

***Mechanical Brides:
Women and Machines from Home to Office***

**A Study of an Exhibition
*at the Cooper-Hewitt, National Design Museum***

INSTITUTIONAL STUDIES



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*Mechanical Brides:
Women and Machines from Home to Office*

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at the Cooper-Hewitt, National Design Museum**

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Preface

In Summer 1992, Ellen Lupton, Curator of Contemporary Design, at Cooper-Hewitt, National Design Museum, Smithsonian Institution in New York began planning the exhibition *Mechanical Brides: Women and Machines from Home to Office*. During the planning stages, she met with Zahava D. Doering, Director, Institutional Studies Office, to plan a formal study of the exhibition and its audiences. The exhibition opened in August 1993. This report summarizes that study, one of a series of audience studies conducted at the National Design Museum. We want 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 Smithsonian museums. We also hope that colleagues everywhere will find both the research approach and the results helpful.

The study reflects the work, support and cooperation of numerous people. At the National Design Museum, Ellen Lupton and Sheri Sandler worked very closely with us as we developed the questionnaire, collected data and interpreted the results. Lisa Podos, working with the museum's Education Department, recruited interviewers and supervised the data collection, working closely with Susan Yelavitch, Dorothy Dunn and other staff members. Their conscientious efforts are reflected in high visitor participation rates (86%). We truly appreciate their efforts.

We would also like to acknowledge the 513 visitors who took time, in the midst of their 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

Mechanical Brides: Women and Machines from Home to Office, presented by Cooper-Hewitt, National Design Museum, Smithsonian Institution in New York from August 1993 to January 1994, was an exhibition with a theme -- the gender significance of familiar household and office objects, primarily telephones, typewriters, desks, washing machines and irons. In the exhibition, three-dimensional objects were juxtaposed with advertising, photojournalism, film stills, TV commercials, and other documents, to show the social, sexual, and economic meaning of objects.

This study was designed to investigate the degree to which visitors recognized and responded to the exhibition theme, as well as the relative effectiveness of the exhibition contents and display strategies.

Its key results are:

- o Approximately half of the exhibition audience left the exhibition with the curator's theme foremost in their minds.
- o Nearly three-quarters of the visitors found personal meaning in the contents of the exhibition.
- o Some types of objects and presentations were much more effective than others in achieving these ends.
- o When we compared respondents who came to see the exhibition with those who came to the National Design Museum for other reasons, we found that these Intentional Visitors and Unintentional Visitors responded very differently to some aspects of the exhibition.

Individuals who left the exhibition with a gender-related idea articulated themes such as the Social Position of Women (further subdivided into Social Progress of Women, Social Roles of Women, and Oppression of Women), Ads and Women, and Design and Women. Those who left with other ideas (principally History, Technology, and Design in General) either failed to recognize the theme or considered it less significant than something else.

For the half of the audience that left with the curator's theme in mind, we identified three aspects of individual background or exhibition experience which were likely to predict whether or not a visitor gave a gender-related main idea:

Gender - Women were more likely to give a gender-related reply (compared to men).

Education - Having at least some college education increased the probability of a gender-related reply (compared to no college education).

Exhibition elements - Visitors who said that the display of texts imprinted on hanging laundry in the museum's atrium enhanced their experience of the exhibition were more likely to cite a gender-related main idea, as were those who said that the display of the Desk of the Future enhanced the exhibition experience. Those who said that the display of whimsical Wizard-of-Oz-inspired appliances detracted from the exhibition were more likely to cite a gender-related main idea, a fact which suggests that this display was ineffective from an educational point of view.

If the advertisements had not been included in the exhibition, visitor responses would have been very different. For those who left the exhibition with the curator's theme uppermost in their mind, the ads were the chief means of communication. Nearly half cited the advertisements, while only about one-quarter cited an object of any kind. In contrast, half of those who left the exhibition with some other idea uppermost in their mind cited objects of one kind or another, while only one in seven cited ads.

The idea of Progress (i.e., History and Technology) was communicated to viewers primarily by laundry equipment (i.e., household appliances and washing machines) and secondarily by the items that were displayed in chronological sequences (i.e., telephones, typewriters, and irons treated as one group).

Nearly three-quarters of the visitors said that something in the exhibition had personal meaning for them and described it. The following factors predicted whether or not an individual would find something of personal meaning:

Age: Those between the ages of 35 and 44 were more likely to find something of personal meaning in the exhibition.

Residence: Those who live in the NYC suburbs (New York, New Jersey, or Connecticut) were more likely to find items with personal meaning

Exhibition Elements: Visitors who felt that the video, hanging laundry, and the Desk of the Future enhanced the exhibition were more inclined to identify a personally meaningful part of the exhibition

Visitors reported that the items they found meaningful were either owned or used by them or their families. Their feelings of nostalgia, however, had no impact on the ideas that they came away with. Similarly, there were no significant relationships between the things that surprised people and the main ideas that they took away from the exhibition.

We divided the visitors to *Mechanical Brides* into two groups: Intentional Visitors --those who heard about the exhibition in advance and came in order to see it (71% of all visitors), and Unintentional Visitors -- those who had not heard about the exhibition and came to the Cooper-Hewitt for some other reason (29% of all visitors). These two groups differed significantly in their experience of the exhibition.

Intentional Visitors were about 50 percent more likely to leave the exhibition with a gender-related idea in mind (58% of Intentional Visitors vs. 41% of Unintentional Visitors). Unintentional Visitors were only half as likely to report Oppression of Women as a main idea, and were twice as likely to cite History, Technology, or Design (General), when compared with Intentional Visitors.

The exhibition presentations which were most effective in communicating the curator's theme in general had much less impact on Unintentional Visitors than they did on Intentional Visitors. Advertisements, for example, led Intentional Visitors (but not Unintentional Visitors) to leave the exhibition with a main idea about ads and women. The displays that showed irons, telephones and typewriters in chronological sequence led Unintentional Visitors (but not Intentional Visitors) to report ideas of Progress (i.e., History and Technology). The major exhibition components also worked differently for the two groups (except that liking the Desk of the Future made the members of both groups more likely to come away with a gender-related idea).

Publicity persuaded the Intentional Visitors to come to Cooper-Hewitt, National Design Museum. The more they heard about the exhibition before they arrived, the more likely they were to leave with the curator's theme in mind. Word-of-mouth and magazine articles were the most powerful publicity sources.

The backgrounds of the two groups of viewers differed significantly only in the following ways: Intentional Visitors included more women, were better educated, were more local, and were less likely to be first-time visitors to the National Design Museum.

Unintentional Visitors closely resembled Intentional Visitors in their personal experience of the exhibition. They found the same types of objects evocative and the same things surprising. They differed only in the conclusions each group drew from the exhibition as a whole, and, we suggest here, these conclusions were based as much (or more) on the ideas they brought with them when they entered as they were on what the exhibition was trying to say. Intentional Visitors were more likely to enter the exhibition believing that products were marketed in a particular way to women and that women were socially oppressed. Unintentional Visitors were more likely to enter expecting to find a story of technological and historical progress. When visitors saw the chronological sets of telephones, irons, and typewriters, they found confirmation of their ideas, and left with these thoughts foremost in their minds.

Further research would be necessary to clearly identify the assumptions and attitudes that Unintentional Visitors bring to this museum. Once the museum understands them better, it could consciously influence these expectations through its long-term publicity program and through a consistent exhibition program.

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I. Introduction

Mechanical Brides: Women and Machines from Home to Office, presented by Cooper-Hewitt, National Design Museum, Smithsonian Institution in New York from August 17, 1993 to January 2, 1994, was an exhibition with a theme -- the gender significance of familiar household and office objects, including telephones, typewriters, desks, washing machines and irons. In the words of Dianne Pilgrim, the National Design Museum's Director,

Mechanical Brides: Women and Machines from Home to Office, looks at the central place of laundry equipment, telephones, and typewriters in the cultural differences between women and men in American life. Assumptions about the aspirations and responsibilities of women are reflected and reinforced by the way these machines have been designed, marketed, used, and imagined in the twentieth century. *Mechanical Brides* looks at the gender significance of seemingly neutral things by viewing them from the perspective of female consumers and users.¹

Placing these objects alongside the advertisements used to promote them, Ellen Lupton, the National Design Museum's Curator of Contemporary Design, deliberately incorporated techniques of modern advertising and environmental graphics to stimulate visitors to recognize and respond to the exhibition theme. She wrote,

Mechanical Brides combines humor with critique to bring to life the inanimate world of appliances and office equipment. By juxtaposing three-dimensional objects with advertising, photojournalism, film stills, TV commercials, and other documents, the exhibition reveals the social, sexual, and economic meaning of objects. The exhibition incorporates personal comments by women, men, and children about the home and office. The project encourages viewers to think critically about the objects, places, and practices of daily life, and to recognize stereotypes of the past that remain active today.²

This study was designed to investigate the degree to which visitors acknowledged and responded to the exhibition theme, as well as the relative effectiveness of the exhibition contents and display strategies. Its results show that half of the exhibition audience left with a gender-related theme in mind, that most visitors found personal meaning in the contents of the exhibition, and that some types of objects and presentations were much more effective than others in achieving these ends. At the same time, the analysis suggests some distinctive features of the National Design Museum's visitors, and museum audiences more generally, that should be considered in exhibition planning.

¹ Lupton, Ellen. *Mechanical Brides: Women and Machines from Home to Office*, Cooper-Hewitt, National Museum of Design, Smithsonian Institution and Princeton Architectural Press. (New York, 1993), p. 4.

² Exhibition Press Release, August 1993.

A Walk Through the Exhibition

Here is the layout of the exhibition and descriptions of the key components in the words of the curator, Ellen Lupton, who also indicates some of the intentions behind their inclusion:

The exhibition opened with the Telephone Wall, a multi-media installation that presented the cultural history of the telephone through objects, media images, popular music, and oral histories. The Telephone Wall, designed in collaboration with NYNEX Science and Technology, featured a back-lit grid of images of women talking on the phone, taken from advertisements, film stills and documentary sources. Telephone receivers gave viewers access to the recorded voices of working women, who described their experiences as phone operators. Lili Tomlin's famous character "Ernestine" served as the operator/interface between the recorded stories. On the other side of the Telephone Wall was a vitrine holding over 40 historic telephones.

The next room included washing machines, such as the first automatic home washers, advertisements for these and other laundry-related products, a display of historic irons, and a Video. The fifteen-minute video, produced and directed by Cathleen Campbell, featured interviews with contemporary men, women, and children talking about their experiences with laundry equipment. Intercut with these interviews were historical and contemporary clips and stills from commercials, industrial films, documentary photographs, and print advertisements. Also included were comments by curator Ellen Lupton and museum educator Deirdre Scott.

Visitors then encountered a small room with the Wizard-of-Oz Appliances. Industrial designer Laurene Leon created a series of experimental prototypes for household appliances based on characters from the film *The Wizard of Oz*. Appliances included the Dorothy Toaster, the Wicked Witch Blender, the Good Witch Ice Cream Maker, the Scarecrow Crockpot, and the Tin Man Coffee Maker. The curator chose to include these objects in the exhibition for the following reasons:

- the objects were experimental ideas for the future rather than familiar objects from the past;
- the objects drew their meaning from the world of mass media;
- by treating objects as characters from a popular film, the designer demonstrated in an overt and extreme manner a theme seen in the commonplace design and promotion of appliances: the turning of mechanical things into animate beings endowed with their own "personalities" and emotional functions.

Next, visitors passed by Hanging Laundry. A clothes line strung across the width of the museum's glass conservatory, located at the center of the gallery sequence, was hung with four bed sheets, each silk-screened with a

quote from a person talking about the meaning of laundry in his or her life: a 1950s housewife, an African American cleaning woman, the daughter of a Chinese laundry man, and the son of a Latino laundry worker. The Hanging Laundry was included in order to encourage personal reflection and to contrast individual experiences with the euphoric imagery of advertising.

The large, concluding gallery contained office equipment and furniture, including a wall of historic typewriters, clerical furniture designed by Frank Lloyd Wright, The Desk of the Future, and The Telephone of the Future. The Desk of the Future was commissioned from industrial designers Laurene Leon and Constantin Boym, who were asked to create a speculative "Desk of the Future" which showed the integration of home and office work. With the rise of the home office and "telecommuting," the distinction between domestic space and office space is breaking down. The designers were asked to present a concept that would be surprising and unfamiliar rather than a "real" solution. The environment they designed included a detachable baby's playpen and a round storage element -- based on a "Lazy Susan" -- that combined traditional office storage with kitchen cabinets, a refrigerator, and a hot plate for coffee and sandwiches.

The interactive Telephone of the Future was shown in conjunction with the Desk of the Future and was designed in collaboration with NYNEX Science and Technology. The Telephone of the Future showed how services for the home and office are coming together in emerging telecommunications systems that enable working, playing, shopping, and chatting from home-based terminals that combine telephone, television, and computing services. The installation simulated various telephone "conversations," including a personal call, a business call, an electronic "visit" from the copy-machine repairwoman, and a film preview, each illustrated with video clips.

