

FACTORS AFFECTING BOTANIC GARDEN VISITATION
AMONG AFRICAN-AMERICANS

By

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Abstract of Thesis Presented to the Graduate School
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FACTORS AFFECTING BOTANIC GARDEN VISITATION
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Two studies were conducted. The first study investigated the extent to which differences in demographics and visitation habits influence visitors' interest in ethnic garden displays and a botanic garden. The second study investigated the extent to which demographics, psychographic characteristics, personal/cultural history, and environmental factors affect African-American adults' visitation of botanic gardens.

In the first study, visitor response to an ethnic garden display and attitude towards the garden overall were measured at a botanic garden in Florida, where a display was constructed highlighting African-American contributions to horticulture. Variables were measured with Likert-type scale items and were analyzed using bivariate correlation, chi square analysis (or gamma, as appropriate), one-way ANOVA, and regression.

The results suggested that race did not affect visitors' attitudes towards a botanic garden overall. Younger visitors, those who visit gardens more, and weekend visitors had a more positive attitude towards botanic gardens. Race was related to attitude

towards the display. African-Americans liked the African-American horticulture display more than any other ethnic group. Also, as income increased, attitude towards the African-American display decreased, but as education increased, attitude towards the display also increased. Frequent garden visitors liked the display better, along with those who enjoy vegetable gardening more. Race was also related to preference for ethnic displays in general. European-Americans had less preference for ethnic displays than African-Americans did. Fall visitors also had less preference for ethnic displays than summer visitors did.

In the second study, community groups and community event attendees were asked to complete questionnaires about factors related to botanic garden visitation. The factors were measured using fill-in-the-blank, check-box questions, and Likert-type scale and analyzed with linear regression.

While all the variables found regarding museum visitation were examined with regards to African-Americans visiting botanic gardens, relatively few variables were found significant. African-Americans who attended museums frequently and those who had positive experiences at botanic gardens visited gardens more frequently. Those who perceived botanic gardens as good places to spend time with family and friends also visited more. Those who perceived botanic gardens as a nice change in their activities visited less.

Based on this research, one can conclude that African-Americans may visit botanic gardens more if they feature displays about African-Americans. Also, public relations efforts by botanic gardens should communicate to African-Americans that gardens are a good place to spend time with family and friends on a regular basis.

CHAPTER 1 INTRODUCTION

Botanic gardens are an important part of society because they provide a variety of benefits to their communities. As gardens seek to serve their communities, they are a source of community pride, enhance children's education through school programs and field trips, act as a vacation destination and attract tourists, are a venue for community meetings and cultural events, and provide information for everyone from amateur gardeners to university scholars (Smith, 1989). As a place of leisure and connection with nature, botanic gardens help visitors cope with stress (Kohlleppel, Bradley, & Jacob, 2002). Gardens also help their communities financially. According to a 1997 study, cultural tourists (including those who visit botanic gardens) have greater economic impact than general tourists (Stronge, 2000).

Ultimately, botanic gardens exist to serve the visitors that support them. Many gardens receive a significant portion of their annual income from visitors, either in the form of earned income or contributions. In gardens that receive financial support from government sources, 19% of the operating budget of thirty-seven gardens studied, on average, was from earned income, and admissions made up the largest portion of earned income (Lowe, 1993). If a garden expects to rely heavily on individual donations they must provide the public with what they want and need, and people want a good experience, though what makes a good experience varies somewhat between individuals (Robinson, 1996).

Even so, gardens' visitors do not reflect the diversity present in their communities most of the time. The average garden visitor is a well-educated, middle-to-upper class European-American female, middle-aged or older (Andorka, 1999). It has been projected that by the year 2050, European-Americans will only be fifty percent of the population (U.S. Census Bureau, 2004b). As European-Americans lose majority status, it becomes more important that botanic gardens attract and serve other ethnic groups. Gardens throughout North America have tried a variety of techniques to increase minority visitorship, including creating ethnic displays, hosting ethnic festivals, hiring minority staff, or devoting staff to improving community relations (Hartfield, 1995; Hoffman, 1995; Raver, 2000). These efforts have rarely been studied or measured with regards to their effectiveness.

One article was published about increasing diversity at botanic gardens (Andorka, 1999). The article proposed a five-step model to increase visitor diversity at botanic gardens based on a literature review. It suggested an organization-wide approach to increase visitor diversity by modifying its hiring practices, strategic planning, and programming goals to better attract and serve all ethnic groups. This model has not been quantitatively tested. No studies in refereed journals have addressed the subject of visitor diversity in botanic gardens.

Most research conducted to answer this question has been done in related fields, including museum studies and outdoor recreation. With regards to specific ethnic groups, most research in these areas has focused on African-Americans, who are expected to increase to fifteen percent of the American population by the year 2050 (Cordell et al, 2002).

In most research, botanic gardens are classified as museums because of similar missions of research, education, and collections. The research indicates that African-Americans visit museums twenty to thirty percent less than the general population (Falk, 1998a). Similarly, African-Americans in the upper income and education categories are less likely than European-Americans in those same categories to support (through donations or volunteering) cultural activities including as museums, theatre, and symphony orchestras (Puckrein, 1991).

According to the National Survey on Recreation and the Environment (NSRE), African-Americans participate in most outdoor recreation activities (with the exception of outdoor team sports) much less than European-Americans (Cordell et al., 2002; Washburn & Wall, 1980). African-Americans also have had less childhood exposure to outdoor recreation than European-Americans (Viriden & Walker, 1999), and make less use of parks as adults than European-Americans (Payne et al., 2002).

These attitudes towards the outdoors also are evident in African-Americans' presence in horticulture and other professional plant-related fields. While a record number of doctorate degrees were awarded to African-Americans in the United States in 2003 (1,708), only 108 degrees were awarded in biological sciences, or 1.9 percent of all biological doctorates awarded. Not one degree was awarded in the fields of horticulture, plant physiology, plant breeding and genetics, botany, plant pathology, forest biology, or forest management (Good news, 2005). Even though African-Americans as a whole are becoming better educated, there continues to be a lack of interest in plant sciences which seems to affect both leisure time and career choices.

If botanic gardens knew how to better attract and serve African-American visitors, then African-Americans would be able to enjoy all the benefits that gardens have to offer. This may also increase African-Americans' interest in horticulture as a profession and bring much-needed diversity to the field.

This research involves two studies that aim to better understand these issues. The first measured the extent to which demographics and visitation habits influenced visitors' interests in ethnic garden displays and a botanic garden. The second study investigated the extent to which demographics, psychographic characteristics, personal/cultural history, and environmental factors affect African-Americans' visitation of botanic gardens.

CHAPTER 2 REVIEW OF LITERATURE

Several areas of research are important in understanding ethnic diversity among botanic garden visitors. These areas include benefits of botanic gardens, importance of visitors to gardens, African-Americans' history in horticulture, African-Americans' current attitudes towards horticulture and the environment, demographic trends among garden visitors, visitation factors at museums, methods to increase visitor diversity at botanic gardens, museums visitation factors among African-Americans, and leisure constraints. These subjects are pertinent to this thesis research because they demonstrate why the research is important, give us information to create an ethnic display, and identify variables to be included in the research.

Botanic Gardens

Importance of Gardens to Society

Botanic gardens benefit and serve their communities in many ways: they are a source of community pride, enhance children's education through school programs and field trips, act as a vacation destination and attract tourists, are a venue for community meetings and cultural events, and provide information for everyone from amateur gardeners to university scholars (Smith, 1989). One way gardens provide information to visitors is by displaying what plants can be grown in a particular area (Paterson, 1985). As a place of leisure and connection with nature, botanic gardens help visitors to cope with stress (Kohlleppel, Bradley, & Jacob, 2002). Gardens also help their communities

financially. According to a 1997 study, cultural tourists (including those who visit botanic gardens) have more economic impact than general tourists (Stronge, 2000).

Importance of Visitors to Gardens

Many gardens receive a significant portion of their annual income from visitors, either in the form of earned income or contributions. In a study of thirty-seven gardens that receive financial support from the government, 19% of a garden's operating budget on average was from earned income, and admissions made up the largest portion of earned income (Lowe, 1993). In the same study, 23% of a garden's operating budget came from contributions, on average. Out of all privately contributed dollars to botanic gardens annually, a fifth is composed of individual contributions (Arnoult, 1993). If a garden expects to rely heavily on individual donations they must provide the public with what they want and need, and people want a good experience, though what makes a good experience varies somewhat between individuals (Robinson, 1996). Even publicly supported museums must prove their effectiveness through their ability to serve the public if they want continued support (Karp & Lavine, 1993).

