

**VISITOR BENEFIT ANALYSIS AT LONGWOOD GARDENS,
KENNETT SQUARE, PENNSYLVANIA**

by

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A thesis submitted to the Faculty of the University of Delaware in partial fulfillment
of the requirements of the degree of Master of Science in Public Horticulture

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ABSTRACT

This research investigated the impact of visitor benefits at Longwood Gardens, Kennett Square, Pennsylvania. Surveys were developed in three stages. An exploratory phase (February, 2002) in which employees and volunteers were polled was used to identify broad categories of visitor benefits and specific benefits fitting within the categories. This was followed by an initial (June, 2002) seven-day and a final (July, 2002) seven-day visitor survey. Results of the initial visitor survey showed visitor benefit importance ranked as: sensory perception > entertainment > safety > education > comfort and > social interaction. The final visitor survey examined subcategories within the highest ranking four categories from the initial visitor survey. The two most important subcategories in each tested category were as follows: color and design (sensory perception), fountains and fun (entertainment) access to drinking water and absence of fear (safety), and accessibility to staff and self-guided tours (education). The exit survey method used, successfully attributed relative importance of visitor benefits. The results of this survey or similar surveys at other public gardens would help professionals identify or enhance existing visitor benefits.

INTRODUCTION

A major responsibility of public gardens is to constantly improve the benefits they provide visitors. While Longwood Gardens (LWG), Kennett Square, Pennsylvania, has unique characteristics that distinguish it from other public gardens, it also shares strengths with other reputable institutions. Like other public gardens, LWG combines art and science in a publicly accessible space whereby people can experience enjoyment and enrichment. LWG was chosen as the case study site to initiate visitor benefit research primarily because of its consistently high visitation rates and the spatial organization of the visitor center. Since the visitor center at LWG requires visitors to enter and exit through a common corridor, higher response rates during data collection could be expected than at institutions with multiple points of entry and exit.

Public horticultural professionals could benefit from further analysis of the tangible and intangible benefits that public gardens offer visitors. This thesis is a contribution toward that analysis through specific consideration of visitor benefits. No deliberate effort has been made in this thesis to categorize visitor benefits according to their tangible or intangible qualities. Although categorizing visitor benefits between tangible and intangible groups was not included, both qualities naturally exist in the tested visitor benefits.

Improved garden accessibility for everyone is one example where visitor benefit research could serve a useful role. The Americans with Disabilities Act (ADA, Public Law: 101-336, established July 26, 1990) encourages and regulates

improvements at public facilities. Visitors with disabilities have gained new opportunities through the ADA to enjoy garden experiences. Insights gained through current visitor research allow garden professionals to move beyond required minimum standards for the benefit of all visitors.

Besides diversifying the visitor population, public horticultural professionals are also challenged to maintain a balance between science and public service initiatives. Efforts to keep science and public service in balance at the Morton Arboretum, Illinois, were found to be misunderstood by the surrounding community, thereby threatening the institution's public image (Wallace, 2002). Explaining and understanding the benefits that public gardens offer visitors has served as a valuable corrective public relations mechanism.

Throughout the year, LWG maintains plants and other landscape elements for the experiential benefit of the visiting public. LWG's mission statement, approved November, 1986, clearly establishes a commitment to maintaining plants and other landscape elements for the experiential benefit of the visiting public. "Longwood Gardens is dedicated to preserving the spirit and beauty of the early twentieth-century gardens of Pierre S. Du Pont. Longwood is a display garden promoting the art and enjoyment of horticulture for the public, while providing opportunities for research and learning. We are committed to excellence, good management, and fiscal responsibility." Furthermore, LWG's principles reinforce the commitment to horticulture and visitors. Examples of such principles include: "preserve and enhance Longwood's historic character and emphasis on display; promote the art of horticulture, and make every visit an enjoyable, enriching experience." It is the essential process of connecting people with plant specimens, including the

organization and relationship between those specimens, which stimulates inquiry into the importance visitors attribute to their experiences.

Many variables contribute to the quality of a visitor's experience. The breadth of variables creates a great range of positive and/or negative experiences that visitors may feel during or after any particular visit. Institutions that learn about these experiences can react to the variability of situations and therefore sustain the best possible environment for visitor experiences. Public horticultural professionals need to understand which benefits are most important to the overall visitor population so that every visitor experience may be beneficial and positive.

Visitor benefits, not visitor needs, are the subject of this thesis and therefore must be clarified. People have many ways to spend their time and will not typically continue visiting a publicly accessible facility if it does not satisfy their essential needs. For example, visitors of public gardens will not likely return if their basic needs, such as bathroom facilities, were not met by that public garden. Beyond providing such essential needs, the public garden can contribute toward a positive visitor experience in many ways.

The public garden should continuously improve visitor benefits and make them accessible to as many people as possible. This is an important concept for public horticultural professionals as they consider the implications of visitor benefit research to their institutions. Institutional mission statements should always be considered when developing or enhancing visitor benefits.

There are no known publications related to specific visitor benefits at public gardens. Five independent market research organizations administered ten specific visitor studies in the 2001-2002 operating year at the National Museum of

Australia, Acton Peninsula, Australia (National Museum of Australia, Annual Report 2001-2002, Appendix 14). Results taken from samples of a 900,000 to 1,000,000 visitor population in 2001 revealed that 90% of visitors were satisfied or very satisfied with their visits. Survey results suggested that architecture contributed greatly towards visitor satisfaction. Although detailed visitor benefits were not analyzed, the influence of indoor museum spatial design may likely parallel the influence of outdoor spatial design at gardens. All of the readily available literature pertaining to visitor benefits is associated with museums (Hooper-Greenhill, 1994, Hudson, 1994, Serrell, 1998). There is a pressing need to gather information about specific visitor benefits at public gardens. Hudson (1975) stated the problem for museums as follows, "...in attempting to discover what kind of impact museums have had on their visitors, one is compelled to rely on evidence which is in no way scientific. One searches for comments wherever they are to be found, realizing that only the exceptional person is ever likely to write down his feelings and find a published outlet for them and that the great majority of men, women, boys, and girls, who have ever entered a museum or an art gallery have been interested or bored, stupefied or invigorated, without anybody but themselves or their friends knowing about it."

To gain an understanding of the relative importance of experiential visitor benefits at LWG, all visitors during one week in June and July, 2002 were asked to participate in an anonymous survey investigating the relative importance they attributed to a series of selected experiential benefits.

LITERATURE REVIEW

The author found no literature on the specific subject of visitor benefits at public gardens. Research in horticultural therapy and museum visitation indirectly relates to visitor benefits at public gardens but does not quantify, from the visitor perspective, what types of visitor benefits are most important to the group of people who visit public gardens, or why those types of benefits are considered important.

Browsing the popular press discussing gardens and gardening often refers to generalized attitudes of people towards gardens. The following by Hutcheson (1923) is an example.

“The innate sense of man for generations has evidently craved some concentrated spot for the building of all that goes to make up the beauty of the outdoor world in color, form, light, perfume; the play of the seasons; the sound and sight of the birds and insect life; the opportunity for the intelligent and loving touch that the human being can lend to the arrangement of nature; the ceaseless play of imagination and realization of achievement and the centered interest in the home where these meet together in the ever changing beauty of our gardens. The larkspur is incomplete without the hummingbird, the rose without the dew; the evening primrose courts the twilight; the subtle form of arrangement plays with the mystery of flower-form and outline; and with this blending of those things which we all seek and love we find a peace in our gardens which other places seldom give. The garden is not only the exquisite playground of the home, but the resting place of the spirit – the place of inspiration and promise, of tranquility and intense personal calm, and we are held and

inspired by it" (p.3). Obviously, this author is expressing strong emotions affected by time spent in gardens. Unfortunately, no quantifiable specifics are provided.

If data regarding the importance of visitor benefits to public gardens were available, public horticultural professionals could be more effective in activities including public relations, fund-raising development, and long range planning. Competition among different institutions and between different activity options illustrates the usefulness of visitor benefit data for public horticultural professionals. "In order to attract visitors who have many demands for their time and especially to attract increasingly scarce funding sources, museums must present themselves as something people need." (Hughes, 1998, p.20) Understanding and communicating visitor benefits is one method to develop this argument. It may be useful to consider the similarity of developing patron interest in public gardens and profit-seeking activity centers. Except for loyal patrons who have a strong commitment and/or interest in the organization, the benefits of patronizing a facility must be determined and expressed if any serious promotional campaign is planned.

Hooper-Greenhill has conducted numerous visitor studies at museums and provides useful insight about visitor behavior and the importance of understanding the museum's role and function in visitor's lives. She stated (1994): "In the past, museum visitors have been content to stroll through the displays and have rarely sought more than a tangential visual experience of objects. Now, there is a clear and consistent demand for a close and active encounter with objects and exhibits. A physical experience using all the senses is called for" (p.6). Arguing for a physical experience relies on an understanding of why visitors benefit from such opportunities. Hooper-

Greenhill (1994) alludes to the importance of visitor benefits in the sensory perception category as a reason why physical experiences should be developed.

Communicating visitor benefits to potential visitors is an important responsibility of public gardens. The institution must understand the experiences of its current visitors. Only then can the institution express such visitor benefits to potential visitors. "The task for museums and galleries is to find ways of arousing and instilling passions and ways of exploring ideas that people will find illuminating, using the collections of the museum, and the curiosity and experience of actual potential visitors" (Hooper-Greenhill, 1994, p.34).

The primary methods of evaluating visitor benefits at museums in earlier times were interviews and observations (Miles, 1982 p.159). "Large scale visitor surveys were used on an annual basis to research the nature of the audience and the opinions of visitors to the new displays and to the museum itself (Alt, 1980, 1983)." While each research method used to evaluate public institutions has its own strength, information collected directly from visitors could be used to complement existing research results.

Only limited understanding of the reasons for visitor behavior is gained from visitor observations. Hooper-Greenhill (1994) discussed the limited information gained from visitor observations when she stated; "observation might indicate where people stop, but cannot show why the stops occur. What is it about the exhibit (or something else?) that caused people to stop? Unless researchers ask visitors why they stopped, or listen very closely to what people are saying to each other while they stop, it is impossible to answer this question. Assumptions are made about the success of

the exhibit based on very limited evidence” (p.73). Clearly, multiple sources of data are needed to understand visitor experiences.

A summary of reasons to pursue visitor studies at museums was established by Munley (1986). Five reasons identified were: justification of the value of the institution itself, or of its exhibits or public programs; information gathering to aid in long-term planning; assistance in the formulation of new exhibits or programs; assessment of the effectiveness of existing exhibits and programs; and also construction of theories causing the increased general understanding of how people use museums through the process of research. All five reasons for pursuing visitor studies at museums can be applied directly to public gardens.

The researcher experienced visitor benefits during a self-directed garden tour in England, 2001. First person visitor experiences, observations of other garden visitors, and discussions with people about their experiences with gardens contributed to the learning opportunities. The researcher considered knowledge gained from the learning opportunities in England during work with this thesis. Recognizing differences between human culture and garden characteristics in England and the United States of America demanded caution when applying lessons from England to this thesis. More importantly, the researcher assumes that some characteristics of public gardens can benefit visitors from nearly any cultural background. Because visitor benefits have the potential to escape cultural boundaries, the similarities between public gardens allows the researchers experience with gardens in England as an important source of information.

MATERIALS AND METHODS

The researcher developed the goal of researching the population of visitors at a public garden after conducting several interviews during a visit to Kew Gardens, London, England in 2001. Inquiring about why people visited Kew Gardens and how they benefited from their experiences provided stimulating questions as well as broad and ambiguous responses.

The research was limited to LWG to create a focused research investigation and collect extensive data from a single population. Three chronological data collection phases were employed to determine the most important experiential aspects of public garden visitation: an employee and volunteer exploratory survey, an initial visitor survey, and a final visitor survey.

First, an exploratory survey was given to a representative sample of LWG full-time employees and active volunteers. This exploratory survey (Appendix A) contained fifteen closed-ended and three open-ended questions (Table 1), as well as lists of possible visitor benefits (Table 2) that could be selected if they were perceived at LWG. Full-time employees were defined by the Human Resource Department of LWG to be 171 people as of February, 2002. Active volunteers numbered 223.