Contents of the Report

The next two sections present our results. First, we try to identify which elements of the exhibitions were most effective in communicating the exhibition's major message. Then, we differentiate visitors into those who came specifically to see the exhibition and those who came to the National Design Museum for some other reason and we explore differences in their experience of the exhibition. The appendices include additional materials. The questionnaire is in Appendix A and supplementary data tables are in Appendix B. A comparison of the characteristics of audiences who attended three exhibitions at the National Design Museum, including *Mechanical Brides* forms Appendix C.

II. Visitor Reactions to the Exhibition

Responding to the Exhibition Theme

Interviewers asked visitors leaving the exhibition an open-ended question, "After seeing the exhibition, what is the main idea you came away with?" When the responses were grouped according to their contents, they fell into thirteen categories as listed in Table 1.³

Individuals who reported a gender-related idea, (i.e., Social Position of Women (further subdivided into Social Progress of Women, Social Roles of Women, and Oppression of Women), Ads and Women, or Design and Women), recognized some dimension of the exhibition's central theme. Those who responded with other ideas either failed to recognize the dominant⁴ theme or considered it less significant than something else.

Table 1
Visitor Responses to "What is the main idea
 you came away with?"
 (In Percent)

Gender-related Idea	53.0
Social Position of Women	35.5
Social Progress of Women	11.7
Social Roles of Women	11.0
Oppression of Women	12.8
Ads and Women	12.7
Design - Related to Women	4.8
Other Ideas	18.7
Progress	13.5
Technology	8.4
History	5.1
Design - General	5.2
No Main Idea	28.3
Critique (Emotional Response)	13.1
Positive Critique	6.8
Negative Critique	6.3
Other	15.2
No Main Idea	8.0
Did Not See It	4.2
Other/Don't Know	3.0
Total	100.0

³ The questionnaire is in Appendix A. A description of the study is in Appendix D. A total of 513 visitors were interviewed.

⁴ See Table B.1

The question's wording encouraged individuals to state what was foremost in their minds. In some cases that dominant thought was the message of the exhibition, in others it was some personal response, either intellectual or emotional, and in yet others there was no particular reaction at all.

The best way to phrase this result is to say that at least half of the audience left with the curator's theme in mind. Some visitors who gave the interviewer a reply that made no reference to gender recognized the point of the exhibition (as can be seen in the examples below). Presumably they responded differently on impulse or by reason of their individual psychology rather than because of a lesser level of comprehension.

We will focus first on visitors who gave gender-related replies, i.e., those who left with the curator's theme foremost in their minds, and compare them to those who gave other responses.

Some Examples of Main Idea Responses

For those who made a gender-related response (53 percent of visitors), the main idea was a central theme of the exhibition, sometimes with a strongly emotional tone. A random selection of these replies, for example, includes "how advertising is geared to women," "how advertising plays on social issues," "women have grown out of traditional roles of being directed solely by men," "underscoring of how cultural attitudes affect technology and the marketplace," "women tied to machines and mechanization takes command," "gender orientation in design," "design related to gender roles," "I'm glad I was born now, because women had to do so much before," and "history of women's liberation."

Examples of main ideas related to technology, history or design, (given by 19 percent), include, "change from social way of making products to utilitarian methods," "Americana," "you can have anything in the house and it will look strange after twenty years," "looking at changes from old to new - cleaner lines, not as much fuss," "I feel like a dinosaur. I used to use them," "to see things from childhood," "progression of style, concept, machinery - how it evolved," "seeing products as art - raising awareness of the product as designed," and "appliances have changed."

The replies of the 28 percent who offered critiques or made other comments included "amused by it," "a lot more intellectual work has to be done on the subject - superficial ideas," "clever ways of saying things - much text is unusual," "disappointment - psychology of style," "fun presentation - Cooper-Hewitt always does a fun presentation," "why did you waste the house? House should have been kept the way it was," and "building should not have been changed from the Carnegie days."

Who Left With the Curator's Theme?

When we compare visitors who reported a gender-related response with those who did not, two features stand out immediately: three out of four of those who gave a gender-related response were women,⁵ and a greater percentage of them had higher levels of education.⁶

In order to sharpen this picture, we constructed a statistical model that calculated the number and strength of predictive factors, that is, those aspects of individual background or exhibition experience which were likely to predict whether or not a visitor gave a gender-related main idea:⁷ Only the following were significant:

Gender - Women were 9 percent more likely to give a gender-related reply (compared to men).

Education - Having some college increased the probability of a gender-related reply by 13 percent, having a B.A. raised it by 20 percent, having some graduate school raised it by 12 percent, and having an advanced degree increased the probability of a gender-related response by 21 percent (compared to no college education).

Exhibition elements - Visitors who said that the display of texts imprinted on hanging laundry enhanced their experience of the exhibition were 10 percent more likely to cite a gender-related main idea. Those who said that the display of the Desk of the Future enhanced the exhibition experience were 8 percent more likely. Those who said that the display of the Wizard of Oz-inspired appliances detracted from the exhibition were 9 percent more likely to cite a gender-related main idea. (In each case, this was in contrast to those who gave an opposite response).

These influences were independent of one another. For example, a woman with an M.A. who thought that the hanging laundry and the desk enhanced the exhibition, but that the Wizard appliances detracted from it, was 57 percent more likely to give a gender-related main idea than a man with no college education who liked the Wizard appliances, but who didn't like the laundry and the desk.

This result demonstrates that the hanging laundry and the Desk of the Future were particularly strong in supporting the curator's theme, while the Wizard of Oz appliances not only failed to support the message, but tended to be viewed negatively by those who resonated most strongly with the exhibition's central theme.

⁵ See Table B.2

⁶ See Table B.2

⁷ See Table B.6

What Conveyed the Main Idea

As soon as visitors replied with their main idea, they were asked "Was there anything particular in the exhibition that conveyed this idea?" Four out of five respondents said "yes."⁸

The specific examples that visitors cited were closely tied to the main idea that they had just reported. Among those who left the exhibition with the curator's theme uppermost in their mind, the ads were the chief means of communication. Nearly half (49%) cited the advertisements, while only about one-quarter (27%) cited an object of any kind. In contrast, half (52%) of those who left the exhibition with some other idea uppermost in their mind cited objects of one kind or another, while only 14 percent cited ads. We conclude that if the advertisements had not been included in the exhibition, visitor responses would have been very different.

The close links between gender-related ideas and ads on the one hand, and non-gender-related ideas and objects on the other, stand out even more when considering the relationship from the other direction. Of the people who said that advertisements carried the main idea, nearly all of them (89%) gave a gender-related remark as the main idea. Of the people who said that one or another object carried the main idea, only half (51%) gave a gender-related reply.

The idea of Progress was communicated primarily by laundry equipment (i.e., household appliances and washing machines) and secondarily by the items that were displayed in chronological sequences (i.e., telephones, typewriters, and irons).⁹

Personal Meaning of Objects in the Exhibition

Are the very different effects of advertisements and objects related to the different ways that visitors experienced them? Did visitors find so much personal meaning in objects that their private memories momentarily obscured the broad, social themes of the exhibition? We explored these questions by considering how visitors answered the questions, "Did anything in the exhibition have a personal meaning to you? If so, what? Why?"

Nearly three-quarters of the visitors said that something in the exhibition had personal meaning for them and described it. When we construct a predictive model to identify the factors that influenced an individual to find something of personal meaning, we discover that three are significant:¹⁰

⁸ Among all respondents 82%. The percentage of "yes" answers was slightly higher (84%) for those who gave a gender-related main idea, and slightly lower (77%) for those who didn't.

⁹ One-fourth (27%) of those who gave a Progress idea cited household appliances or washing machines as the means of communication, 25% cited either typewriters, irons or telephones, and 21% cited either video, text or presentation.

¹⁰ See Table B.7.

Age: Those between the ages of 35 and 44 were 6 percent more likely to find something of personal meaning in the exhibition (compared to other age groups). (Four-fifths (83%) of the visitors in this age group reported that they found something of personal meaning.)

Residence: Those who live in the NYC suburbs (New York, New Jersey, or Connecticut) were 8 percent more likely to find items with personal meaning (compared to those who live elsewhere).

Exhibition Elements: Visitors who felt that the Video, Hanging Laundry and the Desk of the Future enhanced the exhibition were more inclined to identify a personally meaningful part of the exhibition (compared to those who felt they detracted). The effect for Video and Hanging Laundry (each of which increases the probability of finding personal meaning by 10 percent) was greater than the effect for the Desk (5 percent increase in probability).

We interpret these results as reflecting both background factors and the power of some of the exhibition display elements. Age may have made a difference because those aged 35 to 44 in 1992 were in their formative years (ages 15 to 20) during the period 1963 to 1977, a period in which women's issues became sharply defined within the public consciousness. Residence may have mattered because those who live in the suburbs are more likely to be deeply involved with the consumer culture that most values these kinds of objects. From the point of view of either age or residence, these visitors were most inclined to ask themselves, "what does this mean to my life?"

The three display elements that stand out here -- Hanging Laundry, the Video and the Desk of the Future -- each encouraged visitors to think about their lives. They were both effective and liked. The Laundry and Desk were two of the three most popular (and most noticed) components¹¹. Although nearly one-third of visitors did not see the video, i.e. either missed it or chose not to watch it, three out of four who watched it liked it.

We also asked visitors what these meaningful items were and why they were important. Their answers ranged widely, but their reasons did not: the item was either owned or used by the respondents or their families.¹² Their feelings of nostalgia, however, had no impact on the ideas that they came away with. We could not find any significant relationships between the specific objects that visitors found personally meaningful and the main ideas that they took away from the exhibition.

Similarly, there were no significant relationships between the things that surprised people and the main ideas that they took away from the exhibition. We did learn, however, that visitors who were surprised to find advertisements in the exhibition were more likely to say that the ads communicated the main idea they took away from the exhibition. And individuals who said that they were surprised because of the way the

¹¹ The third was the Telephone Wall. See Table B.4.

¹² Women were more likely to be nostalgic towards the exhibition; 76% said they found something with personal meaning in the exhibition versus 66% of the men.

exhibition showed how things (primarily laundry equipment and typewriters) had changed over time were more likely to report the Social Position of Women as the main idea they took away.

Responses to Exhibition Components

Advertisements and the Hanging Laundry installation appear to have been the most effective elements of the exhibition. The ads best communicated the curatorial theme and the laundry installation both supported it and influenced visitors to find something of personal meaning in the exhibition.

The laundry line installation was also the most popular display component (See Table B.4). Compared to the Desk of the Future, the Telephone Wall, the Telephone of the Future, the Video in the fireplace, and the Wizard of Oz Appliances, more people said that the Hanging Laundry enhanced the exhibition and (except for the Video) fewer said that it detracted from the exhibition.

Independently of whether an individual believed that an exhibition component enhanced or detracted from the exhibition, just noticing the component increased the likelihood that the visitor would get the curator's point. Among those who saw two or fewer of the components, only 31 percent gave a gender-related main idea. This percentage increases to 47 percent when an individual saw either three or four of the components, and then to 59 percent for those who saw five or more.

III. An Alternative View

In the preceding analysis, we assumed a traditional model of exhibition communication that attributes the reactions of the audience primarily to the effectiveness of contents and presentation in conveying the curatorial theme. In this type of model, meaning is treated as if it "moves" from the exhibition to the visitor. By emphasizing the responsibility of the exhibition, the model helps to identify which elements (in this case advertisements and Hanging Laundry) were most effective.

The model may exaggerate the communicative power of objects and displays. In studies of other exhibitions where we have distinguished between how visitors felt before the exhibition and how they felt afterwards,¹³ we found that changes due to the exhibition experience alone were relatively slight. And when we compared museum-goers who attended an exhibition with those who did not,¹⁴ we found that the audience was self-selecting -- those who understood in advance what an exhibition was about and who agreed with its premises were the ones who were most likely to go see it.¹⁵

In creating outstanding exhibitions, then, exhibition teams also need to take into account the ideas that visitors arrive with. Although the *Mechanical Brides* study was not designed to address this issue directly, it does offer a limited opportunity to consider two very different subsets of the National Design Museum audience. These two groups, dissimilar in background and motivation, did not respond to the exhibition's communication strategies in the same way.

Intentional and Unintentional Visitors

The visitors to *Mechanical Brides* can be divided into two groups: Intentional Visitors -- those who heard about the exhibition in advance or came to see it (71% of all visitors), and Unintentional Visitors -- those who had not heard about the exhibition and came to the National Design Museum for some other reason (29% of all visitors). These two groups differed significantly in their experience of the exhibition.

