition alongside the artifacts of flight and space exploration at NASM. The most common reason given by visitors was that *Star Trek* was "about space" (22%), followed by statements that *Star Trek* was part of our culture, that both NASM and *Star Trek* were about "the future," and that exhibits like *Star Trek* help interest children in science and space exploration (12% each).
  - -- Visiting NASM to see *Star Trek* and watching at least half of the exhibition film increased the probability of finding it to be an appropriate exhibition subject, and possessing advanced academic and professional degrees slightly decreased the probability of thinking that NASM was an appropriate venue for the exhibition.

These results indicate that visitors are reluctant to question the wisdom of museum experts, and even more reluctant to admit their doubts to interviewers.

Exhibition Elements

- The film was an unusually influential element in the exhibition. It supported both the implicit and explicit messages of the exhibition at the same time. It drew visitors' attention to both, encouraging them to see the *Star Trek* theme as the message of the exhibition, but to find more personal meaning in the social commentary content.

Although this exhibition had two themes, only one of which was explicit, they did not clash, and, in some respects, may even have supported one another. The film seamlessly merged and embodied both messages, giving viewers a framework on which they could build their understanding of the exhibition.

Many exhibitions contain implicit and explicit themes. Implicitly, every museum exhibition communicates some degree of celebration and commemoration because of the general perception that museums preserve and display the valuable and the significant. Explicitly, every curatorial analysis or "contextualization" asks visitors to expand or revise their current understanding. In the case of *Star Trek* the curatorial analysis, though unexpected to most visitors, was completely in tune with the attitude and aims of the series' originator, and thus paralleled the subject matter.

Surprisingly, an individual's involvement with *Star Trek* did not influence the likelihood of identifying a particular message. Apparently, experience with the medium of television did not relate to dealing with the medium of the exhibition. This study, and others that we have done, indicate that while interest in the subject matter of an exhibition is an important factor in determining who visits an exhibition, most visitors seem to make clear, intellectual distinctions between the exhibition and its contents.

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I. The *Star Trek* Exhibition

Background

Between February 28, 1992 and January 31, 1993 the National Air and Space Museum (NASM) presented an exhibition in conjunction with the 25th anniversary of the creation of the television series, Star Trek. Over 884,000 visits were made to the Flight and the Arts Gallery on the second floor of the museum by visitors who happened to be in the museum, and those who came specifically to see the models, costumes and artifacts of the original Starship Enterprise and its crew.

Beyond marking a significant milepost in the history of an enormously popular television series, the materials emphasized the relationship of various *Star Trek* episodes to the social changes and issues of the 1960's, in particular, racial relations, gender equality, the Vietnam War, and superpower conflict. By emphasizing the television show's involvement with these pressing concerns, the exhibition's curator sought to demonstrate the importance of the series as a influence on public attitudes.

Here is the exhibition concept and approach, as described by *Star Trek's* chief curator, Mary S. Henderson, Curator of Art and Culture, NASM:

Introduction

There is perhaps no other fantasy more pervasive in the conceptualization of space flight than *Star Trek*. As we travel to the far reaches of space, we are learning not just about the physical properties of our universe, but about ourselves. Whether we think about it or not, our needs, abilities, fears, and values are being tested along with our scientific instruments and experiments

In the early 1960s, the United States made a commitment to a program of space exploration that would put people into space. During this time, when we were confronting travel to the unknown, writer Gene Roddenberry conceived a new television show entitled *Star Trek*. This show projected possible outcomes of such a confrontation. It rendered a vision of society and technology in the twenty-third century, in which space travel was possible. Unquestionably, the show influenced public attitudes about the space program. In 1968, while *Star Trek* was still in production, Roddenberry noted that:

> Quite often we hear individuals who are heavily involved in our nation's space programs express the feeling that *Star Trek* is helping prepare the public (and members of Congress, whom they depend upon for their budgets) for an eventual Mars shot, and beyond. This is gratifying to us. We hope we are helping to form the concept that present space attempts are not wasted money--or that future interplan-

etary space travel is not just "wild fiction". It will be as important to mankind tomorrow as the discovery of America was in its day.[1]

Yet while the show offered a vision of a journey outward into space, it also used this format to focus on an inward journey. While America was in the grip of enthusiasm for the "space race" there were pressing problems to be dealt with right here on Earth. Yet, for the most part, television shows avoided social and political commentary, focusing on entertainment. Roddenberry wanted to create a series that could address topics generally avoided in fictional programming at that time.

> I suddenly realized that here was a chance to do the kind of drama I'd always dreamed of doing. I had seen science fiction movies before but I'd always thought to myself "not enough characterization, not enough motivation." Perhaps I could use this as an excuse to go to those far off planets, with little polka dotted people if necessary, and be able to talk about love, war, nature, god, sex--all those things that go to make up the excitement of the human condition. And maybe the TV censors would let it pass because it all seemed so make believe.[2]

And in fact, it often did.

As a product of the 1960s, *Star Trek* delved into the problems and issues of those changing times. *Star Trek* featured the first inter-racial kiss in a television drama, in the episode "Plato's Stepchildren." It was the only dramatic series of its time to deal directly with the Vietnam War. The episode "A Private Little War" was a direct Vietnam allegory, and ironically enough aired just days after the start of the devastating Tet Offensive. Even subjects like birth control were treated in shows such as "Mark of Gideon," and drug addiction in "This Side of Paradise."

Star Trek was influential because the programs dealt with substantive human needs and concerns. Some of the episodes express anxiety about the effects of nuclear development, or the conflict between the peaceful uses of space and its potential as another theater of warfare. As the nation was trapped between a cold war on the one hand and a hot war in Vietnam, the relationship between the Federation and the Klingons and Romulans oftentimes mirrored these problems. In the episode "Day of the Dove," Captain Kirk puts it to the Klingon commander:

> Two forces aboard this ship, each of them equally we're a doomed ship, traveling forever between galaxies, filled with eternal blood lust, eternal warfare... we must stop the war now or spend eternity in futile, bloody violence--the good old game of war: pawn against pawn, stopping the bad guys... [3]

This is an apt metaphor for planet Earth, then as well as now.

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[1] Gene Roddenberry as quoted in The Making of *Star Trek* by Stephen E. Whitfield (Ballantine Books, New York: 1968), p. 200.

[2] *Star Trek: The* Unseen Pilot--An Introduction by Gene Roddenberry, the Creator of *Star Trek* from the video release of "The Cage." (Hollywood: Paramount Home Video, 1986).

[3] *Day of the Dove,* airdate November 1, 1968 (Hollywood: Paramount Home Video, 1989).

Star Trek offered for balance the hope that we would one day come to cherish and respect individuality and diversity, and that we could overcome prejudice of race, gender, and national origin. The officers and crew of the Enterprise included both men and women, and people of various races--an enormous step forward for television at that time.

It is perhaps somewhat ironic that *Star Trek*'s last episode aired shortly before the first manned lunar landing. Who would have thought then that we would travel to the moon only to stop there? The reality of space had to be confronted--vast, with incredible distances between planets and galaxies--and terrible loneliness. The universe of *Star Trek* in filled with life and adventure, things to do, aliens to meet, love, friendship, and romance.

The focus of *Star Trek* is the quest, "to explore strange new worlds, to seek out new life and new civilizations." In the end, *Star Trek* suggests that it is pointless to go into space without asking why we are going there in the first place. There are many answers--to push outward the frontiers, mental and physical, that bind us; to seek the adventure and knowledge of the unknown; to test ourselves and our ability to master the universe. But as these episodes so rightly point out, it is not just for reasons of adventure, curiosity, or conquest, but for every reason imaginable. For *Star Trek*, the essence of space exploration is also the essence of the human spirit.

The Implementation

To a certain degree, the concept was somewhat abstract. This chain of ideas can be easily followed by reading several pages of text. It is more difficult to adapt to the multi-sensory exhibition environment, particularly when one cannot count on visitors reading the labels. Creating a certain mind set in the viewer, and repeating and reinforcing the ideas, were basic to communicating the point of the exhibit. To this end, the space was divided up into three major areas: an entrance area to set visitors into a certain frame of mind, the main exhibition to detail the concepts, and a documentary video at the end of the exhibition to reinforce those concepts.

The purpose of the entrance of the gallery was to provide one unit of information (events of the sixties) and to induce a feeling in the visitor (using symbolism, placement, and metaphorical association). As visitors entered the gallery space, they passed through a hallway, lining up along a wall of black and white photos depicting the real world of the 1960s. These photos were to remind or educate the visitor about major events and trends of the period. As in the Wizard of Oz, the real world was depicted in black and white, while the fantasy world was in full color. On the wall opposite these depictions of the Vietnam war, Cuban missile crisis, and other problems of the times, the "Enterprise" beckoned, zooming off into fantasy space.

Just inside this hallway, the ceiling opens to two stories high, and it was here that the space vessels were displayed. The exhibition is about a journey, and the spaceships are the magical means for the travelers to escape the bonds of Earth, literally and metaphorically, for the experience of new worlds and hopefully new ideas. Under the spaceships was the unit on the beginning of the series, the "departure point" as it were.

From here the visitors entered the main body of the gallery. Here the concepts were divided into units, with the title of the unit in large letters. These titles were basically a checklist of ideas found in *Star Trek*, such as "A Cold War in Space." Each unit had a unit label text, stating what this issue meant in the sixties, and how it was addressed in the series. Several episodes were chosen to illustrate each idea; a brief synopsis of the episode appeared with photos from the running footage. Photos were chosen to remind the viewer of the content of the episode, and to make visual points. For example, a scene of the bridge of the "Enterprise" appeared next to one of a Romulan vessel, inviting the more visually literate viewers to think about the Oriental style of the cold war enemy Romulans.

Artifacts were placed near appropriate units to reinforce concepts. For example, a large case of clothing was placed across from the units dealing with gender issues. The sedate, body-covering male uniforms could easily be contrasted with the exotic, body-revealing female costumes. An audio tour was offered with the exhibition, providing the same concepts unit by unit, but in an easily accessible conversational style.

To give visitors a chance to participate in the *Star Trek* universe, there were transporter room and Captain's chair photo opportunities. In a practical sense, this also helped to fill time while visitors waited to enter the exhibition film. This film was made from interviews with the actors and production people that created the original *Star Trek* series. They were "primed" with the write up of the exhibition concept, and then asked questions about those ideas. The interviews were edited to place an emphasis on the flow of the concepts, and inter-cut with clips from the episodes to illustrate points. The film served to reinforce the exhibit concepts by presenting them in a different medium, and provided an audio experience for those who did not read the labels nor rent the audio tour. The film closed with inspirational words by Gene Roddenberry, to bring positive closure to the exhibition experience. As visitors left, they were offered the opportunity to write their comments in a notebook at the exit.

The exhibition divided the concept into bite-sized portions of visuals, text, and audio. The same basic concept was served up in several different ways, and on several different levels. Visitors could also participate by standing in the transporter room or sitting in the Captain's chair, and they could give feedback through the comment book.

The *Star Trek* Exhibition: Commentary and Commemoration

As Mary Henderson's text indicates, the curator's central message for the *Star Trek* exhibition was fairly clear and well stated: *Star Trek* was not just a space fantasy, it was also a safe forum for debating the social realities of the 1960's. The curator wanted visitors to recognize *Star Trek* 's role as social commentary, and this message was strongly and repeatedly put forward throughout the exhibition.

The exhibition's other aim -- to celebrate the series and its theme of hope for the future -- was present more by implication than by direct statement. While *Star Trek* as social commentary was expressed by explicit statements, section themes, and object place-

ment, *Star Trek* as commemoration was expressed through photo opportunities on the Enterprise deck, the display of props and costumes, the tribute to Gene Roddenberry in the film, and through the scheduling of the exhibition to coincide with the series' 25th anniversary.

For many visitors the presence of the *Star Trek* artifacts alone created a celebratory dimension, since these objects possessed a significant salience independent of any curatorial interpretation. The original *Star Trek* series has spawned an extensive subculture that was effectively removed from the limitations of the television adventure series. The costumes and props of the exhibition are also the icons of that subculture.

The exhibition's two messages, social commentary and commemoration, are complementary, since the social role of the series gives more reason to take it seriously as a cultural artifact, while the celebration of its hopeful fantasy implies an optimistic attitude toward America's deep-seated social problems. But the existence of two themes, one explicit and the other implicit, raises interesting questions about the visitor experience in *Star Trek*. Which of these two themes made the greatest impression on the audience? What factors influenced that outcome? What can we learn from this information that will help us in presenting future exhibitions? These central questions guided this study.

Visits to the Exhibition and the *Star Trek* Survey

As noted, the *Star Trek* exhibition was on view for eleven months. During this period about 884,000 visits were made to the exhibition[4]. The Star Trek survey was designed both to assess the nature of the audience, in particular the degree to which it represented a widening of NASM's traditional audience, and to evaluate the responses of visitors to the exhibition.

Interviews for the *Star Trek* survey were administered between November 16 and 22, 1992, December 14 and 20, 1992 and January 11 and 17, 1993. During these dates, an average of 2,519 visits per day were recorded. The average daily attendance on survey days is representative of attendance during all exhibition days, with the exception of

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4 It is important to make a distinction between "visits" and "visitors." "Visits" means entries into or exits from a building or a specific location in it; "visitors" are unique individuals who make the visits, which may mean more than one entry into or exit from a building or gallery in a defined period of time. The smaller the interval for which data are reported, the less critical is this distinction. Thus, if we were reporting visits to an exhibition for a 15-minute period, the likelihood would be very high that visits and visitors would be identical. When examining annual data for a building, the figures include multiple visits within a calendar year, as well as multiple entries on a given day. Strictly speaking, these data are about individuals who made visits to NASM.

During the total period, 884,069 visits were recorded. There were, however, statistically significant differences in the number of visits per month, but not by day of the week. On average 2,519 visits were made to the exhibition each day. The exhibition experienced its heaviest traffic in July and August. In each of these two months an average of 3,051 visits were made each day, compared with an average of 2,405 visits each day for the other nine months of the exhibition.

visits made in July and August. Interviews were scheduled to allow for a maximum number of survey hours while accounting for fluctuations in visitor flow due to the Thanksgiving and Christmas holidays and the Presidential Inauguration in January 1993.

During the interview period, 1,694 individuals were asked to participate in the survey and 1,365 participated, a response rate of 80 percent.[5] The people intercepted represent a population of over 28,000 visitors to the exhibition.

When the survey was conducted, the exhibition had been on view for about ten months. Studies conducted at NASM over different seasons have shown that the volume of visitors and the ratio of different visitor types vary in the course of the year. In particular, spring and summer bring a major increase in visitation to NASM. During *Star Trek* this led to long periods of crowd control. Passes were available on a "first come, first serve" basis at the museum and through a national ticketing organization. The controlled entrance may have influenced who went to the exhibition, since visitors with a great "commitment" to *Star Trek* were more likely to endure the wait or to take the trouble to obtain advance passes. Crowded conditions may also have affected the behavior of visitors in the exhibition. During these high visitation periods, visitation inside the exhibition was at a maximum, and although safety regulations limited the total number of people in the exhibition, they did not ease the interior flow. Thus, we suspect that visitors may have spent less time in Star Trek during these peak periods, and may also have found the experience somewhat less satisfying.

During the study period, advance passes were necessary only on a few days, generally weekends. We would have preferred to have conducted the study over a longer period, so that we could have captured the exact nature and extent of the effects of crowding. Although controlled entrance during spring and summer probably tilted the audience towards *Star Trek* fans during that period, we are confident that the different visitor types described in this study would have behaved generally the same, whether the exhibition was crowded or not. For example, although fewer people may have taken the time to see the film when the exhibition was full, there is no reason to believe that a particular type of visitor who viewed the film would have responded to it differently simply because of the large number of people sharing the exhibition space.

Plan of the Report

This report has four main sections, beyond this introduction. Section II, Visitors to the *Star Trek* Exhibition, describes the demographic characteristics of individuals who attended the *Star Trek* exhibition during the survey period. It also compares this audience to NASM's traditional audience, as described by other ISO visitor studies of NASM.[6]

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5 See Appendix E for a discussion of this response rate and response bias.

6 As discussed above, the volume of visits in the weeks sampled were representative of the volume of visits across all but the two high months of the exhibition's run (July and August, 1992). Although we do not have any data to formally test whether the demography of exhibition visitors encountered during

The demographic profile continues in Section III, *Visitors, Viewers* and *Fans* with a discussion of survey respondents' past exposure to *Star Trek as* categorized in terms of their experience watching *Star Trek* on television and their participation in the conventions, fan clubs and other activities that have developed since the original series was canceled in 1969.

Section IV, Communication of the Exhibition's Messages, investigates audience attitudes towards the exhibition's themes. Section V, Reaching Visitors interprets the results of the study as a whole, emphasizing the factors that had a significant impact on the communication outcomes of the exhibition.

For reference, the questionnaire is in Appendix A. The other appendices contain ancillary materials of specific interest to some readers. Appendix B contains a discussion of visitors' views as to the appropriateness of the *Star Trek* exhibition at NASM. We have included it in an appendix as it is not germane to the main discussion. The central argument of this report, about the formulation and communication of messages, relies on a set of multivariate statistical analyses. Appendix C, in addition to a few technical notes, contains most of the tables and final models discussed in the analysis. Appendix D contains the full and final logistic regression models. A description of the survey design and its implementation is in Appendix E.

As always, readers with questions about the interpretations presented here, as well as about the statistics and models used in this report, are encouraged to bring them to the attention of the authors.

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the sampling period reflects the other weeks of the exhibition, we are confident that the demographic profile of survey respondents reflects the overall population of exhibition visitors.

II. Visitors to the *Star Trek* Exhibition

This section answers two questions:

Did *Star Trek* bring new audiences to the Air & Space Museum?
What were the distinguishing characteristics of the visitors who came to the museum specifically to see *Star Trek*?

The Demographic Profile

The profile of visitors to *Star Trek* is very close to the profile of visitors to NASM in general as found in two surveys of NASM visitors, one held in the winter of 1988 and one conducted in the winter of 1994.[1] [2] (See Appendix C for tables containing detailed demographic characteristics of *Star Trek* visitors).

More men than women visit the museum (59%). NASM is visited predominantly by adults, alone or in groups (74%), with children accompanying adults in nearly one-fifth of the cases (18%). The majority are age 20 or older (82%); the average age is 34.2 years.[3]

In the *Star Trek* audience, as in the Winter 1994 sample, a strikingly high proportion has a college education. Three-quarters of all visitors in both studies reported at least a Bachelor's degree and one-third of all visitors reported an advanced degree. The most common category of educational attainment for *Star Trek* visitors is a Bachelor's degree (41%; this category includes people who are pursuing graduate study but who have not yet earned a Master's degree), followed by an advanced degree (34%), and a high school diploma (24%).[4]

Both *Star Trek* visitors and NASM winter audiences are more highly educated than the general Smithsonian audience (58% of visitors to all SI museums have college degrees),[5] which in turn disproportionately draws its visitors from the upper end of the United States' educational distribution.[6]

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[1] The surveys conducted in the winter of 1988 and winter of 1994 are actually segments of larger studies conducted at NASM. To allow for comparison with the *Star Trek* study, this report used only data from the winter segments. In the text sections of this report, the comparison will be restricted to the 1994 study.

[2] The minor exception was in the racial and ethnic composition of *Star Trek* visitors. As shown in Table C.4, there were slightly fewer (17%) minority group members among the exhibition's visitors than were observed in 1994 (21%).

[3] See Table C.2.1 and C.2.2.

[4] See Table C.2.5.

[5] Doering, Zahava D. and Adam Bickford. *Visits and Visitors to the Smithsonian Institution: A Summary of Studies.* Report 94-1. (Washington, D.C.: Smithsonian Institution). 1994. Pg. 23.

[6] According to the 1990 United States Census, 20.3 percent of the population has a Bachelor's or higher degree. United States Bureau of the Census, 1993. *1993 Statistical Abstract of the United States on CD-ROM.*

Did *Star Trek* Bring New Audiences to NASM?

The *Star Trek* audience, as reported in Table C.2.6, was very familiar with both the Smithsonian and NASM; 69 percent of visitors had visited at least one Smithsonian museum before being interviewed, and 65 percent of visitors had visited NASM at least once before. Among repeat visitors, the largest group (18% of the total population of visitors, 28% of repeat visitors) claimed to have visited NASM at least *ten* times before being interviewed for *Star Trek*.