Numbers were initially assigned to employees and volunteers according to ascending alphabetical order of last names. Representative samples were selected through a random number generation formula in the EXCEL computer software. A 30% sample was selected for the representative employee sample and a 20% sample was selected for the representative volunteer sample. Numbers produced in the

Table 1. Exploratory survey questions given to employees and volunteers (see Appendix A for the actual survey)

| CLOSED-ENDED QUESTIONS: | |
|--------------------------------|---|
| 1 | Does Longwood Gardens offer a variety of visitor benefits that are similar to those provided by other US public gardens? |
| 2 | Are performing arts a visitor benefit limited only to some public gardens? |
| 3 | Does every public garden offer some visitor benefits which are unique to that garden? |
| 4 | Is education a visitor benefit that should be a part of every public garden in America? |
| 5 | Are the aesthetics of a public garden an important visitor benefit? |
| 6 | Are there some types of benefits available to visitors of public gardens that are common to all public gardens and not site specific? |
| 7 | Is planned entertainment a visitor benefit at most public gardens? |
| 8 | Are well planned garden spaces a major visitor benefit found at public gardens? |
| 9 | Are facilities including bathrooms, gift shops, restaurants/cafes, and places to rest important visitor benefits at public gardens? |
| 10 | Is providing a safe environment a fundamental visitor benefit? |
| 11 | Can the average individual and/or family financially afford to visit public gardens? |
| 12 | Can walking or moving through a public garden be considered an entertainment benefit for the visitor? |
| 13 | Does the enjoyment of visiting public gardens outweigh the financial cost of admissions? |
| 14 | Do visitors of all age groups receive educational benefits at public gardens? |
| 15 | Do public gardens enhance community spirit? |
| OPEN-ENDED QUESTIONS: | |
| 16 | In your opinion, what are the TOP 5 visitor benefits provided by the indoor garden spaces at Longwood Gardens? |
| 17 | In your opinion, what are the TOP 5 visitor benefits provided by the outdoor garden spaces at Longwood Gardens? |
| 18 | List the TOP 5 visitor benefits provided by public gardens in the USA (you may use your previous answers if they are appropriate): |

Table 2. Exploratory survey: possible visitor benefits at LWG organized into five benefit categories. (See Appendix A for the actual survey)

| Benefit categories | Subcategory (specific visitor benefits) |
|--------------------|--|
| Aesthetic | Color |
| | Design |
| | Pattern |
| | Texture |
| Comfort and Safety | Benches and places to rest |
| | Food/ Beverage |
| | Restrooms |
| | Safety conscious staff |
| Community | Appreciation of local resources |
| | Pride in cultural resources |
| | Support of community provided by the institution |
| | Volunteer opportunities |
| Economic | Discounted admissions for children |
| | Discounted admissions for older adults |
| | Low cost activity |
| | Membership program available with reduced admissions |
| | Attracts visitors to local area |
| Entertainment | Fireworks display |
| | Fountains |
| | Fun |
| | History |
| | Interactive gardens |
| | Learning |
| | Performing arts |
| | Surprise |
| | Suspense |

random number list were matched to the list of full-time employees and active volunteers. Individuals selected through this process were mailed the exploratory survey ("in-house" mail for employees and U.S. postal mail for volunteers) with a cover letter (Appendix B) requesting their participation. After the original deadline passed a reminder notice was sent to all selected employees and volunteers encouraging responses from any that remained. The random sample of full-time employees provided 36 returned surveys from the 51 that were mailed, a 70.6% return. The random sample of volunteers provided 34 returned surveys from the 45 that were mailed, a 75.6% return.

Subsequent visitor surveys were designed to be completed immediately after exiting the garden (prior to exiting the visitor center), not upon entrance to the garden or during the active experience. Collecting responses from visitors that had not yet experienced the public garden would have developed unreliable and unsubstantiated data. Without spending time in the garden, visitors would be forced to rely on their expectations or previous experiences to judge the importance of visitor benefits included in the survey. The exit survey allowed people to respond while the visit to LWG was still a recent experience.

The second data collection phase was a 10-question initial visitor survey (Table 3, and Appendix C) administered during seven consecutive days (8 through 14, June 2002). The survey questions were developed by analyzing the responses of the exploratory survey and organizing these responses into six broad categories. The primary goal of this visitor survey was to narrow the number of broad visitor benefit categories. Visitor perception of the importance of the different benefit categories was measured with a six-point modified Likert Scale (Figure 1). The 4,526 returned

Table 3. Questions asked during the June, 2002 initial visitor survey. (See Appendix C for the actual survey)

| Question | Measurement |
|--|----------------|
| 1 Are you a LWG frequent visitor pass-holder? | (YES/NO) |
| 2 How important (imp) was comfort to you during this visit? (Likert scale) | |
| 3 How imp. was education to you during this visit? | (Likert scale) |
| 4 How imp. was entertainment to you during this visit? | (Likert scale) |
| 5 How imp. was safety to you during this visit? | (Likert scale) |
| 6 How imp. was sensory perception to you during this visit? (Likert scale) | |
| 7 How imp. was social interaction to you during this visit? (Likert scale) | |
| 8 Are you aware of any positive community impact? | (YES/NO) |
| 9 Was the financial cost worth the experience? | (YES/NO) |
| 10 Do you have any additional comments ? | (Open-ended) |

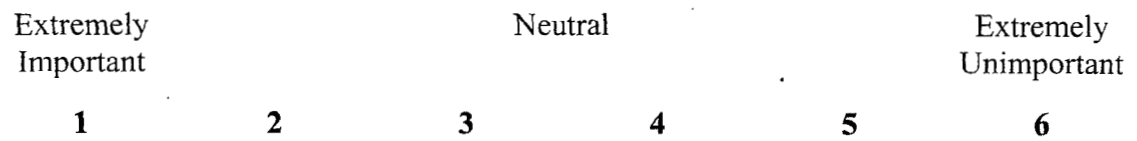


Figure 1. Modified Likert scale used to measure visitor perception in June, 2002 of importance between six broad benefit categories. (See Appendix C for the actual survey)

visitor surveys provided a 35.8% return for that seven-day period. Responses were evaluated, based on mean Likert values and written comments, to select the top four benefit categories: sensory perception, entertainment, safety, and education.

The third data collection phase, administered during seven consecutive days (6 through 12, July 2002), was the final visitor survey (Table 4, and Appendix E). This survey explored in greater detail the four visitor benefit categories (sensory perception, entertainment, education, and safety) identified from results of the exploratory and initial visitor survey as being most important. The final survey was completed by 4,230 visitors, a 28.0% return.

Methods for administering the June and July visitor surveys were identical. Both visitor surveys were developed and approved for use by a research advisory committee and the Human Subjects Review Board of the University of Delaware (Appendix F). Survey administration procedures included a written request for volunteer assistance, a written arrangement, and reservation of space at LWG.

The following visitor survey materials were collected and prepared:

- copies of blank surveys with pens and clipboards,
- name-badges with ribbons to make volunteer surveyors more easily identifiable,
- markers of multiple colors to code the returned surveys into morning, afternoon, and evening responses,
- announcement cards placed in guide-maps to notify visitors that they would be approached upon their exit and asked to participate in the anonymous study (Appendix G),
- Signs at the garden entrance reminding visitors of the research, and
- LWG picture postcards as a participant incentive.

Table 4. Visitor benefits within four major categories to which visitors responded using a modified Likert scale during the July, 2002 final visitor survey. (See Appendix E for the actual survey)

| Major category: | Subcategory, specific visitor benefit: |
|---------------------------|---|
| Sensory perception | Sound |
| | Color |
| | Design |
| | Texture/Touch |
| | Pattern/Shape |
| | Smell (Fragrance) |
| | Other |
| Entertainment | Performing Arts |
| | Fountains |
| | Fireworks display |
| | History |
| | Opportunity to learn |
| | Fun (your definition) while in the garden |
| | Interactive Gardens |
| | Other |
| Safety | Gated with controlled admissions |
| | Safety conscious staff |
| | Absence of fear while in the garden |
| | Medical response preparedness |
| | Access to water (health and sustenance) |
| | Other |
| Education | Knowledgeable staff willing to answer questions |
| | Guided tours |
| | Continuing education courses |
| | Exposure to new plants |
| | Self guided education |
| | Internship/study/graduate work opportunities |
| | Cooperation with local schools |
| | Other |

Data collection during the June and July surveys occurred during all LWG open hours, 9:00am – 10:15pm (Saturday, Tuesday, and Thursday) and 9:00- 6:00pm (Sunday, Monday, Wednesday, and Friday). The 14 days used to administer visitor surveys for this research utilized 548 volunteer hours, two to three volunteers were included in each shift established by the researcher. Surveyors were instructed to approach all visitors, except children under the age of 13, as they exited the visitor center. After distributing a blank survey, pen, and clipboard, the surveyors were authorized only to respond to procedural questions posed by visitors, not content questions.

Data analysis continued through the entire project. All numeric data were entered into an EXCEL spreadsheet. Results from the six-point modified Likert scale, used for the final visitor survey to measure visitor benefits, were entered in half-point increments from 0.5 to 6.5 (Figure 2). Numeric values were related inversely to their perceived importance so that the most important benefits would be closer to a value of one, and the least important benefit would be closer to a value of six.

Question design during the three phases included: scaled response (Likert scales), simple response (Yes/No), choice selection (multiple-choice), and free response (written comments). Final survey questions relied primarily on Likert scales with some Yes/No responses. Comments written on visitor surveys were grouped into common themes whenever possible. The total number of written responses for each theme collected in the final visitor survey illustrated the relative strength of responder opinion for each identified theme.

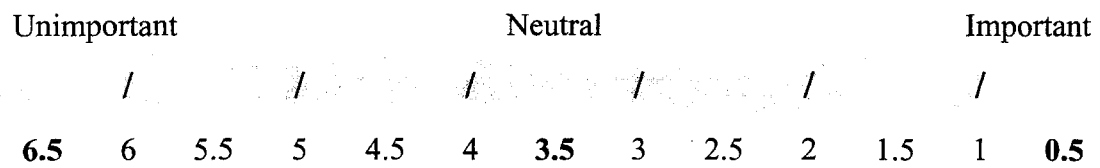


Figure 2. Modified Likert scale used to measure visitor perception in July, 2002 of importance between visitor benefits organized into four broad benefit categories. (See Appendix E for the actual survey)

RESULTS

LWG's visitor population considered most of the tested visitor benefits important to their garden visit. Nearly 25% of visitors participating in the survey included written comments indicating that they cherished the gardens. These participants readily acknowledged an emotional attachment to the gardens, and expressed gratitude for the many benefits they enjoyed (personal observation). For some visitors, the surveys themselves were considered a benefit in that it was a way for them to share their love of LWG and express their gratitude of its caretakers (personal observation).

Exploratory Survey

Employee and volunteer Likert scale responses to 15 questions pertaining to perceived visitor benefit importance are shown in Table 5 and Figure 3. Categories ranked as "I strongly agree" to "I somewhat agree" (5<4) by both employees and volunteers were aesthetics (question five), facilities (question nine), and safe environment (question ten). The least important categories with responses near 3.0 (neutral, undecided) by both employees and volunteers were planned entertainment (question seven) and financial issues (questions 11 and 13). All other categories received Likert mean values generally between 3.5 and 4.0 ("I have no strong opinion (undecided)" to "I somewhat agree").