Intentional Visitors were nearly 50 percent more likely to leave the exhibition with a gender-related idea in mind (58% of Intentional Visitors but only 41% of Unintentional Visitors left with some part of the curator's theme as the main idea). Unintentional Visitors were only half as likely to report Oppression of Women as a main idea, and were twice as likely to cite History, Technology, or Design (General), when compared with Intentional Visitors.¹⁶

¹³ For example, see Z. D. Doering, A. E. Kindlon and A. Bickford, *The Power of Maps: A Study of an Exhibition at the Cooper-Hewitt National Museum of Design*. Report 93-5. (Washington, D. C.: Smithsonian Institution, 1995).

¹⁴ Again, in *The Power of Maps*, and also in Z.D. Doering, A. Pekarik and A. E. Kindlon, *Different Sites, Different Views: A Study of Degenerate Art : The Fate of the Avant Garde in Nazi Germany Exhibition*. (Washington, D.C.: Smithsonian Institution, 1995).

¹⁵ For example, this is consistent with studies of the political process, where we find that individuals are most likely to read materials which support their point of view.

¹⁶ See Table B.3.

To a lesser extent Intentional Visitors were more likely to say that they found something in the exhibition that had personal meaning for them (76% vs. 64%). But for those who found something of personal meaning, the items that they found and the reasons why they responded to them were very similar in both groups.¹⁷

Replies to the questions about surprises showed no significant differences between the groups in either the number of those who were surprised, the things that surprised them or the reasons for their surprise.¹⁸

The exhibition presentations which we found were most effective in communicating the curator's theme in general had much less impact on Unintentional Visitors than they did on Intentional Visitors. Unintentional Visitors were less likely to say that the Hanging Laundry enhanced the exhibition (60% vs. 72%), were more likely to say that it detracted, and were nearly twice as likely to report not noticing it or not having an opinion on it (19% vs. 11%). Similarly, fewer Unintentional Visitors liked the Video (38% vs. 53%) and more of them didn't see it (42% vs. 31%). Both types of visitors felt approximately the same about the Desk of the Future.

The objects that communicated the main ideas of the exhibition were also very different between these two groups. While advertisements communicated the ideas of Ads and Women and the Social Progress of Women for Intentional Visitors, they only communicated Social Progress of Women to Unintentional Visitors. The chronological displays of irons, telephones and typewriters encouraged Unintentional Visitors (but not Intentional Visitors) to report ideas of Progress (i.e., History and Technology).¹⁹

The communication effectiveness of the key exhibition elements was very different for the two groups (except that for both groups ads conveyed the idea of Social Progress of Women and liking the Desk of the Future made a visitor more likely to come away with a gender-related idea).

Why did these two groups of visitors have such different responses to the same objects and the same displays? We believe that the difference can be attributed to visitor expectations, which, in turn, reflected backgrounds and experiences. The expectations of Intentional Visitors matched the curator's intentions. The expectations of Unintentional Visitors did not.

¹⁷ See Table B.3

¹⁸ Unintentional Visitors who expressed surprise at something in the exhibition were nearly three times more likely to say something positive about the exhibition than Intentional Visitors who were surprised (19% vs. 7%). See Table B.3, page 27.

¹⁹ Correlations between ideas and the things that communicated them were determined by combining row and column categories in various ways until patterns were apparent, then removing minor categories and calculating significance ($p < .05$) using the z-test for binomial distributions on the Jaccard correlation coefficients. In the final tables, for Intentional Visitors $N=181$, $DF=7$; for Unintentional Visitors $N=77$, $DF=7$. In both cases each significant cell represented about 20 percent of N .

What Did the Intentional Visitor Come With?

Publicity persuaded the Intentional Visitors to come to the National Design Museum. The more they heard about the exhibition before they arrived, the more likely they were to leave with the curator's theme in mind. Among those who couldn't remember where they heard of the exhibition, half gave a gender-related main idea. Of those who cited one source where they heard of the exhibition, two-thirds gave a gender-related main idea. And, of those who gave two or more sources where they heard of the exhibition, three-quarters gave a gender-related main idea.

Word-of-mouth and magazine articles were the most powerful publicity sources. Three out of four visitors who cited either of these left with the theme, compared to 70 percent of newspaper readers and 63 percent of TV viewers. For those who gave only one source of information, word-of-mouth was most effective (over 72 percent leave with the curator's theme), with magazines a close second (70 percent).

Influenced by their sources, these individuals knew what they could expect to find in the exhibition and they came to the National Design Museum to immerse themselves in it. Comparing their responses with those of the Unintentional Visitors, we suggest that Intentional Visitors entered the exhibition believing that products were marketed in a particular way to women and that women were socially oppressed.

Their backgrounds differed significantly from the Unintentional Visitors only in the following ways:

Gender: Intentional Visitors included more women (72% vs. 54%).

Education: Intentional Visitors were better educated (B.A. and above: 83% vs. 74%; M.A. and above: 43% vs. 27%).

Residence: Intentional Visitors were more local (New York City residents: 53% vs. 25%; NYC and suburbs: 65% vs. 33%).

Familiarity with The National Design Museum: Intentional Visitors were less likely to be first-time visitors (42% vs. 78%).

What Did the Unintentional Visitor Come With?

The visitor who did not know about the *Mechanical Brides* exhibition came because of other information sources or past experiences. From these they had constructed a mental image of what a visit to the National Design Museum visit would be like (however accurate or inaccurate such an image may be). Since this study was not designed to facilitate this kind of analysis, there is little we can say about this one-third of the visitors. Because they came for a "museum experience" rather than a specific "exhibition experience," they may even have had a different level of expectation, attention, and social expectation. No matter how they differed from Intentional Visitors,

such visitors probably form a significant percentage of all visitors to the National Design Museum. Their responses to this exhibition suggest that they entered the museum expecting to find a story of technological and historical progress. When they saw the chronological sets of telephones, irons, and typewriters, they found confirmation of their ideas, and left with these thoughts foremost in their minds.

Unintentional Visitors closely resembled Intentional Visitors in their personal experience of the exhibition. They found the same types of objects evocative and the same things surprising. They differed only in the conclusions they drew from the exhibition as a whole, and, we suggest here, these conclusions were based as much (or more) on the ideas they brought with them when they entered as on what the exhibition was trying to say.

Implications for Future Exhibitions

Because of its widespread publicity, *Mechanical Brides* drew a somewhat atypical audience to The National Design Museum.²⁰ Since Intentional Visitors to an exhibition are particularly easy to reach, efforts to improve the communication effectiveness of exhibitions might best be spent on the relatively large percentage of visitors that are most resistant or indifferent to an exhibition's message, namely the Unintentional Visitors. Further research would be necessary to clearly identify their proportion within the overall National Design Museum audience, and the assumptions and attitudes they bring to this museum. The museum can then consciously attempt to alter unintentional visitor expectations through long-term publicity program and through a consistent exhibition program.

Although major exhibitions at the National Design Museum dominate the physical space more than they do at other Smithsonian museums, all Smithsonian exhibitions have Intentional and Unintentional Visitors, and these lessons about expectations and visitor background apply to them, as well.

²⁰ For a discussion of Cooper-Hewitt audiences surveyed during several exhibitions, see Appendix C.

IV. Appendices

Appendix A

SESSION #:

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										ones
0	1	2	3	4	5	6	7	8	9	

SHIFT:

1	2	3	4	5

COUNT: _____

DATE: _____



Fall 1993 Cooper-Hewitt Visitor Study

Hello, my name is _____. I am a Cooper-Hewitt volunteer and would like to speak with you about your visit.

+1. Is TODAY your first visit to the Cooper-Hewitt?

Yes: GO TO Q.2 Work at C-H: GO TO ADMIN BOX
 No: GO TO Q.1A

1A. When was the last time you were here?

Since August 1, 1993 2-3 years ago
 In the last year 3-4 years ago
 1-2 years ago 4+ years ago

+*2. Who are you here with today?

Alone Friends/Peers (Teens)
 One other Adult (3 or more) Adults
 Children School group
 Adult(s) & child(ren) Tour group
 Other: _____

1	2	3	4	5	6

3. Are you or your household a member of the Cooper-Hewitt or the Smithsonian?

No Yes, C-H Yes, Smithsonian

4. What is the MAIN reason you visited the Cooper-Hewitt today?

To see Mechanical Brides: To see film/participate in museum program
 To see other C-H exhibit General interest/ No particular reason
 Visit museum shop
 See mansion/Bldg
 School or teacher related Garden visit
 Free admission (Tues nights)

1	2	3	4	5	6

5. Before today, had you heard about "Mechanical Brides"?

Yes No

6. How did you hear about this exhibition (today)?

[MARK ALL THAT APPLY] (PROBE)

Repeat visit to MB: ASK: How did you FIRST hear about it?
 Newspaper: _____
 Magazine: _____
 TV/Radio Word of mouth (friends/family/work)
 School related Signs on 5th Avenue fence
 C-H Calendar Previous visit to C-H

NYT		

Other: _____

7. After seeing the exhibition, what is the MAIN idea YOU came away with?

0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9

8. Was there anything PARTICULAR in the exhibition that conveyed this idea? Yes,What? No

0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9

9. On a scale of 1 to 4, where 1 means DETRACTED/ SUBTRACTED FROM your understanding of the exhibition and 4 means ENHANCED/ ADDED TO your understanding of the exhibition, how would you rate the following. (SHOW CARD)

[READ OUT]	1	2	3	4	NA
Phones with secretaries and operators speaking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Video in the fireplace	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wizard of Oz appliances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Printed laundry hanging in glass conservatory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The "desk of the future"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The "telephone of the future"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. Did anything in the exhibition have a personal meaning to you? Yes,What? No

Why?

0	1	2	3	4	5	6	7	8	9

0	1	2	3	4	5	6	7	8	9

0	1	2	3	4	5	6	7	8	9

0	1	2	3	4	5	6	7	8	9

11. Did anything in the exhibition surprise you?

Yes, What? _____

No

Why?

0	1	2	3	4	5	6	7	8	9										

0	1	2	3	4	5	6	7	8	9										

12. As you know, some people believe that women should be in very traditional roles, others believe that women should be completely independent of traditional roles. On a scale of 1 to 10, where would you place your beliefs? (SHOW CARD)

In Very Traditional Roles _____ Completely Independent of Traditional Roles

1	2	3	4	5	6	7	8	9	10										

Record all Q12 Comments

0	1	2	3	4	5	6	7	8	9										

0	1	2	3	4	5	6	7	8	9										

NOW, JUST A FEW QUESTIONS ABOUT YOU...

13. What is your occupation?

<input type="checkbox"/> Arts professional (e.g. Painter, artist, photographer, c. graph.)	<input type="checkbox"/> Teacher/Educator: Art related
<input type="checkbox"/> Design professional (e.g. Architect, interior designer)	<input type="checkbox"/> Teacher/Educator: Non-Art related
<input type="checkbox"/> Science professional (e.g. Physicians, engineers, comp. related)	<input type="checkbox"/> Professional writer (e.g. journalist, poets)
<input type="checkbox"/> Non-science/business professional (e.g. Banker, lawyer, self-employed, etc.)	<input type="checkbox"/> Student
<input type="checkbox"/> Clerical/Sales/Labor (e.g. Secretary, clerk, salesperson, carpenter)	<input type="checkbox"/> Retired

Other: _____

1	2	3	4	5	6

+14. What is the highest level of education you have completed?

<input type="checkbox"/> Pre/grade school	<input type="checkbox"/> Bachelor's degree
<input type="checkbox"/> Some HS	<input type="checkbox"/> Some graduate study
<input type="checkbox"/> HS graduate	<input type="checkbox"/> MA/Ph.D./Professional
<input type="checkbox"/> Some college	

+*15. What is your age? _____

Estimate for refusals _____

0	1	2	3	4	5	6	7	8	9										

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+*16. Where do you live?

New York City: SHOW CARD: In what area?

<input type="checkbox"/> Above 96th St. in Man.	<input type="checkbox"/> Brooklyn
<input type="checkbox"/> Upper West side	<input type="checkbox"/> Bronx
<input type="checkbox"/> Upper East side	<input type="checkbox"/> Queens
<input type="checkbox"/> Midtown	<input type="checkbox"/> Staten Island
<input type="checkbox"/> Lower Manhattan	

New York City suburbs in NY/NJ/Conn.
 Other U.S. state: _____
 Outside the U.S.: _____

For office use only:

0	1	2	3	4	5	6	7	8	9										

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+*17. What is your cultural/racial/ethnic identity?

<input type="checkbox"/> Afr. Amer./Black	<input type="checkbox"/> Hispanic/Latino
<input type="checkbox"/> Asian/Pac. Islander	<input type="checkbox"/> Nat. Amer./AK native
<input type="checkbox"/> Caucasian	<input type="checkbox"/> Other: _____

+*18. Gender: MARK. [DO NOT ASK!!]

Female Male

GIVE GIFT!!