When we compare the visit frequency of the *Star Trek* respondents with the results of the 1994 survey (Winter data only), we find that this relatively high percentage of repeat visitors is similar to the general NASM audience.[7] The most important difference is that significantly fewer of NASM's most frequent visitors (those who have visited ten or more times) seemed to have turned out for *Star Trek* (18%) than were found in the 1994 Winter audience (30%). About half of the *Star Trek* visitors who were repeat visitors to NASM had last visited either since the exhibition's opening (34%) or within the previous year (18%).

In order to determine the extent to which *Star Trek* drew new audiences to NASM, we need to investigate how many of the first-time visitors came specifically to see *Star Trek*.

Exhibition visitors formed three categories: those visiting NASM to see *Star Trek*, those visiting NASM because of interest in its subject matter (aviation and space flight), and those visiting NASM for other reasons (e.g., as part of an organized tour, to eat in a NASM restaurant, to visit the Museum Shop, etc.). As shown in Table 2.1, the largest group of respondents was interested in NASM's subject matter (42%), followed by those interested in seeing *Star Trek* (29%) and those visiting NASM for another reason (29%).

Since *Star Trek* was publicized and discussed in the press, it did draw a few new visitors to NASM (see Table C.2.8). Nine percent of first-time visitors to the Smithsonian (3% of all visitors) and 12 percent of first-time visitors to NASM (4% of all visitors) visited NASM to see *Star Trek*. Without data from other exhibitions, of course, there is no way to evaluate these percentages (see Table C.2.8).

Individuals familiar with the Smithsonian and NASM were most likely to visit NASM specifically to see *Star Trek*, since the proportion of respondents visiting NASM to see *Star Trek* increases with the number of visits a respondent has made to NASM -- from 12 percent of first-time visitors to 50 percent of visitors who have visited NASM at least ten times before their interview.

The data on previous visits also suggest that recent visitors to NASM were more likely to return to NASM to see *Star Trek*, since 43 percent of visitors who had visited NASM since *Star Trek* opened had come back to NASM specifically to see the exhibition. Finally, as the number of years since a respondent's last visit to NASM increases, the proportion of respondents wishing to see *Star Trek* decreases. The proportion of those

[7]See Table C.2.6.

who returned to NASM after fifteen years or more to see *Star Trek* (19%) is less than half of those who came back to NASM after less than four years to see *Star Trek* (41%).

Table 2.1
Main Reason for Visiting NASM
(In Percent)

Reason		Percent
To See *Star Trek*		29.2
NASM Subject Matter		42.2
General Interest	29.4	
Aviation Interest	8.6	
Space Interest	4.2	
Other Reason		28.6
Reputation	7.6	
With Friend(s)	6.4	
Tour/School Trip	4.8	
Family Tie to Aviation/Space	3.6	
IMAX Film	2.6	
Personal Tie to Aviation/Space	1.4	
Museum Shop	1.1	
Food	0.7	
Other	0.4	
Total		100.0

Both repeat visitors and visitors who were in NASM for reasons besides the exhibition significantly outnumbered those who came to NASM for the first time to see *Star Trek*. Although *Star Trek* attracted a few new visitors to NASM, it may have been more important as a way of getting people to visit NASM again, especially those who had visited four or more times in the past.

Who Came to See *Star Trek*?

Of all the different demographic groupings in this study, only local residents were more likely to have come to the museum in order to see *Star Trek* than for any other reason (see Table C.2.7). As Figure 2.1 shows, most non-local residents came because of NASM's subject matter.

Educational level also had a direct relationship with the reason for visiting. For nearly every increase in the level of educational attainment there is a corresponding increase in the proportion of people visiting NASM to see *Star Trek*. The percentage of persons visiting NASM to see *Star Trek* rises from 6 percent for persons with less than a high school education to 34 percent for persons with an advanced degree (see Figure 2.2).

Figure 2.1
Reason for Visiting NASM, by Residence Location
(In Percent)

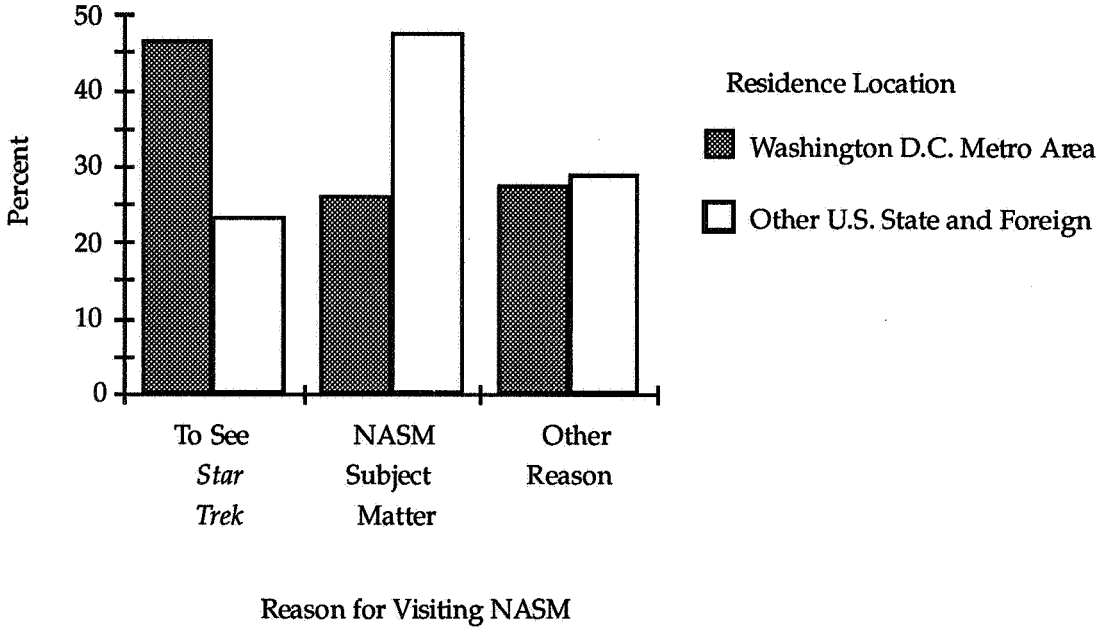
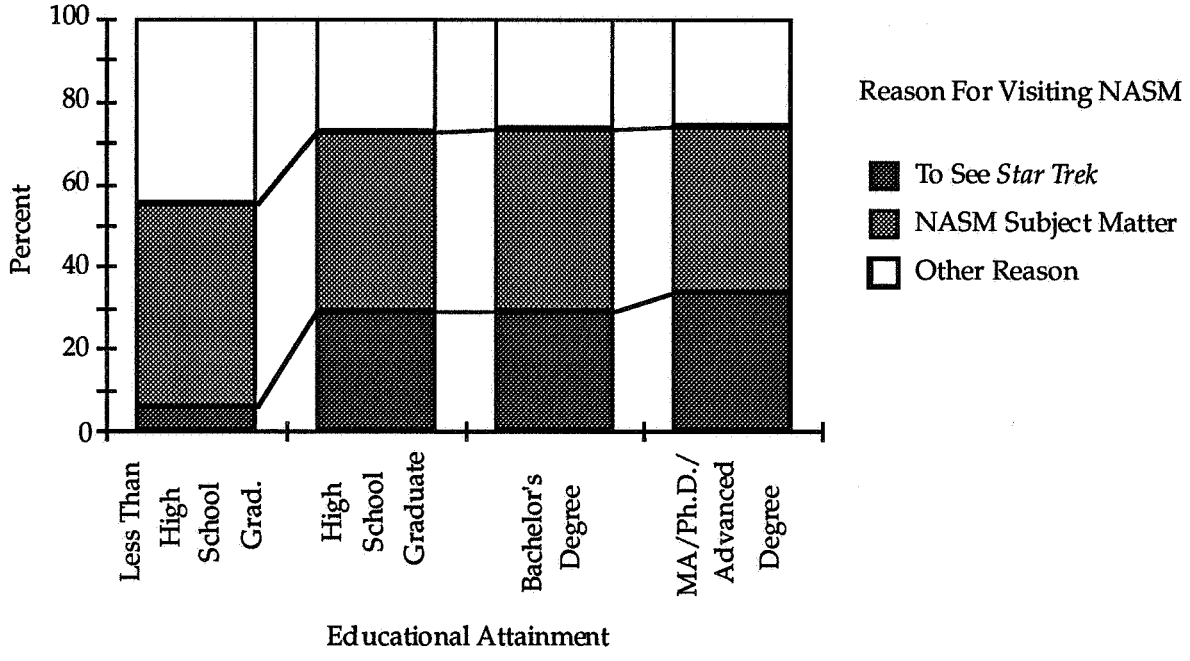


Figure 2.2
Reason For Visiting NASM, by Educational Attainment
(In Percent)



We had assumed that the most powerful predictor of which visitors would come to NASM specifically to see the exhibition would be the degree of the individual's interest in *Star Trek*. As a way of measuring identification with the series, we asked respondents ten questions about their exposure to *Star Trek* in its various forms: television shows, movies, merchandise, fan clubs, conventions etc. The responses were analyzed, using a combination of factor and cluster analysis techniques,[8] to differentiate visitors according to their involvement with *Star Trek* and its related activities.

Three groups of visitors were identified: individuals who were not involved with *Star Trek*, individuals who only watched *Star Trek* on television or in the movies, and individuals who, in addition to watching *Star Trek* shows or movies, had purchased additional *Star Trek* merchandise, belonged to a *Star Trek* fan club, or had attended a *Star Trek* convention (see Table 2.2). The groups will be referred to as *Visitors, Viewers,* and *Fans*. (The demographic composition of each group is in Table C.3.1.)

Table 2.2
Distribution of Respondents into *Star Trek* Participation Categories:
Visitors, Viewers and *Fans*

		Weighted Percentage
If a respondent answered "No" to all of the questions below or "YES" to one of items (A), (B) or (C) below, they were classified as a *Visitor*		26.2%
If a respondent answered "Yes" to two of these three questions, they were classified as a *Viewer*		42.9
A) I watch *Star Trek* RERUNS now	(73.2)[1]	
B) I watch THE NEXT GENERATION now	(65.1)	
C) I saw *Star Trek* MOVIE (S)	(72.4)	
If a respondent was classified as a "Viewer" and answered "Yes" to any of these five questions, they were classified as a *Fan*		30.9
D) I attended a *Star Trek* CONVENTION	(6.2)	
E) I own/rent *Star Trek* videos	(23.4)	
F) I personally own *Star Trek* merchandise or books	(14.7)	
G) I read *Star Trek* novels	(12.1)	
H) I belong to a *Star Trek* fan club	(1.2)	
I) I watched the ORIGINAL *Star Trek* on TV in 1966-1969	(27.8)	
Total		100.0

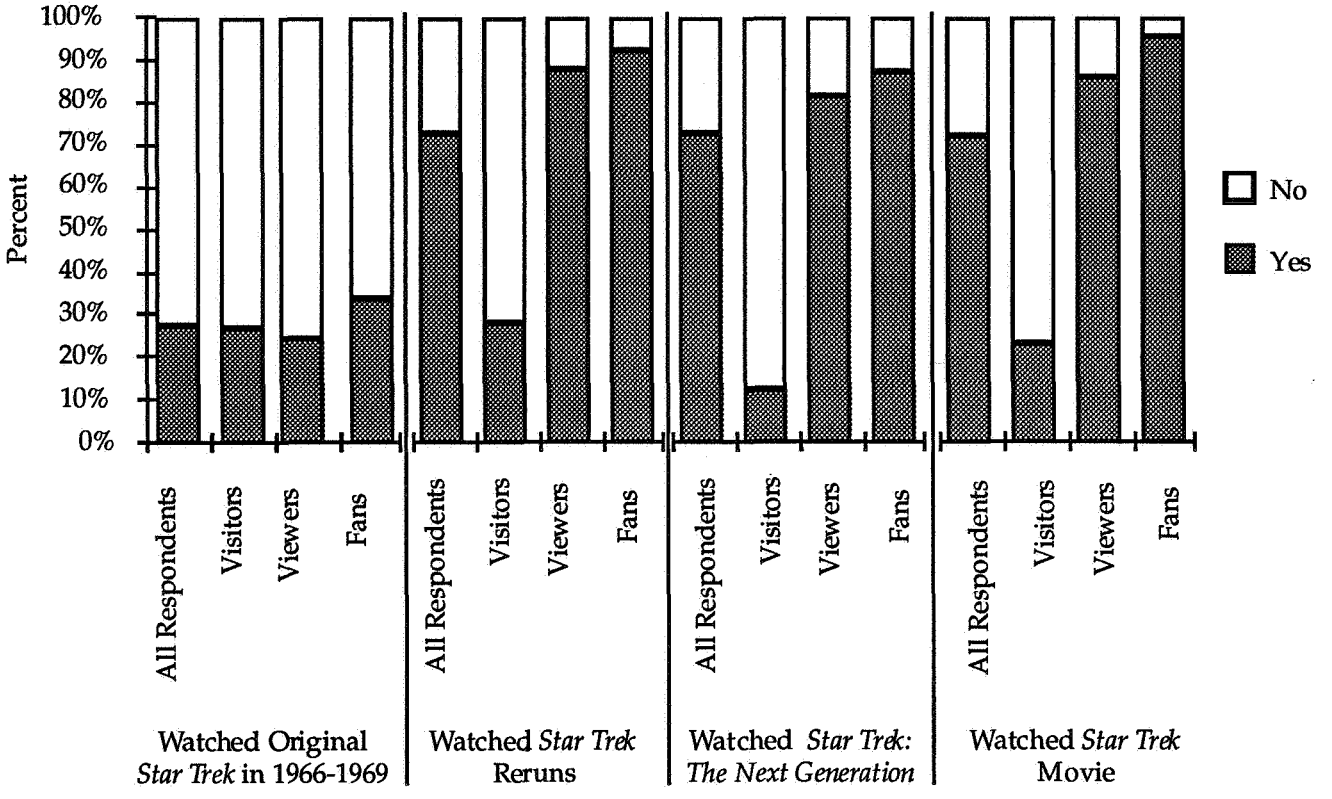
[1] The numbers in parentheses are the percentage of respondents answering "Yes" to each item.

[8] See introduction to Appendix C for a brief discussion of cluster analysis.

Frequency of Watching *Star Trek* on Television

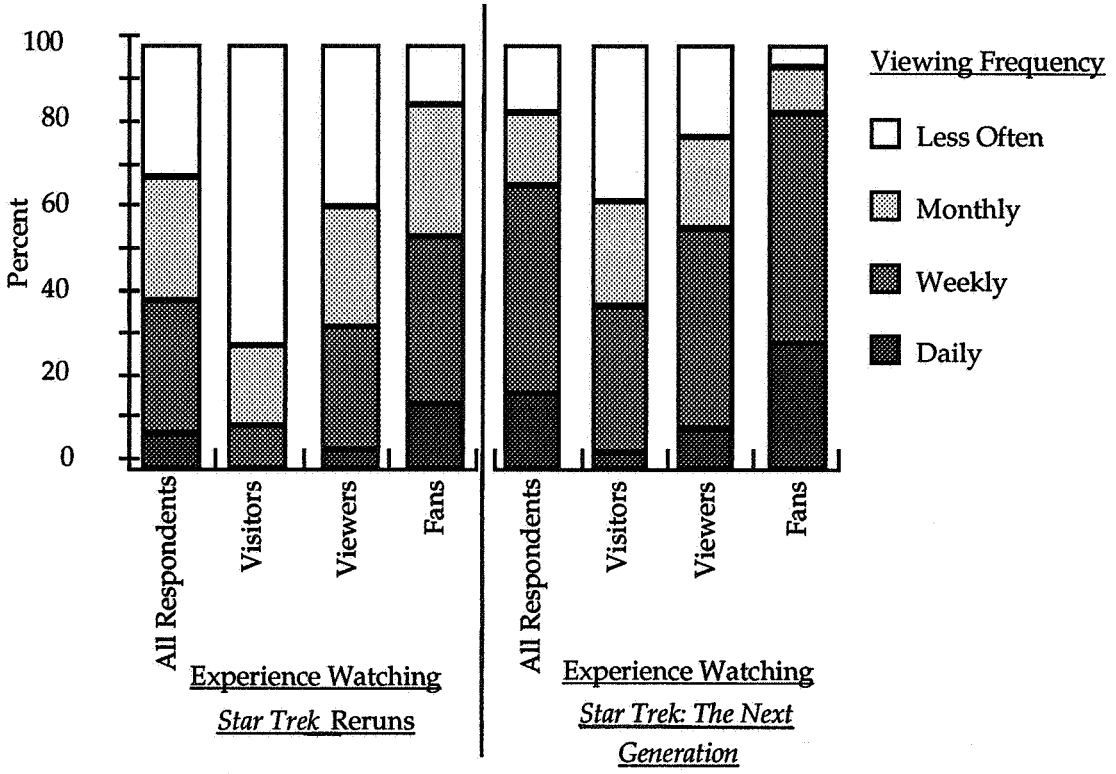
Although the three participation groups are defined by the differences in their exposure to *Star Trek* programs, merchandise and activities, only one-third of *Fans* (34%) claimed to have watched the original series during its first run in the 1960's and slightly more *Visitors* than *Viewers* watched the original series (27% versus 25%, respectively). When asked whether they watched *Star Trek* reruns, 93 percent of *Fans*, 88 percent of *Viewers*, but only 28 percent of *Visitors* claimed to do this. Smaller percentages of respondents reported watching *The Next Generation*: 87 percent of *Fans*, 82 percent of *Viewers* and 13 percent of *Visitors* (see Figure 2.3).

Figure 2.3
Exposure to *Star Trek* Television Shows and Movies, by Respondent Category



For respondents who reported watching *Star Trek* television shows, the frequency of watching the two series is displayed in Figure 2.4. For each category of respondent, more people watched episodes of *Star Trek: The Next Generation* more frequently than watched the original *Star Trek* in reruns. *Fans* watched both shows more often than *Viewers* or *Visitors*; 55 percent of *Fans* watched *Star Trek* Reruns at least once a week, compared with 34 percent of *Viewers* and 10 percent of *Visitors*. 85 percent of *Fans* watched *The Next Generation* at least once a week, compared with 57 percent of *Viewers* and 39 percent of *Visitors*.

Figure 2.4
Viewing Frequency of *Star Trek* Television Programs, by Respondent Category



These figures suggest that visitors' primary exposure to *Star Trek* is through television, and that, by implication, they are very familiar with *Star Trek*'s themes.

Viewers and *Fans* in particular, have made substantial commitments of time to viewing *Star Trek* . They would not have spent hundreds or even thousands of hours engaged in its stories had they not found the underlying attitudes of the series compatible with their own thinking. Only *Visitors* may be said to have a relatively weak identification with the images and messages of *Star Trek*..

Since these groups are also important for analyzing other results in this study, they will be described further in the next section.

III. *Star Trek Visitors, Viewers* and *Fans*

This section further distinguishes visitors on the basis of their involvement with *Star Trek*. It also describes their attentiveness to and participation in various aspects of the exhibition.

Visitors, Viewers and *Fans* at NASM

As described at the end of Section II, we refer to *Visitors, Viewers,* and *Fans,* based on their participation in, and exposure to *Star Trek. Viewers* were the largest group, at 43 percent of the total. *Fans* were next, making up almost one-third of all respondents (31%). *Visitors* made up the remaining 26 percent of the respondents. Overall there were few differences, none of them striking, between the demographic profiles of the three groups and the demographic profile of the entire sample.[1]

As discussed in the introductory section, this study was conducted in the last three months of the exhibition. The composition of visitors during the first eight months, especially the spring and summer, was somewhat different. It is, for example, very likely that *Fans* were a higher proportion in the first months. The difference in the numbers of the various participation groups, however, does not at all change this description of their characteristics or their responses to the exhibition.

The three groups differed significantly in the frequency and context of their visits to NASM (see Table 3.1 below and Table C.3.3). Those least involved in *Star Trek,* the *Visitors,* formed over one-third of first-time visitors to both NASM and the Smithsonian (37% and 34%, respectively) but only about one-fifth of repeat visitors (22%). The distribution of *Fans* was almost the exact reverse. Over-one third of repeat visitors were *Fans* (36% to NASM; 36% to SI) compared to only one-fifth of first-time visitors (22% to NASM; 20% to SI). This suggests that *Fans* were more likely to be familiar with NASM and its exhibits.