The percentages of volunteers or employees attributing great importance (Likert scale ~ 5) to each question are shown in Table 6 and Figure 4. The economic

Table 5. Exploratory survey: Employee and volunteer Likert scale responses to questions 1-15

| Visitor benefit questions | Likert mean values* | |
|---|---------------------|-----------|
| | Employee | Volunteer |
| 1 Does Longwood Gardens offer a variety of visitor benefits that are similar to those provided by other US public gardens? | 4.088 | 3.794 |
| 2 Are performing arts a visitor benefit limited only to some public gardens? | 4.206 | 4.235 |
| 3 Does every public garden offer some visitor benefits which are unique to that garden? | 4.176 | 4.441 |
| 4 Is education is a visitor benefit that should be a part of every public garden in America? | 4.324 | 4.500 |
| 5 Are the aesthetics of a public garden an important visitor benefit? | 4.618 | 4.941 |
| 6 Are there are some types of benefits available to visitors of public gardens that are common to all public gardens and not site specific? | 3.941 | 4.294 |
| 7 Is planned entertainment a visitor benefit at most public gardens? | 2.971 | 2.706 |
| 8 Are well planned garden spaces are a major visitor benefit found at public gardens? | 4.118 | 4.176 |
| 9 Are facilities including bathrooms, gift shops, restaurants/cafes, and places to rest are important visitor benefits at public gardens? | 4.794 | 4.706 |
| 10 Is providing a safe environment a fundamental visitor benefit? | 4.794 | 4.853 |
| 11 Can the average individual and/or family financially afford to visitor public gardens? | 3.235 | 3.176 |
| 12 Can walking or moving through a public garden be considered an entertainment benefit for the visitor? | 3.824 | 4.294 |
| 13 Does the enjoyment of visiting public gardens outweigh the financial cost of admissions? | 3.353 | 3.647 |
| 14 Do visitors of all age groups receive educational benefits at public gardens? | 3.706 | 4.088 |
| 15 Do public gardens enhance community spirit? | 4.059 | 4.235 |

***Likert scale:** 1= "I strongly disagree" 2= "I somewhat disagree" 3= "I have no strong opinion (undecided)"
4= "I somewhat agree" 5= "I strongly agree"

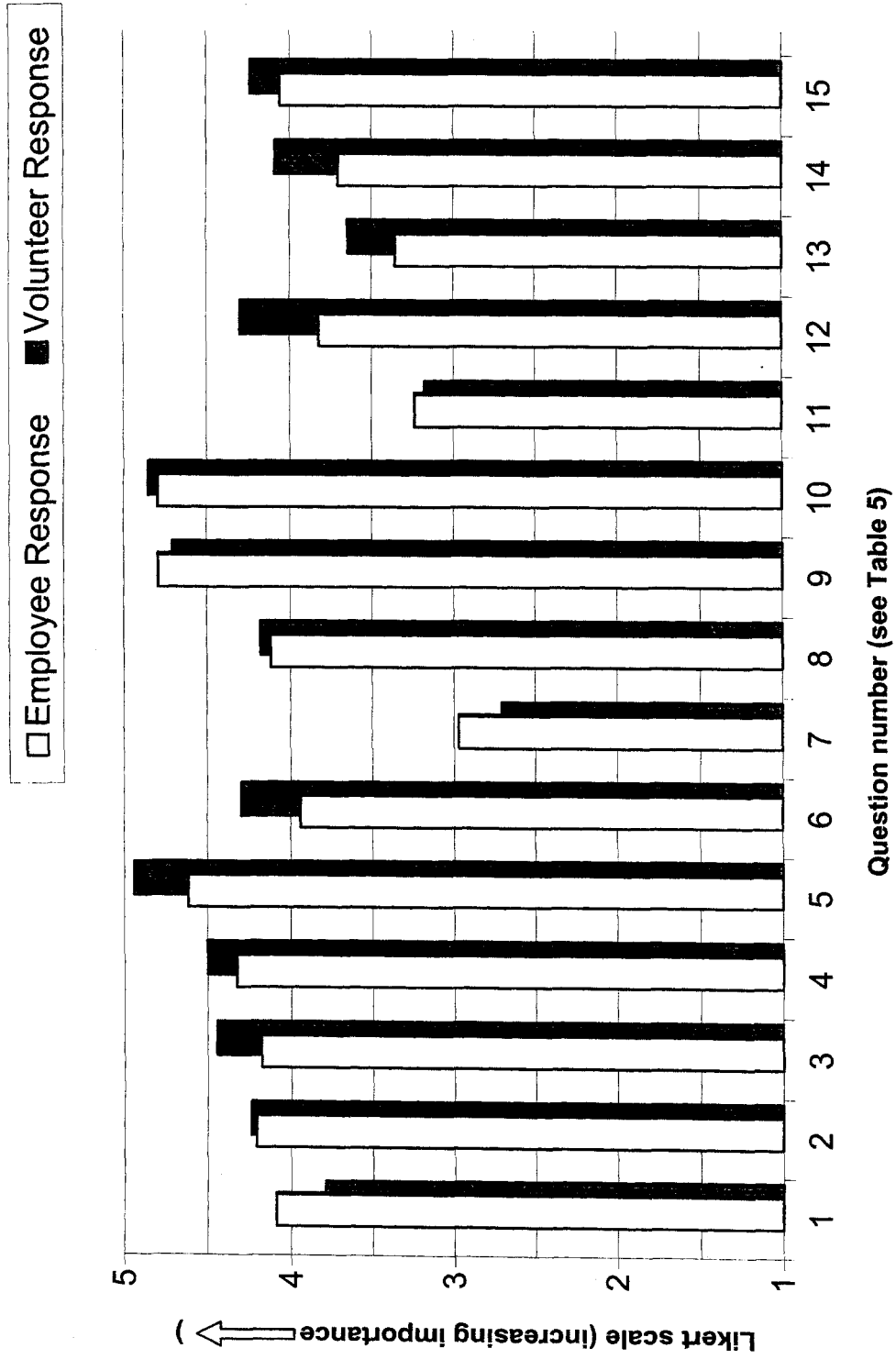


Figure 3. Exploratory survey: Employee and volunteer perceived importance of visitor benefits

Table 6. Exploratory survey: Percentage of employees and volunteers believing particular visitor benefits exist at LWG

| Category | Question # | Subcategory (specific visitor benefit) | Percentage individuals believing benefit exists | |
|--------------------|------------|--|---|------------|
| | | | Employees | Volunteers |
| Aesthetic | 1 | Color | 100.0 | 100.0 |
| | 2 | Design | 97.1 | 94.1 |
| | 3 | Pattern | 79.4 | 88.2 |
| | 4 | Texture | 79.4 | 94.1 |
| Comfort and Safety | 5 | Benches and places to rest | 100.0 | 91.2 |
| | 6 | Food/ Beverage | 91.2 | 97.1 |
| | 7 | Gated with controlled admissions | 97.1 | 97.1 |
| | 8 | Handicap accessibility | 88.2 | 94.1 |
| | 9 | Info. accessible to people with hearing or sight impairments | 26.5 | 41.2 |
| | 10 | Medical response preparedness | 100.0 | 61.8 |
| | 11 | Restrooms | 100.0 | 100.0 |
| Comm-unity | 12 | Safety conscious staff | 100.0 | 85.3 |
| | 13 | Appreciation of local beauty | 97.1 | 94.1 |
| | 14 | Pride in cultural resources | 91.2 | 76.5 |
| | 15 | Support of community provided by the institution | 91.2 | 70.6 |
| Economic | 16 | Volunteer opportunities | 100.0 | 88.2 |
| | 17 | Discounted admissions for children | 94.1 | 97.1 |
| | 18 | Discounted admissions for older adults | 58.8 | 76.5 |
| | 19 | Low cost activity | 64.7 | 44.1 |
| | 20 | Membership program available with reduced admissions | 97.1 | 88.2 |
| Education | 21 | Attracts visitors to local area | 97.1 | 97.1 |
| | 22 | Continuing Education Courses available on-site | 97.1 | 100.0 |
| | 23 | Co-operation with local schools | 94.1 | 76.5 |
| | 24 | Graduate work/ study opps. | 97.1 | 97.1 |
| | 25 | Internship opportunities | 97.1 | 100.0 |
| | 26 | Knowledge-able staff willing to answer questions | 97.1 | 91.2 |
| | 27 | Self guided education sought out by the individual | 79.4 | 70.6 |
| Entertainment | 28 | Fireworks Display | 97.1 | 97.1 |
| | 29 | Fountains | 97.1 | 100.0 |
| | 30 | Fun | 85.3 | 73.5 |
| | 31 | History | 97.1 | 79.4 |
| | 32 | Interactive gardens | 67.6 | 52.9 |
| | 33 | Learning | 94.1 | 91.2 |
| | 34 | Performing Arts | 97.1 | 97.1 |
| | 35 | Surprise | 47.1 | 38.2 |
| | 36 | Suspense | 20.6 | 26.5 |

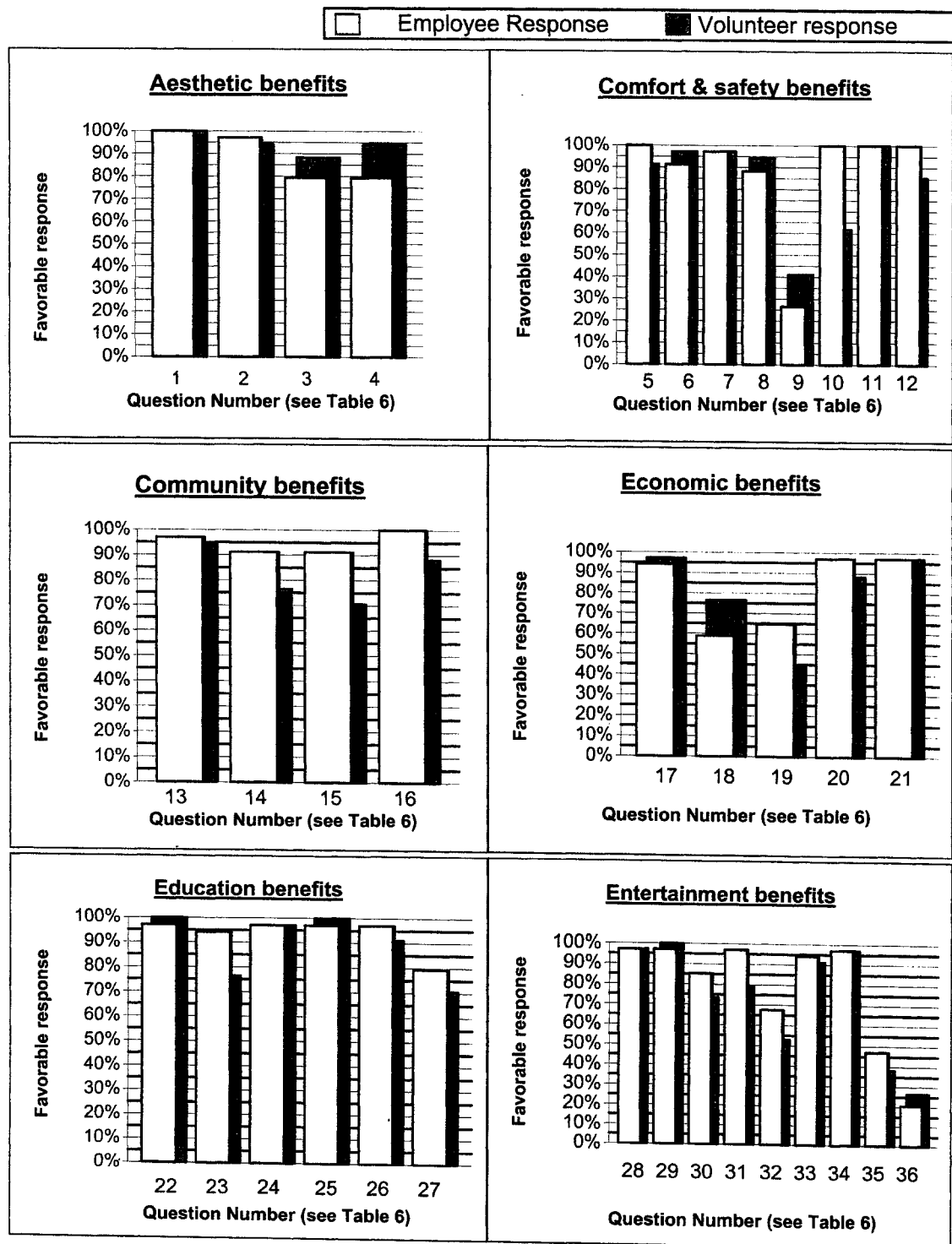


Figure 4. Exploratory survey: Percentage of employees and volunteers believing particular visitor benefits exist at LWG

category (questions 17 to 21) was the only one that did not have any specific visitor benefit considered by employees or volunteers to be of great importance with a 100% favorable response. Within this category, issues of discounted admissions (question 18) and low cost activity (question 19) were considered to be of great importance by fairly low percentages of employees (59% and 65%, respectively) and volunteers (44% and 76%, respectively). Within entertainment, surprise (question 35) and suspense (question 36) were considered to be of great visitor benefit importance by < 50% of the employees or visitors. Surprisingly, "information accessible to people with hearing or sight impairments" (question 9 within the comfort and safety category) was viewed to be of great importance by only 26% of the employees and 41% of the volunteers.