Status: <input type="checkbox"/> C-H employee/contractor	<input type="checkbox"/> Interview: Adult	<input type="checkbox"/> Refusal: Lang.
	<input type="checkbox"/> Interview: Child	<input type="checkbox"/> Refusal: Other

FOR OFFICE USE ONLY:

ADMINISTRATIVE INFORMATION

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Appendix B

Supplementary Tabulations and Technical Notes

Introduction

This appendix contains supplementary tabulations for Sections II and III, as well as technical notes.

Note on the Statistical Methods

The statistical results presented in this report are based on a range of analytic procedures used to uncover differences in the background of visitors to the exhibitions, 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 exhibition or not) into continuous probability values. The resulting coefficients measure changes in the probability of an event occurring due to a unit change in 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.

Throughout the analysis, the level of significance was established at the .05 level. 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 D, since the respondent selection intervals during different interviewing sessions were 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 surveyed 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.)

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.

Table B.0
Sample Sizes, Mechanical Brides Survey

	Unweighted	Weighted
Total Intercepts	602	3,496
Completed Interviews	513	2,951
Respondents, age 12 and above	506	2,901
Respondents, age 25 and above	450	2,589

Table B.1
Responses of Visitors to Open-Ended Questions about Mechanical Brides
(in Percent)

Response Category	Comment	
<u>What Is The Main Idea You Came Away With?</u>		
Gender-related Ideas:		
Oppression of Women	12.8	
Ads and Women	12.7	
Social Progress of Women	11.7	
Social Roles of Women	11.0	
Design - related to women	4.8	
Other Ideas:		
Technology	8.4	
Design - general	5.2	
History	5.1	
No Idea:		
No Main Idea	8.0	
Positive critique	6.8	
Negative critique	6.3	
Did not see it	4.2	
Other/Don't know	<u>3.0</u>	
Total	100.0	
<u>Type of Main Idea</u>		
Gender-related Idea	53.0	
Other Ideas	18.7	
No Idea	<u>28.3</u>	
Total	100.0	
<u>What Conveyed This Idea?</u>		
Advertisements	33.3	Nothing else comes close to this
Everything	8.5	
Household appliances	8.3	
Office equipment	6.8	
Presentation	6.6	
Washing machines	5.9	
Irons	5.2	
Telephone	5.0	
Video	4.6	
Social gender impact of objects	3.6	
Household appliances & Office equipment	3.2	
Text	2.6	
Telephone of the Future	1.1	
Video and an object	0.6	
Hanging Laundry	0.4	
Don't know	0.2	
Other	<u>4.1</u>	
Total	100.0	

Table B.1 (cont.)

Response Category		Comment
<u>Did Anything in the Exhibition have a Personal Meaning to You?</u>		
Yes	72.5	
No	<u>27.5</u>	
Total	100.0	
<u>What?</u>		
	<i>... in percent of Yes</i>	
Household appliances	14.8	Objects from home more evocative than objects from the office
Washing machines	14.1	
Office equipment	11.7	
Telephones	10.9	
Everything	9.4	
Advertisements	7.3	
Office equipment & Appliances	6.3	
Irons	5.2	
Toys	4.7	
Video	3.4	
Role of women in society	2.6	
Telephone of the Future	2.2	
Hanging Laundry	2.1	
Chinese laundry men	1.2	
Desk of the Future	0.7	
Don't know	0.7	
Other	<u>2.7</u>	
Total	100.0	
<u>Why?</u>		
Family owned it	37.5	
I used It	26.1	
I owned it	10.4	
Personal interests	8.4	
Family used it	7.2	
Gender (Female)	2.9	
Friend owned or used it	2.2	
Other	<u>5.4</u>	
Total	100.0	

Table B.1 (cont.)

Response Category	Comment
<u>Did Anything Surprise You?</u>	
Yes	49.9
No	<u>50.1</u>
Total	100.0
<u>What Surprised You?</u>	
Advertisements	15.6
Irons	12.5
Presentation	10.1
Appliances	9.6
Office equipment	8.0
Washing machines	7.5
Wizard of Oz appliances	6.3
Telephones	5.0
Telephone of the future	4.0
Chinese laundry	3.5
Office equipment & Appliances	3.1
Exhibition itself	2.9
Product details	2.1
Inappropriate here	2.0
Surprise to see it here	1.6
Everything	1.4
Don't know	1.3
Roles of women	1.2
Outdoor equipment	1.1
Video	1.1
Other	<u>0.1</u>
Total	100.0
<u>Why?</u>	
Development of these objects	44.3
The way things were advertised	13.4
Negative Remark	11.9
Positive Remark	9.4
Didn't expect to see older appliances	6.1
Wasn't conscious of sexism at the time	4.1
Still current	2.6
Racism	2.5
Idea of exhibition never occurred to me	2.1
Anthropomorphic qualities of objects	1.1
Don't Know	0.6
Other	<u>2.0</u>
Total	100.0

Table B.2
Responses of Visitors to Mechanical Brides -Main Idea
(in Percent)

Response	Gender- related Idea	Other Main Ideas
<u>Gender</u>		
Female	73.0	55.5
Male	<u>27.0</u>	<u>44.5</u>
Total	100.0	100.0
Chi-square = 12.318, p= 0, DF=1		
<u>Educational Attainment</u>		
Some college or less	10.3	21.4
B.A.	35.2	38.7
Some Graduate school and above	<u>54.5</u>	<u>40.0</u>
	100.0	100.1
Chi-square = 14.414, p=.001, DF=2		
<u>Was there anything in the exhibition that conveyed this [main] idea?</u>		
Yes	84.4	77.5
No	<u>15.6</u>	<u>22.5</u>
Total	100.0	100.0
Chi-square = 10.1, p=.001, DF=1		
<u>What?</u>		
Advertisements	48.8	13.8
Office Equipment	6.0	10.0
Household appliances	6.6	13.2
Irons	2.0	11.9
Washing Machines	5.8	7.9
Telephones	4.4	7.1
Combination of Household and Office equipment	1.9	2.0
Telephone of the future	1.1	0.0
Video	3.4	2.6
Video and an Object	1.0	0.0
Hanging laundry	0.7	0.0
Social gender impact of objects	3.9	0.0
Text	2.7	3.0
Presentation	3.7	4.3
Everything	6.2	14.6
Other	1.7	9.6
Don't Know	<u>0.3</u>	<u>0.0</u>
Total	100.0	100.0

Table B.2 (cont.)

Response	Gender- related Idea	Other Main Ideas
<u>Did Anything in the exhibition have a personal meaning to you?</u>		
Yes	66.4	59.1
No	<u>33.7</u>	<u>40.9</u>
Total	100.0	100.0
No significant difference		
<u>What?</u>		
Washing Machines	13.7	18.8
Everything	12.6	3.4
Household Appliances	12.5	19.3
Office Equipment	11.0	14.1
Telephones	10.8	13.0
Advertisements	10.1	2.0
Office Equip&Appliances	5.5	2.1
Irons	5.3	7.3
Video	4.8	1.1
Phone of the Future	3.5	0.6
Hanging Laundry	3.2	0.7
Role of Women in society	1.8	1.0
Toys	1.8	8.8
Other	1.3	3.9
Desk of the Future	0.9	0.7
Don't Know	0.8	0.0
Chinese Laundry Men	0.5	3.2
Total	100.0	100.0

Table B.2 (cont.)

Response	Gender- related Idea	Other Main Ideas
<u>Did Anything in the Exhibition Surprise You?</u>		
Yes	49.9	52.9
No	50.2	47.1
Total	100.0	100.0
<u>What?</u>		
Advertisements	17.9	17.3
Appliances	11.2	10.3
Irons	11.2	12.1
Presentation	11.1	7.2
Office Equipment	10.5	6.9
Washing Machines	8.8	4.0
Wizard of Oz Appliances	8.1	4.8
Telephone of the future	4.4	4.6
Telephones	4.1	6.6
Chinese laundry men	3.8	0.0
Details in products	2.7	1.8
Exhibition itself	1.8	5.9
Depiction of Women in Different Roles	1.3	1.5
Combination of Household and Office equipment	1.3	6.2
Everything	1.2	2.3
Outdoor equipment	0.4	2.6
Don't Know	0.3	1.5
Video	0.0	2.7
Inappropriateness of this in a museum	0.0	1.7
Other	<u>0.0</u>	<u>0.4</u>
	100.0	100.0
<u>Why?</u>		
Development of these things	44.6	43.1
Ways they were advertised	16.4	10.4
Positive remark	10.9	8.3
Negative remark	9.9	14.0
Didn't expect to see these things	5.3	5.6
Still current	3.9	0.6
Wasn't aware of sexism at the time	3.2	6.6
Racism	3.1	0.0
Anthropomorphic qualities of objects	1.3	0.9
Exhibition idea never occurred to me	0.7	5.0
Other	0.4	5.4
Don't Know	<u>0.3</u>	<u>0.0</u>
	100.0	100.0

Table B.3
Responses of Visitors to Mechanical Brides
(in Percent)

Response	Intentional Visitors	Unintentional Visitors	Comment
<u>Main Idea</u>			
Gender-related Idea:			
Ads and Women	13.2	11.5	
Social Progress of Women	11.9	11.1	
Social Roles of Women	11.4	10.0	
Oppression of Women	15.2	7.3	
Design - Related to Women	6.3	1.2	
Other Ideas:			
Technology	6.4	13.1	
History	3.8	8.2	
Design - General	4.2	7.7	
No Idea:			
Positive Critique	5.9	8.9	
Negative Critique	7.3	3.9	
No Main Idea	7.3	9.8	
Did Not See It	3.7	4.9	
Other/Don't Know	<u>3.5</u>	<u>2.3</u>	
Total	100.0	100.0	
<u>Type of Idea</u>			
Gender-related Main Idea	58.0	41.1	
Other Ideas	14.4	29.0	
No Main Idea	<u>27.6</u>	<u>29.9</u>	
	100.0	100.0	Chi-sq=17.8 p = 0, DF = 2
<u>What Conveyed This Idea?</u>			
Advertisements	37.6	21.8	
Everything	7.5	11.0	
Office Equipment	6.9	6.6	
Presentation	6.9	5.7	
Household Appliances	6.1	14.3	
Video	5.6	2.1	
Social Gender Impact of Objects	5.0	0.0	
Washing Machines	4.9	8.5	
Other	4.8	2.1	
Irons	3.8	9.1	
Telephone	3.5	9.2	
Text	3.1	1.3	
Comb. of Household and Office Equipmen	2.4	5.4	
Telephone o the future	1.2	0.9	
Hanging Laundry	0.4	0.4	
Don't Know	0.3	0.0	
Video and an Object	<u>0.2</u>	<u>1.6</u>	
Total	100.0	100.0	

Table B.3 (cont.)

Response	Intentional Visitors	Unintentional Visitors	Comment
<u>Anything of Personal Meaning?</u>			
Yes	75.9	64.1	
No	<u>24.1</u>	<u>35.9</u>	
	100.0	100.0	Chi-sq = 5.4 p=.02, DF = 1
<u>What?</u>			
Household Appliances	14.8	14.8	
Washing Machines	13.1	17.1	
Office Equipment	11.6	12.0	
Telephones	9.5	15.0	
Everything	9.3	9.5	
Advertisements	7.5	6.8	
Office Equip&Appliances	6.2	6.5	
Irons	5.5	4.4	
Toys	5.5	2.6	
Other	3.4	0.6	
Role of Women in society	3.4	0.5	
Video	3.0	4.5	
Phone of the Future	2.3	2.0	
Hanging Laundry	2.0	2.3	
Chinese Laundry Men	1.7	0.0	
Desk of the Future	1.0	0.0	
Don't Know	<u>0.4</u>	<u>1.6</u>	
	100.0	100.0	
<u>Why?</u>			
Family Owned It	27.7	33.6	
I Used It	18.0	21.4	
Other	15.5	17.2	
Gender (Female)	14.0	3.1	
Personal Interests	11.0	9.9	
I Owned it	7.4	9.1	
Family Used It	4.7	5.3	
Friend Owned or Used	<u>1.7</u>	<u>0.3</u>	
Total	100.0	100.0	

Table B.3 (cont.)