In fact, when respondents are classified by the number of their previous visits to NASM, the proportion of *Fans* generally increases as the number of visits increases and the proportion of *Visitors* generally decreases. Among respondents who have visited NASM at least ten times in the past, 20 percent were *Visitors* and 37 percent were *Fans.*

Over half of those who came specifically to see Star Trek were *Fans,* (see Table C.3.3) while only 10 percent were in the low-participation *Visitors* group. While the *Star Trek* exhibition may not have attracted a significantly new audience to NASM, it did attract people in the *Star Trek* community, especially those who had been to NASM before. We find that 86 percent of *Fans* who came to NASM to see the exhibition had visited NASM before.

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[1]See Tables C.3.1 and C.3.3 for the demographic characteristics of these participation groups.

Table 3.1
Respondent Visit Characteristics by *Star Trek* Participation Categories

Visit Characteristics	*Star Trek* Participation			
	Visitor	*Viewer*	*Fan*	Total
Visit to the Smithsonian				
First	36.7	43.0	20.2	100.0
Repeat	21.5	42.9	35.6	100.0
Visit to NASM				
First	34.3	44.3	21.5	100.0
Repeat	21.5	42.3	36.2	100.0
Number of Visits to NASM				
One	34.2	44.5	21.3	100.0
2	22.5	38.2	39.4	100.0
3	28.2	39.6	32.2	100.0
4	25.1	45.6	29.3	100.0
5 to 9	17.6	44.5	37.9	100.0
10 and more	20.0	43.0	37.0	100.0

Interest and Participation in Exhibition and Exhibition Film

Although a higher level of *Star Trek* participation made it more likely that an individual would come to NASM to see the *Star Trek* exhibition, it did not affect a visitor's interest in the elements of the exhibition itself. Respondents were asked to indicate which two, from a list of nine, specific aspects of the exhibition interested them the most. (See Table C.3.2).

Interest in the exhibition elements varied little among *Visitors*, *Viewers* and *Fans* . No matter what their level of *Star Trek* participation, respondents were most interested in seeing the props on display, and least interested in listening to the exhibition's audio tour.[2] This is not surprising, as most visitors come to museums to "see things" more than to participate in specific activities or to attend to the interpretation.

When respondents are classified according to their reason for visiting, however, there are significant differences in the attractiveness of these various elements (Table 3.2). Although all groups still listed "Seeing Props" as having been most interesting, respondents visiting because of NASM subject matter and for other reasons ranked "Sitting in the Captain's Chair" as the second most interesting aspect of the exhibition, while respondents visiting NASM to see *Star Trek* ranked "Seeing the Exhibition Film" as their second most interesting activity. Respondents visiting NASM to see *Star Trek*

[2]Unlike the questions about exposure to *Star Trek* these questions about exhibition interest did not cluster into any meaningful categories.

ranked "Sitting in the Captain's Chair" the fifth most interesting activity, while the other two groups both ranked "Seeing the Exhibition Film "as the fourth most interesting activity.

Table 3.2
Visitor Interest in Exhibition Features
By Reason for Visiting
(in Percent of Total Responses)

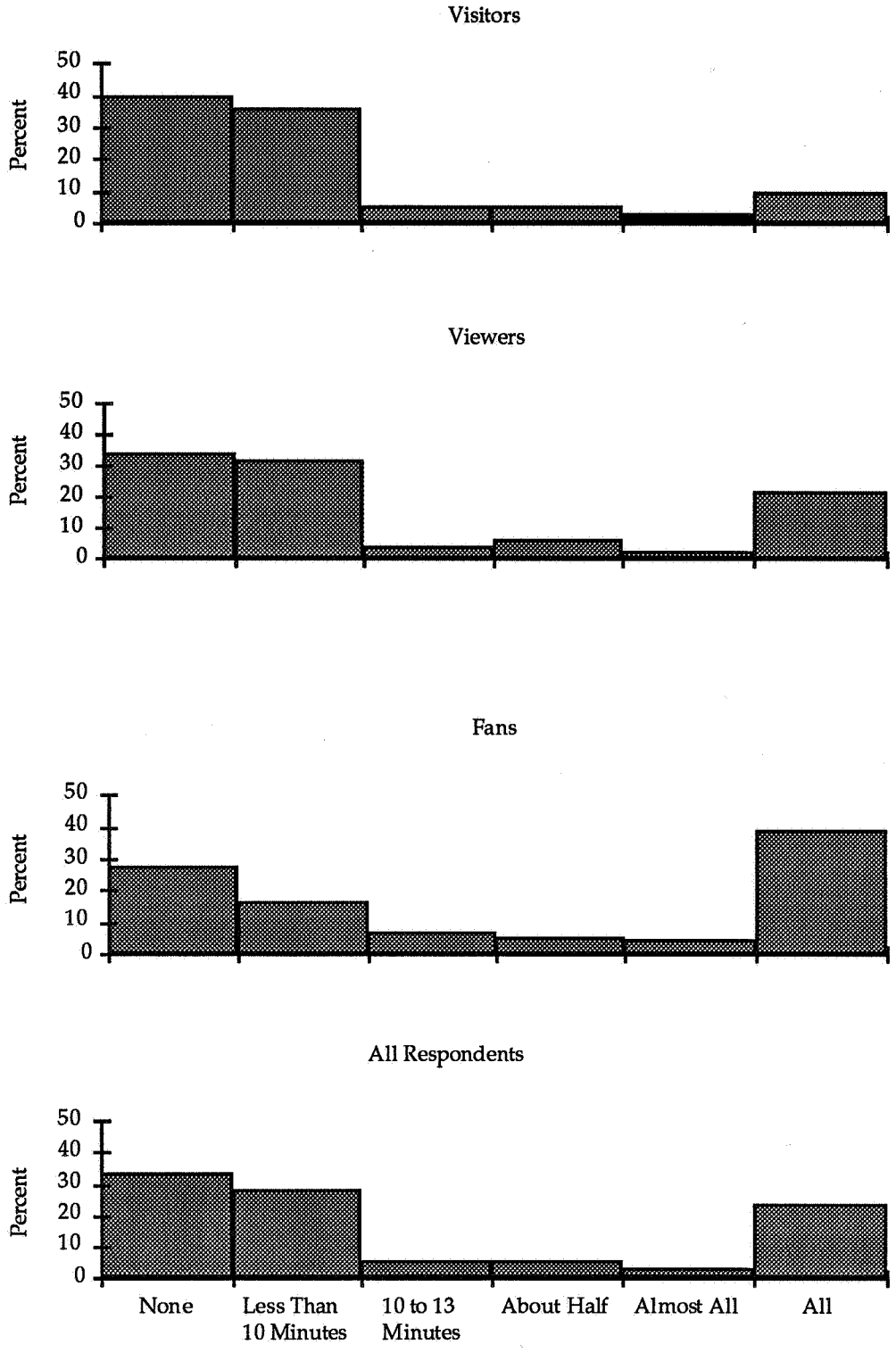
Exhibition Features		Reason for Visiting NASM		
	All Respondents	To see *Star Trek*	NASM Subject Matter	Other Reason
Seeing Props	24.7	22.6	26.2	24.6
Sitting in Captain's Chair	13.2	10.4	14.5	14.5
Reading About *Star Trek* History	13.1	15.2	12.9	10.8
Seeing Exhibition Film	12.5	15.7	10.6	11.8
Reading About Episodes	12.5	15.2	10.5	12.5
Standing in Transporter Room	8.3	4.8	10.3	9.4
Reading About Episode Themes	6.9	8.3	6.4	6.2
Seeing *Star Trek* Merchandise	4.8	3.6	4.9	6.0
Listening to Audio Tour	4.0	4.2	3.7	4.2
Total	100.0	100.0	100.0	100.0

Visitors were also asked how much of the exhibition film they watched. Their answers were consistent with the level of their *Star Trek* participation. Among all respondents, slightly over one-third (34%) did not watch the film at all, and only 24 percent claimed to have watched the entire film. A minority of respondents watched more than half of the film, but the proportion of respondents who stayed with the film went up with increasing participation; 18 percent of Visitors watched more than half of the film, as did 30 percent of *Viewers* and 49 percent of *Fans* (see Figure 3.1).

The film featured interviews of the original *Star Trek* cast. It was 28 minutes long and required a significant commitment of time to view in its entirety. As Figure 3.3 indicates, about two-thirds of the audience entered the viewing area. They were nearly equally divided into those who sampled the film for ten minutes or less and then left, and those who stayed for the whole film. The deeper an individual's involvement in *Star Trek* the more likely it was that he or she would stay for the entire film. The fact that nearly 40 percent of *Fans* watched the entire film is an indication of their interest and commitment to *Star Trek.* By contrast only 10 percent of *Visitors* watched the entire film.

The experience of watching the exhibition film turned out to be unexpectedly important. As the next section of this report will demonstrate, the time that visitors spent viewing the film was the single most influential element in shaping their overall response to the ideas of the exhibition.

Figure 3.1
Distribution of Exhibition Film Viewing Times by Participation Category



IV. Communication of the Exhibition's Messages: Results

Every exhibition embodies the intentions of its makers. Some of these intentions are conscious and deliberate, while others are unspoken and implied. The curator's expressed intention in *Star Trek* was to have visitors experience this familiar subject matter in a new way, namely, as a forum for social commentary during the 1960's. This analytical, historical message was expressed consistently and directly throughout the exhibition, primarily through the organization of the exhibition, through written texts and through metaphorical and physical juxtapositions of photographs and objects.

A second intention, mentioned in the press materials, but not in the exhibition itself, was to celebrate the 25th anniversary of the creation of the original *Star Trek* series. This message of celebration and commemoration was implicit in the presentation of the exhibition at the Smithsonian, in the reverent context in which props were exhibited, in the opportunities to place oneself in the stage set, and in the closing section of the exhibition film. Indirectly these elements served to confirm the value and validity of the *Star Trek'* television series' theme of "hope for the future."

In this section we consider visitors' responses to these two overlapping sets of intentions by analyzing their responses to three questions that were asked as they exited from the exhibition: Does the exhibition have a message? If so, what is it? Which of the exhibition's eighteen major sections did you find most thought-provoking?

The central argument of this chapter and the next, about the formulation and communication of messages, relies on a set of multivariate statistical analyses. The models and associated tables are in Appendices C and D. Here, we present a set of summaries of these models highlighting their key elements. However one concept, "increasing" or "decreasing" the probability of an event (e.g., seeing a message, identifying a specific message, etc.) needs clarification.

Every event has a probability of occurring. Some people are more likely to experience an event than others. We observe for example, in this study, that nearly two-thirds (63%) of visitors thought that the exhibition had a message. The statistical models allow us to identify which groups are more likely [or less likely] to experience a specific event (e.g., finding a message) compared to others. A model can tell us that, for example, that if we had two groups of people, identical in <u>all</u> respects (e.g. education, residence, etc.) except one (e.g., gender) how important that characteristic would be in increasing the likelihood of experiencing the event. In *Star Trek,* we find that gender is not significant in the message model; i.e., belonging to a given gender does not increase or decrease the probability of thinking that *Star Trek* had a message over visitors of the other gender.

Did Visitors See a Message?

Nearly two-thirds of all respondents (63%) thought that the exhibition had a message. The only demographic difference between those who saw a message, and those who did

not is in their racial and ethnic background. More members of racial and ethnic minority groups thought *Star Trek* had a message than did whites (73% versus 61%, respectively) and, being a member of a minority group, all else being equal, increased the probability of a respondent thinking the exhibition had a message by 4 percent.[1]

Among the background characteristics considered, being a *Fan* increased the probability of a respondent thinking the exhibition had a message by 5 percent. However, the largest effect on the probability of thinking the exhibition had a message was watching the exhibition film. Watching at least half of the exhibition film increased the probability of seeing a message by 9 percent. This is a surprisingly powerful effect for a single exhibition element (see Table C.4.3 and Table D.1).

What Message Did Respondents Identify?

Respondents who thought the exhibition had a message were then asked to describe what they thought it was. Their replies were recorded verbatim by interviewers and later classified as part of the analysis. The responses ranged from a short treatise on the role of the original *Star Trek* in inspiring the "disadvantaged" to excel to several responses that were uninterpretable. The responses could be classified into ten substantive categories that were further grouped under four broader headings: messages reflecting the content of the *Star Trek* television series, messages reflecting the curator's expressed intention, messages reflecting traditional museum goals of communicating information and educating visitors, and a miscellaneous category (see Table 4.1).

Table 4.1
Respondents' Perceived Messages about the *Star Trek* Exhibition
(in Percent)

Star Trek Series Themes		31.0
Hope For The Future	19.7	
Racial Tolerance	11.3	
Star Trek as Social Commentary		28.4
Star Trek Impact On Culture	16.5	
Star Trek Relationship To The 1960's	11.9	
General NASM Themes		27.5
Explain *Star Trek*	9.5	
Encourage Space Travel	8.4	
Explore Relationship Between Fiction and Reality	7.3	
Explain Science And Space Travel	2.3	
Miscellaneous		13.1
Other	10.8	
Don't Know	2.3	
Total		100.0

[1]For a listing of demographic and visit variables and the logistic regression analyses that determined their statistical significance, see Appendices C and D.

The most common responses reflected two explicit themes from the television series that were discussed at length in the cast interviews from the exhibition film: optimism about the future and racial tolerance. The statement, "hope for the future," was repeated in the film by both Gene Roddenberry and William Schatner (Captain Kirk). In the film, William Schatner stated that "hope for the future" was the essential message of *Star Trek*. Discussions of racial tolerance and integration appeared in interviews with Michelle Nichols (Lieutenant Ohuru) who talked about the significance of the "first inter-racial kiss on network television" which occurred between Ohuru and Kirk, and George Takai (Lieutenant Sulu) who discussed the significance of featuring an Asian actor in a key role during the Vietnam War.

These responses are consistent with the interpretation of the exhibition as a celebration of the values and themes of the *Star Trek* series.

The second most common type of message was consistent with the curator's intent in mounting the exhibition, namely seeing *Star Trek* as a reflection of the social and political issues of the 1960's. Message statements in this category took two forms, either specific mentions of *Star Trek*'s commentary on or treatment of a 1960's social issue (e.g., civil rights, imperialism, the Vietnam war), and more general statements about the influence *Star Trek* has had on the "culture."

The third type of message reflected the belief that the *Star Trek* exhibition was an extension of NASM's general educational mission. These messages focused on the pedagogical aspects of the exhibition, e.g., to explain *Star Trek* and space travel, to explore the relationships between fiction and real artifacts, and other statements consistent with NASM's general mission. It may be that respondents articulating this type of message were not clearly differentiating the exhibition as something separate from the "museum."

Finally, respondents who could not articulate any message, or who responded with a message that did not fit into any of the other categories were placed in the "miscellaneous" category.

Overall, 31 percent of respondents who thought the exhibition had a message thought it was a message of the *Star Trek* series; 28 percent thought the message was one consistent with the curator's primary intent; and 28 percent thought the message was one consistent with general NASM themes.

Who Thought the Message was the Theme of *Star Trek*?

Being older, and watching the film significantly affected the likelihood that an individual would see one of the themes of the *Star Trek* series itself as the message of the exhibition. Visitors between age 45 and age 54 were 3 percent more likely to see the *Star Trek* series message as the exhibition message. Respondents who watched at least half of the film were 6 percent more likely to think the exhibition's message was that of the *Star Trek* series (Table C.4.6 and Table D.2).

Who Thought the Message was *Star Trek* as Social Commentary?

The only significant variable that influenced a visitor's seeing *Star Trek* as reflecting the social and political issues of the 1960's was whether a respondent had visited the Smithsonian before. Respondents who were on repeat visits to the Smithsonian increased their probability of finding a social commentary message by 5 percent (see Table C.4.7 and Table D.3).

Who Thought the Message was an Extension of NASM or a Miscellaneous Message?

Only watching the film made a significant difference in whether or not a visitor thought that the message of *Star Trek* was the general message of NASM. Someone who watched less than half of the film, was 7 percent more likely to see the NASM message in *Star Trek*.

Only making a first visit to the Smithsonian made a difference in choosing a miscellaneous message. First-time SI visitors were 4 percent more likely to choose a message that was neither the message of *Star Trek*, the curator's message, nor the general NASM message.[2]

What Visitors Thought About as They Left the Exhibition.

In a final assessment of how visitors were responding to the messages of the exhibition, respondents were asked to describe which of the exhibition's eighteen major sections they found most "thought-provoking" as they left the exhibition. The assumption behind this question was that it would reveal the element or elements that had the greatest immediate intellectual and emotional impact on the individual, whether or not they saw that element as the overarching "message" of the exhibition.

As described in Section I, the exhibition was arranged into eighteen thematic sections, each of which dealt with either a social and political issue of the 1960's as depicted in the *Star Trek* series, an aspect of the series as it related to science fiction, or a history of the series' production.

In Table 4.2, exhibition sections that deal with social issues, the Cold War and issues of imperialism, the United States' role in Vietnam, racism, and the status of women are grouped together as "commentary" sections, while the sections dealing with science fiction (e.g., alien beings, alternative societies, etc.), Future Warfare and technology (e.g., future weapons, phasers, etc.), and production of the *Star Trek* series (e.g., the relationship between Gene Roddenberry and NBC), are grouped together as "commemoration" sections.

This division of sections separates those displays and labels that communicate *Star Trek*'s importance and relevance beyond a space fantasy from those that focus more on

[2]These two models are presented in Table C.4.9 and Tables D.5 and D.6.

Star Trek itself. Aside from content, these sections did not differ from one another. Each section was prefaced by introductory text panels, props and models from the series, film stills from selected episodes, and smaller labels describing the episodes the stills were taken from.

Visitors' answers to this question reveal which ideas left the deepest initial impressions in their minds. As seen in Table 4.2, 40 percent of all respondents identified commentary sections as being most thought-provoking.

Table 4.2
Percentage Distribution of "Thought-Provoking" Exhibition Sections
(in Percent)

Major Category	Exhibition Section	Section Title	Percent Selecting Section	
"Commentary" Sections of Exhibition				40.4
Politics			18.8	
	(3)	A Cold War In Space	10.0	
	(6)	The Specter Of Vietnam	6.4	
	(5)	Imperialism?	2.4	
Race			12.0	
	(7)	Civil Rights And Urban Rebellion	12.0	
Sexuality/Gender			9.6	
	(15)	Women	4.7	
	(13)	Sexuality	2.9	
	(12)	Love And Self Sacrifice	1.6	
	(14)	Wives	0.4	
"Commemoration" Sections of Exhibition				59.6
Science Fiction			10.4	
	(8)	Alien-Life Forms	5.2	
	(16)	The Quest For Utopia	3.6	
	(9)	The Resident Alien	1.6	
Television/Media			29.7	
	(1)	*Star Trek* And The 60's	14.6	
	(2)	The Creation Of *Star Trek*	9.3	
	(17)	*Star Trek* And Science Fiction	4.8	
	(18)	The Fans	1.0	
Future Warfare and Technology			14.5	
	(4)	Superweapons	6.6	
	(10)	The Balance Of Power Within	5.8	
	(11)	The Will To Power	2.2	
No Response			5.0	
Total				100.0

Who Chose Commentary Sections. When these results are viewed against the demographic and visit characteristics, only four variables are statistically significant: respondent race/ethnicity, age, educational attainment, and the amount of exhibition film watched (see Table C.4.14a). Being a member of a non-minority group (i.e., white), compared to a racial/ethnic minority group, increased the probability of noticing a commentary section by 4 percent. Younger visitors (ages 24 and under) were 5 percent more likely to choose a commentary section than older visitors. Having a Bachelor's degree or a graduate degree increased the probability of noticing a commentary section by 9 or 8 percentage points, respectively. As with other models, watching the exhibition film increased the probability of remarking on a commentary section by 8 percent.

Which Commentary section did Respondents Notice? As noted, over 40 percent of respondents found a commentary section of the *Star Trek* exhibition thought-provoking. When we constructed models estimating the probability of a respondent noticing a particular type of commentary section (e.g., a Politics, Race or Sexuality/Gender section), gender was the most significant factor.