Initial Visitor Survey

Mean values (mv) calculated from the initial visitor surveys (Table 7) showed consistency among individual days of the week. Modified from the exploratory survey, this and the final visitor survey measured relative importance with a Likert scale where the smallest numeric values indicated the important values and the largest numeric values indicated the unimportant values (Figure 1 and 2). Within each of the six categories, the range of mv for the seven consecutive days was < 0.5, the smallest unit of measurement, showing great stability of visitor opinion between days of the week.

Visitor benefits in the category of sensory perception were most important (1.758 mv). The least important group of visitor benefits were those involved with social interaction (2.990 mv), suggesting that visitors were generally indifferent to issues of social interaction. Figure 5 is a graphic representation of the seven-day mv

Table 7. Initial visitor survey: Means and standard deviations (sd) of daily relative importance of six categories of visitor benefits*

| BENEFIT CATEGORIES | | | | | | |
|-----------------------|---------------|---------------|---------------|---------------|--------------------|--------------------|
| | Comfort | Education | Entertainment | Safety | Sensory perception | Social interaction |
| | Mean (sd) | Mean (sd) | Mean (sd) | Mean (sd) | Mean (sd) | Mean (sd) |
| Saturday | 2.393 (1.184) | 2.523 (1.196) | 2.235 (1.219) | 2.362 (1.381) | 1.822 (1.130) | 3.035 (1.577) |
| Weekend TOTAL | 2.444 (1.211) | 2.502 (1.198) | 2.250 (1.252) | 2.393 (1.432) | 1.841 (1.159) | 3.055 (1.159) |
| Monday | 2.495 (1.177) | 2.427 (1.159) | 2.154 (1.145) | 2.392 (1.412) | 1.730 (1.010) | 3.022 (1.010) |
| Tuesday | 2.495 (1.177) | 2.427 (1.159) | 2.154 (1.145) | 2.392 (1.412) | 1.730 (1.010) | 3.022 (1.010) |
| Wednesday | 2.441 (1.267) | 2.213 (1.098) | 2.165 (1.212) | 2.286 (1.351) | 1.752 (1.016) | 2.858 (1.016) |
| Thursday | 2.441 (1.267) | 2.213 (1.098) | 2.165 (1.212) | 2.286 (1.351) | 1.752 (1.016) | 2.858 (1.016) |
| Friday | 2.452 (1.248) | 2.339 (1.198) | 2.182 (1.254) | 2.321 (1.439) | 1.695 (0.996) | 2.942 (0.996) |
| Weekday TOTAL | 2.452 (1.248) | 2.339 (1.198) | 2.182 (1.254) | 2.321 (1.439) | 1.695 (0.996) | 2.942 (0.996) |
| 7 DAY VISITOR AVERAGE | 2.443 (1.231) | 2.410 (1.198) | 2.211 (1.252) | 2.362 (1.433) | 1.758 (1.073) | 2.980 (1.073) |

*Likert value (Figure 1): Values range from 1= extremely important, to 6= extremely unimportant

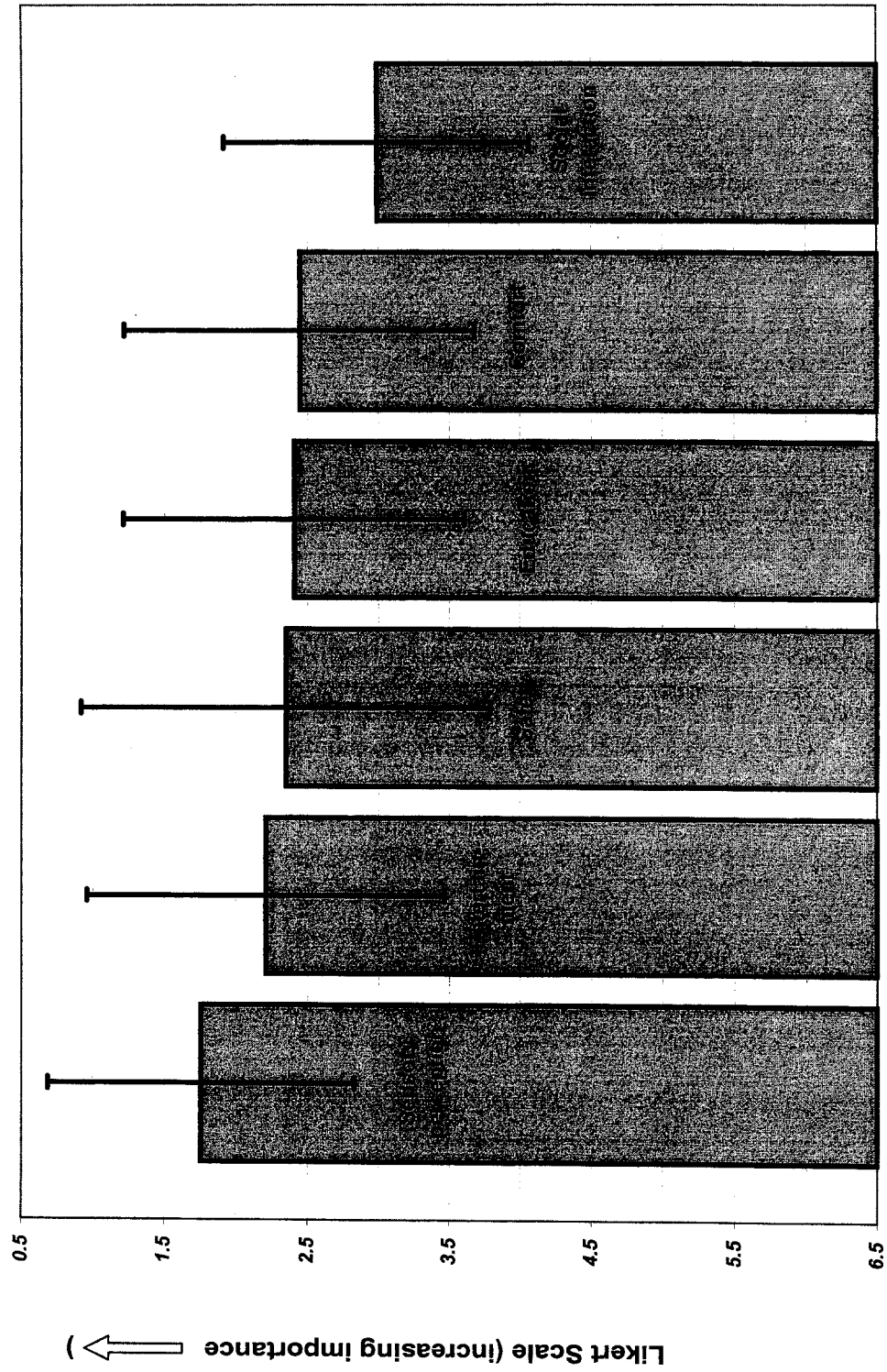


Figure 5. Initial visitor survey: Relative importance of six categories of visitor benefits
(1 week mean + standard deviation)

and standard deviation (sd) values for the six categories of visitor benefits. Large sd relative to the mv indicate great variation for each response. Average visitor response trend of relative importance was shown as: sensory perception > entertainment = safety = education = comfort > social interaction.

Final Visitor Survey

The relative importance of visitor benefits in each category (sensory, entertainment, safety, and education) is shown in tabular form (daily values and weekly average) and as a histogram (weekly average). Since day of the week had little or no effect on the Likert scale values, only the weekly mv as shown in the histogram will be presented.

Sensory Perception Data

Color (1.339 mv) and design (1.397 mv) were the most important visitor benefits in the sensory perception category (Table 8, Figure 6). Pattern/shape (1.802 mv) and fragrance (1.855 mv) are closely ranked as moderately important visitor benefits followed by texture/touch (2.334 mv). The least important sensory perception visitor benefit tested was sound (2.899 mv).

Entertainment Data

Fountains (1.735 mv) was determined to be the most important benefit within the entertainment category (Table 9, Figure 7). Closely ranked with fountains was fun (1.972 mv) and the opportunity to learn (2.017 mv). The visitor benefit of performing arts (2.994 mv) in the garden ranked close to a neutral score of 3.500.

Table 8. Final visitor survey: Means and standard deviations (sd) of visitor benefit importance in the "Sensory perception" category*

| SENSORY PERCEPTION | | | | | | |
|---------------------------|---------------|---------------|---------------|-----------------------|-----------------------|------------------|
| | Sound | Color | Design | Texture/ Touch | Pattern/ Shape | Fragrance |
| | Mean (sd) | Mean (sd) | Mean (sd) | Mean (sd) | Mean (sd) | Mean (sd) |
| Saturday | 2.848 (1.668) | 1.365 (0.831) | 1.409 (0.846) | 2.325 (1.386) | 1.750 (1.040) | 1.899 (1.255) |
| Weekend TOTAL | 2.866 (1.612) | 1.351 (0.797) | 1.382 (0.818) | 2.309 (1.400) | 1.754 (1.044) | 1.860 (1.195) |
| Tuesday | 2.982 (1.662) | 1.361 (0.834) | 1.429 (0.901) | 2.460 (1.469) | 1.884 (1.108) | 1.887 (1.205) |
| Thursday | 2.816 (1.583) | 1.348 (0.839) | 1.444 (0.869) | 2.370 (1.383) | 1.870 (1.108) | 1.907 (1.194) |
| Weekday TOTAL | 2.969 (1.520) | 1.332 (0.806) | 1.407 (0.843) | 2.349 (1.397) | 1.832 (1.069) | 1.852 (1.165) |
| 7 DAY VISITOR AVERAGE | 2.900 (1.600) | 1.350 (0.793) | 1.397 (0.833) | 2.352 (1.350) | 1.862 (1.089) | 1.855 (1.170) |

*Likert value (Figure 1): Values range from 0.5= extremely important, to 6.5= extremely unimportant