Response	Intentional Visitors	Unintentional Visitors	Comment
<u>Did Anything Surprise You?</u>			
Yes	53.0	42.3	
No	<u>47.1</u>	<u>57.7</u>	
Total	100.0	100.0	
<u>What Surprised You?</u>			
Advertisements	17.2	10.7	
Irons	12.4	12.9	
Appliances	10.7	6.2	
Presentation	10.3	9.3	
Washing Machines	8.5	4.2	
Office Equipment	8.2	7.5	
Telephones	5.3	4.0	
Wizard of Oz Appliances	4.9	10.8	
Chinese Laundry	4.6	0.0	
Phone of the Future	2.5	8.4	
Exhibition Itself	2.4	4.5	
Office&Home Equipment	2.3	5.6	
Product Details	2.2	1.5	
Inappropriate here	2.1	2.3	
Don't Know	1.7	0.0	
Everything	1.5	1.2	
Outdoor Equipment	1.4	0.0	
Video	1.2	0.8	
Roles of Women	0.5	3.5	
Other	0.2	0.0	
Surprise to see it here	<u>0.0</u>	<u>6.5</u>	
Total	100.0	100.0	
<u>Why?</u>			
Development of these things	49.9	35.8	
The Way things were advertised	14.9	11.3	
Negative Remark	12.5	12.4	
Positive Remark	7.2	18.7	
Wasn't conscious of sexism at the time	4.3	4.4	
Racism	3.5	0.0	
Idea of Exhibition never occurred to me	2.3	1.8	
Still current	2.0	4.9	
Didn't expect to see older appliances	1.2	1.1	
Anthropomorphic qualities of objects	1.2	1.1	
Other	0.8	6.6	
Don't Know	<u>0.2</u>	<u>1.9</u>	
Total	100.0	100.0	

Table B.4
Responses to Exhibition Components
(in Percent)

Component			See/N		Comments
	Enhanced	Detracted	A	Total	
<i>All Visitors</i>					
Hanging Laundry	69.0	18.0	13.1	100.1	
Telephone Wall	65.8	22.9	11.3	100.0	
Desk of the Future	64.3	23.2	12.5	100.0	
Phone of the Future	59.3	20.7	20.0	100.0	
Video in Fireplace	48.9	16.9	34.2	100.0	Missed by one-third
Wizard of Oz Appliances	46.0	36.8	17.1	99.9	
<i>Those Who Left With Gender-related Main Ideas</i>					
Hanging Laundry	76.3	13.2	10.5	100.0	Liked this over future-phone
Desk of the Future	67.6	22.1	10.3	100.0	
Telephone Wall	66.8	22.5	10.7	100.0	
Phone of the Future	58.3	22.0	19.8	100.0	
Video in Fireplace	54.8	14.9	30.4	100.0	
Wizard of Oz Appliances	42.6	43.0	14.4	100.0	More say detracted
<i>Those Who Left With Other Main Ideas</i>					
Telephone Wall	66.1	21.1	12.8	100.0	
Phone of the Future	65.4	18.2	16.4	100.0	Liked phone over laundry
Desk of the Future	63.5	24.6	11.9	100.0	
Hanging Laundry	61.2	22.6	16.2	100.0	
Wizard of Oz Appliances	50.3	33.5	16.2	100.0	
Video in Fireplace	44.9	19.9	37.3	102.0	
<i>Intentional Visitors</i>					
Hanging Laundry	72.4	16.8	10.8	100.0	Liked laundry over phone
Telephone Wall	67.2	23.1	9.8	100.0	
Desk of the Future	65.2	22.0	12.8	100.0	
Phone of the Future	57.4	22.5	20.1	100.0	
Video in Fireplace	53.2	15.9	31.0	100.0	
Wizard of Oz Appliances	45.8	37.8	16.4	100.0	
<i>Unintentional Visitors</i>					
Phone of the Future	64.0	16.4	19.7	100.0	Liked phone over laundry
Telephone Wall	62.4	22.5	15.2	100.0	
Desk of the Future	62.1	26.1	11.8	100.0	
Hanging Laundry	60.3	21.1	18.6	100.0	
Wizard of Oz Appliances	46.6	34.4	18.9	100.0	
Video in Fireplace	38.4	19.4	42.2	100.0	Least likely to see video

Table B.5
Significant Characteristics of Intentional and Unintentional Visitors to Mechanical
Brides
(in Percent)

Characteristics	Intentional Visitors	Unintentional Visitors	Comments
<u>First Visit</u>			
Yes	41.8	77.5	
No	<u>58.2</u>	<u>22.5</u>	
Total	100.0	100.0	Chi-square=48.7,p=0,Df=1
<u>Education (Age 25 and over)</u>			
HS Graduate	1.2	7.1	
Some College	9.6	14.9	
Bachelor's Degree	32.8	39.5	
Some Graduate School	7.6	9.0	
MA/PhD	<u>48.9</u>	<u>29.5</u>	
Total	100.0	100.0	Chi-square=22.5,p=0,Df=4
<u>Residence</u>			
New York City	53.5	24.6	
NY/CT/NJ Suburbs	11.7	8.6	
Other United States	27.5	41.2	
Foreign	<u>7.3</u>	<u>25.6</u>	
Total	100.0	100.0	Chi-square=48.7, p=0, Df=1
<u>Gender</u>			
Female	71.9	54.1	
Male	<u>28.1</u>	<u>45.9</u>	
Total	100.0	100.0	Chi-square=8.3, p=0, Df=1

Table B.6
Full and Final Regression Model-Understanding the Main Message of the Exhibition

	Full Model			Final Model		
	Coeff	P-Value	% Change	Coeff	P-Value	% Change
INTERCEPT	2.7278	0.0025	51.66	3.2784	0.0001	51.66
NON-MINORITY (Minority)	0.0312	0.9339	-0.23			
HEARD (Never heard of exh before today)	-0.3934	0.0779	4.79			
FEMALE (Male)	-0.6866	0.0019	8.02	-0.7401	0.0003	8.63
25-34	0.7420	0.0970	-7.92			
35-44	0.5342	0.2557	-5.66			
45-54	0.3816	0.4382	-3.79			
55-64	0.4536	0.4134	-3.38			
65+ (0-24)	0.8440	0.1464	-5.97			
ALONE	0.3837	0.3246	-4.45			
COUPLE	0.1143	0.7599	-1.42			
SEVERAL ADULTS (With Children)	0.2176	0.6330	-1.76			
NYC	-0.1064	0.7615	1.32			
SUBURB	-0.4165	0.3434	3.36			
OTHERUS (Foreign)	-0.3389	0.3216	3.89			
FIRST VISIT (Repeat Visit)	-0.0787	0.7551	0.98			
SOME COLLEGE	-1.5829	0.0051	13.36	-1.5333	0.0036	12.97
B.A. DEGREE	-2.2478	0.0001	24.01	-1.8071	0.0002	19.95
SOME GRAD SCH	-2.2338	0.0004	13.76	-1.8173	0.0018	11.31
GRADUATE SCHOOL (HS grad or less)	-2.3724	0.0001	25.40	-1.8921	0.0001	21.05
OCCART	0.7599	0.1265	-6.30			
OCCSCI	1.2917	0.0126	-9.07			
OCCBUSI	1.0187	0.0229	-10.85			
OCCSALES	-0.1452	0.8027	0.88			
OCCTEACH	0.7875	0.1246	-5.89			
OCCSTUD	0.9272	0.1041	-7.25			
OCCDES	1.1977	0.0207	-9.10			
OCCWRITE (Not currently working)	0.8668	0.1714	-4.27			
PERSONAL (No personal Meaning)	-0.3750	0.0970	4.49			
WIZARD OF OZ APPL DETRACT (Wizard of Oz Appl Not detracting)	-0.7090	0.0012	8.26	-0.7375	0.0004	8.58
HANGING LAUNDRY DETRACTED (Hanging Laundry not detracting)	-0.8011	0.0003	9.46	-0.8703	0.0001	10.25
DESK OF THE FUTURE ENHANCED (desk of the future not enhancing)	-0.6869	0.0016	8.37	-0.6457	0.0013	7.88
Gamma	0.5270	0.0001		0.4810	0.0001	
N Cases	513.0000			513.0000		

Table B.7
Full and Final Regression Model-Does the Exhibition Have a Personal Meaning?

	<u>Full Model</u>			<u>Final Model</u>		
	Coeff	P-Value	% Change	Coeff	P-Value	% Change
INTERCEPT	3.3650	0.0001	63.55	0.9044	0.0001	63.55
NON-MINORITY (Minority)	-0.1569	0.6647	1.05			
HEARD (Did not hear of exh before today)	0.0059	0.9799	-0.07			
FEMALE (Male)	-0.4129	0.0700	4.41			
25-34	-0.7603	0.0819	7.24			
35-44	-1.4289	0.0023	12.70	-0.6529	0.0081	6.19
45-54	-0.7285	0.1303	6.44			
55-64	-1.1983	0.0308	7.85			
65 + (0-24)	-1.4387	0.0149	8.91			
ALONE	0.3362	0.3997	-3.55			
COUPLE	0.0302	0.9376	-0.35			
SEVERAL ADULTS (with children)	0.0084	0.9858	-0.06			
NYC	-0.7043	0.0480	7.65			
SUBURB	-1.5376	0.0014	10.61	-1.1586	0.0016	8.18
OTHERUS (Foreign)	-0.4486	0.1950	4.65			
FIRST VISIT (Repeat Visit)	-0.0273	0.9171	0.32			
SOME COLLEGE	-0.2809	0.5764	2.24			
B.A. DEGREE	0.1770	0.7123	-1.93			
SOME GRAD SCH	-0.2838	0.6375	1.66			
GRADUATE SCH (HS grad or less)	0.0872	0.8609	-0.97			
UNDERSTAND MAIN IDEA (Didn't understand)	-0.3266	0.1567	3.69			
OCCART	-1.1064	0.0251	8.09			
OCCSCI	-0.2724	0.6030	1.78			
OCCBUSI	-1.0630	0.0170	9.95			
OCCSALES	-0.1135	0.8351	0.63			
OCCTEACH	-0.7820	0.1345	5.28			
OCCSTUD	-0.6287	0.2636	4.48			
OCCDES	-1.2049	0.0230	8.14			
OCCWRITE (Not currently working)	-1.2380	0.0745	5.48			
DESK OF FUT. ENHANCED (Desk did not enhance)	-0.4921	0.0317	5.44	-0.4609	0.0258	5.11
VIDEO ENHANCED EXH (Video did not enhance)	-0.9430	0.0001	10.01	-0.9783	0.0001	10.35
HANGING LAUNDRY ENHANCED (Hanging Laundry did not enhance)	-0.9885	0.0001	10.18	-0.9323	0.0001	9.66
Gamma	0.5460	0.0001		0.5020	0.0001	
N Cases	513.0000			513.0000		

Appendix C

Comparison of Visitors and Visits to three National Design Museum Exhibitions: *Mechanical Brides, Czech Cubism and The Power of Maps*

This appendix compares visitors and visit characteristics to three National Design Museum Exhibitions: *Mechanical Brides, Czech Cubism* and *The Power of Maps*. The figures are only for *Mechanical Brides*. Tables C.1 and C.2 following the text contain complete percentage distributions for the three exhibitions.

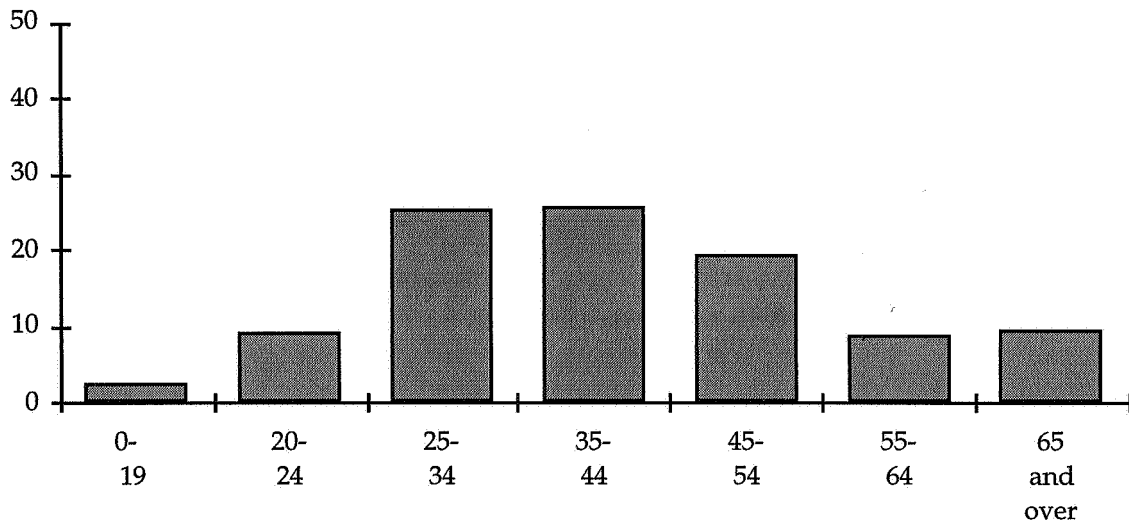
I. Demographic Characteristics of Visitors

Gender and Age

Women were two thirds (66%) of the visitors surveyed during the *Mechanical Brides* exhibition. At most Washington, DC Smithsonian museums, the gender ratio is usually closer to parity. The National Design Museum has traditionally attracted a majority of women, but the proportion of women at the *Mechanical Brides* exhibition was particularly high. (The percentage of women was 58% during the *Czech Cubism* exhibition and 53% during *The Power of Maps* exhibition).