Women were 15 percent more likely to cite Sexuality/Gender sections of the exhibition than men, and men were 8 percent more likely than women to find a Politics section thought-provoking.[3] The single influence of gender on reporting a Sexuality/Gender section of the exhibition as thought-provoking is the strongest predictor in all the models estimated in this analysis, and reflects a powerful resonance between gender issues as presented in the exhibition and women respondents.

Interest in seeing the *Star Trek* exhibition and participation in *Star Trek* activities worked against citing a Sexuality/Gender section. Visiting NASM specifically to see the *Star Trek* exhibition reduced the probability of noting a Sexuality and Gender section by 6 percent. Likewise, as one's level of *Star Trek* participation increases, the probability of citing one of these sections falls: for *Viewers* it was reduced by 8 percent, for *Fans* it was reduced by 9 percent.

Presumably the more one watched *Star Trek* the less bothered one was by the series' portrayal of women. The contradictory status of women in *Star Trek* episodes, i.e., being equal members of the Enterprise crew on the one hand, and being objects of Captain Kirk's sexual plunder on the other, is well documented. Respondents familiar with the series were less likely than other respondents to find this situation thought-provoking, and apparently took the status of women portrayed in the series episodes for granted.

Having presented the results of our analyses in this and the previous sections, we now turn to an interpretation of what they mean.

3See Tables C.4.18 and C.4.19, and Tables D.8 and D.9.

V. Reaching Visitors

This section presents an interpretation of the results of this study. It begins by proposing that most visitors came to the exhibition with clear expectations and a background of *Star Trek* exposure and involvement that served to reinforce ideas with which they felt comfortable, and with which they agreed. It ends by concluding that the curator, Mary Henderson, succeeded in using the exhibition to put the series in a new light for some visitors by demonstrating how it served as a forum for social commentary in the 1960's. It also recognizes that there are visitors who expect that "stuff" at NASM will "explain" the complexities of flight in air and space and add to their scientific knowledge. These visitors are apt to blur the distinction between "museum" and "exhibition" as they see the exhibition as part of a whole and not as a separate entity.

Increasingly exhibition developers are going beyond conventional attitudes to present familiar subjects in unfamiliar ways. When these new approaches challenge traditional ideas, the exhibitions can be considered daring or controversial. But even when, as in the case of the *Star Trek* exhibition, the curator's vision can peacefully coexist with audience expectations, the successful communication of an unexpected point of view can be difficult to achieve.

This study points to some of these difficulties and considers ways that exhibition developers can increase the likelihood of effective communication.

Visitor Expectations and the *Star Trek* Exhibition

In the minds of its viewers in the 1960's, *Star Trek* was first and foremost a television adventure series. While it can bee seen as making contributions to the debate about social issues, *Star Trek* can also be seen as a "space western," constructed around a romanticized view of exploration and conquest of "Space, the final frontier." Although racially integrated, the Enterprise crew was often composed of cowboys and posses. And, while the Enterprise crew espoused respect for the innate value and complexity of "new worlds" and "new civilizations," the interstellar world was populated by heroes, damsels in distress, and villains.

As reported in Section III, most exhibition visitors were very familiar with *Star Trek* as an adventure series and were interested in seeing its physical artifacts. In other words, they were primarily interested in the exhibition as a commemoration of the series and its themes.

Background and Experience

In Section IV we identified the factors that significantly influenced the probability that visitors thought the exhibition had a message, which message they identified, and which parts of the exhibition they found thought-provoking. These results are discussed here. Readers may want to refer to a table summarizing the results (Table 5.1) at the end of this section.

As this summary demonstrates, the amount of exhibition film watched was far and away the single most important factor influencing the communication outcomes, and it was a relatively strong predictor, since it increased the likelihood of particular results by 6 to 9 percent.

The film was a strong influence on the approximately one-quarter of visitors who watched half or more of it. It made them more likely to think that the exhibition had a message, that the message was a *Star Trek* theme, and that the message was different from NASM's general educational messages. It also encouraged them to find the social commentary sections of the exhibition more interesting.

The film thus seems to have supported both the implicit and explicit messages of the exhibition at the same time. It drew visitors' attention to both, encouraging them to see the *Star Trek* theme as the message of the exhibition, but to find more personal meaning in the social commentary content. A number of our studies have demonstrated that there is often a difference between the messages that visitors perceive when they consider the exhibition as an artifact of its own, and the personal meanings that they find in the ideas and objects presented. A high level of message recognition does not necessarily indicate that visitors find those messages interesting, believable, or meaningful.[1]

Watching the film influenced more than respondent opinion about the exhibition's overall message. As seen in Table 5.1, watching at least half of the film also increased the probability of a respondent citing a commentary section as thought-provoking by 8 percentage points.

Watching the film has a greater impact on citing a commentary section than any other significant factor, including age, race/ethnicity, or educational attainment. Since these effects are cumulative within a particular model, individuals who belonged to several of these groups were much more likely to find a social commentary section as thought-provoking. For example, someone in the non-minority group, age 20, with a Bachelor's Degree, who had watched half or more of the film was 25 percent more likely to cite a commentary section than someone in a racial/ethnic minority group, not 20, with an education less or more than a Bachelor's Degree, who had watched less than half the film.

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[1]See, for example, Doering, Zahava D., Audrely E. Kindlon and Adam Bickford, *The Power of Maps,: A Study of an exhibition at Cooper-Hewitt, National Museum of Design* Report 93-5, (Washington, D.C.: Smithsonian Institution, 1993).

The exhibition film presented *Star Trek* as a forum for social commentary in the 60's, and also celebrated its theme of "hope for the future." It discussed issues of race, theories of social development and history, and the intermittent conflicts between the series producers and NBC over episode content, and it also featured the recollections of the original cast members and a valedictory passage on the creative genius of Gene Roddenberry.

This very effective film thus put all of the messages of the exhibition, both the explicit ones and the implicit ones, into a brief, compelling form. It was, in essence, a video counterpart of the exhibition as communicator. It apparently sensitized visitors to the social issues highlighted in the exhibition at the same time that it suggested an overall message for the exhibition. Those who watched it to the end had the message of the *Star Trek* series neatly summarized for them as "hope for the future" in the closing moments, and many of them took this as the message of the exhibition, as well. For these visitors, the film communicated very effectively, which is understandable in view of their extensive experience as television viewers.

Experienced Museum Users

Considering all possible messages, the only significant variable predicting whether a respondent thought the exhibition message was *Star Trek*'s role as social commentary was previous visits to the Smithsonian (which increased the probability of that outcome by 5%). This result suggests that those with more extensive museum experience were more likely to consciously recognize the curator's intended theme.

The visitors who recognized the curator's theme were more broadly experienced in the exhibition medium (since previous visits to NASM alone did not significantly affect visitor recognition of the curator's message). Through their encounters with exhibitions of different kinds and subject matters, these visitors were more likely to have learned to see exhibitions as expressions of particular viewpoints or ideas, and to correctly identify those viewpoints or ideas. Experienced users may even have come to the museum expecting such messages.

Although we cannot judge from this study how much previous experience with the Smithsonian (or with museums in general) was required before visitors were able to understand an exhibition's "communication system" and read its intended message, this finding suggests that the visitors most likely to "get" the message are those who have been exposed to a variety of exhibitions and their conventions.

Many exhibition developers hold an image of this experienced user in their minds as their "average" visitor. In the case of the NASM audience, this is not an unreasonable assumption, since, according to the 1994 study, nearly one-fourth of the visitors have been to the museum on multiple occasions (four or more) and have more than a high school education. Another fifth have been to the museum between 2-4 times and have more than a high school education. However, our information about multiple repeat visitors to the Smithsonian, and the public's museum-going habits is somewhat limited.

Thus, exhibition developers may need to consider the needs of the "inexperienced" museum goer as well, to ensure that he or she will consider the visit meaningful and return.

Perception of the Exhibition Messages

When the curator's view of a subject coincides with the visitor's opinion, the communication task of an exhibition is relatively simple, and the exhibition need only support the common interpretation that both parties share. However, this congruence is usually limited to a minority of the audience; many of an exhibition's visitors may not have well-formed opinions about an exhibition's subject, or may hold opinions that differ from those of the curators.

Among the possible interpretations of the *Star Trek* exhibition, two themes stood out -- the recognition of *Star Trek* as a forum for social commentary in the 1960's and the commemoration of *Star Trek* as a unique cultural artifact. The combination of objects and texts that were eventually installed reflected both views.

The exhibition's explicit perspective was that *Star Trek* is important primarily because of its subject matter and its relationship to social issues. From this perspective, *Star Trek* episodes can be seen as source documents for understanding its period, the 1960's, and episode plots and storylines that dealt with problems of race, of women's status, etc., become valuable documents revealing what the series' authors and creators thought about the significance, cause and prospects for these issues in America.

In her discussion of the exhibition in Section I, the curator stressed this "commentary" role, maintaining that *Star Trek* is significant because of the issues the episodes explored, and, as a result, individual episodes were presented as chronicles of the Vietnam War, superpower relations, etc.

The message that *Star Trek* should be celebrated was implicit. It maintains that *Star Trek* is significant on its own terms, as a unique artifact, and it focuses on the singular nature of the world of starships and transporters *Star Trek* created. Because of the sense of authority communicated by the museum setting, the presence of any object on display in the museum, even if there is no label describing or discussing that object, is assumed by the visitor to be important and worthy of attention. This effect is so strong that visitors are inclined to be upset or confused, if, as in some contemporary art museums, the evidence of their own senses seems to contradict that presumed importance. By its presence at NASM the *Star Trek* exhibition confers some importance and cultural authority onto its subject, the *Star Trek* series, and, consequently, its objects encourage a celebratory or commemorative response.

Most of the exhibition space was dedicated to displays of the sets, spacecraft models, props and costumes used in the series. Beyond viewing the artifacts, visitors were able to take souvenir photographs of themselves on the Starship Enterprise, either on the transporter deck surrounded by cardboard cut-outs of the original crew, or sitting in the Captain's Chair. These activities, seeing the original props and costumes, placing

oneself on the deck of the Enterprise, are commemorative; they speak to visitors' original experience of the series.

The implicit message of celebration and commemoration accepts the series' unabashed optimism about human prospects, its faith in technology, and the role of space travel and exploration in the future of humanity. This perspective also notes the extraordinary life of the series' characters through the autonomous development of the subculture of *Star Trek* fans.

Most visitors arrived with this opinion already formed. The study indicated that 92 percent of visitors thought that *Star Trek* was an appropriate subject for NASM. This implies that nearly all visitors considered it to be important, worthy of commemoration, and appropriate to the NASM mission as they understood it.[2] Equally important, the very fact of the exhibition's venue, at NASM on the National Mall, bestowed on the exhibition a special aura, validated its right to be a cultural icon, and discouraged criticism.[3]

Visitors had spent many hours experiencing *Star Trek* as a television series. Granted, the original series has had an extraordinary history and an extensive subculture has developed around its fictional portrayal of the twenty-third century. However, this world is a fantasy, and as such it conforms to the storytelling conventions of science fiction and of the western --as indicated by Gene Roddenberry's initial description of *Star Trek* as a "*Wagon Train* in space." One might assume that most visitors to the *Star Trek* exhibition think of the series as space fantasy --albeit a space fantasy with a remarkable history beyond its original medium-- and not as a document of any particular era. Such visitors would be expected to respond more readily to the commemorative aspects of the exhibition than to its role in the social history of the 1960's.

Exhibition Intent and Visitor Response

Every exhibition with a stated purpose is mounted with the expectation that visitors will be changed by their experience in the exhibition. The means and ends of this change are often poorly articulated. Doering and Pekarik (1993)[4] describe the expectations and intent of exhibitions as follows:

---

[2]The regression model for thinking the exhibition was appropriate indicated that those with graduate degrees were 1 percent less likely to think *Star Trek* was appropriate for NASM, those who saw more than half the film were 3 percent more likely to think the exhibit was appropriate, and those who came to NASM specifically to see Star Trek were (not surprisingly) 4 percent more likely to say it was appropriate. See Table B.4.

[3] Our studies have also shown that the public is generally reluctant to criticize the Smithsonian, especially on its own turf, and may be more comfortable with giving "socially acceptable" responses on issues which do not involve basic cultural values.

[4]Doering, Zahava D. and Andrew J. Pekarik. *The Exhibition Dialogue: An Outline.* Exhibitionist. 12:2 (Summer/Fall, 1993). pg. 8-11.

> Whether they realize it or not, [exhibition] creators expect three responses from users: *1) intellectual, 2) emotional,* and *3) behavioral.* The quality of an exhibition will depend on the degree to which the creators can articulate, define and isolate these three dimensions of their message. (10, emphasis in the original)

This description of exhibitions is predicated on a model that assumes that exhibitions are primarily acts of communication between museum teams and museum visitors. The message can vary from a relatively benign desire to make visitors aware of a particular aspect of material culture, to strident calls for social action and activism beyond one's museum visit.

In the case of *Star Trek* the intellectual and emotional messages can be clearly separated. The intellectual message was the expressed intention of the curator to demonstrate that the original *Star Trek* series was seen by its creators as a forum for commentary on the critical social issues of the time. This is an historical position that was clearly incorporated in the exhibition and in the film. The emotional message of the exhibition was a sense of optimism, expressed as "hope for the future" or "racial tolerance." As befits an emotional message, perhaps, it was integrated fully into the exhibition but not articulated by the curator explicitly. It did, however, appear in a clear statement at the end of the film, where it had a significant impact on visitors' overall understanding of the exhibition theme.

Regardless of the exhibition team's explicit message, visitors receive impressions and ideas also through the selection and arrangement of artifacts in a gallery space. If messages are complex and difficult for exhibition teams to articulate, finding a way to arrange an gallery space so that messages are communicated efficiently and unambiguously is even more difficult since, as Doering and Pekarik note, there is no "semiotics of exhibitry" (1993: 9), no reliable formulae to guide the selection and arrangement of artifacts, labels, video and interactives to maximize their communication effectiveness. Given the range of materials and techniques available to exhibition teams, exhibition elements can work against one another, offering visitors contradictory messages that leave them confused by what they saw.

In *Star Trek,* the explicit and implicit messages could be presented side-by-side without confusing the visitor. They were presented throughout the exhibition with relatively equal force. Explicit statements in the eighteen major sections, for example, were about equally divided between those that supported the intellectual theme and those that supported the emotional theme. In the physical arrangement, artifacts reinforcing the emotional theme were placed across from units dealing with social issues.

And in the film, *Star Trek*'s historical role was presented together with its evocative message of optimism. Although the first half of the film addressed *Star Trek*'s geo-political content (i.e., the parallels between the relation of Federation of Planets to the Klingon Empire and the cold war), its commitment to the racial and gender integration of the series cast, and some of the episodes that addressed specific issues, the second half of the film was a memorial to Gene Roddenberry, commemorating his vision for the series and his accomplishments in realizing this vision over the objections of NBC.

In the end, almost two-thirds of survey respondents thought the exhibition had a message, and about equal numbers of these respondents thought the purpose of the exhibition was to commemorate the series by honoring the original intent of the series producers as thought that the exhibition was about *Star Trek*'s interpretation of the social issues of the 1960's. This is much less remarkable in the case of the emotional theme than in the case of the intellectual theme, since visitors came strongly predisposed to celebrate *Star Trek* as a result of their extensive exposure. Presumably few of them arrived at the exhibition with the thought that this familiar space adventure series was a serious forum for the exploration of social issues during the 60's, although they might not have been surprised when that was brought to their attention. Since audiences were not surveyed before they entered the exhibition, there is no way to know whether the exhibition changed the views of visitors, or how much resistance the exhibition had to overcome to deliver its explicit message.

The fact that nearly as many people left the exhibition with this intellectual message as the theme of the exhibition as left with the emotional message suggests that the curator was successful in introducing a new idea to these visitors.

Of course, it is also possible that not all of those who got the message believed it. And perhaps not all of those who believed it cared about it. And many of those who were moved at the time might not have long remembered the experience. Learning is a complex process, involving reinforcement, repetition and assimilation, and, in the exhibition environment, that learning process is firmly in the control of the visitor. The evidence of this study strongly suggests that *Star Trek* served well both as an opportunity for learning, and as an emotionally satisfying experience.

Note: Table 5.1

Table Contents

The column headings (a-f) are the key communication outcomes. First, we asked "Does the exhibition have a message?" We then asked, "If so, what is it?" and identified four messages (b) the Star Trek theme, (c) the curator's theme, (d) a general NASM message, and (e) the residual, miscellaneous category.

By analyzing responses to "Which of the exhibition's eighteen major sections did you find most thought-provoking?" we learned which exhibition elements had the greatest immediate impact on the individual, whether or not they saw those elements as the overarching "message" of the exhibition. The heading (f) identifies a reply citing a Social Commentary section.

Items listed vertically on the left, below the heading "Significant Predictors" are those aspects of background or experience that were found in <u>any</u> of the statistical models to have a significant impact on whether or not an individual was likely to report one of the communication outcomes listed at the top of the table (a-f). The numbers in the table indicate the degree to which that factor made the outcome more likely. When both a

factor and an outcome are dichotomous (i.e., there are only two possibilities),[5] these likelihoods can be stated conversely. For example, it means the same to say that " a minority person is four percent more likely to say that the exhibition has a message" as it does to say that "a non-minority person is four percent more likely to say that the exhibition does not have a message."

Table 5.1
Significant Predictors, by Exhibition Communication Outcomes
(in percent of probability change)

	Communication Outcomes					
	(a)	(b)	(c)	(d)	(e)	(f)
	Message?	Which Message?				Which Section?
	Yes	Star Trek Theme	Curator Message	NASM General	Misc	Social Commentary
Intercept+	63.4	29.0	28.7	27.6	13.5	39.7
Significant Predictors						
Age						
24 and Younger	—	—	—	—	—	4.6
45-54	—	3.3				
Race/Ethnicity						
Non-minority	—	—	—	—	—	4.4
Minority	3.7	—	—	—	—	—
Participation Group						
Fan	4.7	—	—	—	—	—
Exhibition Film Watched						
Half or More	**9.2**	**6.1**	—	—	—	**7.6**
Less than Half	—	—	—	**6.9**		—
Visit to Smithsonian						
First	—	—	—	—	3.7	—
Repeat	—	—	4.8	—	—	
Educational Attainment						
Bachelor's Degree	—	—	—	—	—	8.7
MA/Ph.D./Advanced Degree	—	—	—	—		7.9
Gamma++	0.372	0.246	0.246	0.319	0.309	0.289
N Cases	1178	733	733	725	733	1183

+ This number indicates the probability that any visitor, without regard to any demographic or visit characteristics, would be likely to choose this outcome.

++ This number describes what percentage of the variance is accounted for by the model, and indicates how well the model as a whole predicts.

[5]This is true here only of Message, Social Commentary, Race, Film and Visit to Smithsonian.

Appendix A

1992-93 NATIONAL AIR AND SPACE MUSEUM STUDY

Office ID: ☐☐☐ 1-3 /

Count Number ☐☐☐ 5-7/

Hello, my name is _____. I am a volunteer and would like to talk to you about your visit.

+1. Is today your FIRST visit to the Smithsonian? 9/

1 Yes
2 No
3 Work at SI/Cont: GO TO ADMIN BOX

+2. Is this your FIRST visit to the Air & Space Museum?