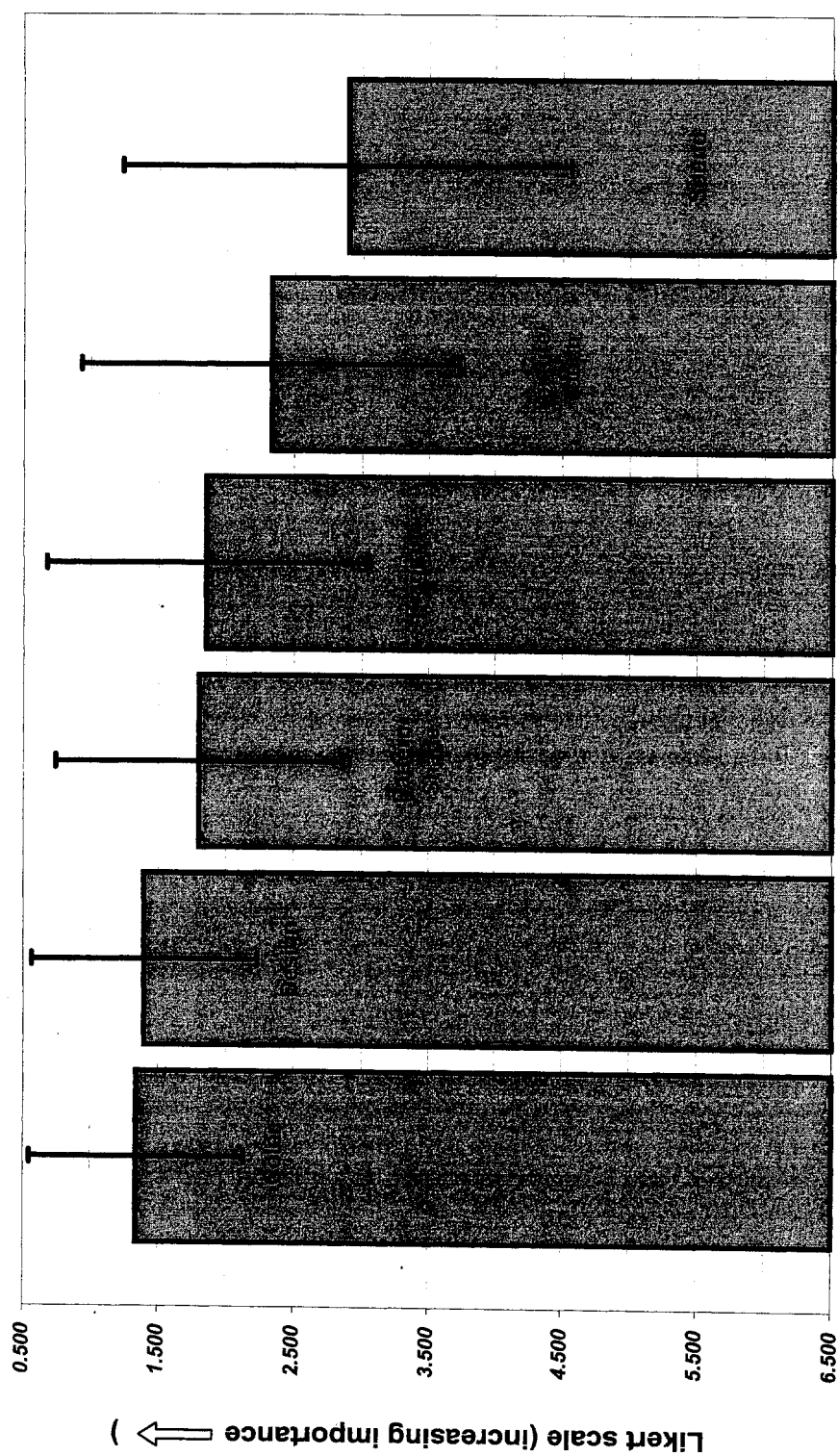


Figure 6. Final visitor survey: Benefit importance in the "Sensory perception" category
(1 week mean + standard deviation)

Table 9. Final visitor survey: Means and standard deviations (sd) of benefit importance in the "Entertainment" category*

| ENTERTAINMENT | | | | | | |
|-----------------------|-----------------|---------------|---------------|---------------|---------------|---------------------|
| | Performing arts | | Fountains | Fireworks | | Interactive gardens |
| | Mean (sd) | Mean (sd) | | Mean (sd) | Mean (sd) | |
| Saturday | 2.953 (1.789) | 1.713 (1.211) | 2.948 (1.933) | 2.452 (1.432) | 2.053 (1.306) | 1.947 (1.273) |
| Sunday | 2.956 (1.789) | 1.713 (1.211) | 2.948 (1.933) | 2.452 (1.432) | 2.053 (1.306) | 1.947 (1.273) |
| Weekend TOTAL | 3.069 (1.789) | 1.759 (1.238) | 3.030 (1.951) | 2.443 (1.427) | 2.026 (1.248) | 1.996 (1.293) |
| Monday | 2.896 (1.684) | 1.728 (1.246) | 2.915 (1.983) | 2.407 (1.475) | 2.037 (1.310) | 1.952 (1.301) |
| Tuesday | 2.896 (1.684) | 1.728 (1.246) | 2.915 (1.983) | 2.407 (1.475) | 2.037 (1.310) | 1.952 (1.301) |
| Wednesday | 2.824 (1.695) | 1.772 (1.213) | 2.885 (1.880) | 2.444 (1.445) | 2.071 (1.301) | 1.998 (1.278) |
| Thursday | 2.824 (1.695) | 1.772 (1.213) | 2.885 (1.880) | 2.444 (1.445) | 2.071 (1.301) | 1.998 (1.278) |
| Friday | 2.947 (1.791) | 1.719 (1.226) | 2.922 (1.952) | 2.431 (1.452) | 2.012 (1.264) | 1.956 (1.262) |
| Weekday TOTAL | 2.947 (1.791) | 1.719 (1.226) | 2.922 (1.952) | 2.431 (1.452) | 2.012 (1.264) | 1.956 (1.262) |
| 7 DAY VISITOR AVERAGE | 2.951 (1.789) | 1.713 (1.211) | 2.948 (1.933) | 2.452 (1.432) | 2.053 (1.306) | 1.947 (1.273) |

*Likert value (Figure 1): Values range from 0.5= extremely important, to 6.5= extremely unimportant

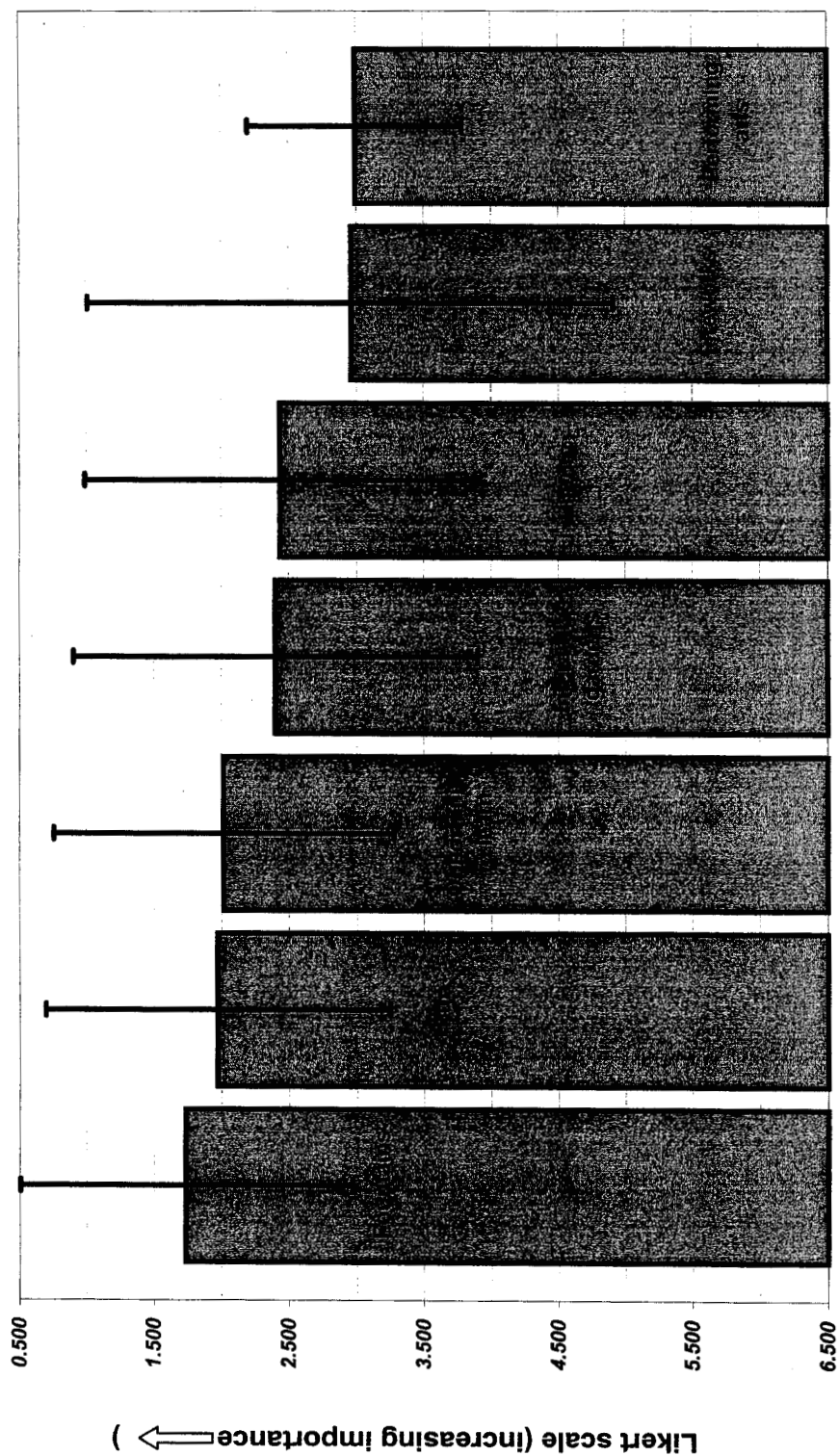


Figure 7. Final visitor survey: Benefit importance in the "Entertainment" category
(1 week mean + standard deviation)

Interactive gardens (2.402 mv) gave a numeric mean only slightly stronger than history (2.436 mv) but included a larger sd due to a broad interpretation (personal observation). Fireworks and performing arts were perceived as the least important entertainment benefits (near 3.500 mv = neutral).

Safety Data

Access to (drinking) water (1.584 mv) was the most important aspect of safety tested in July (Table 10, Figure 8). Providing visitors with a gated facility whereby entry is restricted through admission fees was the least important safety benefit (2.491 mv) and had the widest category sd (1.658). Absence of fear while in the garden, safety conscious staff members and medical response preparedness were of similar relative importance (1.833 mv to 1.996 mv).

Education Data

The three most important visitor benefits in the education category were: availability of staff to answer questions, exposure to new plants, and self-guided education (Table 11, Figure 9). Cooperation with local schools, guided tours and continuing education were of similar importance (2.726 mv, 2.812 mv, and 2.906 mv, respectively). Internships and graduate work opportunities (3.167 mv) was the least important education benefit to LWG's visitor population and was the only tested visitor benefit with less importance than 3.000 mv (3.500 mv = neutral opinion).

Table 10. Final visitor survey: Means and standard deviations (sd) of benefit importance in the "Safety" category

| SAFETY | | | | | |
|-----------------------------|--------------------------------|-----------------------------------|------------------------|--|------------------------|
| | Gated w/ admissions | Safety conscious staff | Absence of fear | Medical response preparedness | Access to water |
| | Mean (sd) | Mean (sd) | Mean (sd) | Mean (sd) | Mean (sd) |
| Saturday | 2.506 (1.689) | 2.040 (1.382) | 1.879 (1.450) | 2.053 (1.492) | 1.601 (1.154) |
| Weekend TOTAL | 2.500 (1.667) | 2.041 (1.382) | 1.901 (1.442) | 2.050 (1.471) | 1.614 (1.118) |
| Monday | 2.520 (1.682) | 1.986 (1.334) | 1.783 (1.371) | 1.906 (1.369) | 1.511 (1.053) |
| Tuesday | 2.492 (1.665) | 1.981 (1.298) | 1.812 (1.368) | 2.005 (1.451) | 1.526 (1.074) |
| Wednesday | 2.394 (1.611) | 1.900 (1.277) | 1.746 (1.323) | 1.920 (1.383) | 1.622 (1.030) |
| Thursday | 2.506 (1.663) | 1.998 (1.345) | 1.858 (1.355) | 1.946 (1.439) | 1.585 (1.058) |
| Weekday TOTAL | 2.485 (1.653) | 1.968 (1.314) | 1.804 (1.376) | 1.950 (1.419) | 1.565 (1.047) |
| 7 DAY VISITOR AVERAGE | 2.494 (1.656) | 1.966 (1.308) | 1.806 (1.401) | 1.966 (1.435) | 1.584 (1.075) |

*Likert value (Figure 1):