The proportion of women was higher among visitors from the New York City Metropolitan Area (70% versus 63% among those outside the New York City area). The unusually high proportion of women in the audience is most likely due to the subject matter of the exhibition.

Figure C.1
Age Distribution for *Mechanical Brides* exhibition
(In Percent)



While the National Design Museum attracts visitors of all ages, its visitors tend to be adults either visiting alone or with other adults. Only three percent of visitors were age nineteen or younger and nine percent were between the ages of 20 and 24. One-fourth each were between the ages of 25-34 and between 35-44. Almost one-fifth (19%) were between 45-54, 9% were between the ages of 55-64, and the remaining 10% were ages 65 and over. The average age among all visitors was 42 years, with a range from ages 8 to 87.

There were no major differences in age distribution among the three studies.

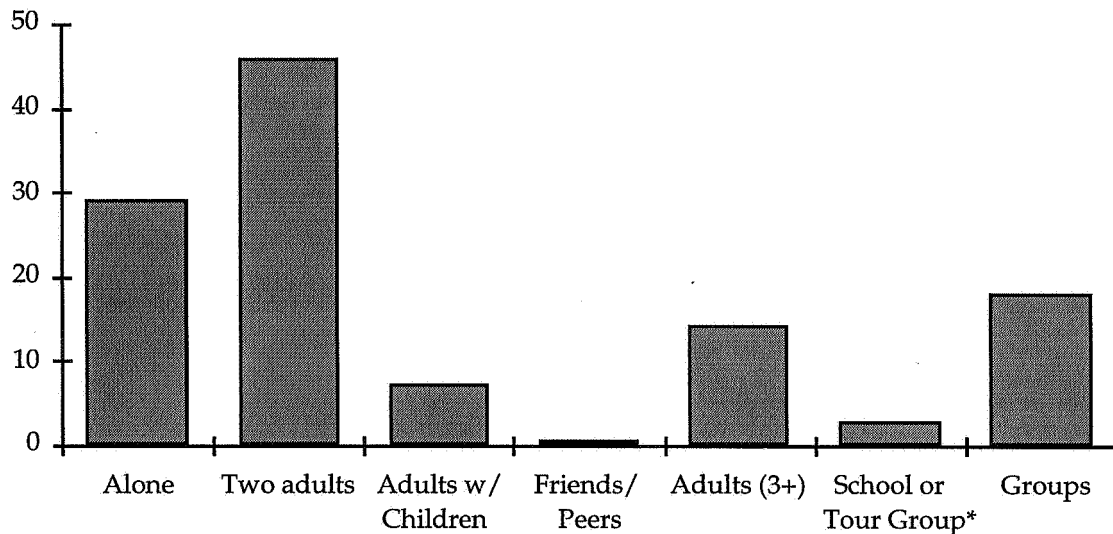
Social Composition

As shown below, the majority of visitors to *Mechanical Brides* were visiting either alone or with one other adult.¹ This pattern is quite similar to that found in previous studies of the museum and characterize visitors from all locations.

There were some small differences by gender -- women (32%) were more likely to come alone than men (24%), and men (18%) were more likely to come as part of a larger (3 or more) group of adults than were women (12%).

Fewer people came alone to *Mechanical Brides* than came alone to *Czech Cubism* (35%) or to *The Power of Maps* (39%).

Figure C. 2
Social Configuration of Visitors to the *Mechanical Brides* Exhibition
(In Percent)



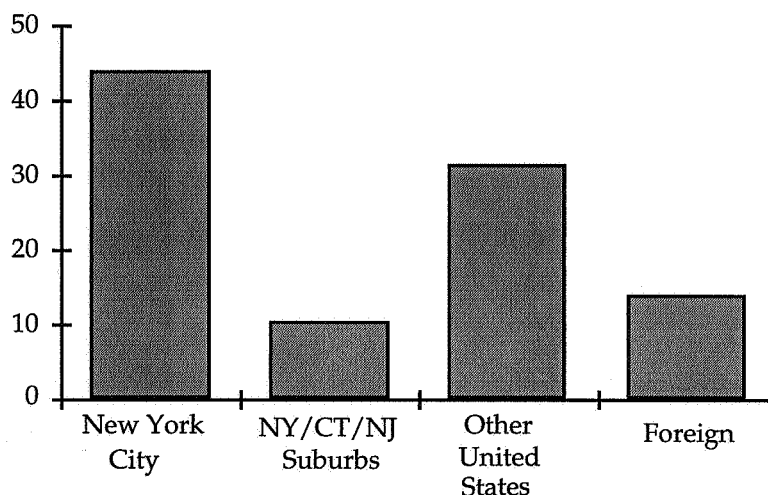
*Visitors in school and tour groups were excluded from the study. This percentage includes individuals who identified themselves as part of a school or tour group but who had become separated from their group.

¹ Visitors in school and tour groups are excluded from this profile because we did not intercept organized groups. The individuals in this study who identified themselves as part of a school or tour group were those who had separated from their group.

Geographic Origins of Visits

During the *Mechanical Brides* study, people from 33 states plus the District of Columbia and eight foreign countries were interviewed, but the majority of visitors were from the New York City Metropolitan Area. About two-fifths (44%) were from New York City and an additional 10% were from the New York, New Jersey, and Connecticut suburbs. One-third (32%) were from other parts of the United States and the remainder (14%) were from foreign countries.

Figure C.3
Geographic Residence
(In Percent)



The visitors from New York City are concentrated in Manhattan. Nearly one-third (32%) of the visitors who live in New York City were from the Upper East Side, where the National Design Museum is located. Another fifteen percent (15%) were from the Upper West Side, 13% from Lower Manhattan, 10% from Midtown, and 5% from Manhattan above 96th Street. New York City residents also came from Brooklyn (12%), the Bronx (3%), Queens (6%) and Staten Island (1%).

As our two previous studies showed, the National Design Museum attracts most of its audience from the "local" area -- visitors who live in New York City and the neighboring suburbs. In the *Czech Cubism* and *The Power of Maps* studies, we found that over two-thirds (69%) were from New York City or its suburbs. However, in the *Mechanical Brides* study just over half (54%) of visitors surveyed were local. This exhibition drew more of its audience from other parts of the United States. In our past two National Design Museum studies, the proportion of visitors from other parts of the United States has been approximately one-fifth (*Czech Cubism* 17% and *The Power of Maps* 23%). Foreign residents have generally been about one-tenth of the total visitorship (*Czech Cubism* 14% and *The Power of Maps* 8%).

Cultural, Racial, and Ethnic Identification²

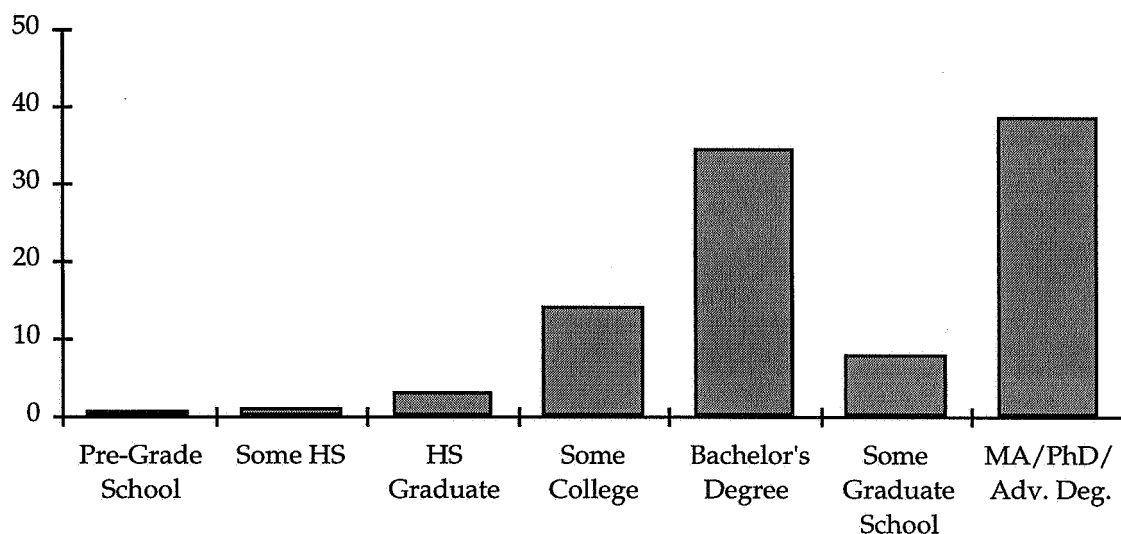
Of all National Design Museum visitors in the Fall of 1993, 91% were Caucasian, 3% identified themselves as Asian Americans, 2% as African Americans, 3% as Hispanics, and the remaining 1% as Native Americans. This is most similar to the racial/ethnic profile from *The Power of Maps* where Caucasians were 93% of the total sample; Asians were 4%, African Americans were 1%, and Hispanics were 2%.

The *Czech Cubism* audience was 84% Caucasian, which is less than the other two studies. This is partly a result of an increase of visitors from foreign countries during the summer. (Foreign visitors artificially increase the proportion of "minority" visitors, as many are Latinos and Asians.) When we compare local and non-local audiences, there is virtually no difference in cultural, racial, and ethnic identification.

Educational Attainment

All Smithsonian museums attract well-educated audiences, but National Design Museum visitors have particularly high levels of educational attainment. Among those age 25 or older (the ages at which most people have completed their formal education), over four-fifths (81%) completed at least a Bachelor's degree and two-fifths (39%) had a graduate degree as well. Less than five in one hundred adult visitors to *Mechanical Brides* reported no college experience.

Figure C.4
Educational Attainment for Respondents Age 25 and Over
(In Percent)



² See Table C.2 for data discussed in the remainder of this section.

This educational distribution is virtually identical to the educational attainment of visitors during previous National Design Museum studies.

Occupation

Consistent with their high educational attainment, most visitors are professionals. In the Fall of 1993, one-quarter (26%) were art or design professionals and one quarter were professionals from the non-science world (lawyers, accountants, etc.) (28%). Students were 12%; professional science types (doctors, biologists and other hard scientists) were 10%; teachers and educators were 10%. Other occupations included clerical workers, writers, and those not in the labor force. Retired people made up 8% of the total audience; in the occupational distribution, retired people are classified on the basis of their prior occupation.

The occupational profile of the *Brides'* audience is very close to those seen in the earlier studies. In the *Czech Cubism* study, we found that 22% were from the arts and design worlds; in *The Power of Maps* study, 20%. In both previous studies, approximately one quarter of visitors were non-science professionals.

Summary of Visitor Characteristics

The audience profile at the three exhibition studies conducted at the National Design Museum is consistent. Unlike the other Smithsonian museums, the National Design Museum does not appear to be greatly affected by seasonal changes in its visitorship. National Design Museum exhibitions do attract more females than males. The visitor profile varies little in terms of age. All three studies showed that most visitors are between the ages of 25 and 44, and very few are children.

The three profiles show somewhat greater variability in the racial/ethnic makeup and place of residence. The proportion of Caucasians varies from 80% to 90%. A greater proportion of the *Czech Cubism* audience was from the New York City Metropolitan Area, compared to *Mechanical Brides*. Two-thirds of *Czech Cubism* and *The Power of Maps* audiences were local residents. *Mechanical Brides* had a smaller proportion of local visitors, although they were still over fifty percent of the total.

Most visitors to the National Design Museum come either alone or as part of a couple. At all three exhibitions, adults coming alone were approximately one-third of the total and couples approximately forty to fifty percent.

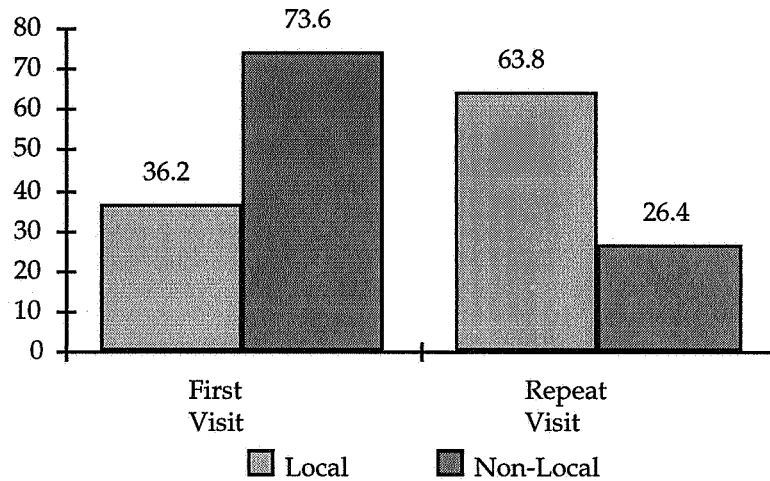
National Design Museum visitors are extremely well educated. In all three studies, more than three quarters of all visitors reported at least a Bachelor's degree, and two-fifths had at least a graduate or professional degree. Consistent with their high education levels, the vast majority of the audience were professionals -- nearly one quarter in art and design and another quarter in non-science fields.