1 Yes 11/
2 No: **2A. How many times have you been here before today?**

[Max: 99] ☐☐ 13-14/

2B. When were you here last?
1 Since March 1, 1992 16/
2 In the last year
☐☐ **years ago** 18-19/

3. Did you come to the Mall only to visit Air & Space, or as part of a general visit to the Smithsonian?

1 NASM
2 SI
3 NASM, others if time 21/

4. What was the MAIN reason you visited this museum (today)?

01	Tour/School trip	07	General Interest
02	Reputation	08	Aviation Interest
03	Family tie	09	Space Interest
04	Personal tie	10	With friend(s)
05	Film	11	Museum Shop
06	Food	12	To see Star Trek

13 Other_____ 23-24/

5. How did you hear about the Star Trek exhibition? [MARK ALL THAT APPLY]

1 Repeat Visitor **Ask: How Did you first hear about it?** 26/
1 Newspaper: NAME: _____ 28/
1 Magazine: NAME: _____ 30/
1 TV/ Radio 32/
1 Friends/Family 34/
1 NASM Calendar 36/
1 Walk-by/Front Desk 38/
1 Other_____ 40/

6. Before today, what kind of exposure to or experience with *Star Trek* have you had? [SHOW CARD. MARK ALL THAT APPLY]

1 None 42/
1 A) I watch *Star Trek* RERUNS now 44/
ASK: **How frequently?**
1 Daily 2 Weekly 3 Monthly 4 Less 46/

1 B) I watch THE NEXT GENERATION now 48/
ASK: **How frequently?**
1 Daily 2 Weekly 3 Monthly 4 Less 50/

1 C) I saw *Star Trek* MOVIE (S) 52/
1 D) I attended a *Star Trek* CONVENTION 54/
1 E) I own/rent *Star Trek* videos 56/
1 F) I personally own *Star Trek* merchandise or books 58/
1 G) I read *Star Trek* novels 60/
1 H) I belong to a *Star Trek* fan club 62/
1 I) I watched the ORIGINAL *Star Trek* on TV in 1966 -1969 64/

7. How much of the 28 minute exhibition film did you watch?

1	None	4	13-18/About half/15 min.
2	>10 min.	5	18-24/Most/Almost All
3	10-13 min.	6	25 or More/All 66/

8. People find different things in exhibitions interesting. Which two things did you find the most interesting? [SHOW CARD]

1 A) Reading about the history of *Star Trek* 68/
1 B) Reading about the *Star Trek* episodes 70/
1 C) Reading about the exhibition themes 72/
1 D) Seeing the real props, models and cost. 74/
1 E) The *Transporter Room* photo opp. 76/
1 F) Sitting in the *Captain's Chair* 78/
1 G) The toys and other merchandise items 80/
1 H) Watching the film at the end 82/
1 I) Listening to the Audio Tour 84/

9. Do you think that this *Star Trek* exhibition is appropriate for the National Air and Space Museum?
1 No 2 Yes 86/

Why or Why Not?_____

_____

_____

☐☐ 88-89/ ☐☐ 91-92/

10. Do you think the exhibition has a basic message?
1 No **GO TO Q11** 2 Yes 94/

10A. What do you think the message is?

_____

_____

_____

_____

_____

☐☐ 96-97/ ☐☐ 99-100/

11. Here are the topics in the exhibition. Which one was the most thought provoking? (Please answer with the number of the topic.)
[SHOW CARD WITH TITLES]

RECORD: ☐☐ 102-103/

11A. Why did you find it thought provoking?

_____

_____

_____

_____

_____

☐☐ 105-106/

12. Did anything in the exhibition surprise you?
1 No **GO TO Q13.** 2 Yes 108/

What?

_____

_____

_____

_____

☐☐ 110-111/ ☐☐ 113-114/

+*13. MARK GENDER: 1 Male 2 Female 116/

+*14. How old are you? ☐☐ Enter age 118-119/
OR
Record for Refusal/Estimate: _____ 121-122/

+*15. Where do you live?
1 Washington, D.C.
2 Suburbs in MD/VA
3 Other U.S.: _____
4 Foreign: _____ 124

☐☐ Office only 126-127/

+*16. Who are you here with?
1 School Trip
2 Tour Group
3 One other adult: **GO TO Q18**
4 Alone: **GO TO Q18**
5 Group of Teens
6 Several Adults
7 Adult w/child(ren)
8 Adults w/child(ren) 129/

+17. How many OTHER people are here with you in this museum?

RECORD ☐☐☐ 131-133/

+18. What is the highest level of education you have completed?

1	Pre -School	6	Some college/Tech.
2	Grade school (0-8)	7	Bachelor's degree
3	HS Student/Some HS	8	Some graduate study
4	HS graduate	9	MA/Ph.D./Professional
5	AA/Jr. Coll/Tech..		135/

+*19. What is your cultural/racial/ethnic identity? 137/

1	Afr. Amer./Black	4	Hispanic/Latino
2	Asian/Pac. Isl.	5	Nat Am./AK Native
3	Caucasian	6	Other_____

20. Do you have any other comments about the exhibition?
1 No 2 Yes: **What?** 139/

_____

_____

THANK YOU. GIVE GIFT. ☐☐ 141-142/

ADMINISTRATIVE INFORMATION

Shift: 1 2 3 4 5 6 144/

Status: 1 Interview-Adult 4 Refusal - Language
2 Interview-Child 5 Refusal - Other
3 Work at NASM/SI 146/

Day: ☐ 148/ Month: ☐☐ 150-151/ Date: ☐☐ 153-154/
(1=Sun, 2=Mo, etc.)

For Office use only: _____

Session# ☐☐ 156-157/ Session Count ☐☐☐ 159-161/

Segment# ☐ 163/ Intercepts in Seg. ☐☐ 165-166/

Current Segment Count ☐☐☐ 168-170/

Previous Segment Count ☐☐☐ 172-174/

Cards to Accompany Questionnaire

Note: Each question and its response categories were on separate laminated cards in large print.

What kind of exposure to or experience with *Star Trek* have you had?

A. I watch *Star Trek* RERUNS now
How frequently do you watch?
B. I watch THE NEXT GENERATION now
How frequently do you watch?
C. I saw *Star Trek* MOVIE (S)
D. I attended a *Star Trek* CONVENTION
E. I own/rent *Star Trek* videos
F. I personally own *Star Trek* merchandise or books
G. I read *Star Trek* novels
H. I belong to a *Star Trek* fan club
I I watched the ORIGINAL *Star Trek* on TV in 1966-1969

Which TWO things did you find the most interesting?

A. Reading about the history of *Star Trek*
B. Reading about the *Star Trek* episodes
C. Reading about the exhibition themes
D. Seeing the real props, models and costumes
E. The *Transporter Room* photo opportunity
F. Sitting in the *Captain's Chair*
G. The toys and other merchandise items
H. Watching the film at the end
I. Listening to the Audio Tour

Which topic was most thought provoking?
Please answer with the number of the topic.

1 ***Star Trek* and the 60's** .....black & white historical photos
2 **The Creation of *Star Trek*** .....creator and first two pilot episodes
3 **A Cold War in Space** .....the Federation and the Klingons
4 **Superweapons** .....phasers and photo torpedoes
5 **Imperialism?** .....protection of colonies and access to minerals
6 **The Specter of Vietnam** .....Vietnam-like situations
7 **Civil Rights and Urban Rebellion** .....minorities in Star Trek
8 **Alien-Life Forms** .....assorted aliens
9 **The Resident Alien** .....Spock
10 **The Balance of Power Within** .....negative aspects of human personality
11 **The Will to Power** .....power at the expense of humanity
12 **Love and Self Sacrifice** .....personal loyalty vs. duty
13 **Sexuality** .....sexual concerns of the 1960's
14 **Wives** .....Kirk, Spock, and McCoy deal with marriage
15 **Women** .....roles of women
16 **The Quest for Utopia** .....alternative cultures
17 ***Star Trek* and Science Fiction**.....photos from early science fiction films
18 **The Fans** .....cases of toys and merchandise

Appendix B

Respondent Attitudes About *Star Trek* as an Exhibition at NASM

Survey respondents were asked whether they thought the *Star Trek* exhibition was appropriate for NASM. This appendix reviews their answers to this question.

Opinions About *Star Trek*'s Relation to the History of Space Flight

NASM is a specialized history museum whose collection includes primary artifacts of aviation history. Given that *Star Trek* is a work of fiction, NASM curators were interested in knowing visitors' reactions to the exhibition of materials from a television fantasy in the midst of biplanes, moon rocks and rocket boosters.

Of all respondents, 92 percent thought that it was appropriate to present the *Star Trek* exhibition alongside the artifacts of flight and space exploration featured at NASM. When asked why they thought *Star Trek* was an appropriate display for NASM, the most common response was that *Star Trek* was "about space" (22%), followed by statements that *Star Trek* was part of our culture (13%), that both NASM and *Star Trek* were about "the future" (13%), and that exhibits like *Star Trek* help interest children in science and space exploration (12%). (See Table B.1).

Table B.1
Respondent Opinion About *Star Trek's* Presence in NASM
(In Percent)

The *Star Trek* exhibition is appropriate for NASM because it...

Has to do with space.	21.9
Part of our history and culture.	13.4
Has to do with the future.	13.0
Helps interests people in space.	12.3
Continues NASM themes and ideas.	9.4
Explores the relationship among real issues and science fiction.	8.9
Other	7.5
It is science fiction not real science.	6.1
General positive statement	3.8
General negative statement	1.8
Should be at another museum.	1.8
Total	99.9

Among all respondents only 8 percent did not think that NASM was an appropriate place for *Star Trek*. Despite the overwhelming opinion that the fantasy world of *Star Trek* fit NASM's mission of documenting the history of aviation and space flight, there were some significant differences in the demographic characteristics and visit experiences of respondents with respect to their opinions (see Tables B.2 and B.3).

Slightly more women than men (93% versus 92%), and more respondents living in the Washington Metropolitan area (94% versus 92% of non-local respondents) thought that *Star Trek* was an appropriate exhibition for NASM. In contrast, there was less than a percentage point difference in respondent opinion on this question by racial/ethnic identity.

Table B.2
Selected Demographic Characteristics for Respondents
who felt NASM was an Appropriate Venue for *Star Trek*
(In Percent)

	Appropriate For NASM?		
	No	Yes	Total
Gender*			
Male	8.3	91.7	100.0
Female	7.0	93.0	100.0
Race/Ethnicity			
Non-Minority	7.9	92.1	100.0
Minority	7.2	92.9	100.1
Residence Location*			
Local Residents	5.8	94.2	100.0
Non-Local Residents	8.5	91.5	100.0
Age*			
12 to 19	5.0	95.0	100.0
20 to 44	8.1	92.0	100.0
45 to 64	8.4	91.6	100.0
65 and over	8.7	91.3	100.0
Educational Attainment (Age 25 and Over)*			
Less Than High School Grad.	4.6	95.4	100.0
High School Graduate	9.2	90.8	100.0
Bachelor's Degree	6.4	93.6	100.0
MA/Ph.D./Advanced Degree	9.2	90.8	100.0
All Respondents	7.8	92.2	100.0

*Variables included in Logistic Regression models presented in Table B.4

As respondent age increased, fewer respondents thought *Star Trek* fit NASM's mission. The greatest difference is between respondents under nineteen years old and all others; 95 percent of teenage respondents thought *Star Trek* was appropriate for NASM, compared with 92 percent of respondents between twenty and forty-four years old; but the negative relationship between respondent age and their opinions about *Star Trek* and NASM holds, although the magnitude of the differences among age groups is small.

There is no clear relationship between thinking *Star Trek* is appropriate for NASM and education. Among respondents over age 25, those who had completed college (i.e., held a Bachelor's or equivalent degree) were most likely to think that *Star Trek* was appropriate for NASM, although the difference between these respondents and others varies by only a few percentage points, e.g., 93 percent of respondents with Bachelor's degrees thought *Star Trek* was appropriate, versus 91 of respondents with advanced degrees.

The visit characteristics presented in Table B.3 show that repeat visitors to both NASM and the Smithsonian were more likely to think NASM was an appropriate venue for *Star Trek*. 93 percent of repeat visitors to the Smithsonian thought *Star Trek* was appropriate for NASM, compared with 90 percent of first-time visitors; 94 percent of repeat visitors to NASM thought *Star Trek* was appropriate, compared with 89 percent of first-time visitors. Finally, the proportion of respondents who thought NASM was an appropriate venue for *Star Trek* increases as the number of previous visits to NASM increases, ranging from 89 percent of first-time visitors to 96 percent of respondents who had visited NASM at least ten times in the past.

There were large differences in respondent opinion about the propriety of displaying the *Star Trek* exhibition at NASM according to one's reason for visiting NASM and participation in *Star Trek* activities. As one might expect, nearly all respondents (98%) visiting NASM specifically to see *Star Trek* thought NASM was an appropriate venue for the exhibition. On the other hand, only 89 percent of respondents who were visiting NASM out of interest in aviation and space flight thought *Star Trek* was appropriate. Differences of about the same magnitude appear with respect to *Star Trek* participation, 97 percent of *Fans* thought *Star Trek* was appropriate, compared with 89 percent of *Visitors* (92% of *Viewers* thought NASM was an appropriate venue for *Star Trek*).

Finally, watching the exhibition film apparently affected opinions about whether *Star Trek* was appropriate at NASM; 98 percent of respondents who watched at least half of the film thought NASM was an appropriate venue for *Star Trek*, compared with 90 percent of respondents who watched less than half of the film.

In considering what factors influenced a respondent's initial opinion about displaying *Star Trek* at NASM, several demographic and visit variables were regressed against the probability that a respondent thought NASM was an appropriate site for the *Star Trek* exhibition (see Table B.4).

Three factors are significant in the final model: respondent education, the respondent's reason for visiting NASM, and how much of the exhibition film the respondent viewed. In terms of education, highly educated respondents --those with advanced academic and professional degrees-- were less likely that other respondents to think NASM was an appropriate venue. Having a Master's Degree or a Doctorate decreased this probability by 1 percent. The effects of the other levels of education reported in Table B.2 were not statistically significant.

Table B.3
Selected Visit Characteristics for Respondents
who felt NASM was an Appropriate Venue for *Star Trek*
(In Percent)

	Appropriate For NASM?		
	No	Yes	Total
Visit to the Smithsonian*			
First	10.0	90.0	100.0
Repeat	6.8	93.2	100.0
Visit to NASM			
First	11.2	88.8	100.0
Repeat	6.3	93.8	100.0
Number of Visits to NASM*			
1	11.2	88.8	100.0
2	9.5	90.5	100.0
3	4.5	95.5	100.0
4	8.4	91.6	100.0
5 to 9	7.0	93.0	100.0
10 and more	4.0	96.0	100.0
Reason for Visiting NASM*			
To See *Star Trek*	2.0	98.0	100.0
NASM Subject Matter	11.5	88.5	100.0
Other Reason	8.4	91.6	100.0
Star Trek Participation*			
Visitor	11.4	88.6	100.0
Viewer	8.6	91.5	100.0
Fan	3.5	96.5	100.0
Amount of Exhibition Film Watched*			
Half or More	2.2	97.8	100.0
Less Than Half	10.5	89.5	100.0
All Respondents	7.8	92.2	100.0

*Variables included in Logistic Regression models presented in Table B.4

Respondents who were visiting NASM specifically to see *Star Trek* were also significantly different from other respondents. Visiting NASM to see *Star Trek* increased the probability of thinking that NASM was a appropriate venue for *Star Trek* by 4 percent.

Finally, watching at least half of the exhibition film increased respondents' probability of thinking NASM was an appropriate place for *Star Trek* by 3 percent. It appears that the film helped to place *Star Trek* into a wider historical and social framework. While *Star Trek* is fiction, viewing the film apparently related the series to NASM's core concerns and served to validate some respondents opinions about the series' place in the development of aviation and space travel.

The results imply that nearly all visitors considered it to be important, worthy of commemoration, and appropriate to the NASM mission as they understood it. It is important to remember that, however, the vary fact of the exhibition's venue, at NASM on the National Mall, bestowed on the exhibition a special aura and validated its right to be a cultural icon and discouraged criticism. Our studies have also shown that the public is generally reluctant to criticize the Smithsonian, especially on its own turf, and may be more comfortable with giving "socially acceptable" responses on issues which do not involve basic cultural values.

Table B.4
Logistic Regression Results for Models Predicting a Respondent Thought NASM was an Appropriate Venue for the *Star Trek* Exhibition

Independent Variable	Coefficient	Final Model* Probability	% Change
Intercept	-2.1290	0.0001	92.1862
Educational Attainment			
MA/Ph.D./Advanced Degree	0.4557	0.0505	-1.3369
Reason for Visiting NASM			
To See *Star Trek*	-1.4863	0.0007	3.6525
Amount of Exhibition Film Watched			
Half or More	-1.2336	0.0007	3.2712
Less Than Half†	---	---	---
Gamma	0.5450	0.0001	
N Cases	1203		

* Full Model is available from the authors.

† Reference Category Omitted From the Model.

Appendix C

Supplementary Tabulations and Technical Notes

Introduction

This appendix contains supplementary tabulations for Sections II, III and V, as well as technical notes. Sequential numbers have been assigned to the tables, corresponding to main text sections. For example, Table C.2.1 is the first supplementary table for Section II, Table C.4.2 is the second supplementary table for Section IV, etc.

Note on the Statistical Methods

The statistical results presented in this report are supported by a range of analytic procedures designed to uncover differences in the demographic composition of visitor populations, differences in the experiences of visitors to NASM, and differences in the opinions of visitors due to their experience in the exhibition.

In the main text, statistical tests have generally not been noted. In all cases, however, the analytic strategies and statistical tests were driven by the measurement characteristics of the underlying variables. For analyses of categorical variables, e.g., gender, race, past visitation patterns, reason for visit, etc., the primary method of analysis used was the examination of cross-tabulations and the primary test of statistical significance used was the Chi-Square test.

To assess the simultaneous effects of a set of independent variables on a particular dependent variable, logistic regression models were estimated. These models are linear regression models that transform dichotomous dependent variables (e.g., whether a visitor saw the film) into continuous probability values. The resulting coefficients measure changes in the probability of an event occurring due to a unit change an the independent variable. For these models, the test of overall fit is a maximum-likelihood Chi-Square test. For the effects of individual independent variables, a T-test is used. The responses to questions about respondent exposure of respondents to *Star Trek* in its various forms (television shows, movies, merchandise, fan clubs, conventions etc.) were analyzed, using a combination of factor and cluster analysis techniques.[1]

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[1] Cluster analysis is a statistical technique that arranges questions into groups based on their differences, or distances, from one another. The statistical procedure has several steps. First, responses to all of the questions included in an analysis are correlated with one another. The set of correlations is called a *distance matrix;* one assumes that pairs of questions that are highly correlated with each other are spaced closely together and those pairs of questions that are not highly correlated are far apart. Once the distance matrix is calculated, cluster analysis combines the pairs of questions that are close together into groups, or clusters. Once all the close pairs of questions are grouped into clusters the distance matrix is calculated again, this time correlating the clusters (instead of the individual questions). Clusters that are close together are grouped into larger clusters, and the process repeats itself until all of the original questions are combined into a single cluster.

To create the Star Trek visit groups (*Visitors, Viewers* and *Fans*) cluster analysis was used. This is a statistical technique that arranges questions into groups based on their differences, or distances, from one another. The statistical procedure has several steps. First, responses to all of the questions included in an analysis are correlated with one another. The set of correlations is called a *distance matrix*; one assumes that pairs of questions that are highly correlated with each other are spaced closely together and those pairs of questions that are not highly correlated are far apart. Once the distance matrix is calculated, cluster analysis combines the pairs of questions that are close together into groups, or clusters. Once all the close pairs of questions are grouped into clusters the distance matrix is calculated again, this time correlating the clusters (instead of the individual questions). Clusters that are close together are grouped into larger clusters, and the process repeats itself until all of the original questions are combined into a single cluster.

Throughout the analysis, the level of significance was established at the .01 level, although occasionally the .05 level was used. As always, readers with further questions about the analyses and their implications are encouraged to contact the Institutional Studies Office directly.

Weighted and Unweighted Number of Respondents

As noted in Appendix E, since the respondent selection intervals during an interviewing session are unequal, weights were needed in the survey analysis.

The use of weighted data allows for the extrapolation of the sample results to the population of all NASM visitors who exited during the hours of data collection. The percentages reported in the tables in the appendices, and used in constructing the figures in the text, are based on weighted data.

The application of the weights violates most of the data assumptions behind the standard statistical tests. Consequently, all statistical tests and modeling reported here were performed on unweighted data. (If, for example, weighted data were used in the tests of significance, the effect of each observation would be greatly exaggerated. Since the purpose of most of the tests used is to measure differences between actual and expected results, only actual observations can be used with validity.)

After the clustering is complete one looks at the pattern of the grouping, what is called the *agglomeration schedule* , to identify any underlying patterns among the different groups. The agglomeration schedule shows which questions were grouped together and when in the process particular clusters were formed. One can identify similarities and differences among sets of responses to questions that are not apparent by looking at simple frequencies or individual correlations. Often, the patterns of clustered questions reveal some underlying concepts too complex to capture by a single question. Finding and interpreting such general concepts in a set of specific questions is one of the most common application of cluster analysis.