Values range from 0.5= extremely important, to 6.5= extremely unimportant

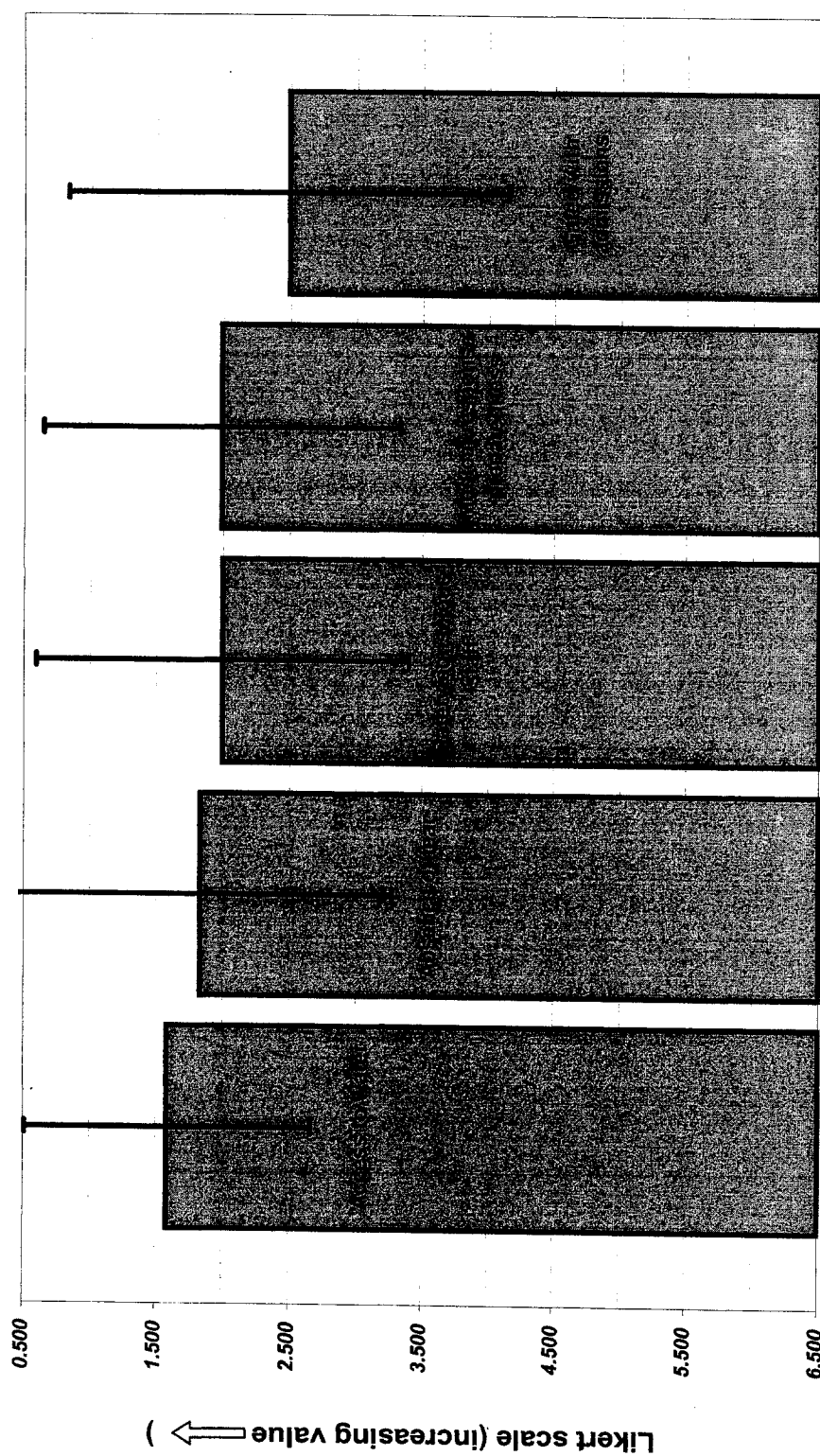


Figure 8. Final visitor survey: Benefit importance in the "Safety" category
(1 week mean + standard deviation)

Table 11. Final visitor survey: Means and standard deviations (sd) of benefit importance in the "Education" category*

| EDUCATION | | | | | | |
|-----------------------|-------------------------------------|---------------|---------------|----------------------|---------------|------------------------------|
| | Staff available to answer questions | Guided tours | | Continuing Education | | Cooperation w/ local schools |
| | | Mean (sd) | | Mean (sd) | | |
| Saturday | 1.876 (1.259) | 2.793 (1.653) | 2.963 (1.794) | 1.952 (1.278) | 2.075 (1.351) | 2.812 (1.900) |
| Weekend TOTAL | 1.876 (1.236) | 2.850 (1.649) | 2.984 (1.759) | 1.973 (1.256) | 2.043 (1.311) | 2.814 (1.896) |
| Tuesday | 1.812 (1.200) | 2.758 (1.673) | 2.896 (1.749) | 2.025 (1.359) | 2.078 (1.363) | 2.617 (1.934) |
| Wednesday | 1.729 (1.124) | 2.813 (1.634) | 2.849 (1.736) | 2.059 (1.261) | 2.110 (1.283) | 2.743 (1.846) |
| Thursday | 1.750 (1.130) | 2.788 (1.671) | 2.857 (1.746) | 2.002 (1.298) | 2.048 (1.314) | 2.671 (1.885) |
| Weekday TOTAL | 1.750 (1.130) | 2.788 (1.671) | 2.857 (1.746) | 2.002 (1.298) | 2.048 (1.314) | 2.671 (1.885) |
| 7 DAY VISITOR AVERAGE | 1.794 (1.152) | 2.812 (1.660) | 2.906 (1.761) | 1.994 (1.282) | 2.046 (1.313) | 2.726 (1.889) |

*Likert value (Figure 1): Values range from 0.5= extremely important, to 6.5= extremely unimportant

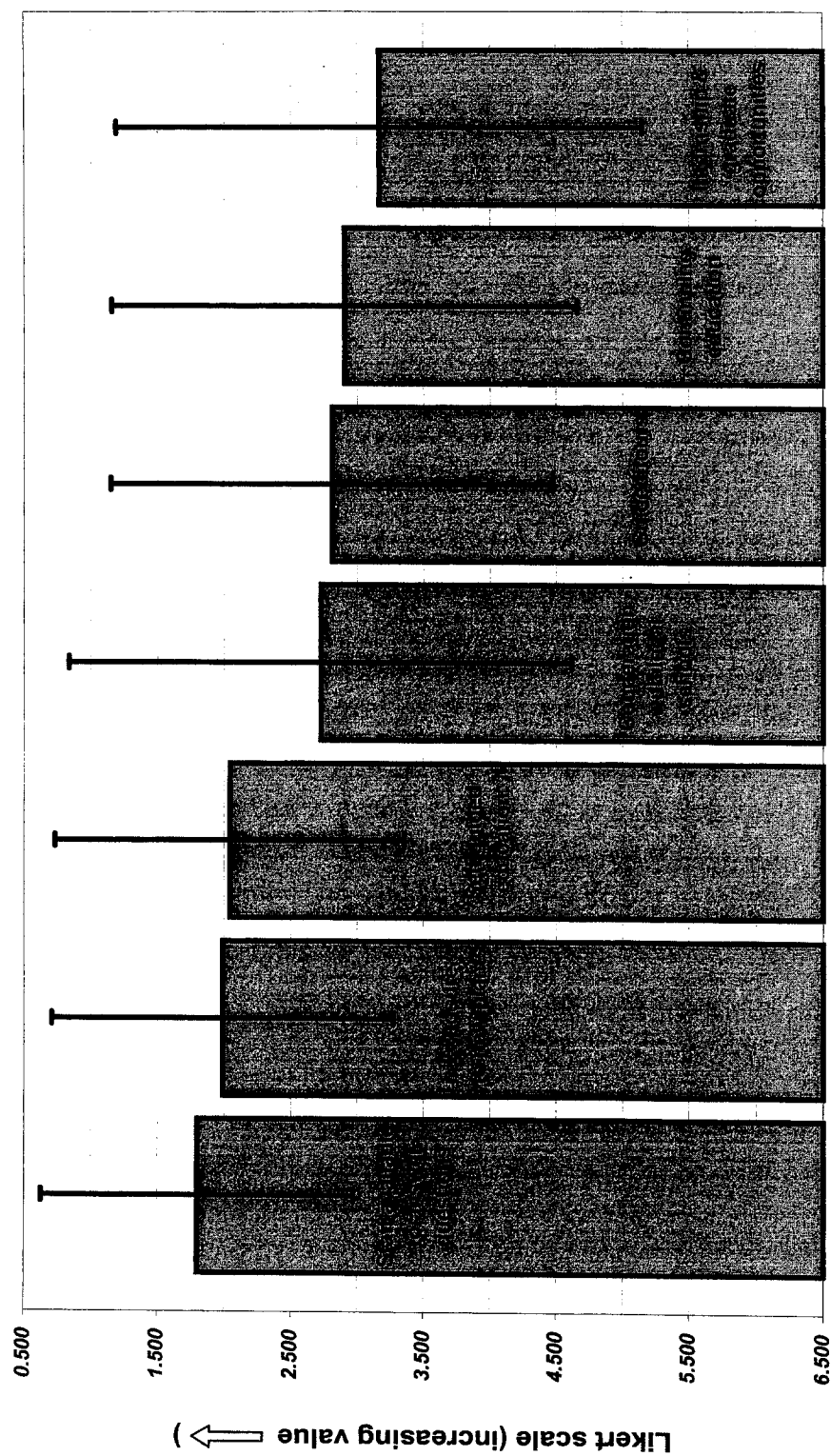


Figure 9. Final visitor survey: Benefit importance in the "Education" category
(1 week mean + standard deviation)

DISCUSSION

Although visitor response rates for the June and July surveys were both fairly high (35.8% and 28.0%, respectively), three factors may have reduced the response rates. First, visitors who visited during multiple days overlapping with the survey period were included in the attendance records but did not contribute equally to the survey responses. Often, visitors rejected a request to participate in the survey because they had completed the survey on a previous day. This situation negatively affected the July survey more than the June survey because some frequent visitors who had contributed responses in June felt that they did not need to contribute to a second survey in July.

Second, spatial limitation of the visitor center made it impossible to accommodate all visitors when there were large numbers of people leaving the gardens simultaneously. This situation caused many visitors to skip the exit survey process. Additionally, visitors would occasionally rush out of the visitor center regardless of the crowd. Thus, a third factor that may have reduced response was visitors exiting the garden in a hurry to purposefully avoid the survey.

Narrowing the research focus for the final visitor survey was dependent on the results of the exploratory employee and volunteer survey in conjunction with the initial visitor survey.

The exploratory survey helped identify specific visitor benefits, including several benefits not previously identified. For example, sound as an aesthetic quality, opportunities to see new and unfamiliar plants, and electric scooters as mobility aids

for visitors with trouble walking long distances were all suggested in the exploratory survey as important visitor benefits. This survey also showed a remarkable general agreement between employee and volunteer perception of such visitor benefits. Based on results of the exploratory survey (Table 5 and 6, Figure 3 and 4), the researcher was able to focus on critical broad categories of visitor benefits, namely: comfort, education, entertainment, safety, sensory perception, and social interaction. This focus became the basis of the initial visitor survey (Table 7, Figure 5, Appendix C).

Likert scale values and written responses to the initial visitor survey suggested that social and comfort benefits were less important than the other tested categories of benefits (Table 7, Figure 5). The education category, based on the Likert scale, had a benefit value similar to that of the comfort category; however, written responses provided by visitors suggested to the researcher that education was a visitor benefit category that deserved further attention. Diverse visitor interpretation for the definition of sound in the garden may have contributed to its position as the least important sensory perception benefit (personal observation).

The final visitor survey was confined to the following broad categories: sensory perception, entertainment, safety, and education. The purpose of this final survey was to analyze and define the reasons why LWG's visitor population found these four broad categories to be important. It is statistically inappropriate to compare or quantify the relative importance of the four broad benefit categories because this final survey investigated individual benefits (subcategories) within each category. Individual visitor benefits within each of the four categories were tabulated and evaluated with mean values and standard deviations.

Ranking for subcategory importance by mean Likert values within each of the four major visitor benefit categories is shown in Table 12. It should be realized that sd of the mv were large. Consequently, the rankings represent trends, not levels of statistical significance.

The strong importance attributed to color and design, as expressed by the data, suggests that LWG's visitor population is primary visually oriented. The visual orientation tendency of visitors could be further engaged in the future through strategic use of color elements and design features in the garden. Plant massing is an example of how these two visitor benefits could be easily enhanced. Visitor programs and services are likely to gain improved effectiveness by integrating the visitor's visual orientation into all aspects of the planning and delivery processes.