African-Americans and Horticulture

History and Contributions

Africans were successful agriculturists when they were encountered by the Europeans during the 15th century. By 1460, the Portuguese had thoroughly explored the Upper Guinea Coast of West Africa and called it the Grain Coast or Rice Coast due to the abundance of cereals available for provisioning their ships. This area was not only important due to its location as a stopping point for ships, but also because the cereals they could get there didn't spoil quickly on the long voyages between Europe and the Americas. The cereals were mainly rice, millet, and sorghum. Europeans not only traded

for these cereals in Africa, but also learned about their cultivation. Africans had developed advanced agricultural techniques; especially for growing rice (Carney, 2001).

In the early 1500s, Portuguese began to cultivate rice on plantations in South America, after observing African techniques. Growing rice required complex irrigation systems, division of specialized tasks, and specific tools. In African systems, rice cultivation was done mainly by women, but men had certain responsibilities as well. To grow rice, the Portuguese imported slaves who had the specialized skills needed to grow rice well. Slave owners asked specifically for slaves from the Grain Coast because of their rice production knowledge (Carney, 2001).

Eventually, rice production moved to North America because of the presence of African slaves there. African-Americans became permanent residents of the Southeast coast of America in 1670 with the first permanent English settlement. During the 1690s, settlers began to grow rice in South Carolina where the wetlands were ideal for production (Mitchell, 1999). This crop became a major factor in founding the South Carolina colony, and made it the wealthiest colony in the South. Records suggest that slaves actually taught the plantation owners how to cultivate rice (Carney, 2001).

Thomas Jefferson had many expert slaves caring for his garden (Hatch, 2001). He, like many other slave owners of his time, allowed his slaves to have personal garden plots. The slaves used these plots to grow extra food for themselves, but they also grew extra produce to sell. As a result, Jefferson actually purchased much of his produce from his slaves. Even though he had a large vegetable garden, it was often used for experimental purposes, and he usually purchased staple crops from his slaves. He also bought produce from his slaves because they usually stored some vegetables in root

cellars and were able to provide Jefferson with certain vegetables out of season. Some of the slave's plots at Monticello were very large, and slaves were able to sell large quantities of a variety of vegetables, even hops. These gardens provided slaves some independence (Hatch, 2001).

Many slaves grew traditional African food crops in their personal gardens. Since plantation owners were not interested in vegetable crops from Africa, the plants or seeds were probably brought over to America either by slaves themselves or for the slaves because they requested them. In South Carolina, these crops included millet, greens, sorghum, and black-eyed peas. Other crops in this category included yam, pigeon peas, and African palm (*Elaeis guineensis*; Carney, 2001). Plants that were definitely brought to America by slaves include eggplant, okra, watermelon, cantaloupe, West Indian gherkin, and sesame. While the tomato came from South America, slaves were instrumental in making the tomato more widely used in North America. Some African food crops may have originally come from other continents because Africans adapted many food plants from peoples they traded with (McLaughlin, 2004).

Food plants weren't the only things that Africans brought with them to America; they also brought their knowledge of folk medicine (Mitchell, 1999). They combined their African knowledge with what they learned in the New World from Europeans and Native Americans. Many slaves were involved in health-care related activities on the plantation where they worked, ranging from assisting the plantation owner in the treatment of slaves, to being considered doctors by African-Americans and European-Americans alike on the plantation. Because of these changing roles, medicinal practices by African-Americans and European-Americans were influenced by each others'

knowledge and traditions. In the eighteenth century, one slave was freed by the Carolina government because of his ability to cure persons who had ingested poison or been bitten by a rattlesnake. Usually slaves tried to treat themselves if sick or injured. If they were unable to treat themselves, they received treatment from their masters, whose knowledge was usually only as good as or worse than the treatments the slaves knew. Only in extreme cases were physicians called to treat slaves. Slaves knew not only how to make medicines from plants, but also how to make poisons. It was this fear that caused the Carolina government to pass laws in the 19th century banning African-Americans from practicing medicine or being employed by physicians (Mitchell, 1999).

The most research on African-American folk medicine has been done among the Gullah people of the Sea Islands off the coast of South Carolina (Mitchell, 1999). History and geography isolated the Gullah from white influence both during and after slavery. They made up the majority of residents on the Sea Islands from the beginning of the eighteenth century until halfway into the twentieth century. This isolation allowed them to preserve their traditions and some of their language from Africa. Among the Gullah, there are three types of medicine, depending on the source of illness: natural, occult, or spiritual. Natural medicine focuses on physical causes of disease and uses plants or plant parts. Gullah medicine may use any part of the plant, including roots, stems, bark, leaves, flowers, or fruit. The plant parts are frequently brewed as a tea for medicinal purposes (Mitchell, 1999).

When slaves were first emancipated, many became sharecroppers in the South and used their small parcel of land to grow cash crops, as well as vegetables for their family. Eventually, African-Americans began to use their land and garden for more recreational

purposes. As African-Americans left the rural South, they were generally reluctant to pursue agricultural or horticultural careers. However, many still kept their love and practice of gardening. In African-American communities in Miami, residents formed gardening clubs as early as 1926 that are still in place today (McLaughlin, 2004).

African-American scientists also made important contributions to horticulture as well as other scientific innovations using plants. George Washington Carver is probably the best known African-American scientist. Although born a slave, he attended Iowa State for his bachelor degree. His research there included grafting experiments with plum trees and cacti, and breeding experiments with geranium and amaryllis. A few years after graduation, Carver took a faculty position in the Agriculture Department at Tuskegee College, and most of his research with plants was conducted to improve the lives of farmers. He experimented with different plants as food sources for livestock, including sorghum, soybean, corn, other grains, and even acorns. Carver observed that cowpeas made for great forage as well as human food, plus improved the soil. He also found that peanuts improved the soil and provided protein in farmers' diets. Alfalfa was grown by Carver as a forage plant, along with Napier and Merker grasses. He did fertilizer comparisons with sweet potatoes. He tried to raise silkworms on mulberry. At the Tuskegee experiment station, Carver also grew rice, Cuban sugarcane, and velvet beans (McMurry, 1981).

Carver also experimented with new ways to use garden plants. He created coffee from kidney beans, used sweet potatoes to reduce wheat flour use in bread, and created milk, along with many other products, from peanuts. He wrote extension publications providing many recipes for wild plums (McMurry, 1981).

Dr. Percy Lavon Julian was another African-American scientist who worked with plants. In 1935, he developed a treatment for glaucoma from calabar beans. In 1940, he used a compound found in soybeans to create a new treatment for arthritis which cost less than the cortisones which had previously been used (Barrett, Ryan, and Visnaw, 2002).

African-American Gardens

Typical African-American yards in the rural South had swept yards until well into the twentieth century, but did include a vegetable garden and random flower plantings. Trees and shrubs were usually scattered around the swept portion of the yard where they did not shade flowers. Trees were important in providing shade in the part of the yard that was used as an extension of the kitchen. Another characteristic part of the African-American yard was the use of decorative items made from scraps (McLaughlin, 2004).

African-American Attitudes Towards Horticulture and the Environment

According to the NSRE, African-Americans participate in most outdoor recreation activities (with the exception of outdoor team sports) much less than European-Americans (Washburne & Wall, 1980; Cordell et al., 2002). Even African-Americans who reside in rural settings visit wildlands (undeveloped, usually wooded areas) less and enjoy their visits to wildlands less than European-Americans (Johnson et al., 1997). Similarly, they prefer urban parklands to be dedicated to recreation instead of conservation, and prefer organized park recreation over nature-based recreation (Payne et al., 2002). African-Americans also have had less childhood exposure to the outdoors than European-Americans (Virden & Walker, 1999), and make less use of parks as adults than European-Americans (Payne et al., 2002).

These lower levels of outdoor recreation participation correspond with African-Americans' attitudes towards the environment. More than any other racial group,

African-Americans see the environment as having fewer problems and believe that humans have the right to modify or control nature (Cordell et al., 2002). African-Americans overall have a similar level of concern for the environment as European-Americans, but low-income African-Americans have less concern for the environment than low-income and high-income European-Americans or African-Americans in the higher income groups (Newell & Green, 1997). African-American men are less involved in environmental activism. When they are involved, they usually focus more on pollution and similar issues that affect their communities, rather than wilderness conservation or related issues (Dorsey, 2001).