II. Visit Characteristics³

First Visit to the National Design Museum

The proportion of individuals making their first visit has been consistent over the three studies -- just over half of all respondents were making a first visit. Half (53%) of visitors at the *Mechanical Brides* exhibition were visiting for the first time. Over half (56%) of the repeat visitors (26% of the total audience) had been to the National Design Museum within the past year. Among New York City Metropolitan Area visitors, only one third (36%) were making a first visit, while among the non-local visitors nearly three quarters (74%) were making their first visit.

Figure C.5
First Visit, Local or Non-Local
(In Percent)



At the *Czech Cubism* exhibition, 55% were making their first visit, and 45% of repeat visitors (20% of the total) had been to the National Design Museum within the last year. In the Fall 1992 study of *The Power of Maps*, we found that just half (50%) were making a first visit, and over half of the repeat visitors (53%) had visited the National Design Museum within the last year (26% of the total).

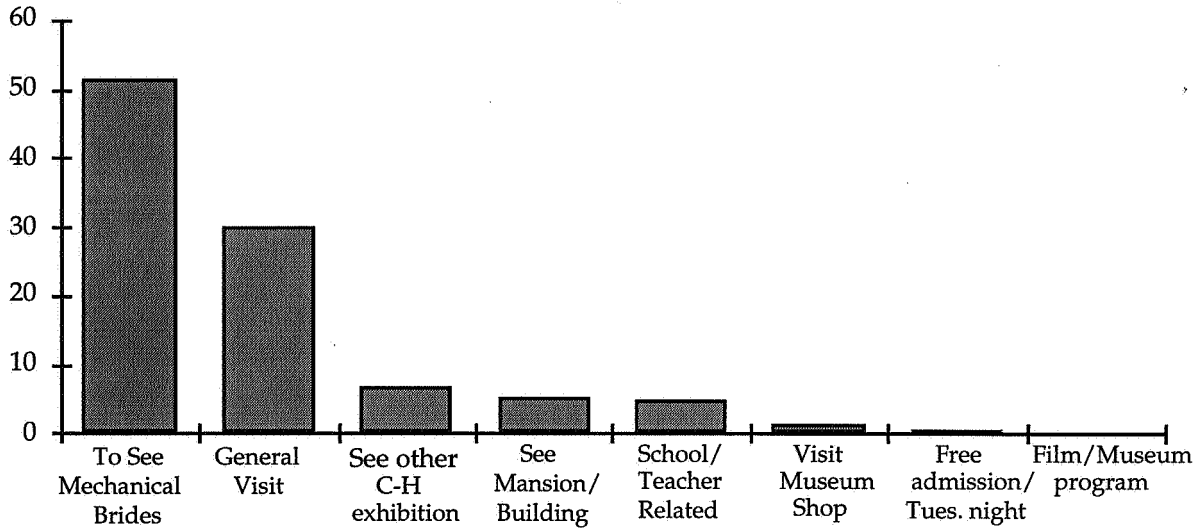
Reason for visit

As shown in Figure 6, half (51%) of the visitors came to the National Design Museum specifically to see the *Mechanical Brides* exhibition. Another thirty percent came for a general visit. Other reasons for visiting the National Design Museum included seeing

³ See Table C.2 for data discussed in this section.

another exhibition (7%), seeing the mansion ⁴ (5%), participating in a school or teacher-related event (5%), and visiting the museum shop (1%).

Figure C.6
Reason for Visit
(In Percent)



The reasons for visiting the two other exhibitions were somewhat different. *Czech Cubism* visitors were equally divided between those coming to see the exhibition (34%) and those on a general visit (39%). Less people were coming to the museum specifically to see the exhibition perhaps because far fewer people knew about it before they entered the museum. At *The Power of Maps* exhibition, 63% were coming to the National Design Museum specifically to see the exhibition and only 27% were making a general visit.

Mechanical Brides and *The Power of Maps* exhibitions received considerable media coverage (including reviews and commentaries in national magazines such as *Newsweek* and *Vogue*) compared to the *Czech Cubism* exhibition. The *Czech Cubism* exhibition had been shown at other U.S. and Canadian venues, whereas the *Mechanical Brides* and *The Power of Maps* exhibitions were created and curated by National Design Museum staff.

Membership

In 1992 we conducted an extensive study of the National Design Museum Membership Program. In that study we found that three-fifths (60%) of all National Design Museum members were female, 85% had at least Bachelor's degree, and 84% were age 41 or older.⁵ The Membership Program study found that 95% of members were from the

⁴ The Cooper-Hewitt is located in a house once owned by industrialist Andrew Carnegie, and is across the street from Central Park on the Upper East Side of Manhattan.

⁵ See Z.D. Doering and A. Bickford, *Supporters of the Cooper-Hewitt, National Museum of Design*. Report 93-3 (Washington, D.C.: Smithsonian Institution, 1993), p. 14.

New York City Metropolitan area.⁶ Members of the National Design Museum are automatically members of the Smithsonian Institution, but members of the Smithsonian Institution are not automatically members of the National Design Museum.

More than half of National Design Museum members who came to the *Mechanical Brides* exhibition were from outside the New York City Metropolitan Area. Two-fifths (41%) of members coming to the exhibition were from New York City or its suburbs. Just over half (53%) of Smithsonian members coming to the exhibition were residents of the New York City Metropolitan Area.

Understandably, all these exhibitions attracted a higher percentage of Smithsonian members than National Design Museum members.

Sources of Information about the *Mechanical Brides* exhibition

Two thirds (65%) of visitors to the National Design Museum had heard about the *Mechanical Brides* exhibition prior to coming to the museum.

These surveys collected sources of information about the exhibition. Respondents could name multiple sources, if applicable (e.g., reading about the exhibition in the *New York Times* and hearing about it from a friend). In the *Mechanical Brides* survey, most people (84%) gave just one source of information; only 14% gave two sources, and 2% gave three or more.

Word of mouth was the most popular source of information (23% of all responses). Magazines were the most popular print media source (19%). Magazines named included *The New Yorker*, *New York* magazine, *Vogue*, *Smithsonian* magazine and others.

Newspapers were named as a source of information by 18% of all visitors. The *New York Times* was the source for 83% of newspaper readers. Visitors also named the *Village Voice*, *Philadelphia Inquirer*, and *New York Newsday* among other local and non-local newspapers.

The signs on 5th Avenue were 14% of the responses. Remaining sources of information were repeat visitors, TV/Radio, School, and the National Design Museum Calendar. Another group of visitors (17%) mentioned simply walking in, without any reference to an information source.

We can estimate the drawing power of the 5th Avenue sign in each of the three exhibitions we have studied by examining those who identified the sign as one of their information sources and who also said that they had come to the National Design Museum to see the exhibition. In the case of *Mechanical Brides*, 6% of all visitors said that they learned of the exhibition from the 5th Avenue sign and had come in order to see it (another 9% said that they had seen the sign but had come for other reasons). Similarly, 10% of all visitors to *The Power of Maps* heard of the exhibition from the sign and came to

⁶ Ibid., p.20.

see it, while 2% saw the sign but came for other reasons. By contrast, 21% of all *Czech Cubism* visitors learned of the exhibition from the sign and came to see it, while 7% learned of the exhibition from the sign but came for other reasons.

These data indicate that the 5th Avenue sign directly influences between 5 and 10% of visitors to exhibitions that are well-publicized elsewhere, but can bring in as many as one-fifth of all visitors to exhibitions that are not as well-publicized. The sign may have additionally had an unreported, reinforcing influence for those who principally heard about *Mechanical Brides* and *The Power of Maps* from other sources since, as we have noted, these visitors tended to give only one response to this question.

Summary of Visit Characteristics

The proportion of individuals making their first visit has been consistent over the three studies -- just over half of all respondents were making a first visit and about one-fourth of the total had been to the National Design Museum within the past year. Local visitors were much more likely to be making a return visit than non-local visitors.

The proportion of visitors who came specifically to see an exhibition, rather than make a general visit, was related to the number who knew about it in advance. *Mechanical Brides* and *The Power of Maps* exhibitions received considerable media coverage compared to the *Czech Cubism* exhibition. Thus, more people indicated coming to see those exhibition specifically.

These results suggest that the 5th Avenue sign directly influences between 5 and 10% of visitors to exhibitions that are well-publicized elsewhere, but can bring in as many as one-fifth of all visitors to exhibitions that are not as well-publicized. The sign may have additionally had an unreported, reinforcing influence for those who principally heard about *Mechanical Brides* and *The Power of Maps* from other sources.

Table C.1
Comparative Demographic Characteristics for Visitors to
The Power of Maps, Czech Cubism, and Mechanical Brides Exhibitions
(In Percent)

Characteristic	<u>Exhibition</u>			Comments
	<i>The Power of Maps</i>	<i>Czech Cubism</i>	<i>Mechanical Brides</i>	
	<u>Data Collection Dates</u>			
Study Began	10/28/92	6/9/93	10/27/93	
Study Ended	11/17/92	6/22/93	11/14/93	
<u>Gender</u>				More women at Brides
Female	52.9	57.5	66.2	
Male	<u>47.1</u>	<u>42.5</u>	<u>33.8</u>	
Total	100.0	100.0	100.0	
<u>Age</u>				Essentially same age distribution
Less than 12	2.6	0.7	1.0	
12-19	1.7	1.6	1.5	
20-24	5.6	6.3	9.2	
25-34	24.9	31.0	25.3	
35-44	21.3	27.9	25.5	
45-54	24.9	14.0	19.3	
55-64	10.7	10.1	8.7	
65 and over	<u>8.5</u>	<u>8.5</u>	<u>9.5</u>	
Total	100.2	100.1	100.0	
<u>Racial/Ethnic Identification</u>				Cubism visitors more varied, summer and tourists from abroad
African American/Black	0.9	4.2	1.8	
Asian/Pacific Islander	3.8	6.9	3.3	
Hispanic/Latino	2.2	3.8	2.9	
Native American	0.1	1.2	0.8	
Caucasian	<u>93.1</u>	<u>83.9</u>	<u>91.2</u>	
Total	100.1	100.0	100.0	
<u>Residence</u>				Brides less local
New York City	52.1	57.8	44.1	
NY/CT/NJ Suburbs	16.4	11.0	10.2	
Other United States	23.3	17.3	31.6	
Foreign	8.2	13.9	14.1	
Total	100.0	100.0	100.0	

Table C.1 (cont.)

Characteristic	<u>Exhibition</u>			Comments
	<i>The Power of Maps</i>	<i>Czech Cubism</i>	<i>Mechanical Brides</i>	
<u>Group</u>				
Alone	38.5	35.2	29.1	
Two adults	42.6	50.7	45.7	
Adults w/ Children	6.9	6.4	7.3	
Friends/Peers	-	-	0.6	
Adults (3+)	-	-	14.3	
School or Tour Group	-	-	3.0	
Groups	<u>12.0</u>	<u>7.6</u>	<u>17.9</u>	More people in Groups in Brides
Total	100.0	99.9	100.0	
<u>Education (Age 25 and over)</u>				
				Education the same in all 3 studies
Pre-Grade School	3.1	0.9	0.8	
Some HS	0.9	0.3	1.1	
HS Graduate	4.3	4.3	3.1	
Some College	9.2	14.6	14.3	
Bachelor's Degree	32.6	30.5	34.4	
Some Graduate School	8.7	9.4	7.8	
MA/PhD/Adv. Deg.	<u>41.1</u>	<u>40.0</u>	<u>38.5</u>	
Total	99.9	100.0	100.0	
<u>Occupation</u>				
Professional, Non-Science	27.1	24.7	27.6	Slight differences, but essentially the same in all three studies
Professional, Science	12.0	13.4	9.7	
Professional, Arts	10.7	12.7	12.9	
Professional, Design	9.5	9.0	13.3	
Professional, Writer	4.8	3.9	4.2	
Teacher/Educators	11.3	10.5	9.6	
Clerical	8.7	10.6	7.8	
Student	8.6	9.4	12.0	
Not in Labor Force	<u>7.3</u>	<u>5.9</u>	<u>2.9</u>	
Total	72.9	75.4	72.4	

Table C.2
Comparative Visit Characteristics for Visitors to
The Power of Maps, Czech Cubism, and Mechanical Brides Exhibitions
(In Percent)

Characteristic	<u>Exhibition</u>			Comments	
	<i>The Power of Maps</i>	<i>Czech Cubism</i>	<i>Mechanical Brides</i>		
<u>First Visit</u>					
Yes	50.2	55.0	52.5	Same	
No	<u>49.8</u>	<u>45.0</u>	<u>47.5</u>		
Total	100.0	100.0	100.0		
<u>Time of Last Visit</u>					
Within the last year	52.6	44.5	56.3	Cubism somewhat different	
1-2 years ago	19.8	33.4	18.2		
2-3 years ago	12.5	7.4	13.5		
3-4 years ago	1.4	1.1	2.8		
4+ years ago	<u>13.8</u>	<u>13.7</u>	<u>9.2</u>		
Total	100.1	100.1	100.0		
<u>Reason for Visit</u>					
To See Power of Maps/ Czech Cubism/ Mechanical Brides Exhibition	63.2	34.1	51.2	Maps percentage shows "opening" impact - Czech Cubism had less publicity	
General Visit	26.6	38.9	30.0		
Garden Visit	-	18.7	-		
Visit Museum Shop	4.2	1.9	1.4		
See Mansion/Building	4.0	3.6	5.2		
See other C-H exhibition	-	0.7	6.9		
School/Teacher Related	-	-	4.6		
Guggenheim related	1.2	2.0	-		
Free admission/Tues. night	0.7	-	0.5		
Film/Museum program	<u>0.0</u>	<u>0.0</u>	<u>0.2</u>		
Total	99.9	99.9	100.0		
<u>Membership</u>					
Neither	75.2	86.1	82.0		Members may attend earlier
Smithsonian	19.5	10.2	14.8		
Cooper-Hewitt	<u>5.3</u>	<u>3.7</u>	<u>3.2</u>		
Total	100.0	100.0	100.0		

Table C.2 (cont.)