While the data summarize the importance that the visitor population attributes to each tested benefit, individual visitors may vary significantly (hence large sd values). For example, people with limited visual skills or visual impairments may attribute the greatest importance to sensory processes other than visual orientation. The other benefits (pattern/shape, fragrance, texture/touch, and sound) received ratings well above neutral. Therefore, developing all sensory perception visitor benefits will improve garden visits for visitors, even those with sensory disabilities. There is no readily accessible literature on this subject specific to public gardens.

LWG's fountains were the single highest ranking visitor entertainment benefit. Written reports specific to fountains supported the strength of this result through a high comment response (21.4 %).

Low Likert mv of performing arts contradicts the logical assumption that visitors would attribute high importance to this visitor benefit based upon the

Table 12. Rankings of subcategory importance within the four categories of the final visitor survey.

| Category | Subcategory |
|---------------------------|--|
| Sensory Perception | Color = Design > Pattern/Shape = Fragrance > Texture/Touch > Sound |
| Entertainment | Fountains > Fun = Opportunity to learn > Interactive gardens = History > Fireworks = Performing Arts |
| Safety | Access to water > Absence of fear = Safety conscious staff = Medical response preparedness > Gated with admissions |
| Education | Staff available to answer questions > Exposure to new plants = Self guided education > Cooperation with local schools = guided tours = Continuing education > Internships/Graduate opportunities |

generally strong attendance that is recorded at these events (LWG Quarterly Reports, 2000- 2002). Contributing to the surprisingly low importance rating may have been the low survey response from performing arts program attendees during the data collection phase. Concentrated groups of people exited the visitor center (the survey administration location) during a brief period. Excessive crowding at those times discouraged visitor participation in the survey so these visitors were largely underrepresented in the survey. It may also be possible that people who visit LWG specifically for a performing arts event attribute little importance to other parts of the public garden.

Fun in the garden was ranked closely with the opportunity to learn, both strongly important entertainment benefits for LWG's visitor population. Public garden professionals can easily link these two benefits. For example, interactive gardens, such as LWG's Idea Garden, are a fun way to learn and they ranked as important (2.4, well above 3.5 neutral).

The data suggest a direct relationship between importance ranking and the visitor's personal association to a particular benefit. For this reason, access to drinking water was the most important visitor benefit in the safety category during the final visitor survey when temperatures were high. Consistent with the relationship between importance ranking and personal association, absence of fear while in the garden was the next ranking visitor benefit in the safety category. Safety conscious staff members and medical response preparedness were visitor benefits with less importance values probably because visitors do not frequently experience a close personal association with these two visitor benefits. The fact that LWG is gated and restricts entry to admissions paying visitors was probably accepted without personal

association by most visitors and was therefore the least important visitor benefit in the safety category.

Safety can raise difficult questions for public garden professionals. Many factors encourage staff to frequently consider the standards of safety, the potential of safety hazards, and actions that might reduce and even eliminate safety concerns. Visitors' consciousness of safety issues is also influenced by many factors. Procedures developed for safety management at public gardens must integrate staff concerns and ideas with current preferences of the visitor population. Hooper-Greenhill (1994) refers to security personnel clothing styles to illustrate the impact that small details have on visitor perception. Clothing resemblance to law-enforcement officers has been shown to influence the visitor's level of safety consciousness.

Cooperation with local schools as well as internships and graduate opportunities was relatively unimportant to LWG's visitor population. Opportunity to seek answers from staff and self-guided education were ranked strongly important, and should be continuously developed in the future. "The task for museums and galleries is to find ways of arousing and instilling passions and ways of exploring ideas that people will find illuminating..." (Hooper-Greenhill, 1994). Showing relevance to today's society is important for gardens attracting community support or funding. Hooper-Greenhill (1994) continues, "the quality of the museum or gallery visit will depend to a large extent on how easy it is to manage in practical terms, on an intellectual level and socially."

The first decision a person must make before experiencing the benefits of a public garden is attending it. Once the decision to visit is made, public garden professionals have an opportunity to maximize the benefits received by the visitor.

Benefits that visitors find important are influenced by many controllable and uncontrollable factors. Public garden professionals should consider both types of factors if they strive to maximize visitor benefits, although controllable factors deserve the greatest attention. Controllable factors include: programming activities, ticket pricing, offers of tours, aesthetic presentation, and physical maintenance. Examples of uncontrollable factors include: weather conditions, political events, economics, and mental and physical health. Repeat visitors may also be influenced by previous visitor experiences (good or bad). Although public garden professionals cannot control a visitor's memory, they can strive to make each experience positive and, through this, build repeat visitation.

Implications of this research include:

- Administration: decision-making, policy development, and long-range planning.
- Public Relations: improved marketing effectiveness.
- Development: building relationships with potential garden supporters by illustrating the value of potential investments (donations) and expressing how those donations will help further enhance visitor benefits.
- Education: Serrell (1998) clarifies the direct relationship between learning potential and time spent in an exhibit space. Understanding what is important to visitors will likely help garden professionals develop spaces sought out by visitors and experienced over a sustained period of time. In short, visitor benefit research can help develop garden spaces that will more effectively encourage learning.

Investigating visitor benefits at public gardens, while also considering current horticultural therapy research, suggest a definite value of gardens for human health and well-being. Human physiological processes engaged by experiences at public gardens deserve ongoing research. Events, such as the September 11, 2001 tragedy raise interesting possibilities to utilize public gardens in emotional healing (Miller, 2001). The economic challenges experienced since the terrorist attacks on America also raise difficult decisions about funding for cultural institutions, including public gardens. Such challenges will encourage public gardens to gather and distribute substantive justification for continued existence. Understanding and researching visitor benefits at public gardens is one vehicle that can contribute toward this end.

CONCLUSIONS AND RECOMMENDATIONS

From the results of this research, the researcher concludes:

- Except for internship and graduate opportunities, which was neutral, all other visitor benefits tested were important to the visitor population.
- When considering relative importance, broad categories of visitor benefits were ranked by LWG's visitor population: sensory perception > entertainment > safety > education > comfort > social interaction.
- For sensory perception, color and design were the most important visitor benefits.
- For entertainment, the presence of fountains was the most important visitor benefit.
- Importance of safety benefits increased as visitors felt personally impacted by such benefits. There was a direct relationship between the degree of importance visitors attributed to safety benefits and the personal relevance that such a benefit had for each individual.
- For education, availability of staff to answer visitor questions, general exposure to new plants, and self-guided education were the most important visitor benefits and suggest that visitors want to learn independently.

The researcher was generally satisfied with the research methods.

Important conclusions for the survey procedure include:

- Anonymous survey participation was useful in researching the population. Demographic data probably would have reduced the response.

- Including all visitors in the survey participation request eliminated surveyor selection bias. Surveyors were not given an opportunity to consciously or unconsciously select research participants.
- Physical design of the visitor center proved useful in maintaining logistical requirements of the survey administration process.
- Response was negatively impacted by crowd density. Higher crowd density in the LWG visitor center lobby contributed to a lower response. Different survey procedures during performing arts events (when crowd density is generally higher) may have increased response.

Conducting a visitor survey is a significant investment of time and money.

The researcher encourages LWG to continue analyzing visitor benefits and to utilize multiple research methods. Including a periodic analysis of LWG's visitor benefits would complement the planning process. LWG's staff is committed to providing experiences that benefit visitors. Evaluating the importance of such visitor benefits should be a regularly scheduled activity. For example, administering a survey once every five years could reinforce the value of visitor benefits and focus attention on those aspects that are no longer important and may be eliminated or those aspects that are no longer effective and could be improved.

Public garden professionals at any organization may incorporate visitor benefit analysis into their planning process. Although results reported in this thesis are only an accurate reflection of LWG visitors during the survey period, they may be used as a reference for LWG for other periods of the year and other public gardens to understand the value of similar visitor benefits. The researcher considers public gardens valuable cultural institutions and suggests ongoing visitor benefit analysis at public gardens to further prove their value.

APPENDICES

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APPENDIX A

EMPLOYEE/VOLUNTEER SURVEY – PUBLIC GARDEN VISITOR BENEFITS

Employee/ Volunteer Survey
PUBLIC GARDEN VISITOR BENEFITS
 Case study garden: **LONGWOOD GARDENS, INC.**

REQUEST: Please do not read ahead in this survey prior to answering each question. Answer the questions in the order they appear. Your first response is the best response!

Note:

- When applied to this research project, "**public garden**" is defined as:
Physical space consisting of plants cared for with consideration for horticultural science, and, which is accessible to any person through payment of an admissions fee.

(The limitation of those gardens that charge an admissions fee is used to provide focus.)

For each statement below, circle the number to the right that best fits your opinion for that subject. Use the scale provided to match your opinion.

| | |
|--|----------|
| "I strongly disagree" | 1 |
| "I somewhat disagree" | 2 |
| "I have no strong opinion (undecided)" | 3 |
| "I somewhat agree" | 4 |
| "I strongly agree" | 5 |

| Question | Scale | | | | |
|--|-------|---|---|---|---|
| 1. Longwood Gardens offers a variety of visitor benefits that is similar to those provided by other US public gardens. | 1 | 2 | 3 | 4 | 5 |
| 2. Performing arts is a visitor benefit limited to some public gardens. | 1 | 2 | 3 | 4 | 5 |
| 3. Each public garden offers some visitor benefits which are unique to that garden. | 1 | 2 | 3 | 4 | 5 |

| | | | | | |
|--|---|---|---|---|---|
| 4. Education is a visitor benefit that should be a part of every public garden in America. | 1 | 2 | 3 | 4 | 5 |
| 5. The aesthetics of a public garden is an important visitor benefit. | 1 | 2 | 3 | 4 | 5 |
| 6. There are some types of benefits available to visitors of public gardens that are common to all public gardens and not site specific. | 1 | 2 | 3 | 4 | 5 |
| 7. Planned entertainment is a visitor benefit at most public gardens. | 1 | 2 | 3 | 4 | 5 |
| 8. Well planned garden spaces are a major visitor benefit found at public gardens. | 1 | 2 | 3 | 4 | 5 |
| 9. Facilities including bathrooms, gift shops, restaurants/cafés, and places to rest are important visitor benefits at public gardens. | 1 | 2 | 3 | 4 | 5 |
| 10. Providing a safe environment is a fundamental visitor benefit. | 1 | 2 | 3 | 4 | 5 |
| 11. The average individual and/or family can financially afford to visit public gardens. | 1 | 2 | 3 | 4 | 5 |
| 12. Walking or moving through a public garden can be considered an entertainment benefit for the visitor. | 1 | 2 | 3 | 4 | 5 |
| 13. The enjoyment of visiting public gardens outweighs the financial cost of admissions. | 1 | 2 | 3 | 4 | 5 |
| 14. Visitors of all age groups receive educational benefits at public gardens. | 1 | 2 | 3 | 4 | 5 |
| 15. Public gardens enhance community spirit. | 1 | 2 | 3 | 4 | 5 |

16. In your opinion, what are the TOP 5 visitor benefits provided by the indoor garden spaces at Longwood Gardens?

1. _____
2. _____
3. _____
4. _____
5. _____

17. In your opinion, what are the TOP 5 visitor benefits provided by the outdoor garden spaces at Longwood Gardens?

1. _____
2. _____
3. _____
4. _____
5. _____

18. List the TOP 5 visitor benefits provided by public gardens in the USA (you may use your previous answers if they are appropriate):

1. _____
2. _____
3. _____
4. _____
5. _____

Please continue ONLY when you have completed the first 18 questions.

BENEFITS BY CATEGORY

1- Check the box next to each benefit you believe exists at Longwood Gardens.

2- ADD any benefits that are not listed next to the boxes labeled "Other".