These attitudes towards the outdoors also are evident in African-Americans' presence in horticulture and other professional plant-related fields. While a record number of doctorate degrees were awarded to African-Americans in the United States in 2003 (1,708), only 108 degrees were awarded in biological sciences, or 1.9 percent of all biological doctorates awarded. Not one degree was awarded in the fields of horticulture, plant physiology, plant breeding and genetics, botany, plant pathology, forest biology, or forest management (Good news, 2005). Out of 9,512 agricultural science teachers in the United States in 1995, only 335 were African-Americans (Camp, 1995).

Visitor Diversity at Botanic Gardens

Current Visitor Diversity

People who visit museums in general are well educated, middle to upper class, younger than the overall population, and are active in community and leisure activities (Hood, 1983). Family groups are usually the largest category of visitors. This varies with the type of museum, though. Visitors to art and history museums are usually older, while visitors to science museums are younger. Visitation also varies with race, with

African-Americans visiting museums twenty to thirty percent less than the general population (Falk, 1998a).

Factors Affecting Museum Visitation

While demographics are often pointed to as a factor in museum visitation, they are not necessarily an influencing factor. They correlate with, but do not determine, an individual's decision to visit a museum. There are six major attributes that determine an adult's leisure time choices. They are being with people, doing something worthwhile, feeling comfortable in one's surroundings, having new experiences, learning opportunities, and active participation. The importance of these attributes to an individual is related to whether that individual is a frequent visitor (three or more times per year), an occasional visitor (one or two times per year), or a non-participant (Hood, 1983).

Frequent visitors consider doing something worthwhile, new experiences, and learning to be the most important factors in their leisure time choices. They view museums as having all of these three preferred factors, and were socialized to museums as children. Non-participants value social interaction, comfort, and active participation as the most important factors. They see museums as having none of the factors that they consider important, and they were not socialized to museums as children. Occasional participants value the same factors as non-participants. Unlike non-participants, they see museums as having some of the factors they consider important. They come for special occasions such as events or holidays because it is only then that the museum becomes worth visiting (Hood, 1983).

Cultural factors include the cultural norms for an ethnic group, such as attitudes towards the outdoors among African-Americans as previously mentioned. This also

affects personal history by determining the amount of childhood socialization to museums (Falk, 1995).

Museum-specific factors can also affect visitation. For example, different types of museums (art museums or arboretums) will attract different types of visitors because of inherent differences in content (Falk & Dierking, 1992; Falk, 1993). People come to museums because of quality content that they find interesting (Falk, 1998b). Past or current museum policies can affect an individual's decision to visit or not visit a museum (Jones, 1983; West, 1989; Wicks & Crompton, 1990). A museum's location can be a factor. For example, many people who live in the suburbs have a negative view of urban areas which might keep them from visiting a museum located in the city (Mintz, 1998). An institution's marketing practices also influences what kind of audience they attract (Falk, 1995). Perceived value of a museum visit, but not actual cost of admission, deters some potential museum-goers (Falk, 1998b).

Methods of Increasing Visitor Diversity at Public Gardens

Many approaches are used to increase visitor diversity in botanical gardens. These include school group tours, having a diverse staff, community relations, ethnic displays, and outreach projects.

School group tours have been successfully used to increase visitor diversity. Queens Botanic Garden in Queens, New York is located in the most ethnically diverse county in the United States (Raver, 2000). As the garden developed, they offered tours for school groups. After visiting the garden on school field trips, children returned with their parents. Because the school groups were so diverse, their parents were diverse as well (Wade, 1983). However, at least one study has shown that school trips typically have a minimal impact on audience diversity (Mintz, 1998).

Maintaining a diverse staff is also a successful method of promoting visitor diversity. At the Rutgers Urban Gardening program in New Jersey, the State Cooperative Extension staff who conduct the program are solely minorities. Because they share ethnicity with staff members, minority participants stay in the program longer (Patel, 1994). Based on a literature review, Andorka concluded that diversity should not only be part of recruiting and hiring employees, but should also be a part of all staff and volunteer training and organizational planning (1999). Montreal Botanic Garden in Canada has a large Asian community; therefore, they employ staff who are capable of speaking Chinese and/or Japanese (Hoffman, 1995).

Good community relations can also have an impact on increasing visitor diversity. New York Botanic Garden, located in the Bronx of New York City, suffered from poor community relations. Many Bronx residents viewed botanic gardens as “elitist institutions” (Hartfield, 1995). The garden responded by hiring a community relations director to help change the community’s attitude by explaining to groups the different roles of the garden in research, education, and outreach. Garden staff observed that community members had a more positive view of the garden as a result. Montreal Botanic Garden created bonds with the Asian community by creating separate societies for the Chinese and Japanese community members to be involved with the garden. These societies not only volunteer in the garden, they also give input and make decisions regarding culturally-appropriate events, displays, and educational programming (Hoffman, 1995). Fairchild Tropical Garden in Miami, FL created an advisory committee of community members to get input on increasing audience diversity. If ethnic groups are included in planning ethnic displays and educational programs, they are

much more likely to attend. Relationships can also be maintained by including minority community members in evaluation after the display or program has been implemented (Andorka, 1999).

Gardens can also attract minority visitors through ethnic displays or events. At the University of Michigan's Matthaei Botanical Gardens, new cultural exhibits were installed to serve the community (Michener and Klatt, 1999). One of the exhibits, "Out of Africa" highlighted the African Diaspora's influence on American horticulture and agriculture. Thirty to fifty percent of the visitors to this exhibit were African-American. To create connections with the Asian community, Montreal Botanic Garden built a Chinese Garden and a Japanese Garden designed by a Chinese architect and Japanese architect, respectively (Hoffman, 1995). These gardens are used for cultural events and education. At Queens Botanic Garden, the plants and daily activities in the garden reflect the variety of cultures that are present in the community. They host a Gardening Day each year which focuses on different cultures (Raver, 2000).

A related approach is to have culturally-appropriate outreach projects to market the garden to community groups. Fairchild Tropical Garden reached out by planting trees and gardens at schools attended by low-income populations, greening projects in similar neighborhoods, and implementing horticulture therapy programs at senior community centers (Andorka, 1999).

Factors Affecting Garden Visitation Among African-Americans

African-Americans and Museums

Education and income are often pointed out as the most important demographics defining a museum visitor or non-visitor. In spite of this, research has shown that African-Americans in the upper income and education categories still are less likely to

support cultural activities (such as art museums, theatre, etc) with their time and money than European-Americans in those same categories (Puckrein, 1991). Past racism by museums has given some African-Americans the perception that they are unwelcome at museums. Even among African-Americans who do not feel unwelcome, the past racism affects current childhood socialization among African-Americans; they did not attend museums in the past, so the current parents were not museum-socialized and do not bring their children to museums (Falk, 1995).

One study looked at the museum attitudes, visitation, and related factors of a sample of over three hundred African-Americans in six different communities in the Eastern United States (Falk, 1995). Of those interviewed, 66% were non-visitors, 23% were occasional visitors, and 6% were frequent visitors.

The reasons given for non-attendance were usually lack of interest or lack of time. Two-thirds of those who do visit museums gave learning-related reasons for attendance. Content was frequently mentioned as a reason to visit. Additionally, word-of-mouth highly affected the decision to attend. Ninety-one percent said they had never felt uncomfortable at a museum. Of those who had felt uncomfortable, less than half gave race-related reasons (Falk, 1995).

Six different socio-demographic factors correlated with museum-going: community, marital status, age, education, income, and church involvement. Those most likely to visit museums were from ethnically-mixed communities, married, older, more educated, higher income, and church-goers. Community was the best predictor of visitation, followed by church (Falk, 1995). A number of museums have found success with attracting African-Americans by forming relationships with African-American

churches (Falk, 1998a). It was found that museum socialization is not the only childhood experience that affects museum attendance (Falk, 1995). African-American adults who read as children or participated in youth clubs are also more likely to attend museums as adults. The largest factor that keeps African-Americans from visiting museums is simply lack of a museum-going tradition (Falk, 1995).

Constraints

Constraints research began in the 1980s with a focus on specific external barriers that prevent people from participating in desired recreation activities (Jackson and Scott, 1999). The theory became broader and more theoretically complex as researchers sought to understand how constraints in any leisure activity also affect preferences, level of participation, and other characteristics of participation. Researchers began to acknowledge that participation was impacted not only by physical, external constraints, but also by internal and social constraints.