Sample sizes (N's) are not reported at the bottom of tables in the text (unweighted or weighted). However, for the more technically oriented reader below are the various sample and subsample sizes.

Sample Sizes

Group	Unweighted	Weighted
Total Intercepts	1694	28,300
Completed Interviews	1365	23,500
Respondents, age 12 and above	1593	26,100
Respondents, age 25 and above	1001	17,200

Table C.2.1
Selected Demographic Characteristics of Respondents:
Gender, Race/Ethnicity and Residence
(In Percent)

Characteristics	Percent	Characteristics	Percent
Gender		Residence Location	
Male	59.2	Local Residents	24.6
Female	40.8	Washington D.C.	4.5
Total	100.0	MD/VA Suburbs	20.1
		Non-Local Residents	75.5
Race/Ethnicity		Other US	57.6
Non-Minority	82.7	Foreign	17.9
Minority	17.3	Total	100.1
African American	3.8		
Asian	8.1		
Latino	4.9		
Native American/Other	0.5		
Total	100.0		

Table C.2.2
Selected Demographic Characteristics of Respondents: Age
(In Percent)

Characteristic	*All Respondents*	*Respondents 12 and over*
Age		
0-11	7.8	
12-19	10.6	11.5
20-44	63.6	69.1
45-64	15.4	16.7
65 and over	2.6	2.8
Total	100.0	100.1
Who With		
Alone	20.2	
Adult Group	54.1	
Adult(s) w/Child(ren)	17.6	
Tour Group	8.0	
Total	99.9	

Table C.2.3
Demographic Characteristics of Respondents: Race/Ethnicity
(In Percent)

Race/Ethnicity	Audience Surveyed		
	Star Trek Visitors	Winter 1988 NASM	Winter 1994 NASM
Non-Minority	82.7	88.4	79.4
Minority	17.3	11.6	20.6
African American	3.8	4.3	5.6
Asian	8.1	5.5	8.5
Latino	4.9	1.9*	6.5*
Native American/Other	0.5		
Total	100.0	100.0	100.0

* The 1988 and 1994 studies used the combined category Hispanic/Native American/Alaskan Native. In fact, almost all of these visitors were Latino.

Table C.2.4
Respondent Race/Ethnicity, by Residence Location
(In Percent)

	Residence Location				
Race/Ethnicity	Washington D.C.	MD/VA Suburbs	Other US	Foreign	Total
Non-Minority	4.3	22.0	60.6	13.1	100.0
Minority	5.5	11.4	42.8	40.3	100.0
African American	18.9	21.1	50.2	9.8	100.0
Asian	2.8	8.0	37.4	51.9	100.0
Latino	0.0	9.0	41.9	49.1	100.0
Native American/Other	0.0	14.5	85.5	0.0	100.0
Total	4.5	20.2	57.6	17.8	100.0

Table C.2.5
Demographic Characteristics of Respondents: Education
(Visitors Ages 25 and above Only, in Percent)

Educational Attainment*	Audience Surveyed		
	Star Trek Visitors	Winter 1988 NASM	Winter 1994 NASM
Less Than High School Graduate	1.3	1.7	1.1
High School Graduate	23.9	37.1	25.4
Assoc./Jr. Coll./Technical	2.5	5.4	4.3
Some College	14.3	14.2	12.0
Bachelor's Degree	41.1	34.7	38.2
Bachelor's degree	33.3	30.7	31.0
Some graduate study	7.8	4.0	7.2
MA/Ph.D./Advanced Degree	33.7	26.5	35.4
Total	100.0	100.0	100.1
Number of Cases	1,001	4,305	590

Table C.2.6
Selected Visit Characteristics of Respondents:
Previous visits to the Smithsonian and NASM
(In Percent)

Previous Visits	*Star Trek* Visitors	Winter 1994 NASM*
Visit to the Smithsonian		
First	31.0	23.6
Repeat	69.0	76.4
Total	100.0	100.0
Visit to NASM		
First	35.4	32.9
Repeat	64.6	67.1
Total	100.0	100.0
Number of Visits to NASM		
1-3	58.2	41.6
4 to 9	24.1	28.6
10 and more	17.7	29.8
Total	100.0	100.0

Table C.2.6 (cont.)

Previous Visits	*Star Trek* Visitors
Time of Last Visit to NASM (Repeat Visitors)	
Since *Star Trek* Opened	33.6
In the last year	17.9
More than one year ago	48.4
Total	99.9
Years Since Last Visit to NASM (Repeat Visitors)	
0 - 4	53.7
5 - 9	22.3
10 - 14	16.0
15 and more	7.9
Total	99.9

*For respondents age 12 and over only

Table C.2.7
Selected Demographic Characteristics of Respondents
by Reason for Visiting NASM (In Percent)

	To See *Star Trek*	NASM Subject Matter	Other Reason	Total
Gender				
Male	26.9	48.4	24.7	100.0
Female	32.8	32.4	34.8	100.0
Race/Ethnicity				
Non-Minority	31.1	41.4	27.6	100.0
Minority	19.5	46.6	33.9	100.0
Residence Location				
Local Residents	46.4	26.1	27.4	100.0
Non-Local Residents	23.3	47.7	29.0	100.0
Age				
12 to 19	20.9	42.1	37.0	100.0
20 to 44	31.8	41.3	26.9	100.0
45 to 64	22.5	46.2	31.3	100.0
65 and over	37.1	41.6	21.3	100.0
Educational Attainment (Age 25 and Over)				
Less Than H. S. Grad.	6.1	49.4	44.5	100.0
High School Graduate	29.4	43.4	27.2	100.0
Bachelor's Degree	29.0	44.3	26.7	100.0
MA/Ph.D./Adv. Degree	33.6	40.4	26.0	100.0
All Respondents	29.2	42.2	28.6	100.0

Table C.2.8
Previous Visits, by Reason for Visiting NASM
(In Percent)

Visits	To See *Star Trek*	NASM Subject Matter	Other Reason	Total	All Visitors
Visit to the Smithsonian					
First	8.7	58.1	33.2	100.0	31.0
Repeat	38.5	35.3	26.2	100.0	69.0
Total					100.0
Visit to NASM					
First	12.2	55.1	32.7	100.0	35.4
Repeat	39.4	34.6	26.0	100.0	64.6
Total					100.0
Number of Visits to NASM					
First	12.2	55.1	32.7	100.0	35.4
2	27.8	52.7	19.5	100.0	11.8
3	33.3	41.7	25.0	100.0	11.0
4	43.6	31.7	24.7	100.0	6.8
5 to 9	37.6	27.5	34.9	100.0	17.3
10 and more	49.8	27.1	23.1	100.0	17.7
Total					99.9
Time of Last Visit to NASM (Repeat Visitors)					
Since *Star Trek* Opened	42.5	28.4	29.1	100.0	33.6
In the last year	38.1	33.2	28.7	100.0	17.9
More than one year ago	37.1	40.5	22.4	100.0	48.4
Total					99.9
Years Since Last Visit to NASM (Repeat Visitors)					
0 - 4	40.8	38.7	20.5	100.0	53.7
5 - 9	32.9	34.9	32.2	100.0	22.3
10 - 14	39.4	43.2	17.4	100.0	16.0
15 and more	18.8	56.4	24.8	100.0	7.9
Total					99.9
All Respondents	29.2	42.2	28.6	100.0	

Table C.3.1
Respondent Demographic Characteristics by *Star Trek* Participation Categories

	Star Trek Participation			All
	Visitor	*Viewer*	*Fan*	Respondents
Gender				
Male	23.2	44.7	32.1	100.0
Female	30.8	40.3	28.9	100.0
Race/Ethnicity				
Non-Minority	29.4	42.1	28.5	100.0
Minority	16.9	45.3	37.9	100.0
Residence Location				
Local Residents	16.9	45.3	37.9	100.0
Non-Local Residents	29.4	42.1	28.5	100.0
Age				
12 to 19	25.8	44.2	30.0	100.0
20 to 44	22.7	44.6	32.7	100.0
45 to 64	37.2	37.0	25.8	100.0
65 and over	54.3	28.6	17.1	100.0
Educational Attainment (Age 25 and Over)				
Less Than High School Grad.	40.3	34.7	25.1	100.0
High School Graduate	28.3	36.9	34.8	100.0
Bachelor's Degree	25.1	44.3	30.5	100.0
MA/Ph.D./Advanced Degree	25.6	42.9	31.5	100.0
All Respondents	26.3	42.9	30.9	100.0

Table C. 3.2
Visitor Interest in Exhibition Features, by *Star Trek* Participation Categories
(in Percent of Total Responses)

Exhibition Features		*Star Trek* Participation		
	All	*Visitors*	*Viewers*	*Fans*
Seeing Props	24.7	26.8	21.7	27.0
Sitting in Captain's Chair	13.2	16.2	12.5	12.1
Reading About *Star Trek* History	13.1	11.5	14.3	12.6
Seeing Exhibition Film	12.5	10.4	12.5	14.6
Reading About Episodes	12.5	9.4	14.2	12.6
Standing in Transporter Room	8.3	9.0	9.0	6.6
Reading About Episode Themes	6.9	6.9	6.9	7.1
Seeing *Star Trek* Merchandise	4.8	6.7	4.7	2.8
Listening to Audio Tour	4.0	3.3	4.2	4.4
Total	100.0	100.0	100.0	100.0

Table C.3.3
Respondent Visit Characteristics by *Star Trek* Participation Categories
(In Percent)

Visit Characteristics	*Star Trek* Participation			
	Visitor	*Viewer*	*Fan*	Total
Time of Last Visit (Repeat Visitors)				
Since *Star Trek* Opened	17.5	48.7	33.8	100.0
In the last year	26.0	41.2	32.8	100.0
More than one year ago	22.8	38.3	38.9	100.0
Years Since Last Visit to NASM (Repeat Visitors)				
0-4	22.1	41.7	36.2	100.0
5-9	24.8	33.5	41.7	100.0
10-14	19.4	32.0	48.5	100.0
15+	27.2	40.2	32.6	100.0
Who With				
Alone	22.3	48.4	29.3	100.0
Adult(s) w/Child(ren)	27.4	41.6	30.9	100.0
Adult Group	26.7	39.4	33.9	100.0
Tour Group	27.9	45.3	26.8	100.0
Reason For Visiting NASM				
To See *Star Trek*	9.7	37.8	52.5	100.0
NASM Subject Matter	29.6	47.5	22.9	100.0
Other Reason	37.5	41.9	20.5	100.0
All Respondents	26.3	42.9	30.9	100.0

Table C.3.4
Film Viewing Time by *Star Trek* Participation Categories
(In Percent)

Amount of Film Watched	*Star Trek* Participation			
	Visitor	*Viewer*	*Fan*	Total
None	30.9	43.4	25.7	100.0
Less Than 10 Minutes	33.5	48.4	18.1	100.0
10-13 Minutes	26.1	33.3	40.7	100.1
About Half	23.0	46.2	30.8	100.0
Almost All	26.3	30.5	43.2	100.0
All	10.9	38.8	50.4	100.1
Total	26.0	42.9	31.1	100.0

Table C.4.1
Selected Demographic Characteristics for Respondents
Who Felt *Star Trek* Contained a Message
(In Percent)

	Does Exhibition Have a Message?		
	No	Yes	Total
Gender*			
Male	37.6	62.4	100.0
Female	35.9	64.1	100.0
Race/Ethnicity*			
Non-Minority	38.8	61.2	100.0
Minority	27.0	73.0	100.0
Residence Location*			
Local Residents	32.4	67.6	100.0
Non-Local Residents	38.6	61.4	100.0
Age*			
12 to 19	44.5	55.5	100.0
20 to 44	36.0	64.0	100.0
45 to 64	36.7	63.3	100.0
65 and over	34.6	65.4	100.0
Educational Attainment (Age 25 and Over)*			
Less Than High School Grad.	42.3	57.7	100.0
High School Graduate	39.9	60.1	100.0
Bachelor's Degree	35.9	64.1	100.0
MA/Ph.D./Advanced Degree	34.2	65.8	100.0
All Respondents	37.0	63.0	100.0

*Variables included in Logistic Regression models presented in Table C.4.3

Table C.4.2
Selected Visit Characteristics for Respondents
Who Felt *Star Trek* Contained a Message
(In Percent)

	Does Exhibition Have a Message?		
	No	Yes	Total
Visit to the Smithsonian*			
First	43.3	56.7	100.0
Repeat	34.3	65.7	100.0
Visit to NASM			
First	46.6	53.4	100.0
Repeat	33.0	67.0	100.0
Number of Visits to NASM*			
1	46.6	53.4	100.0
2	39.7	60.3	100.0
3	32.1	68.0	100.0
4	35.5	64.5	100.0
5 to 9	31.8	68.2	100.0
10 and more	29.8	70.2	100.0
Reason for Visiting NASM*			
To See *Star Trek*	27.5	72.5	100.0
NASM Subject Matter	42.3	57.7	100.0
Other Reason	39.7	60.3	100.0
Star Trek Participation*			
Visitor	47.9	52.1	100.0
Viewer	36.6	63.4	100.0
Fan	27.3	72.7	100.0
Amount of Exhibition Film Watched*			
Half or More	22.8	77.2	100.0
Less Than Half	43.8	56.2	100.0
Is *Star Trek* Appropriate for NASM?*			
Yes	35.9	64.1	100.0
No	46.2	53.8	100.0
All Respondents	37.0	63.0	100.0

*Variables included in Logistic Regression models presented in Table C.4.3

Table C.4.3
Logistic Regression Results for Models Predicting Whether a Respondent Thought the *Star Trek* Exhibition had a Message

Independent Variable	Coefficient	Final Model* Probability	% Change
Intercept	-0.0962	0.2459	63.41
Race/Ethnicity			
Non-Minority†	----	----	----
Minority	-0.4721	0.0119	3.72
Star Trek Participation			
Visitor†	----	----	----
Fan	-0.4513	0.0017	4.67
Amount of Exhibition Film Watched			
Half or More	-0.9134	0.0001	9.24
Less Than Half†	----	----	----
Gamma	0.3720	0.0001	
N Cases	1178		

*Full Model is presented in Table D.1 † Reference Category Omitted From the Model.

Table C.4.4
Selected Demographic Characteristics by Exhibition Message Type for RespondentsWho Felt *Star Trek* Contained a Message
(In Percent)

	Message Type				
	Star Trek Series	Curator Intent	NASM General	Miscell-aneous	Total
Gender*					
Male	30.2	29.4	26.7	13.7	100.0
Female	32.2	26.7	28.5	12.7	100.0
Race/Ethnicity*					
Non-Minority	30.6	29.1	26.7	13.6	100.0
Minority	32.4	25.3	30.6	11.7	100.0
Residence Location*					
Local Residents	31.2	26.2	28.3	14.3	100.0
Non-Local Residents	30.4	33.9	25.2	10.5	100.0
Age*					
12 to 19	32.5	21.3	30.7	15.5	100.0
20 to 44	28.9	30.3	28.1	12.6	100.0
45 to 64	33.9	25.0	25.4	15.6	100.0
65 and over	57.2	24.8	10.9	7.1	100.0
Educational Attainment (Age 25 and Over)*					
Less Than H.S. Grad.	61.5	0.0	17.4	21.1	100.0
High School Graduate	34.2	27.1	25.1	13.7	100.0
Bachelor's Degree	31.5	28.3	26.5	13.7	100.0
MA/Ph.D.	28.4	31.8	27.8	12.0	100.0
All Respondents	30.9	28.4	27.4	13.3	100.0

*Variables included in Logistic Regression models presented in Tables C.4.6 to C.4.10.

Table C.4.5
Selected Visit Characteristics, by Exhibition Message Type for Respondents Who Felt *Star Trek* Contained a Message
(In Percent)

	Message Type				
	Star Trek Series	Curator Intent	NASM General	Miscell-aneous	Total
Visit to the Smithsonian*					
First	29.7	18.3	32.0	20.0	100.0
Repeat	31.4	32.0	25.8	10.8	100.0
Visit to NASM					
First	31.0	20.9	31.2	16.9	100.0
Repeat	31.2	32.5	24.9	11.5	100.0
Number of Visits to NASM*					
1	29.5	24.4	30.3	15.8	100.0
2	35.7	29.7	19.7	14.9	100.0
3	37.0	36.6	21.8	4.6	100.0
4	24.9	27.3	35.5	12.2	100.0
5 to 9	30.6	29.2	27.0	13.3	100.0
10 and more	32.3	33.0	25.3	9.4	100.0
Reason for Visiting NASM*					
To See *Star Trek*	38.1	30.6	22.3	9.0	100.0
NASM Subject Matter	23.9	28.8	33.0	14.4	100.0
Other Reason	38.1	30.6	22.3	9.0	100.0
Star Trek Participation*					
Visitor	30.9	23.2	28.9	17.0	100.0
Viewer	24.1	34.5	29.2	12.2	100.0
Fan	39.4	24.0	24.9	11.7	100.0
Amount of Exhibition Film Watched*					
Half or More	37.7	29.9	19.9	12.6	100.0
Less Than Half	26.0	27.9	32.0	14.1	100.0
Is *Star Trek* Appropriate for NASM?*					
Yes	31.8	28.2	27.1	12.9	100.0
No	15.9	31.5	35.1	17.5	100.0
All Respondents	30.9	28.4	27.4	13.3	100.0

*Variables included in Logistic Regression models presented in Tables C.4.6 to C.4.9.

Table C.4.6
Logistic Regression Model Predicting Whether a Respondent Thought the Exhibition Message was a Message of the *Star Trek* Series

	Coefficient	Probability	% Change
Intercept	1.2038	0.0001	28.95
Age			
Age 45 to 54	-0.4785	0.0442	3.26
Amount of Exhibition Film Watched			
Half or More	-0.5727	0.0004	6.09
Less Than Half†	----	----	----
GAMMA	0.2780	0.0002	
N Cases 753			

*Full Model is presented in Table D.2.
† Reference Category Omitted From the Model.

Table C.4.7
Logistic Regression Model Predicting Whether a Respondent Thought the Exhibition Message was the Curator's Message

	Coefficient	Probability	% Change
Intercept	1.2928	0.0001	28.65
Visit to the Smithsonian			
First	----	----	----
Repeat	-0.5032	0.0108	4.75
GAMMA	0.2460	0.0090	
N Cases 733			

*Full Model is presented in Table D.3.

Table C.4.8
Logistic Regression Models Predicting Whether a Respondent Thought the Exhibition Message was the NASM Message or a Miscellaneous Message

	NASM Message*			Miscellaneous Message**		
	Coefficient	Probability	% Change	Coefficient	Probability	% Change
Intercept	0.7243	0.0001	27.5862	1.4187	0.0001	13.5061
Amount of Exhibition Film Watched						
Half or More	----	----	----			
Less Than Half	-0.6619	0.0002	6.9250			
Visit to the Smithsonian						
First				-0.6380	0.0048	3.6469
Repeat				----	----	----
GAMMA	0.3190	0.0002		0.3090	0.0057	
N Cases	725			733		

*Full Model is presented in Table D.4.
** Full Model is presented in Table D.5.