Characteristic	Exhibition			Comments
	<i>The Power of Maps</i>	<i>Czech Cubism</i>	<i>Mechanical Brides</i>	
<u>Before today had you heard about Maps/Czech Cubism/Mechanical Brides</u>				
Yes	34.7	26.8	65.4	Brides shows media impact
No	<u>65.3</u>	<u>73.2</u>	<u>34.6</u>	
Total	100.0	100.0	100.0	
<u>Where heard about Maps/Mechanical Brides*</u>				
Word of Mouth	24.4		22.6	
Magazines	16.1		19.4	
Newspapers	31.0		18.4	NY Times drew visitors to Maps
Walk-ins (Sign only)	-		17.4	
TV/Radio	2.3		2.1	
Signs on Fifth Avenue	14.9		13.7	
Cooper-Hewitt Calendar	6.0		2.2	
School	-		3.2	
Repeat Visit	-		1.0	
Other	<u>5.4</u>		<u>0.0</u>	
Total	100.1		100.0	

*Percent of total responses, not percent of visitors.

Appendix D Survey Design and Implementation

Introduction

The Mechanical Brides study is one of a series conducted by the Institutional Studies Office (ISO) to profile visitors to Smithsonian museums, increase our knowledge of the visit experience, and provide information for future exhibition planning. Each study is tailored to the particular needs of the sponsor and the resources available for the study. This appendix contains a brief discussion of the questionnaire, the rationale for the sample design, the survey's implementation, and response bias.

The study was designed to assess (i) the extent to which visitors acknowledged and responded to the curator's point of view, (ii) the relative effectiveness of the exhibition contents and display strategies, and (iii) to capture a profile of visitors to the exhibition. The *Mechanical Brides* Survey was based on personal interviews with respondents who were selected using a "continuous" systematic sample design. Depending on the time of day and day of the week, interviewers intercepted visitors who were identified through a special procedure developed for sampling a mobile population.¹ They administered a short questionnaire, with both pre-coded and open-ended questions, to eligible respondents and thanked the participants with booklets about the Cooper-Hewitt collection.

The *Mechanical Brides* exhibition was on view for 5 months, between August 1993 and January 1994. The survey was conducted between October 27, 1993 and November 14, 1993. During the interview period, 602 persons were asked to participate in the survey as they were exiting from the exhibition and 513 participated, a response rate of 86%.² The persons intercepted represent a population of over 3,496 visitors to the exhibition.

Questionnaire Development

In Section I, we noted that the curator's central theme for the *Mechanical Brides* exhibition was clearly stated: the exhibition should encourage viewers to think critically about the objects, places, and practices of daily life, and to recognize stereotypes of the past that remain active today. In the exhibition, three-dimensional objects such as telephones, washing machines, and irons were juxtaposed with advertising, photojournalism, film stills, TV commercials, and other documents, so that, as the curator stated, "the exhibition reveals the social, sexual, and economic meaning of objects." A secondary objective of the study was to relate the visitors' experience to specific objects and display strategies. In addition, we needed to capture a profile of visitors to the exhibition to determine if the exhibition broadened the audience that came to the Cooper-Hewitt or served the "traditional" Cooper-Hewitt audience. The questionnaire for the study, then, had to collect information with which to assess the

¹ The procedure and its rationale are described in Z. D. Doering, A. E. Kindlon and A. Bickford, *The Power of Maps: A Study of an Exhibition at the Cooper-Hewitt National Museum of Design*. Report 93-5. (Washington, D. C.: Smithsonian Institution, 1993).

² See below for a discussion of this response rate and the response bias in this dataset.

extent to which the exhibition successfully communicated its messages, assess exhibition components, and address the audience profile issue.

The initial portion of the questionnaire collected general information about the visit. Aside from asking the reason for the visit to the museum, we asked for the visitors' sources of information, if any, about the exhibition. After establishing some rapport with the visitor, we asked questions about the various aspects of exhibition. How to assess the respondents' understanding of the curator's point of view was the most challenging part of developing the questionnaire. After exploring several measurement options, the approach we settled on was to rely on open ended items. First we asked for the respondent's interpretation of the main message and what in the exhibition conveyed this message. We also asked if anything in the exhibition had a personal meaning for the respondent, the reason and the object.

We also asked several questions about specific components. In each case, we wanted to know if the component "enhanced" or "detracted" from the visitors' understanding of the exhibition.

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.

Questionnaire development also included experimentation with the order of the exhibition items. That is, we tried not only different items but also different orders.³ The order used in the final questionnaire asks subjective, open-ended questions about the exhibition before objective forced choice items. In determining the final order of the items in the questionnaire, we sought to maximize the internal consistency of responses, while minimizing respondent fatigue and the respondents' feeling that they were being tested.

We had hoped to classify the visitors on a continuum with the end points being a belief in traditional roles for women and independence from such roles. While visitors understood the question (Q 12), the results were disappointing. Either respondents gave "socially acceptable" answers, rather than their own opinions, or the visitors were very homogeneous. There was little variation in the answers across respondents.

The questionnaire also 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.⁴

³ Approximately 50 preliminary questionnaires were administered by Institutional Studies and National Design Museum staff as part of questionnaire development.

⁴ 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.

Sample Design and Selection

Survey Schedule. Resource constraints restricted the data collection to 14 days during October and November, 1993. Within each day, the schedule covered only 3 hours instead of the 7 hours in which the museum is open. Additional interviewing sessions were held on Tuesdays when the museum is open late. The combination of days and hours is approximately a 50 percent sample of hours in a given week. The actual schedule takes into account 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, the schedule translates into approximately a 38.4 % sample of hours.⁵

Table D.1
Interviewing Schedule

Date	Day	Time				
		10:30 AM 12:00 PM	12:30 PM 2:00 PM	2:30 PM 4:00 PM	5:30 PM 7:00 PM	7:15 PM 8:45 PM
Fall 1993						
27-Oct	Wednesday	X		X		
28-Oct	Thursday	X		X		
30-Oct	Saturday	X		X		
31-Oct	Sunday		X	X		
2-Nov	Tuesday	X	X		X	X
4-Nov	Thursday		X	X		
5-Nov	Friday	X	X			
6-Nov	Saturday		X	X		
7-Nov	Sunday		X	X		
9-Nov	Tuesday			X	X	X
10-Nov	Wednesday		X	X		
12-Nov	Friday		X	X		
13-Nov	Saturday	X	X			
14-Nov	Sunday		X	X		

Sample Selection.⁶ 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 record the number of people exiting the exhibition 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.)

⁵ The National Design Museum is closed on Mondays. During this period, it was opened 17 days or 121 hours. The interviewing schedule covered 46.5 hours or 38.4%.

⁶ The discussion is restricted to the mechanics of sample selection, rather than the rationale. See Z. D. Doering, A. E. Kindlon and A. Bickford, *The Power of Maps: A Study of an Exhibition at the Cooper-Hewitt National Museum of Design.*, Report 93-5. (Washington, D. C.: Smithsonian Institution, 1993).

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 by the counter 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 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 administered within a given 15 minute segment during which 40 visitors exited would be assigned a weight of 10, irrespective of when it was conducted during the segment (e.g., if the "count numbers" were 5, 12, 28 and 40).

D. Completion Rates and Response Bias

As shown in Table D.2, overall 14.2 percent of all persons intercepted refused to participate in the survey. While a few refusals were due to language difficulties (12), the majority of refusals (73) were for "other" reasons (e.g., visitors in a hurry, not wanting to detain companions, etc.).

Table D.2
Results of Data Collection: Mechanical Brides Survey
(In Percent)

<u>Type</u>	N	%
<u>A. Composition</u>		
SI staff/contractors*	4	0.7
Visitors	<u>598</u>	<u>99.3</u>
Total	602	100.0
<u>B. Disposition, All Eligible Visitors</u>		
Interviews	513	85.8
Non-Interviews	<u>85</u>	<u>14.2</u>
Total	598	100.0
<u>C. Reasons for Non-Participation, Eligible Visitors</u>		
Refusal, Language difficulty	12	14.1
Refusal, Other	<u>73</u>	<u>85.9</u>
Total, Non-interviews	85	100.0
<u>D. Response Rates</u>		
All eligible visitors**		<u>85.8</u>

* Includes C-H, other SI staff, and contractors

** From B above

Table D.3 contains the demographic characteristics of intercepted visitors by their response type; i.e., those who completed interviews and those who refused for any reason.

Table D.3
Participants and Non-Participants: Mechanical Brides Survey
(In Percent)

Characteristics	<u>Total</u> Completed Interview (%)	<u>Total</u> Refusal for Any Reason (%)	<u>Refusals for</u> Language (%)	<u>"Other"</u> Reasons (%)	<u>Total</u> Visitors (Number)
<u>Gender</u>					
Female	66.5	64.1	60.4	87.8	66.2
Male	<u>33.5</u>	<u>35.9</u>	<u>39.6</u>	<u>12.2</u>	<u>33.8</u>
Chi Square=0.17 p=.67 DF=1	100.0	100.0	100.0	100.0	100.0
<u>Racial/Ethnic Identification</u>					
African American	1.9	1.6	1.8	0.0	1.8
Asian	2.9	5.5	1.7	29.9	3.3
Caucasian	91.7	88.4	91.9	66.3	91.2
Hispanic/Latino	<u>3.6</u>	<u>4.5</u>	<u>4.6</u>	<u>3.8</u>	<u>3.7</u>
Chi Square=3.9 p=.04 DF=3	100.0	100.0	100.0	100.0	100.0
<u>Residence</u>					
New York City	44.9	38.7	43.7	12.6	44.1
NY/CT/NJ Suburbs	10.8	6.4	7.6	0.0	10.2
Other United States	31.8	30.5	32.7	19.1	31.7
Foreign	<u>12.6</u>	<u>24.4</u>	<u>16.1</u>	<u>68.3</u>	<u>14.1</u>
Chi Square=5.1 p=.16 DF=3	100.0	100.0	100.0	100.0	100.0
<u>Social Composition</u>					
Alone	27.0	42.2	39.1	64.2	29.1
Couple	48.4	28.4	30.8	11.2	45.7
Age Peer Group	14.7	16.1	17.0	9.6	14.9
Adults and Children	6.9	9.8	11.1	0.0	7.3
Tour/School Groups	<u>2.9</u>	<u>3.6</u>	<u>1.9</u>	<u>15.1</u>	<u>3.0</u>
Chi Square=9.6 p=.05 DF=4	100.0	100.0	100.0	100.0	100.0
<u>Age</u>					
0-11	1.2	0.0	0.0	0.0	1.0
12-19	1.5	1.7	2.0	0.0	1.5
20-24	9.2	9.4	3.1	49.7	9.2
25-34	25.4	24.5	24.9	22.0	25.3
35-44	26.1	22.0	23.7	11.5	25.5
45-54	19.2	20.4	21.0	16.8	19.3
55-64	8.6	9.6	11.2	0.0	8.7
65 and over	<u>9.0</u>	<u>12.3</u>	<u>14.2</u>	<u>0.0</u>	<u>9.5</u>
Chi Square=2.0 p=.96 DF=7	100.0	100.0	100.0	100.0	100.0
Number of Visitors	513	85	12	73	598.0
Total	85.8	14.2	2.0	12.2	100.0

There are no statistically significant differences between participants and non-participants in any of the characteristics. The high response rate and the comparisons in Table D.3 suggests that there is no need to weight for non-response. However, as mentioned, respondents were not selected with equal probability throughout the survey. Thus, each respondent's record received a weight corresponding to the sample selection intervals.