Crawford and Godbey (1987) defined two primary categories of constraints: “antecedent” constraints that affect preference for an activity, and “intervening” constraints that affect participation once preference or desire have been established. Among intervening constraints are internal and external constraints (Jackson, 1988). These intervening constraints were typically measured as perceived constraints, but this resulted in low correlation between constraints and participation. Demographics such as race, gender, and class also act as constraints, called “social structural constraints.” In a study of participants in active leisure pursuits, perceived constraints had no or low negative correlation with participation. Some perceived constraints even demonstrated positive correlation with participation. On the other hand, social structural constraints including gender, age, household type, occupational status, and income all had a

correlation with participation (Shaw, Bonen, & McCabe, 1991). This research still primarily focused on intervening constraints, and was studied mainly through surveys. Intervening, or structural constraints, were defined with a list either provided by the researcher, or offered by the participant in response to more open-ended questions. The number of structural constraints included in a survey usually range from fifteen to twenty-five (Jackson and Scott, 1999).

The hierarchical model of constraints was developed to begin to address the previous mixed results regarding constraints' relationship with participation and other conceptual issues (Crawford et al., 1991). The hierarchical model has three categories of constraints: intrapersonal, interpersonal, and structural. If an individual is inhibited by one level of constraints, the next level of constraints does not affect that individual. For example, if intrapersonal constraints prevent an individual from participating in an activity, then the individual will not be concerned with any possible interpersonal constraints. Intrapersonal constraints (characteristics within the individual) act as antecedent constraints, preventing desire for participation. Interpersonal constraints are the perceived constraints of possible co-participants, and affect both preference and participation levels. Structural constraints act as intervening constraints, preventing desired levels of participation. These constraint types, and their hierarchical nature, were confirmed by a study of high school students in the context of starting a new leisure activity (Raymore et al., 1993). However, a limit of this study was that actual effects on participation were not measured. This study was part of a move towards finding common dimensions or factors of constraints. Many common factors have been found, suggesting

that there is a common core of constraints that most people face (Jackson and Scott, 1999).

Further conceptualization suggested that constraints are not always barriers to desire or participation, but that people usually negotiate through different kinds of constraints (Jackson et al., 1993). The result of negotiation is often modified participation. A person who participates may have already negotiated through their constraints. This new model also suggested that anticipation of an interpersonal or structural constraint may negatively affect desire for participation. The concept of negotiation has been supported empirically by several studies, but it is still poorly understood (Kay & Jackson, 1991; Henderson et al., 1995; Samdahl & Jekubovich, 1997).

Race and Constraints

Because African-Americans continue to face various forms of racism, race is an important issue to consider when studying constraints (Shinew et al., 2004). This racism has caused many African-Americans to choose leisure activities in the home (Woodard, 1988). African-Americans in one study reported feeling unwelcome in several leisure activities (Philipp, 1999). They are less likely to participate in many outdoor recreation activities than Caucasians (Washburne and Wall, 1980). Some of the constraints that inhibit participation in these activities are transportation, concern for safety, and poor maintenance of recreation facilities. For African-American women, some constraints to outdoor recreation are perceptions of the activities, lack of time, lack of space, job demands, expectations of family members, needs of family members, and economic factors (Henderson & Ainsworth, 2001). Results from the National Survey on Recreation

and the Environment suggested that race is a factor in predicting constraints for non-participants, but not for participation in a preferred activity (Johnson et al., 2001).

Researchers of race and constraints say that it is not enough to hide race in the demographics of earlier constraints models. A few theories have been used to explain race and leisure constraints.

The marginality hypothesis says that African-Americans are constrained because of their marginal status in society (Washburne, 1978). This hypothesis is largely addressed through socioeconomic status and resources. In a study comparing leisure preferences of African-Americans and European-Americans of different socioeconomic status (SES), preferences of middle-class African-Americans were closer to those of lower-class African-Americans than to preferences of middle-class European-Americans (Stamps and Stamps, 1985). This evidence suggests that SES alone cannot explain African-Americans' leisure patterns. On the other hand, Floyd et al. (1994) compared African-Americans and European-Americans with their subjective social class, and observed a strong relationship between leisure preferences of African-Americans and European-Americans who considered themselves middle-class.

The ethnicity hypothesis addresses similarities within race between social classes. This hypothesis says leisure patterns of African-Americans are based on the norms and values of their subculture (Washburne, 1978). This hypothesis is supported throughout the research regarding African-Americans' attitudes towards horticulture and the environment, as well as their participation in outdoor recreation and museums (Washburne & Wall, 1980; Puckrein, 1991; Camp, 1995; Johnson et al., 1997; Newell & Green, 1997; Falk, 1998a; Cordell et al., 2002; Payne et al., 2002; Good news, 2005).

Several researchers have suggested that the theory needs more complex models that combine the above concepts (Floyd, 1998; Philipp, 1995; Henderson & Ainsworth, 2001). The Ethnicity and Public Recreation Model includes perceived discrimination and ethnicity (Gomez, 2002). Perceived discrimination has been suggested frequently as a concept to explain leisure constraints, but it needs further conceptual and empirical development (Floyd, 1998). It also focuses on the concept of acculturation, or the process of a minority group keeping some cultural norms while incorporating norms from the dominant group. The model proposes that acculturation influences socioeconomic status and sub-cultural identity (ethnicity). Those two variables then impact perceived discrimination and perceived benefits of recreation (motivation), which in turn affect participation. Socioeconomic status and sub-cultural identity also may impact participation directly. This model does not fully address the issue of constraints. It includes some aspects of constraints, including social structural constraints, cultural norms (an antecedent constraint), and perceived discrimination, but there are many common constraints that are not included in the model.

One framework used to examine race and constraints came from an article on women's leisure constraints. This framework provided three approaches to constraints: 1) leisure constraints are linked to structured societal roles, 2) leisure activities add to constraints because they reinforce societal roles, and 3) because of the free-choice nature of leisure, it can be used for resistance against societal roles (Shaw, 1994). This framework addresses marginality in the first approach, and ethnicity in the second approach. It was examined further in the context of race by a study of Chicago park users (Shinew et al., 2004). The results suggested that African-American and European-

American park users had distinctly different leisure preferences, which supported the second approach. African-Americans preferred shopping and going to church, while European-Americans preferred nature-based activities. On the other hand, the first approach was not supported. Both African-Americans and European-Americans reported low levels of constraints, but European-Americans actually felt slightly more constrained than African-Americans.

Conclusion

No previous study has been published measuring the variables influencing visitation of botanic gardens. Because botanic gardens are considered museum-like institutions, museum studies research reveals several factors that influence visitation. These factors are included in four categories: demographic, psychographic, personal/cultural history, and environmental. Among African-Americans, several specific variables related to museum visitation have been identified. Attitudes towards horticulture, outdoor recreation, and the environment verify a pattern of cultural norms that would discourage African-Americans' participation in botanic gardens. Our understanding of constraints verifies that the visitation factors identified should fall into distinct categories. The race and constraints research suggest that these cultural norms may be the most important variable in determining leisure choices among African-Americans. All of these variables need to be measured in the context of botanic gardens. More specifically, ethnic displays should be examined in their potential to change cultural norms by allowing minority visitors to better relate to botanic gardens.

CHAPTER 3 VISITOR RESPONSES TO AN ETHNIC GARDEN DISPLAY

Introduction

Many gardens receive a significant portion of their annual income from visitors, either in the form of earned income or contributions. In a study of thirty-seven gardens that receive financial support from the government, 19% of a garden's operating budget was from earned income, with admissions the largest portion of earned income, and 23% of a garden's operating budget came from contributions (Lowe, 1993). Out of all privately contributed dollars to botanic gardens annually, a fifth is composed of individual contributions (Arnoult, 1993). If a garden expects to rely heavily on individual donations they must provide the public with what they want and need, and people want a good experience, though what makes a good experience varies somewhat between individuals (Robinson, 1996). Even publicly supported museums must prove their effectiveness through their ability to serve the public if they want continued support (Karp & Lavine, 1993).

Ideally, gardens should appeal to all ethnic groups, but visitors to botanic gardens are predominantly Caucasian (Andorka, 1999). Research has shown that African-Americans visit museums twenty to thirty percent less than the general population (Falk, 1998). Since botanic gardens are considered museum-like institutions, these statistics can be applied to botanic gardens as well as museums. Similarly, African-Americans in the upper income and education categories still are less likely to support cultural activities

(such as museums) with their time and money than their European-American equivalences (Puckrein, 1991).

One significant study looked at the museum attitudes, visitation, and related factors of a sample of over three hundred African-Americans in six different communities in the Eastern United States (Falk, 1995). The reasons given for non-attendance were usually lack of interest or lack of time. Content was frequently mentioned as a reason to visit. This is true not only for African-Americans, but for people in general. Different types of museums (art museums or arboretums) will attract different types of visitors because of inherent differences in content (Falk & Dierking, 1992; Falk, 1993). Interesting, quality displays are one of the primary reasons individuals visit museums (Falk, 1998).