Table C.4.9
Significant Demographic and Visit Characteristics
by Exhibition Message Type for Respondents
who felt *Star Trek* Contained a Message
(In Percent)

Characteristics	Message Type				
	Star Trek Series	Curator Intent	NASM General	Miscell-aneous	Total
Age*					
12 to 19	32.5	21.3	30.7	15.5	100.0
20 to 44	28.9	30.3	28.1	12.6	100.0
45 to 64	33.9	25.0	25.4	15.6	100.0
65 and over	57.2	24.8	10.9	7.1	100.0
Educational Attainment (Age 25 and Over)*					
Less Than H.S. Grad.	61.5	0.0	17.4	21.1	100.0
High School Graduate	34.2	27.1	25.1	13.7	100.0
Bachelor's Degree	31.5	28.3	26.5	13.7	100.0
MA/Ph.D.	28.4	31.8	27.8	12.0	100.0
Reason for Visiting NASM*					
To See *Star Trek*	38.1	30.6	22.3	9.0	100.0
NASM Subject Matter	23.9	28.8	33.0	14.4	100.0
Other Reason	38.1	30.6	22.3	9.0	100.0
Amount of Exhibition Film Watched*					
Half or More	37.7	29.9	19.9	12.6	100.0
Less Than Half	26.0	27.9	32.0	14.1	100.0
Visit to the Smithsonian*					
First	29.7	18.3	32.0	20.0	100.0
Repeat	31.4	32.0	25.8	10.8	100.0
All Respondents	30.9	28.4	27.4	13.3	100.0

*Variables identified as significant in Logistic Regression models in Tables C.4.6 to C.4.9

Table C.4.10
Respondent Demographic Characteristics by
Selecting a "Commentary" Section of Exhibition
(In Percent)

	Noticed Commentary Section		
	No	Yes	Total
Gender*			
Male	61.9	38.1	100.0
Female	55.9	44.1	100.0
Race/Ethnicity*			
Non-Minority	57.6	42.4	100.0
Minority	71.0	29.0	100.0
Residence Location*			
Local Residents	61.8	38.2	100.0
Non-Local Residents	53.4	46.6	100.0
Age*			
12 to 19	74.7	25.3	100.0
20 to 44	55.1	44.9	100.0
45 to 64	67.1	32.9	100.0
65 and over	68.7	31.3	100.0
Educational Attainment (Age 25 and Over)*			
Less Than High School Grad.	67.2	32.8	100.0
High School Graduate	71.7	28.3	100.0
Bachelor's Degree	55.5	44.5	100.0
MA/Ph.D./Advanced Degree	54.9	45.1	100.0
All Respondents	59.6	40.4	100.0

*Variables included in Logistic Regression models presented in Table D.6

Table C.4.11
Respondent Visit Characteristics by
Selecting a "Commentary" Section of Exhibition
(In Percent)

	Noticed Commentary Section		
	No	Yes	Total
Visit to the Smithsonian*			
First	66.4	33.6	100.0
Repeat	56.8	43.2	100.0
Visit to NASM			
First	64.7	35.3	100.0
Repeat	57.2	42.8	100.0
Number of Visits to NASM*			
1	64.1	35.9	100.0
2	61.9	38.1	100.0
3	62.3	37.7	100.0
4	52.8	47.2	100.0
5 to 9	53.7	46.3	100.0
10 and more	52.8	47.3	100.0
Reason for Visiting NASM*			
To See *Star Trek*	54.6	45.4	100.0
NASM Subject Matter	62.3	37.7	100.0
Other Reason	60.8	39.2	100.0
Star Trek Participation*			
Visitor	65.7	34.3	100.0
Viewer	58.2	41.8	100.0
Fan	55.5	44.6	100.0
Amount of Exhibition Film Watched*			
Half or More	49.0	51.0	100.0
Less Than Half	65.4	34.6	100.0
All Respondents	59.6	40.4	100.0

*Variables included in Logistic Regression models presented in Table D.6

Table C.4.12
Respondent Opinions About Exhibition by
Selecting a "Message" Section of Exhibition
(In Percent)

	Noticed Commentary Section		
	No	Yes	Total
Is *Star Trek* Appropriate for NASM?*			
Yes	59.0	41.0	100.0
No	61.2	38.9	100.0
Does Exhibition Have a Message?*			
Yes	57.0	43.0	100.0
No	63.9	36.1	100.0
What is Exhibition Message? (Respondents who thought the exhibition had a message)			
Star Trek Series	56.9	43.1	100.0
Curator's Intent	50.1	49.9	100.0
NASM General	63.4	36.6	100.0
Miscellaneous	61.8	38.2	100.0
All Respondents	59.6	40.4	100.0

*Variables included in Logistic Regression models presented in Table D..6

Table C.4.13
Logistic Regression Results for Models Predicting Whether a Respondent
Thought a Commentary section of the Exhibition was Thought-Provoking

		Final Model*	
Independent Variable	Coefficient	Probability	% Change
Intercept	1.1528	0.0001	39.73
Race/Ethnicity			
Non-Minority	-0.5186	0.0052	4.37
Minority†	----	----	----
Age			
Age 24 and Younger	-0.4440	0.0069	4.58
Educational Attainment			
Bachelor's Degree	-0.7340	0.0001	8.69
MA/Ph.D./Advanced Degree	-0.7256	0.0001	7.91
Amount of Exhibition Film Watched			
Half or More	-0.6590	0.0001	7.6
Less Than Half†	----	----	----
Gamma	0.2890	0.0001	

*Full Model is presented in Appendix D.6. † Reference Category Omitted From the Model.

Table C.4.14
Respondent Demographic Characteristics for
Specific "Message" Sections of Exhibition
(In Percent)

	Politics	Race	Sexuality/ Gender	Commemoration Section	No Response	Total
Gender						
Male	20.9	12.0	5.2	56.7	5.2	100.0
Female	15.7	12.0	16.3	51.2	4.8	100.0
Race/Ethnicity						
Non-Minority	19.6	12.8	10.1	52.4	5.2	100.0
Minority	14.4	7.6	7.0	67.2	3.8	100.0
Residence Location						
Local Residents	24.0	14.7	7.8	51.3	2.1	100.0
Non-Local Residents	16.9	11.0	10.2	55.7	6.0	100.0
Age						
12 to 19	9.6	5.8	9.9	74.2	0.5	100.0
20 to 44	22.1	13.0	9.8	50.5	4.6	100.0
45 to 64	11.6	12.7	8.6	58.2	8.9	100.0
65 and over	15.3	7.7	8.4	56.3	12.4	100.0
Educational Attainment (Age 25 and Over)						
Less Than H.S. Grad.	32.8	0.0	0.0	59.4	7.9	100.0
High School Graduate	11.9	8.2	8.2	65.7	6.0	100.0
Bachelor's Degree	21.3	14.5	8.6	51.9	3.6	100.0
MA/Ph.D.	19.8	16.3	9.0	46.9	8.1	100.0
All Respondents	18.8	12.0	9.6	54.6	5.0	100.0

Table C.4.15
Respondent Visit Characteristics for
Specific "Message" Sections of Exhibition
(In Percent)

	Politics	Race	Sexuality/ Gender	Commemoration Section	No Response	Total
Visit to the Smithsonian						
First	17.0	5.9	10.7	60.3	6.1	100.0
Repeat	19.5	14.5	9.1	52.2	4.6	100.0
Visit to NASM						
First	17.3	6.0	12.0	59.2	5.5	100.0
Repeat	18.9	15.3	8.6	52.5	4.7	100.0
Number of Visits to NASM						
1	15.9	8.6	11.4	59.0	5.1	100.0
2	17.8	11.6	8.6	55.6	6.4	100.0
3	20.7	11.9	5.1	54.8	7.5	100.0
4	21.3	16.8	9.1	49.3	3.5	100.0
5 to 9	23.3	16.1	6.9	49.2	4.5	100.0
10 and more	19.3	17.9	10.0	49.6	3.2	100.0
Reason for Visiting NASM						
To See *Star Trek*	19.2	18.6	7.6	51.8	2.8	100.0
NASM Subject Matter	19.6	8.9	9.1	55.9	6.4	100.0
Other Reason	16.9	9.5	12.8	55.4	5.4	100.0
Star Trek Participation						
Visitor	15.0	5.8	13.5	55.5	10.2	100.0
Viewer	20.2	12.4	9.1	54.7	3.5	100.0
Fan	20.4	16.7	7.5	52.8	2.6	100.0
Amount of Exhibition Film Watched						
Half or More	21.3	19.6	10.1	46.8	2.1	100.0
Less Than Half	17.4	7.6	9.5	59.1	6.4	100.0
All Respondents	18.8	12.0	9.6	54.6	5.0	100.0

Table C.4.16
Respondent Opinions About Exhibition for
Specific "Message" Sections of Exhibition
(In Percent)

	Politics	Race	Sexuality/ Gender	Commemoration Section	No Response	Total
Is *Star Trek* Appropriate for NASM?						
Yes	18.6	12.6	9.8	54.6	4.4	100.0
No	24.4	8.6	5.9	48.9	12.3	100.0
Does Exhibition Have a Message?						
Yes	19.7	13.3	10.0	53.4	3.7	100.0
No	17.2	9.8	9.2	56.3	7.5	100.0
What is Exhibition Message? (Respondents who thought the exhibition had a message)						
Star Trek Series	16.5	17.0	9.6	53.8	3.1	100.0
Curator's Intent	25.0	13.9	11.1	48.1	2.0	100.0
NASM General	17.6	10.8	8.2	56.5	6.9	100.0
Miscellaneous	17.9	9.0	11.3	58.7	3.0	100.0
All Respondents	18.8	12.0	9.6	54.6	5.0	100.0

Table C.4.17
Logistic Regression Results for Models Predicting Whether a Respondent Thought That Sections of the Exhibition Addressing Sexuality and Gender Issues were Thought-Provoking

Independent Variable	Coefficient	Final Model* Probability	% Change
Intercept	-0.3379	0.1640	23.7895
Gender			
Male†	----	----	----
Female	-1.3928	0.0001	14.4987
Reason for Visiting NASM			
To See *Star Trek*	0.6401	0.0196	-5.8954
Star Trek Participation			
Visitor†	----	----	----
Viewer	0.7652	0.0059	-7.5559
Fan	0.9216	0.0037	-8.8123
Gamma	0.4980	0.0001	
N Cases 475			

* Full Model is presented in Appendix D.
† Reference Category Omitted From the Model.

Table C.4.18
Logistic Regression Results for Models Predicting Whether a Respondent Thought That Sections of the Exhibition Addressing Political Issues were Thought-Provoking

Independent Variable	Coefficient	Final Model* Probability	% Change
Intercept	0.4947	0.0007	47.8079
Gender			
Male	-0.6875	0.0003	8.4384
Female†	----	----	----
Gamma	0.3310	0.0002	
N Cases 479			

* Full Model is presented in Table D.8
† Reference Category Omitted From the Model.

Appendix D

Full and Final Regression Models

Table D.1
Logistic Regression Models Predicting Whether a Respondent Thought the *Star Trek* Exhibition had a Message

Independent Variable	Full Model Coefficient	Full Model Probability	Full Model Standard Deviation	Final Model Coefficient	Final Model Probability	Final Model % Change
Intercept	-0.0039	0.9930	63.37	-0.0962	0.2459	63.41
Gender						
Male	0.1069	0.4353	-1.20			
(Female)						
Race/Ethnicity						
Minority	-0.4663	0.0182	3.66	-0.4721	0.0119	3.72
(Non-Minority)						
Residence Location						
Local	0.0873	0.6135	-0.88			
U.S.						
(Foreign)						
Age						
Age 24 and Younger	0.5889	0.0459	-5.52			
Age 25 to 44	0.4735	0.0755	-5.25			
Age 45 to 54	0.4990	0.1061	-3.68			
(Age 55 and Older)						
Educational Attainment (Age 25 and Over)						
(Less Than H.S. Grad)						
High School Graduate	-0.1462	0.5945	1.52			
Bachelor's Degree	-0.1050	0.7169	1.17			
M.A./Ph.D.	-0.2786	0.3632	2.83			
Visit to Smithsonian						
(First)						
Repeat	-0.1612	0.3020	1.68			
Visit to NASM						
N Visits to NASM	-0.0067	0.3494	1.75			
Reason for Visiting NASM						
NASM Subject Matter	0.1846	0.2361	-2.09			
To See Star Trek	-0.0125	0.9481	0.13			
(Other Reason)						
Star Trek Participation						
(Visitor)						
Viewer	-0.3637	0.0221	4.08			
Fan	-0.6764	0.0003	6.89	-0.4513	0.0017	4.67
Amount of Film Watched						
Half or More	-0.7107	0.0001	7.33	-0.9134	0.0001	9.24
(Less than Half)						
Is *Star Trek* Appropriate for NASM?						
Yes	-0.2679	0.2503	1.66			
(No)						
GAMMA	0.3180	0.0001		0.3720	0.0001	
N Cases 1122				1178		

Table D.2
Logistic Regression Model Predicting Whether a
a Respondent Thought the Exhibition Message
was the Message of the *Star Trek* Series

Independent Variable	Full Model Coefficient	Probability	Standard Deviation	Final Model Coefficient	Probability	% Change
Intercept	25.9269	0.0001	29.60	1.2038	0.0001	28.95
Gender						
Male	0.0067	0.9707	-0.07			
(Female)						
Race/Ethnicity						
Minority	-0.0987	0.6892	0.73			
(Non-Minority)						
Residence Location						
Local	0.2025	0.3596	-1.93			
U.S.						
(Foreign)						
Age						
(Age 25 and Younger)						
Age 25 to 44	-0.2066	0.4432	2.17			
Age 45 to 54	-0.7150	0.0311	5.08	-0.4785	0.0442	3.26
Age 55 and Older	-0.1245	0.7409	0.73			
Educational Attainment (Age 25 and Over)						
(Less Than H.S. Grad)						
High School Graduate	0.5249	0.1876	-5.08			
Bachelor's Degree	0.5561	0.1853	-5.90			
Advanced Degree	0.6802	0.1197	-6.82			
Visit to Smithsonian						
(First)						
Repeat	0.0551	0.8080	-0.50			
Number of Visits to NASM						
N Visits to NASM	-0.0065	0.4047	1.69			
Reason for Visiting NASM						
NASM Subject Matter	0.4731	0.0349	-5.00			
To See Star Trek	0.0417	0.8580	-0.41			
(Other Reason)						
Star Trek Participation						
(Visitor)						
Viewer	0.2953	0.2143	-3.14			
Fan	-0.0915	0.7151	0.92			
Amount of Film Watched						
Half or More of Film	-0.4537	0.0198	4.84	-0.5727	0.0004	6.09
(Less than Half)						
Is Star Trek Appropriate for NASM?						
Yes	-0.8248	0.0718	4.40			
(No)						
Exhibition Has a Message						
Yes	-24.7405	.	62.71			
(No)						
GAMMA	0.3000	0.0005		0.2780	0.0002	
N Cases 696				753		

Table D.3
Logistic Regression Model Predicting Whether a a Respondent Thought the Exhibition Message was the Curator's Message

Independent Variable	Full Model Coefficient	Full Model Probability	Full Model Standard Deviation	Final Model Coefficient	Final Model Probability	Final Model % Change
Intercept	2.1718	0.0005	28.0347	1.2928	0.0001	28.6494
Gender						
Male	0.0122	0.9465	-0.1204			
(Female)						
Race/Ethnicity						
Minority	0.0290	0.9085	-0.2083			
(Non-Minority)						
Residence Location						
Local	-0.2577	0.2505	2.3855			
U.S.						
(Foreign)						
Age						
Continuous Age	0.0062	0.4279	-1.5927			
Educational Attainment (Age 25 and Over)						
(Less Than H.S. Grad)						
High School Graduate	-0.6116	0.1891	5.8086			
Bachelor's Degree	-0.8719	0.0595	9.2342			
MA/Ph.D.	-0.9165	0.0549	9.1106			
Visit to Smithsonian						
(First)						
Repeat	-0.4491	0.0614	4.0984	-0.5032	0.0108	4.7546
Number of Visits to NASM						
N Visits to NASM	0.0075	0.6568	-0.9401			
Reason for Visiting NASM						
NASM Subject Matter	-0.3105	0.1705	3.1397			
To See Star Trek	-0.2750	0.2612	2.7089			
(Other Reason)						
Star Trek Participation						
(Visitor)						
Viewer	-0.3784	0.1149	3.9382			
Fan	0.0440	0.8679	-0.4265			
Amount of Film Watched						
Half or More of Film	0.0705	0.7245	-0.7025			
(Less than Half)						
Is Star Trek Appropriate for NASM?						
Yes	0.0235	0.9470	-0.1179			
No						
GAMMA	0.2240	0.1384		0.2460	0.0090	
N Cases 692				733		

Table D.4
Logistic Regression Models Predicting Whether a Respondent Thought the Exhibition Message was the NASM Message

Independent Variable	Full Model Coefficient	Full Model Probability	Full Model Standard Deviation	Final Model Coefficient	Final Model Probability	Final Model % Change
Intercept	-0.0953	0.8581	28.2577	0.7243	0.0001	27.5862
Gender						
Male	0.1553	0.3960	-1.5624			
(Female)						
Race/Ethnicity						
Minority	-0.0301	0.9022	0.2173			
(Non-Minority)						
Residence Location						
Local	0.0888	0.7033	-0.8129			
U.S.						
(Foreign)						
Age						
Continuous Age	0.0117	0.1376	-0.1063			
Educational Attainment (Age 25 and Over)						
(Less Than H.S. Grad)						
High School Graduate	0.1695	0.6516	-1.5556			
Bachelor's Degree	0.2061	0.5858	-2.0655			
MA/Ph.D.	0.0465	0.9063	-0.4306			
Visit to Smithsonian						
(First)						
Repeat	0.0113	0.9601	-0.0996			
Number of Visits to NASM						
N Visits to NASM	-0.0113	0.5138	1.4320			
Reason for Visiting NASM						
NASM Subject Matter	-0.2214	0.3039	2.2293			
To See Star Trek	0.0889	0.7222	-0.8637			
(Other Reason)						
Star Trek Participation						
(Visitor)						
Viewer	-0.0942	0.6855	0.9569			
Fan	-0.0245	0.9238	0.2381			
Amount of Film Watched						
Half or More	0.4843	0.0187	-5.0497	0.6619	0.0002	-6.9250
(Less than Half)						
Is *Star Trek* Appropriate for NASM?						
Yes	0.3835	0.2407	-1.9694			
(No)						
GAMMA	0.2150	0.1571		0.3190	0.0002	
N Cases 683				725		

Table D.5
Logistic Regression Models Predicting Whether a Respondent Thought the Exhibition Message was a Miscellaneous Message

Independent Variable	Full Model Coefficient	Full Model Probability	Full Model Standard Deviation	Final Model Coefficient	Final Model Probability	Final Model % Change
Intercept	1.2910	0.0737	13.1772	1.4187	0.0001	13.5061
Gender						
Male	-0.3152	0.2085	1.8628			
(Female)						
Race/Ethnicity						
Minority	0.2731	0.4274	-1.1501			
(Non-Minority)						
Residence Location						
Local	-0.0526	0.8695	0.2718			
U.S.						
(Foreign)						
Age						
Continuous Age	0.0021	0.8348	-0.3092			
Educational Attainment (Age 25 and Over)						
(Less Than H.S. Grad)						
High School Graduate	-0.5152	0.3408	2.8545			
Bachelor's Degree	-0.2445	0.6563	1.4140			
MA/Ph.D.	-0.1166	0.8397	0.6185			
Visit to Smithsonian						
(First)						
Repeat	0.4626	0.1019	-2.4737	0.6380	0.0048	-3.6469
Number of Visits to NASM						
N Visits to NASM	0.0214	0.4072	-1.5824			
Reason for Visiting NASM						
NASM Subject Matter	0.1392	0.6181	-0.7927			
To See Star Trek	0.3139	0.3433	-1.8011			
Other Reason)						
Star Trek Participation						
(Visitor)						
Viewer	0.4119	0.1628	-2.5186			
Fan	0.2662	0.4066	-1.5259			
Amount of Film Watched						
Half or More	-0.1215	0.6515	0.6965			
(Less than Half)						
Is *Star Trek* Appropriate for NASM?						
Yes	0.1918	0.6532	-0.5544			
(No)						
GAMMA	0.2470	0.4253		0.3090	0.0057	
N Cases 683				733		

Table D.6
Logistic Regression Results for Models Predicting Whether a Respondent Thought a Commentary section of the Exhibition was Thought-Provoking