- *(The result of this section will be a comprehensive list of public garden benefits that are believed to exist at Longwood Gardens.)*

Aesthetic Category

- ☐ Color
- ☐ Design
- ☐ Pattern
- ☐ Texture
- ☐ Other: _____

Comfort/ Safety Category

- ☐ Benches and places to rest
- ☐ Food/ Beverage
- ☐ Gated with controlled admissions
- ☐ Handicap accessibility
- ☐ Information accessible to people with hearing or sight impairments
- ☐ Medical response preparedness
- ☐ Restrooms
- ☐ Safety conscious staff
- ☐ Other: _____

Community Category

- ☐ Appreciation of local beauty
- ☐ Pride in cultural resources
- ☐ Support of community provided by the institution
- ☐ Volunteer opportunities
- ☐ Other: _____

Economic Category

- ☐ Discounted admissions for children
- ☐ Discounted admissions for older adults
- ☐ Low cost activity
- ☐ Membership program available with reduced admissions
- ☐ Attracts visitors to local area
- ☐ Other: _____

Education Category

- ☐ Continuing Education Courses available on-site
- ☐ Cooperation with local schools
- ☐ Graduate work/ study opportunities
- ☐ Internship opportunities
- ☐ Knowledgeable staff willing to answer questions
- ☐ Self guided education sought out by the individual
- ☐ Other: _____

Entertainment Category

- ☐ Fireworks Display
- ☐ Fountains
- ☐ Fun
- ☐ History
- ☐ Interactive gardens
- ☐ Learning
- ☐ Performing Arts
- ☐ Surprise
- ☐ Suspense
- ☐ Other: _____

[illegible]

Employee / Volunteer

APPENDIX B

EMPLOYEE/VOLUNTEER COVER LETTER:
REQUESTING PARTICIPATION IN THE EXPLORATORY SURVEY

February 20, 2002



THE
LONGWOOD
GRADUATE PROGRAM
Public Horticulture
126 Townsend Hall
University of Delaware
Newark, DE 19717-1303
Tel: 302-831-2517
Fax: 302-831-3651
[www.udel.edu/
Longwood Grad/](http://www.udel.edu/LongwoodGrad/)

Dear Longwood Staff Member:

You have been selected through a random sampling of full time employees and volunteers to complete the enclosed survey. This survey is the first stage of my research investigating the benefits that visitors receive at Longwood Gardens. My hope for this Master's thesis is to uncover the positive effects, and their implications, that visitors receive from their exposure to Longwood Gardens. This thesis work, as a component of my graduate studies as a Longwood Fellow, will contribute specific information about Longwood Gardens in addition to offering a system that could be applied to other public gardens in the future.

With your help and cooperation we can move closer to understanding the positive effect that people gain from public horticulture. The enclosed survey will require 10-15 minutes to complete. The data collected will not be associated with any individual name and will only be categorized between full time employees and volunteers.

Please complete this important survey and return it to me with the attached return label. The deadline for completing this survey is February 27, 2002.

Best regards,

Daniel Camenga
Longwood Graduate Fellow

February 19, 2002



THE
LONGWOOD
GRADUATE PROGRAM

Public Horticulture

126 Townsend Hall

University of Delaware

Newark, DE 19717-1303

Tel: 302-831-2517

Fax: 302-831-3651

[www.udel.edu/](http://www.udel.edu/LongwoodGrad/)

[LongwoodGrad/](http://www.udel.edu/LongwoodGrad/)

Dear Longwood Volunteer:

You have been selected through a random sampling of full time employees and volunteers to complete the enclosed survey. This survey is the first stage of my research investigating the benefits that visitors receive at Longwood Gardens. My hope for this Master's thesis is to uncover the positive effects, and their implications, that visitors receive from their exposure to Longwood Gardens. This thesis work, as a component of my graduate studies as a Longwood Fellow, will contribute specific information about Longwood Gardens in addition to offering a system that could be applied to other public gardens in the future.

With your help and cooperation we can move closer to understanding the positive effect that people gain from public horticulture. The enclosed survey will require 10-15 minutes to complete. The data collected will not be associated with any individual name and will only be categorized between full time employees and volunteers.

Please complete this important survey and return it to me with the attached return label. The deadline for completing this survey is March 5, 2002.

Best regards,

A handwritten signature in dark ink, appearing to read 'Daniel Camenga'. The signature is fluid and cursive, with the first name 'Daniel' and last name 'Camenga' clearly distinguishable.

Daniel Camenga
Longwood Graduate Fellow

APPENDIX C

INITIAL VISITOR BENEFITS SURVEY

VISITOR BENEFITS SURVEY

A. I am a Longwood Gardens Frequent Visitor Pass-holder:

YES

☐

NO

☐

B. Consider personal **COMFORT** during today's visit.

How important was this potential benefit for you during today's experience?

Extremely
Important

Extremely
Unimportant

1

2

3

4

5

6

C. Consider the **EDUCATION VALUE** of your garden visit.

How important was this potential benefit for you during today's experience?

Extremely
Important

Extremely
Unimportant

1

2

3

4

5

6

D. Consider the **ENTERTAINMENT VALUE** of your garden visit.

How important was this potential benefit for you during today's experience?

Extremely
Important

Extremely
Unimportant

1

2

3

4

5

6

E. Consider personal **SAFETY** during today's visit.

How important was this potential benefit for you during today's experience?

Extremely
Important

Extremely
Unimportant

1

2

3

4

5

6

F. Consider the **SENSORY PERCEPTION** (i.e. sight, sound, smell, touch) that you experienced during today's visit.

How important was this potential benefit for you during today's experience?

Extremely
Important

Extremely
Unimportant

1

2

3

4

5

6

G. Consider the opportunity for **SOCIAL** interaction you experienced during today's visit.

How important was this potential benefit for you during today's experience?

Extremely
Important

Extremely
Unimportant

1

2

3

4

5

6

H. Are you aware of any positive impact Longwood Gardens has on the local COMMUNITIES?

YES

☐

NO

☐

I. Was the **FINANCIAL COST** of today's visit worth the experience you received today?

YES

☐

NO

☐

J. Please feel free to USE THE REMAINING SPACE for additional comments IF you so desire.

- Additional paper will be provided by request only.

NOTE:

Additional comments **MAY** be included in the thesis research report.

- If included, they will be recorded as descriptive visitor feedback.

APPENDIX D

FINAL VISITOR BENEFITS SURVEY

VISITOR BENEFITS SURVEY

at LONGWOOD GARDENS

Thank you for participating!

- This visitor's survey is completely anonymous.
- [No ID will be associated with the data.]

Express your opinion "on" or "between" dashes with a **circle**.

EXAMPLE:

Unimportant

/



/

/



/

Important

/

TURN OVER



SENSORY PERCEPTION as a VISITOR BENEFIT

1. How important are the following **visitor benefits** to your garden visit?

A) SOUND:

Unimportant

Important



B) COLOR:

Unimportant

Important



C) DESIGN:

Unimportant

Important



D) TEXTURE/TOUCH:

Unimportant

Important



E) PATTERN/SHAPE:

Unimportant

Important



F) SMELL (Fragrance):

Unimportant

Important



G) OTHER: _____

2. Were your sensory needs for this **group of visitor benefits** met today?

YES

☐

NO

☐

TURN OVER



ENTERTAINMENT as a VISITOR BENEFIT

1. How important are the following **visitor benefits** to your garden visit?

A) PERFORMING ARTS:

Unimportant

Important



B) FOUNTAINS:

Unimportant

Important



C) FIREWORKS DISPLAY:

Unimportant

Important



D) HISTORY:

Unimportant

Important



E) OPPORTUNITY TO LEARN:

Unimportant

Important



F) FUN (your definition) WHILE IN THE GARDEN:

Unimportant

Important



G) INTERACTIVE GARDENS:

Unimportant

Important



H) OTHER: _____

2. Were you entertained today?

YES

☐

NO

☐

SAFETY as a VISITOR BENEFIT

1. How important are the following visitor benefits to your garden visit?

A) GATED WITH CONTROLLED ADMISSIONS:

Unimportant

Important

/ / / / / / /

B) SAFETY CONSCIOUS STAFF:

Unimportant

Important

/ / / / / / /

C) ABSENCE OF FEAR WHILE IN THE GARDEN:

Unimportant

Important

/ / / / / / /

D) MEDICAL RESPONSE PREPAREDNESS:

Unimportant

Important

/ / / / / / /

E) ACCESS TO WATER (health & sustenance):

Unimportant

Important

/ / / / / / /

F) OTHER: _____

2. Are your safety needs for this group of visitor benefits met?

YES

☐

NO

☐

TURN OVER



EDUCATION as a VISITOR BENEFIT

1. How important are the following **visitor benefits** to your garden visit?

A) KNOWLEDGEABLE STAFF WILLING TO ANSWER QUESTIONS:

Unimportant

Important

/ / / / / / /

B) GUIDED TOURS (by Longwood Staff and/or Volunteers):

Unimportant

Important

/ / / / / / /

C) CONTINUING EDUCATION COURSES (available on-site):

Unimportant

Important

/ / / / / / /

D) EXPOSURE TO NEW PLANTS:

Unimportant

Important

/ / / / / / /

E) SELF GUIDED EDUCATION (sought out by the individual):

Unimportant

Important

/ / / / / / /

F) INTERNSHIP/ STUDY/ GRADUATE WORK OPPORTUNITIES:

Unimportant

Important

/ / / / / / /

G) COOPERATION WITH LOCAL SCHOOLS:

Unimportant

Important

/ / / / / / /

H) OTHER: _____

2. Were your education needs for this **group of visitor benefits** met today?

YES

☐

NO

☐

TURN OVER



★ Are you a Longwood Gardens Frequent Visitor PASS-HOLDER?

YES ☐ NO ☐

★ Are you aware of any positive impact Longwood Gardens has on the local COMMUNITIES?

YES ☐ NO ☐

★ Was the **FINANCIAL COST** of today's visit worth the experience you received today?

YES ☐ NO ☐

★ Has **SAFETY** become more important to your garden visit since the attack of 9/11/01?

YES ☐ NO ☐ UNDECIDED ☐

★ If you desire, please feel free to USE THE REMAINING SPACE for additional comments. Additional paper will be provided by request only.

NOTE:

Additional comments MAY be included in the thesis research report.
If included, they will be recorded as descriptive visitor feedback.

Thanks again for participating!

APPENDIX E

VISITOR SURVEY ANNOUNCEMENT FLYER



VISITOR SURVEY DAY

at Longwood Gardens

The goal of this project is to acquire new understanding of the benefits visitors receive during their time at Longwood Gardens. This research project was created and is administered as partial completion of the advanced degree in Public Horticulture. The Masters of Science degree in Public Horticulture is supported by Longwood Gardens and the University of Delaware.

Attention all Visitors (13 years and older)!!

Stop at the survey table today when you leave the gardens. The survey will take only a few minutes of your time.

In exchange for your participation you will receive a **FREE LONGWOOD GARDENS POSTCARD!**

Visit the Longwood Graduate Program web site for more information at:

www.udel.edu/LongwoodGrad

(Please use uppercase "L" and uppercase "G")

APPENDIX F

HUMAN SUBJECTS REVIEW BOARD APPROVAL



OFFICE OF THE VICE PROVOST
FOR RESEARCH

210 HULLIHEN HALL
UNIVERSITY OF DELAWARE
NEWARK, DELAWARE 19716-1551
Ph: 302/831-2136
Fax: 302/831-2828

July 5, 2002

Mr. Daniel Camenga
The Longwood Graduate Program
Campus

Dear Mr. Camenga:

Subject: Human Subjects Review Board approval for a survey "Visitor Benefits Analysis at Longwood Gardens, Kennett Square, Pennsylvania, (visitor survey)"

The above-referenced proposal, which you submitted for Human Subjects Review Board approval, will qualify as research exempt from full Human Subjects Review Board review under the following category:

Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless (1) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects, and (2) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Please note that under university and federal policy, all research, even if exempt, must be conducted in accordance with the Belmont Report, copies of which are available from this office or on our website under history and background of human subjects policy. Changes in this project must be approved in advance by the Human Subjects Review Board.

Sincerely,

Richard D. Holsten
Associate Provost for Research
Chair, Human Subjects Review Board

/md
cc: Dr. James Swasey

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Note: Literature cited is formatted in the American Psychological Association (APA) style.