Demographic variables significantly correlate with museum visitation; therefore, they should be considered in any study of museum visitors (Hood, 1983). Also, individuals usually differ psychologically between non-visitors, occasional visitors (one or two times a year), and frequent visitors (three or more times a year). Frequent visitors value doing something worthwhile, new experiences, and learning as the most important aspects of their leisure time choices, while occasional and non-visitors prefer being comfortable, active participation, and social interaction. Visitors to museums also differ between seasons, especially between fall/winter and spring/summer (Hood, 1988), so the timing of the visit is considered to be an important variable.

Based on the research, this study investigated the extent to which differences in demographics and visitation habits influenced visitors' interest in ethnic garden displays and a botanic garden in Orange County, FL during Summer and Fall (July-November) 2005. Research questions included: How do different racial groups' view ethnic

displays? Do Caucasian visitors find an African-American display more or less interesting than African-American visitors? Do demographic variables or garden visitation affect attitude towards botanic gardens?

Methods

Variables

Because individuals' responses to a botanic garden display were being studied, the unit of analysis was the individual. As units of analysis, individuals may be characterized in terms of their membership in social groupings, such as racial groups (Babbie, 1998). The population under study was adult visitors to Harry P. Leu Gardens. In 2004, Leu Gardens had 121,537 visitors. I used a cross-sectional study because I was not able to collect sufficient data before installation of the display. Cross-sectional studies are used when it is not possible to collect data before and after "treatment," in this case display installation (DeVaus, 2001).

Dependant variables included attitude towards the botanic garden overall, attitude towards the African-American horticulture display, and preference for ethnic displays. Attitude towards Leu Gardens and attitude towards the African-American Horticulture display were both measured with Likert-type scales (1=strongly disagree, 5=agree; Edwards, 1957). Both the Leu Gardens scale and African-American Horticulture display scale were reliable ($\alpha=0.75$ and $\alpha=0.86$, respectively). The questions measured attitude in different ways, including willingness to visit again in the future, and willingness to recommend the botanic garden to others. Preference for ethnic displays was measured using a single Likert-type item.

Independent variables included: ethnicity, gender, age, income, education, previous visitation to Leu (yes or no), Leu visits per year, previous visitation of other botanic

gardens (yes or no), other garden visits per year, day of visit (weekend or weekday), and season of visit. Independent variables are the factors we expected to influence the dependent variables mentioned above. For attitude towards the African-American Horticulture display, preference for vegetable gardening was also considered. All independent variables except season, day of visit, and interest in vegetable gardening were measured through check boxes and fill-in-the-blank. Season and day of visit were measured by researcher observation. Interest in vegetable gardening was measured with a single Likert-type item.

Site Selection

Harry P. Leu Gardens in Orlando, FL was selected as the site for the display and visitor survey because of its reasonable proximity to University of Florida and because of its high visitor rate. It is also recognized as a major botanical garden. Dr. Michael Dirr, an eminent expert in landscape horticulture, called it “a true plantsman’s garden” (Bowden, 2004). It was also selected because the garden had made no previous efforts to increase visitor diversity, but had expressed an interest in doing so. While the percentage of African-Americans in Orange County is higher than the national percentage (Orange County=18%, US=12%, U.S. Census, 2004a), the staff at Leu Gardens had observed very low rates of visitation by African-Americans.

Display Installation

I installed an African-American Horticulture display in the vegetable garden in May 2005. The display included plants introduced to America from Africa by slaves, plants used by African-American scientists, and plants used medicinally by African-Americans in the South over the past two centuries (see Appendix A). A large sign gave an overview of the display, while smaller signs identified plants and described their

significance. In addition, brochures were distributed at the entrance to the botanic garden that went more in-depth and listed sources for more information. The plants in the display were maintained by the staff at Leu Gardens.



Figure 3-1. Installation of the African-American Horticulture display. A) Raking out the beds. B) Making rows for the seed. C) Planting the seeds. D) The finished garden.

Instrument Development

After the display was in place for three months, a self-completion questionnaire was distributed to and collected from adult (age 18 and older) visitors at the Leu Gardens exit. The questionnaire consisted of twenty-seven items, including Likert-type, check boxes, fill-in-the-blank, and open-ended questions. Some items were omitted because they were not considered relevant to the research questions. Within the questionnaire, a 5-item scale measured attitude towards the garden overall, and a 7-item scale measured attitude towards the African-American horticulture display. Interest in vegetable

gardening and interest in ethnic displays were also measured using Likert-type items. Demographics were measured using check-boxes. Garden visitation was measured with a combination of check-boxes and fill-in-the-blank (See Appendix B for sample questionnaire).

The questionnaire was reviewed by a panel which included Geraldine Thompson, executive director of the Wells' Built Museum of African-American History in Orlando, Florida, Myron Floyd, an associate professor at University of Florida who conducts research on the topic of race, ethnicity and leisure, and Deborah Johnson-Simon, who conducted research in Orange County about African-Americans and their support of African-American museums.

Shortly after the display was installed, a pilot test was conducted with thirty participants using the same distribution methods later discussed in the sampling section. Ten to thirty subjects is considered appropriate for a pilot test (Isaac & Michael, 1997).

Sampling

Availability sampling was used because it was impossible to develop a complete sampling frame (Sullivan, 2001). In this case, I could not randomly select out of all garden visitors, or even garden visitors in a given year. Instead, we sampled from all visitors on several different days. The research was conducted in both summer and fall because visitors differ between spring/summer and fall/winter (Hood, 1988). Research was also conducted on both weekends and weekdays, as work-week visitors were observed to differ demographically from weekend visitors (personal observation, Melissa Steinhauer). Participants were chosen by asking all visitors leaving the garden during the surveying times to participate. Because there are approximately 120,000 visitors in a given year, a minimum sample size of 384 was required so that sample proportion would

be within plus or minus 0.05 of the population proportion with a ninety-five percent level of confidence (Krejcie & Morgan, 1970). I obtained a final sample size of 450. Leu Gardens had no previous data on their visitors beyond number of visitors, thus the samples could not be compared to prior data.



Figure 3-2. Collecting data at Leu Gardens. A) Table set up at garden exit in visitor building. B) Waiting for visitors to exit garden. C) Visitors participating in study. D) Completing the survey instrument.

Analysis

Relationships between the independent variables and dependent variables were examined using bivariate correlation, chi square analysis (or gamma, as appropriate), one-way ANOVA, and regression. Chi square (χ^2) was used to compare groups of nominal variables.

Regression gives us a more accurate depiction of how variables realistically interact by considering many independent variables simultaneously instead of their individual

relationships to the dependent variable. To better understand ethnicity, dummy variables were used for ethnic classifications in the regression. Because I installed an African-American display, African-Americans were chosen as the reference category for the dummy variables. Similar independent variables (e.g. demographic variables, other variables) were grouped together into separate models and then into one overall model to better observe how the variables interact. Throughout, significance levels were set at $\alpha=0.05$.

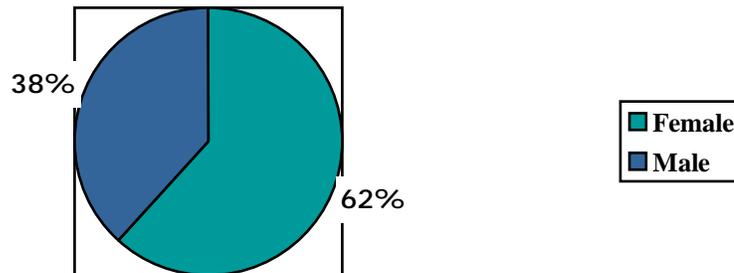


Figure 3-3. Gender as percent of Leu Garden visitor sample

Results

The sample was roughly evenly divided between the two seasons. Fifty-four percent of my sample visited in summer, forty-six percent in fall. A much larger part of the sample population visited on weekends (70.8%) than on weekdays (28.9%). Only 38.4% of visitors had been to Leu before, but 84% had visited other botanic gardens before. Visitors were mostly female, European-American, well-educated, and middle-aged or younger (see Figures 3-3 through 3-7 for more detail).

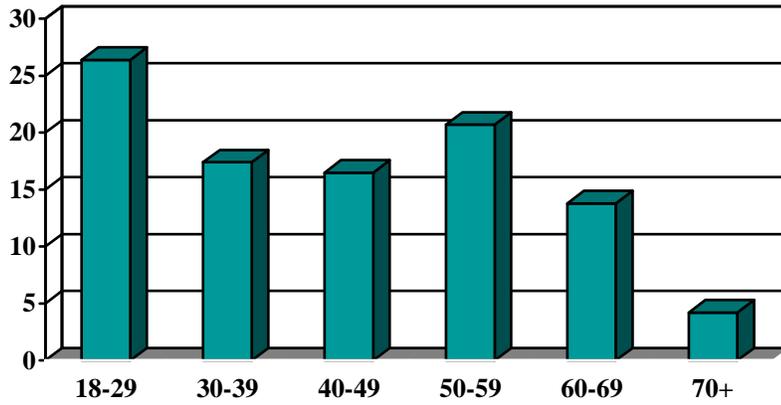


Figure 3-4. Visitor age groups as percent of sample.