Independent Variable	Full Model Coefficient	Full Model Probability	Full Model Standard Deviation	Final Model Coefficient	Final Model Probability	Final Model % Change
Intercept	1.5950	0.0008	40.44	1.1528	0.0001	39.73
Gender						
Male	0.2226	0.1016	-2.64			
(Female)						
Race/Ethnicity						
Minority	0.5604	0.0052	-4.71	0.5186	0.0052	-4.37
(Non-Minority)						
Residence Location						
Local	-0.0601	0.7166	0.64			
U.S.						
(Foreign)						
Age						
Age 24 and Younger	-0.8003	0.0067	8.28	-0.4440	0.0069	4.58
Age 25 to 44	-0.4328	0.0964	5.24			
Age 45 to 54	0.1055	0.7371	-0.82			
(Age 55 and over)						
Educational Attainment (Age 25 and Over)						
(Less Than H.S. Grad)						
High School Graduate	-0.3106	0.2988	3.41			
Bachelor's Degree	-0.9561	0.0021	11.42	-0.7340	0.0001	8.69
M.A./Ph.D.	-0.9726	0.0031	10.68	-0.7256	0.0001	7.91
Visit to Smithsonian						
(First)						
Repeat	-0.0576	0.7234	0.63			
Number of Visits to NASM						
N Visits to NASM	-0.0071	0.2627	1.99			
Reason for Visiting NASM						
NASM Subject Matter	0.2089	0.1937	-2.51			
To See Star Trek	0.3184	0.0842	-3.55			
(Other Reason)						
Star Trek Participation						
(Visitor)						
Viewer	-0.0826	0.6225	0.99			
Fan	-0.2301	0.2252	2.58			
Amount of Film Watched						
Half or More	-0.6470	0.0001	7.50	-0.6590	0.0001	7.60
(Less than Half)						
Is *Star Trek* Appropriate for NASM?						
Yes	0.0758	0.7613	-0.48			
(No)						
Exhibition Has a Message						
Yes	-0.1420	0.3091	1.65			
(No)						
	0.3160	0.0001		0.2890	0.0001	
N Cases 1088				1183		

Table D.7
Logistic Regression Results for Models Predicting Whether a Respondent Thought That Sections of the Exhibition Addressing Sexuality and Gender Issues were Thought-Provoking

Independent Variable	Full Model Coefficient	Full Model Probability	Full Model Standard Deviation	Final Model Coefficient	Final Model Probability	Final Model % Change
Intercept	-1.0105	0.2203	24.0909	-0.3379	0.1640	23.7895
Gender						
Female	-1.2551	0.0001	12.9751	-1.3928	0.0001	14.4987
(Male)						
Race/Ethnicity						
Minority	-0.2370	0.5483	1.3391			
(Non-Minority)						
Residence Location						
Local	0.8191	0.0212	-7.4979			
U.S.						
(Foreign)						
Age						
Continuous Age	0.0062	0.5939	-1.3536			
Educational Attainment (Age 25 and Over)						
(Less Than H.S. Grad)						
High School Grad	0.5293	0.3267	-4.2580			
Bachelor's Degree	1.0959	0.0412	-11.2127			
M.A./Ph.D.	0.6683	0.2297	-6.0394			
Visit to Smithsonian						
(First)						
Repeat	0.2976	0.3442	-2.3981			
Number of Visits to NASM						
N visits to NASM	-0.0206	0.4413	2.3897			
Reason for Visiting NASM						
NASM Subject Matter	0.4430	0.1353	-4.1356			
To See Star Trek	0.8104	0.0181	-7.6647	0.6401	0.0196	-5.8954
(Other Reason)						
Star Trek Participation						
(Visitor)						
Viewer	0.7392	0.0131	-7.3215	0.7652	0.0059	-7.5559
Fan	1.0405	0.0037	-10.1720	0.9216	0.0037	-8.8123
Amount of Film Watched						
Half or more	0.1294	0.6571	-1.1929			
(Less than Half)						
Is *Star Trek* Appropriate for NASM?						
Yes	-0.9057	0.1122	4.4934			
(No)						
Exhibition has message						
Yes	0.0145	0.9581	-0.1239			
(No)						
GAMMA	0.5320	0.0001		0.4980	0.0001	
N Cases 440				475		

Table D.8
Logistic Regression Results for Models Predicting Whether a Respondent Thought that Sections of the Exhibition Addressing Political Issues were Thought-Provoking

Independent Variable	Full Model Coefficient	Probability	Standard Deviation	Final Model Coefficient	Probability	% Change
Intercept	0.0291	0.9661	47.0455	0.4947	0.0007	47.8079
Gender						
Male	-0.4935	0.0167	6.0705	-0.6875	0.0003	8.4384
(Female)						
Race/Ethnicity						
Minority	-0.0637	0.8446	0.4817			
(Non-Minority)						
Residence Location						
Local	-0.6024	0.0225	6.8826			
U.S.						
(Foreign)						
Age						
Continuous Age	0.0059	0.5243	-1.7424			
Educational Attainment (Age 25 and Over)						
(Less Than H.S. Grad)						
High School Grad	-0.3039	0.5358	3.1613			
Bachelor's Degree	-0.6143	0.2016	7.5784			
M.A./Ph.D.	-0.5237	0.2966	5.9993			
Visit to Smithsonian						
(First)						
Repeat	0.1710	0.5171	-1.8210			
Visit to NASM						
(First)						
Repeat						
Number of Visits to NASM						
N visits to NASM	0.0185	0.3632	-2.8383			
Reason for Visiting NASM						
NASM Subject Matter	-0.2121	0.4022	2.5634			
To See Star Trek	-0.1680	0.5347	1.9800			
(Other Reason)						
Star Trek Participation						
(Visitor)						
Viewer	-0.2184	0.4123	2.7058			
Fan	-0.3710	0.2128	4.4184			
Amount of Film Watched						
Half or More	0.3868	0.0942	-4.7910			
(Less than Half)						
Is *Star Trek* Appropriate for NASM?						
Yes	0.8977	0.0329	-5.7435			
(No)						
Exhibition Has a Message						
Yes	-0.0250	0.9105	0.2905			
(No)						
GAMMA	0.2850	0.0598		0.3310	0.0002	
N Cases 440				479		

Appendix E

Design and Implementation of *The Star Trek* Exhibition Study

Introduction

The Star Trek Exhibition Study is one of a series conducted by the Institutional Studies Office to profile visitors to Smithsonian museums, increase our knowledge of the visit experience and provide information for future exhibition planning. Each of these studies has been tailored to the particular needs and resources of the sponsor. This appendix contains a brief discussion of the questionnaire, the rationale for the sample design, the survey's implementation, and response bias.

The *Star Trek* Survey was based on personal interviews. Depending on the time of day and day of the week, respondents were selected using a special procedure developed for sampling a mobile population (a "continuous" systematic sample design).[1] Interviewers administered a short questionnaire, with both pre-coded and open-ended questions, to eligible respondents and thanked the participants with tickets to the Einstein Planetarium.

The *Star Trek* exhibition was on view for eleven months, between February 28, 1992 and January 31, 1993. During this period about 884,000 visits were made to the exhibition.[2] Interviews for the *Star Trek* survey were administered between November 16 and 22, 1992, December 14 and 20, 1992 and January 11 and 17, 1993. During these dates, an average of 2,519 visits per day were recorded. The average daily attendance on survey days is representative of attendance during all exhibition days, with the exception of visits made in July and August. Interviews were scheduled to allow for a maximum number of survey hours while accounting for fluctuations in visitor flow due to the Thanksgiving and Christmas holidays and the Presidential Inauguration in January 1993.

During the interview period, 1,694 people were asked to participate in the survey as they were exiting from the exhibition and 1,365 participated, a response rate of 80.1 percent.[3] The persons intercepted represent a population of over 28,000 visitors to the exhibition.

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1 The procedure and its rationale are described in Doering, Z. D., 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, D. C.: Smithsonian Institution, 1993).

2 It is important to make a distinction between "visits" and "visitors." See Section I, footnote 4, page 5.

3 See below for a discussion of this response rate and the response bias in this dataset.

Questionnaire Development

In Section I, we noted that the curator's central message for the *Star Trek* exhibition was fairly clear and well stated: *Star Trek* was not just a space fantasy, it was also a safe forum for debating the social realities of the 1960's. The curator wanted visitors to recognize *Star Trek* 's role as social commentary, and this message was strongly and repeatedly put forward throughout the exhibition. The exhibition's other aim -- to celebrate the series and its theme of hope for the future -- was present more by implication than by direct statement. A key objective of the study was to assess the effectiveness of the exhibition in communicating the curator's message.

A secondary objective of the study was to capture a profile of visitors to the exhibition to determine if the exhibition broadened the audience that came to NASM. The questionnaire for the study had to collect information with which to assess the extent to which the exhibition successfully communicated its messages and the address the audience expansion issues.

The initial portion of the questionnaire collected general information about the visit. Aside from asking the frequency of and the reason for the visit to the museum, we asked for the visitors' sources of information, if any, about the exhibition and their exposure to or experience with *Star Trek*. After establishing rapport with the visitor, we asked questions about the various aspects of exhibition, such as which two things the respondent found most interesting, its appropriateness to NASM and its message. The interview ended with a set of standard ISO demographic questions: gender, age, residence, who (and how many)accompanied the respondent to the museum, educational attainment and racial/ethnic identification.

Message Assessment. How to assess if respondents' understood the curator's point of view was the most challenging part of questionnaire development. After exploring several options, we relied on open ended items.[4] Q.10 asked "Do you think the exhibition has a basic message?" And, for those who answered affirmatively, "What do you think the message is?" In Q.11 the respondent was shown a card with titles and asked "Here are the topics in the exhibition. Which one was the most thought provoking?" This was followed by "Why did you find it thought provoking?"

We also experimented with the order of the exhibition related items in the questionnaire. The final order asks objective questions about the exhibition before subjective items.[5] In determining the final order, we tried to maximize the internal

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[4] We considered developing a multiple item index or scale and asking respondents to indicate their level of agreement (Agree, Somewhat Agree, Somewhat Disagree and Disagree) with each of several statements. However, we could not develop statements that did not communicate themes to the respondent which they had previously not considered.

[5] Approximately 50 preliminary questionnaires were administered by Institutional Studies staff as part of questionnaire development.

consistency of responses, while minimizing respondent fatigue and making the respondents' feeling as though they were being tested.

The questionnaire included a section for recording administrative information that is necessary for empirical analysis. This included the time, date and location of the interview, and the reason, if applicable, that an interview was not completed (e.g., Smithsonian employee). Interviewers were trained to administer the survey with the aid of a manual developed for the study.[6]

Sample Design and Selection

Survey Schedule. Resources restricted the data collection to seven days during each of three months (November and December, 1992 and January 1993). Within each day, the schedule covered only 4.5 hours instead of the 7.5 hours in which the museum is open. The combination of days and hours is approximately a 60 percent sample of hours in a given week. The actual schedule (Table E.1) takes into account various resource limitations as well as hypothesized variations in visitor types during different days of the week and times of the day. During the three months of the study, we interviewed in approximately 14 percent sample of the hours.[7]

Sample Selection.[8] Within each time interval selected for the survey, a team of three interviewers were assigned to the exhibition exit. A team leader, or "counter" used a mechanical counter and a stop watch to keep track of the number of persons exiting the exhibition and maintained a record of the number of people exiting within 15 minute intervals. The counter also identified the visitors to be intercepted, whenever an interviewer has completed one interview and was ready to begin the next. (This method of selecting a sample keeps the interviewers fully occupied, compared to an equal interval selection method; the counter is essentially incorporating a self-adjusting selection interval.)

Everyone, except those in escorted groups, was counted and the information recorded on a Sample Selection Form. In addition, when intercepts were made, the number on the mechanical counter ("count number") was recorded both on the Sample Selection Form and by the interviewer on the questionnaire.

Office Procedures. The questionnaires were reviewed in the office and prepared for data entry. The main purpose of this review is to ensure that the data file will include the appropriate information for weighting the data. The weight for each

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6 General interviewing instructions were based on Institutional Studies, *A Manual for Interviewers*. Prepared for the 1988 National Air and Space Survey. Report 88-3. (Washington, D. C. : Smithsonian Institution, 1988). The general instructions and question-by-question specifications for this study are available from the Institutional Studies office.

7 NASM was open every day except Christmas Day, 91 days or 682.5 hours, during this period. The interviewing schedule covered 94.5 hours or 13.8 percent.

8 The discussion is restricted to the mechanics of sample selection, rather than the rationale. See Doering, Z. D., 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, D. C.: Smithsonian Institution, 1993).

questionnaire is defined as: the number of visitors counted in a specific 15 minute interviewing segment divided by the number of intercepts in the segment. For example, each of 4 questionnaires filled out in a given 15 minutes during which 40 visitors exited would be assigned a weight of 10 irrespective of when it was conducted during the 15 minutes (e.g., if the "count numbers" were 5, 12, 28 and 40).

Table E.1
Interviewing Schedule

		Shift					
		10:30 AM	11:00 AM	12:30 PM	1:00 PM	2:30 PM	3:00 PM
Date	Day	12:00 PM	12:30 PM	2:00 PM	2:30 PM	4:00 PM	4:30 PM
1992:							
16-Nov	Monday	Int.		Int.		Int.	
17-Nov	Tuesday		Int.		Int.		Int.
18-Nov	Wednesday	Int.		Int.		Int.	
19-Nov	Thursday		Int.		Int.		Int.
20-Nov	Friday	Int.		Int.		Int.	
21-Nov	Saturday		Int.		Int.		Int.
22-Nov	Sunday		Int.		Int.		Int.
14-Dec	Monday		Int.		Int.		Int.
15-Dec	Tuesday	Int.		Int.		Int.	
16-Dec	Wednesday		Int.		Int.		Int.
17-Dec	Thursday	Int.		Int.		Int.	
18-Dec	Friday		Int.		Int.		Int.
19-Dec	Saturday	Int.		Int.		Int.	
20-Dec	Sunday	Int.		Int.		Int.	
1993:							
11-Jan	Monday	Int.		Int.		Int.	
12-Jan	Tuesday		Int.		Int.		Int.
13-Jan	Wednesday	Int.		Int.		Int.	
14-Jan	Thursday		Int.		Int.		Int.
15-Jan	Friday	Int.		Int.		Int.	
16-Jan	Saturday		Int.		Int.		Int.
17-Jan	Sunday		Int.		Int.		Int.

* Total of 21 sessions/week or 63 for the study

**Total of 31.5 hours/week or 94.5 for the study

D. Completion Rates and Response Bias

As shown in Table E.2, overall 19.4 percent of all persons intercepted did not participate in the survey. While 5.0 percent were due to language difficulties, the majority of refusals (14.5 percent of all intercepts) were for "other" reasons (e.g., visitors in a hurry, not wanting to detain companions, a restless child, etc.).

Table E.3 contains the demographic characteristics of intercepted visitors by their response type; i.e., those who completed interviews, those who refused and for refusals. Five factors were examined, respondent gender, racial/ethnic identification, residence, social composition and age. There are statistically significant differences in the refusal rates by gender, race/ethnic identification and residence.

To assess the degree of systematic bias in the characteristics of those respondents that refused to participate in *The Star Trek Survey*, a multivariate analysis of respondent refusal was conducted. Statistically significant predictors of respondent refusal were identified by using the logistic regression procedure. The "raw" logistic coefficients were then transformed into percentage change statistics (ΔP) for ease of interpreting the magnitude of the individual variables' independent or "net" effect on the probability of respondent refusal. The results discussed below clearly show that there was only negligible response bias. This obviates any need to statistically "re-weight" the sample in order to compensate for the observed non-random fluctuations in the distribution of reported socio-demographic characteristics. The initial "full" multivariate models are available from ISO and the final or "reduced form" models are discussed below.

Table E.2

Results of Data Collection: *Star Trek* Survey

	Number	Percent
Distribution of Intercepts		
Adult Interview	1239	73.1
Child Interview	126	7.4
Language Refusals	84	5.0
"Other" Refusals	245	14.5
Total Intercepts	1694	100.0
Distribution of Intercepts		
Total Completed Interviews	1365	80.6
Total Refusals	329	19.4
Total Intercepts	1694	100.0
Distribution of Refusals		
Language Refusals	84	25.5
"Other" Refusals	245	74.5
Total Refusals	329	100.0

Table E.3
Demographic Characteristics of All Intercepted Visitors

Characteristics	Total Completed Interview (%)	Total Refusal for Any Reason (%)	Refusal for Language (%)	Refusal for "Other" Reasons (%)	Total Visitors (Number)
Gender					
Male	61.1	57.0	66.2	61.4	998
Female	31.9	43.1	33.8	38.7	656
	93.0	100.0	100.0	100.0	1654
Racial/Ethnic Identification					
African American	4.0	1.4	1.3	1.4	59
Asian	5.8	16.6	44.2	6.6	127
Caucasian	86.1	74.4	31.2	90.1	1391
Hispanic/Latino	4.1	7.6	23.1	1.9	78
	100.0	100.0	99.7	100.0	1655
Residence					
Washington D.C.	4.0	5.4	0.0	7.5	70
MD/VA Suburbs	22.1	13.3	1.2	17.8	341
Other US State	59.6	46.9	3.7	63.4	953
Foreign	14.4	34.4	95.1	11.3	298
	100.0	100.0	100.0	100.0	1662
Social Composition					
Alone	21.0	22.4	20.6	23.1	345
Age Peer Group	48.8	51.2	61.8	47.3	800
Adults and Children	21.5	18.9	7.4	23.1	344
Tour/School Groups*	8.7	7.5	10.3	6.5	139
	100.0	100.0	100.0	100.0	1628
Age (Years)	Years	Years	Years	Years	
Mean	31.9	33.9	34.8	33.6	
Standard Deviation	14.4	12.8	11.4	13.3	
Total Visitors	1365	329	84	245	

*Members of school or tour groups who were visiting independently of their group; formal school and tour groups were excluded.

The final models, one for all refusals, one for language refusals, and one for "other" refusals, are presented in Table E.4. The table reports the untransformed logistic coefficient for each variable and a coefficient measuring effect that each variable has on the probability of a refusal.

The first pair of columns of Table E.4 present a model of the probability of refusing for any reason. Two Racial/Ethnic Identification groups show significant coefficients, Asians and African Americans. Asians are more likely to refuse to participate than persons of other Racial/Ethnic groups (positive coefficient, as our dependent variable is the probability of refusing) while African Americans are more likely to complete an interview than other persons. With respect to Residence,

persons living in Washington D.C. and outside of the United States were more likely to refuse than persons living in the Washington suburbs and in other U.S. states. The largest effect is due to Foreign residence. This is expected, since Foreign visitors are less likely to speak English than residents of the United States.

The next two pairs of columns in Table E.4 disaggregate the refusal rate into models for language refusals and refusals for "other reasons." This model for language refusals confirms the contention that Foreign visitors who do not speak English are more likely to refuse. Foreign residence has the largest effect on the probability of refusal for language reasons. The effects of Racial/Ethnic Identification in this model, the probability of Asian visitors and Hispanic/Latino visitors to refuse, are essentially equal and are for Racial/Ethnic groups with a high proportion of foreign visitors.

Finally, the last two columns present a model for refusal for "other" reasons. As seen in Table E.2 above, 74 percent of all refusals fell into this category. Most of the reasons recorded by interviewers were time constraints -- i.e., not enough time to participate, intercepted persons in a hurry to attend a film or planetarium show, etc. This model has three significant variables, Gender, Residence and Race/Ethnic Identification. This is the only place that Gender (defined as being Female) appears as a significant predictor of refusing, even though the magnitude of this coefficient is very small. The largest predictor of refusal is for persons who identified themselves as African American, since the sign is negative the interpretation is that African Americans were more likely to complete an interview than persons of other Racial/Ethnic identifications. The smallest effect was due to Residence, persons living in Washington increased the probability of refusals by less than one percent.

In sum, we can conclude that there is no substantial response bias in this data. The largest predictor of refusals is Foreign residence and, as already stated, given that these persons are most likely to speak a language other than English this effect is expected. Thus, these data slightly underrepresent the opinions of Foreign visitors to the *Star Trek* exhibition. Beyond this, we can conclude that the visitors interview were representative of the general population of visitors and that any statistical adjustment to correct for response bias is unwarranted.

Table E.4
Final Logit Models Predicting Refusal*

	Refusal: Any Reason		Refusal: Language		Refusal: "Other" Reasons	
	Coefficient	Probability	Coefficient	Probability	Coefficient	Probability
Intercept	-1.972	0.163	-6.424	0.046	-2.286	0.111
Gender						
Male	--	--	--	--		
Female	--	--	--	--	0.419	0.022
Racial/Ethnic Identification						
African American	-1.257	-0.034			-1.453	-0.029
Asian	0.751	0.029	1.922	0.028		
Caucasian						
Hispanic/Latino			1.830	0.020		
Residence						
Washington D.C.	0.806	0.023			0.419	0.009
MD/VA Suburbs						
Other US State						
Foreign	1.039	0.061	4.439	0.162		
Social Composition*	NS		NS		NS	
Age (Years)	NS		NS		NS	

*See Table E.3 for categories