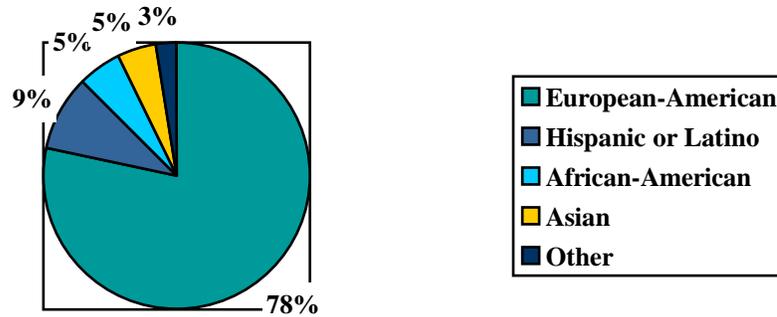


Figure 3-5. Ethnicity of Leu Garden visitor sample.

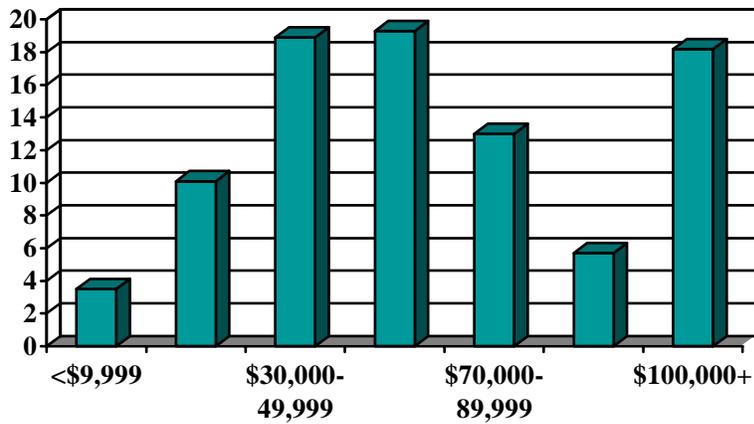


Figure 3-6. Household income of Leu Garden visitor sample.

Attitude Towards the Garden Overall

The scale measuring attitude towards Leu Gardens was reliable ($\alpha=0.75$). The scale showed no relationship between demographic variables and attitude towards the botanic garden.

While demographic variables were not significant with respect to attitude towards the garden, several other variables were significant, including those related to timing of the visit and previous garden visits. Attitude towards the garden was significantly related

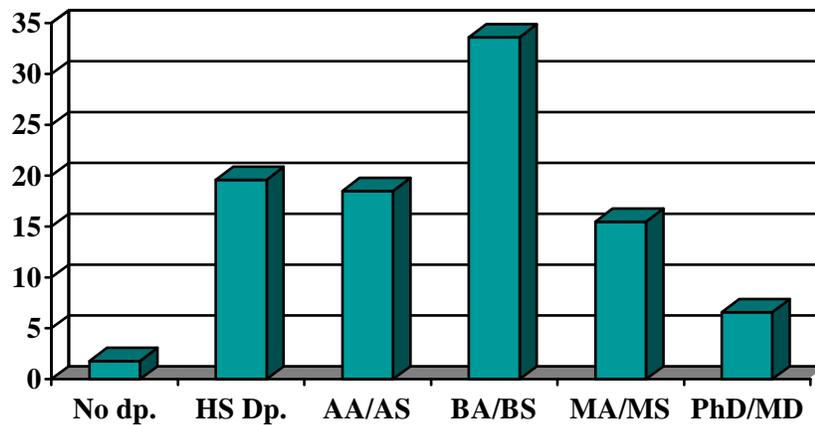


Figure 3-7. Highest level of education achieved by Leu Garden visitors as percentage of sample.

to season of the year ($\chi^2=11.321$, $P<0.05$). Individuals who visited on weekends usually liked the garden more than those who visited on weekdays (Weekend=1, $r=0.150$, $P<0.001$).

Attitude towards the garden was positively related to previous visitation. Those who had previously visited Leu had a more positive attitude towards the garden ($r=0.240$, $P<0.001$), and those who visited more frequently liked the garden more than those who visited less frequently ($r=0.107$, $P<0.05$). There was a very significant relationship between attitude and visits per year to other botanic gardens ($\gamma=0.242$, $P<0.001$).

Table 3-1. Regression for attitude towards the garden overall

	Model 1	Model 2	Model 3	Reduced Overall
-- Standardized Regression Coefficients --				
Demographic Variables				
Gender (males=1)	.009		-.002	
Age	-.184***		-.177***	-.155**
Income	.065		.054	
Education	.028		-.025	
European-American	.118		.076	
Asian	.008		.022	
Hispanic or Latino	.055		.044	
Other race	-.022		-.048	
Other variables				
Visited Leu before		.205***	.186***	.204***
Leu visits per year		.090	.095	
Visited other gardens before		.040	.098	.108*
Other garden visits per year		-.032	-.033	
Season of year (Summer=1)		.024	.025	
Day of week (Weekend=1)		.144**	.121*	.122*
R ² Adjusted	.019	.070	.081	.091
F value	1.929	6.664	3.477	10.868
Cases	386	447	379	389

*significant at the .05 level **significant at the .01 level ***significant at the .001 level

Relationships between the independent variables and attitude towards Leu Gardens overall were further explored in three different models using regression (See Table 3-2). Model 1 examined just the demographic variables, Model 2 included only the other variables, and Model 3 included all the independent variables. The reduced model overall included age, visited Leu before, visited others before, and day of week.

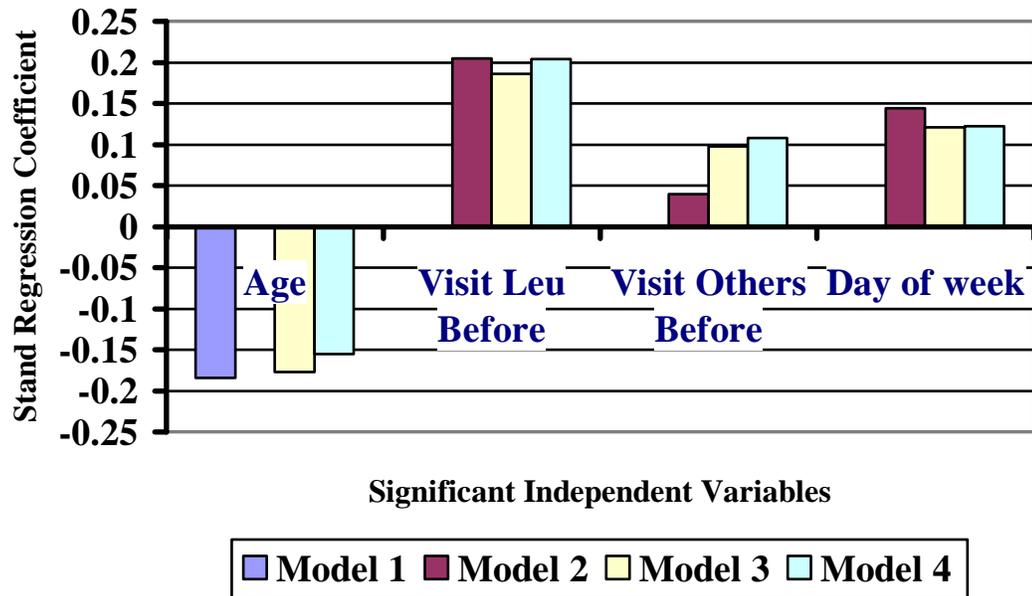


Figure 3-8. Standardized regression coefficients for significant variables of attitude towards garden overall

Attitude Towards the African-American Horticulture Display

The scale measuring attitude towards the display was reliable ($\alpha=0.86$). It showed significant differences in response with respect to demographic variables. Higher income visitors had a more negative attitude towards the display ($r=-0.125$, $P<0.05$). Attitude had no direct relationship with any other demographic variable.

Looking beyond demographic variables, both previous visitors to Leu and frequent visitors to other gardens had a more positive attitude towards the display ($r=0.120$, $P<0.05$ and $r=0.143$, $P<0.05$, respectively) than the sample overall. Visitors who enjoy vegetable gardening also had a more positive attitude towards the display ($r=0.258$, $P<0.001$).

Relationships between the independent variables and attitude towards Leu gardens overall were compared in three different models as with attitude towards the garden overall (See Table 3-3). The reduced model overall included income, education, ethnic

Table 3-2. Regression for attitude towards African-American Horticulture Display

	Model 1	Model 2	Model 3	Reduced Overall
-- Standardized Regression Coefficients --				
Demographic Variables				
Gender (males=1)	-.045		-.010	
Age	-.016		-.072	
Income	-.156*		-.145	-.149*
Education	.162*		.161	.136*
European-American	-.230		-.288*	-.197*
Asian	-.046		-.122	
Hispanic or Latino	-.194		-.248*	-.174*
Other race	-.165*		-.216**	-.183**
Other variables				
Visited Leu before		-.027	-.015	
Leu visits per year		.083	.179*	.178**
Visited other gardens before		-.119	-.120	
Other garden visits per year		.153*	.157*	.138*
Season of year (Summer=1)		-.026	-.038	
Day of week (Weekend=1)		-.021	-.068	
Like vegetable gardening		.257***	.263***	.251***
R ² Adjusted	.030	.083	.155	.158
F value	2.007	4.719	4.089	6.267
Cases	249	280	237	243

*significant at the .05 level **significant at the .01 level ***significant at the .001 level

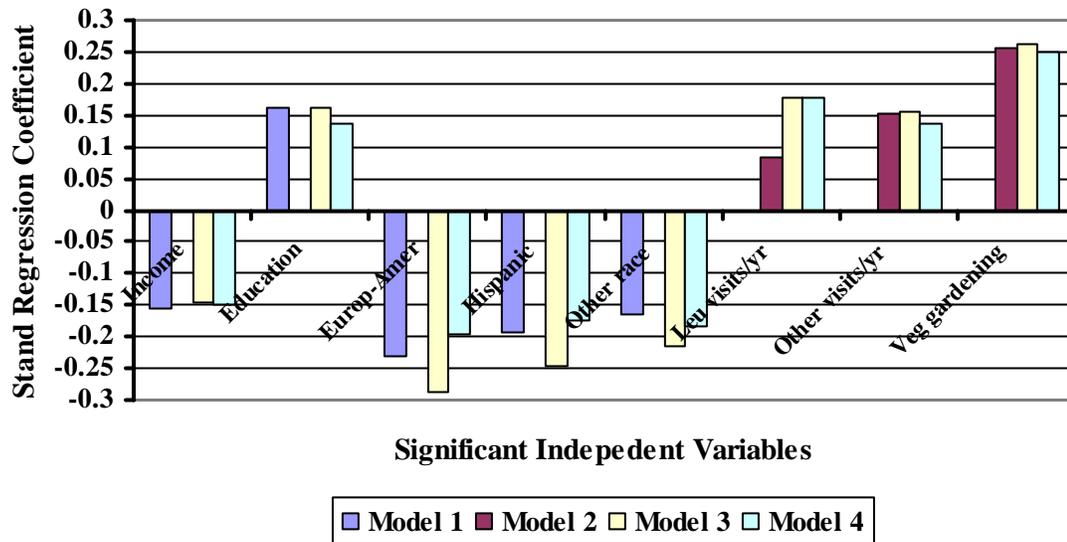


Figure 3-9. Standardized regression coefficients for significant variables of attitude towards African-American Horticulture Display

classifications (compared to African-Americans), Leu visits per year, other garden visits per year, and vegetable gardening.

Interest in Ethnic Displays

The data revealed that demographics did significantly affect interest in ethnic displays. Minority individuals were more likely to be interested in ethnic displays than European-Americans ($r=0.111$, $P<0.05$). More highly educated visitors also had more interest in ethnic displays than less educated visitors ($r=0.110$, $P<0.05$). No other demographic variables had a significant relationship with interest in ethnic displays.

Table 3-3. Regression for interest in ethnic displays

	Model 1	Model 2	Model 3	Reduced Overall
-- Standardized Regression Coefficients --				
Demographic Variables				
Gender (males=1)	-.024		.034	
Age	.007		-.052	
Income	-.085		-.090	
Education	.160**		.130*	.108*
European-American	-.250**		-.246**	-.175***
Asian	.012		-.010	
Hispanic or Latino	-.088		-.092	
Other race	-.066		-.056	
Other variables				
Visited Leu before		-.056	-.059	
Leu visits per year		.220	.187	
Visited other gardens before		.044	.069	
Other garden visits per year		-.201	-.163	
Season of year (Summer=1)		-.110*	-.108*	-.131**
Day of week (Weekend=1)		-.043	-.064	
R ² Adjusted	.048	.015	.052	.052
F value	3.386	2.063	2.518	8.031
Cases	369	422	372	383

*significant at the .05 level **significant at the .01 level ***significant at the .001 level

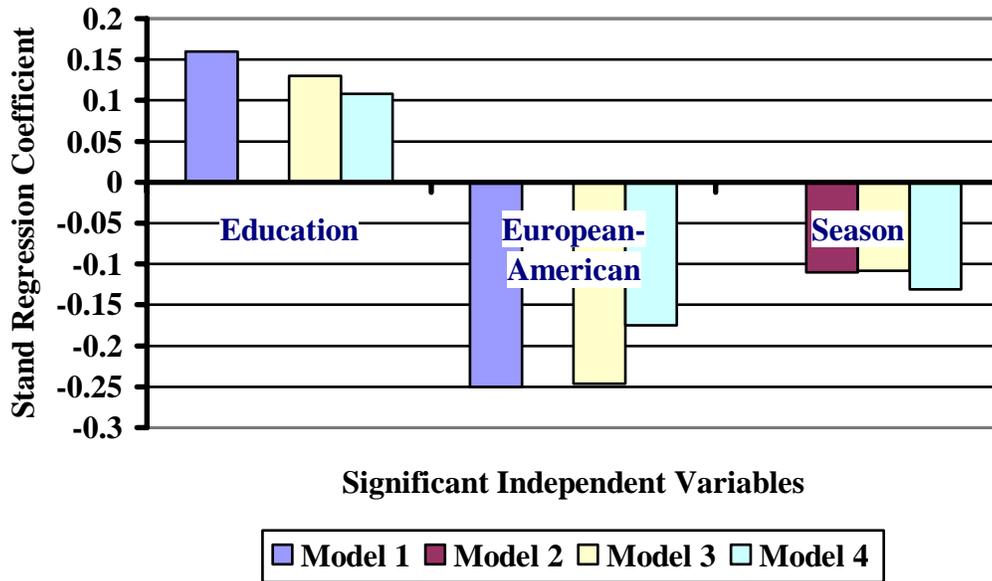


Figure 3-10. Standardized regression coefficients for significant variables of interest in ethnic displays

In addition to demographics, visitation habits were also important to interest in ethnic displays. Ethnic display interest was less for summer visitors than fall visitors (Summer=1, $r=-0.128$, $P<0.01$). Interest in ethnic displays also had a significant relationship with both Leu visits per year ($F=3.008$, $P<0.05$) and other garden visits per year ($F=6.059$, $P<0.01$).

The relationships between the independent variables and attitude towards Leu Gardens overall were compared in three different models as with the other dependent variables (See Table 3-4). The reduced model overall included education, European-American ethnicity, and season.

Discussion

The demographics of the sample for this study were predominantly female, younger, European/European-American, and in the upper education and income categories. Leu Gardens visitors may not necessarily reflect community demographics

because many of the visitors are tourists from other cities and even other countries. Even so, comparing visitor and community demographics will help gardens better understand the issues they face.

Surprisingly, the sample was younger overall. This was possibly influenced by the garden being located in proximity to four colleges. This may also reflect the content of botanic gardens; science museums typically attract younger visitors than art or history museums (Hood, 1983). Some older visitors may also be deterred by the perception of having to walk a lot at botanic gardens. Gardens could substantially benefit from involving this younger population as volunteers and donors. Special events or giving clubs for younger donors can help achieve this; for example, Brooklyn Botanic Garden has a “New Leaders Circle” with an annual event for young professionals (Brooklyn Botanic Garden, 2005). One younger respondent suggested that the garden should “get local colleges/universities involved.”

Differences in racial composition were also noticed between the community and the visitor sample. As previously established in the literature, visitors to museums and botanic gardens are usually European-American (Andorka, 1999). Orange County is only 57.5% European-American (U.S. Census, 2004a), but the visitor sample was over 77% European-American. The percent of Asians was actually higher in the sample (4.1%) than in Orange County as a whole (3.4%). African Americans (5.5% of sample) and Hispanics (8.8% of sample) were drastically underrepresented compared to Orange County demographics (18.2% of population and 18.8% of population, respectively). This verifies our need for more research pertaining to attracting and serving all minority ethnic groups.

The attitude towards the garden overall was influenced by a few surprising factors. Not only were there more younger visitors than older visitors, but younger visitors also had a more positive attitude towards the garden than older visitors. Also, weekend visitors liked the garden better than weekday visitors. When age and day of week were compared, weekend visitors were significantly younger than weekday visitors ($r=-0.229$, $P<0.001$). Weekend visitors, then, liked the garden better because they were younger. No previous research has mentioned differences between weekend and weekday visitors to botanic gardens or museums. According to the model, those who have the most positive attitude towards Leu Gardens are younger, weekend visitors who have visited a botanic garden before (Leu or otherwise). Since previous garden visitation is important to attitude, school field trips may be a way to increase interest in botanic gardens later in life. One participant suggested gardens should “introduce school programs, field trips, etc., targeted at children. Start working on the next generation of garden lovers.”

While only a few significant variables were found in the initial analysis of attitude towards the display, regression illuminated variables that were related. All ethnic groups except Asians were observed to have a less positive attitude towards the African-American display than the African-Americans. Asians neither had a more positive nor more negative attitude towards the display than African-Americans. The evidence, then, suggests that display content geared to a specific ethnic group will be interesting to that ethnic group. One participant commented about the display, “If we have an (African-American) section, I want a Polish-American, German-American, and Asian-American section.” Research has also reported that African-Americans, especially, visit museums because of interesting display content (Falk, 1995). Botanic gardens should create ethnic

displays focusing on a particular ethnic group that is prevalent in their community in order to attract more of that group. For example, Matthaei Botanical Gardens observed that thirty to fifty percent of visitors to their “Out of Africa” exhibit were African-American (Michener and Klatt, 1999).

Ethnicity was not the only variable that affected attitude towards the display. Visitors also had a more positive attitude towards the display if they visited Leu and other botanic gardens more frequently. Previous research has observed that more frequent garden visitors value learning as an important part of their free-time activities (Hood, 1983). Perhaps more frequent visitors liked the African-American display better because it was an opportunity to learn something new. This would also explain why more educated visitors had a more positive attitude towards the display. Other important variables were interest in vegetable garden and income. Interest in vegetable gardening held the strongest relationship with attitude towards the African-American display since it was a vegetable garden display. One respondent said the African-American display needed “more color.” If possible, future displays should integrate more landscape plants, in addition to or instead of vegetable plants, to appeal to a wider audience. The negative correlation with income was surprising, since income was not observed as a significant variable in interest in ethnic displays. Perhaps income was specifically a factor in attitude towards the African-American display because of display-specific variables such as the types of signs used or the fact that it was a vegetable garden.

The results for interest in ethnic displays were consistent with what could be expected, and similar to attitude towards the African-American horticulture display. The evidence suggests that people of higher education prefer ethnic displays. This is logical

because people of higher education usually enjoy learning more, so they enjoy learning about different cultures. Several participants, especially highly-educated individuals, commented that they would have liked more information in the African-American display, such as “more information about the historic implications of African-American horticulture” and “more information displays about gardening practices.” Also, European-Americans overall had less interest in ethnic displays than African-Americans. Based on observation, this is because visitors want to learn about things that are more relevant to them. Unexpectedly, season was a significant variable in the regression. However, when season and education were compared, a relationship was found ($\chi^2=16.706$, $P<0.05$), so the effect season has on interest in ethnic displays is affected by differences in education.

Because botanic gardens are considered museum-like institutions, traditional museums as well may benefit from the results of this research. Traditional museums should also consider adding ethnic displays in their area of expertise to better attract and serve minority groups. They also may use school field trips to introduce individuals to museums early in life.

Conclusion

No previous research has observed relationships between attitude towards an ethnic display and any other variable. Many significant relationships were observed in this research. The majority of our visitor sample was well-educated, in the middle to upper income levels, younger, European-American, and female. Visiting Leu before, visiting other gardens before, and summer all had a positive relationship with attitude towards Leu Gardens overall. Age had a negative relationship with attitude towards the garden overall. Education, Leu visits per year, and other garden visits per year all had a positive

relationship with attitude towards the African-American Horticulture display, while income, European-American ethnicity, Hispanic ethnicity, and other ethnicity all had a negative relationship with attitude towards the display. Looking at general interest in ethnic displays, education had a positive relationship, while European-American ethnicity and summer had a negative relationship. The results suggest that ethnic displays are a viable method for attracting and serving minority populations.

CHAPTER 4 GARDEN VISITATION FACTORS AMONG AFRICAN-AMERICANS

Introduction

The benefits of a botanic garden are numerous. As gardens seek to serve their communities, they are a source of community pride, enhance children's education through school programs, act as a vacation destination, are a venue for community meetings and cultural events, provide information for everyone from amateur gardeners to university scholars, and help visitors cope with stress (Smith, 1989; Kohlleppel, Bradley, & Jacob, 2002).

Yet many gardens observe that African-Americans, even those in the immediate vicinity of the garden, do not take advantage of the benefits that a botanic garden provides. It is not surprising when one considers the general interests and leisure patterns of African-Americans as a whole, including interest in the outdoors and museums.

African-American Attitudes Towards Horticulture and the Environment

African-Americans have less interest in the outdoors, the environment, and plant-related occupations than the general American population. According to the NSRE, African-Americans participate in most outdoor recreation activities (except outdoor team sports) much less than European-Americans (Washburne & Wall, 1980; Cordell et al., 2002). African-Americans also have had less childhood exposure to the outdoors than European-Americans (Virden & Walker, 1999), and make less use of parks as adults than European-Americans (Payne et al., 2002). African-Americans overall have a similar level of concern for the environment as European-Americans, but low-income African-

Americans have less concern for the environment than low-income and high-income European-Americans or African-Americans in the higher income groups (Newell & Green, 1997). While a record number of doctorate degrees were awarded to African-Americans in the United States in 2003 (1,708), not one degree was awarded in the fields of horticulture, plant physiology, plant breeding and genetics, botany, plant pathology, forest biology, or forest management (Good news, 2005).

Factors Affecting Museum Visitation

Demographic factors are known to have an important relationship with museum visitation (Falk, 1998). Since botanic gardens are considered museum-like institutions, this research can be applied to botanic gardens as well as museums. These factors include gender, race, income, education, and occupation.

There are six major leisure preferences that determine an adult's leisure time choices. They are being with people, doing something worthwhile, feeling comfortable in one's surroundings, new experiences, a learning opportunity, and active participation. The importance of these attributes to an individual is related to whether that individual is a frequent visitor (three or more times per year), an occasional visitor (one or two times per year), or a non-participant (Hood, 1983).

Frequent visitors consider doing something worthwhile, new experiences, and learning to be the most important factors in their leisure time choices, and view museums as having all of these three preferred factors. Non-participants value social interaction, comfort, and active participation as the most important factors, and see museums as having none of the factors that they consider important. Occasional participants value the same factors as non-participants. Unlike non-participants, they see museums as having some of the factors they consider important (Hood, 1983).

Cultural factors include the cultural norms for an ethnic group, such as attitudes towards the outdoors among African-Americans as previously mentioned. This also affects personal history by determining the amount of childhood socialization to museums (Falk, 1995).

Museum-specific factors can also affect visitation. People come to museums because of quality content that they find interesting (Falk & Dierking, 1992; Falk, 1993; Falk, 1998b). Past or current museum policies can affect an individual's decision to visit or not visit a museum (Jones, 1983; West, 1989; Wicks & Crompton, 1990). A museum's location can be a factor. For example, many people who live in the suburbs have a negative view of urban areas which might keep them from visiting a museum located in the city (Mintz, 1998). An institution's marketing practices also influences what kind of audience they attract (Falk, 1995). Perceived value of a museum visit, but not actual cost of admission, deters some potential museum-goers (Falk, 1998b).

African-Americans and Museums

African-Americans visit museums twenty to thirty percent less than the general population (Falk, 1998). African-Americans in the upper income and education categories are less likely to support cultural activities (such as art museums, theatre, etc) with their time and money than European-Americans in those same categories (Puckrein, 1991). Past racism by museums has given some African-Americans the perception that they are unwelcome at museums. Even among African-Americans who do not feel unwelcome, parents were unable to attend museums when they were growing up, so they do not museum-socialize their children now (Falk, 1995).

One study looked at the museum attitudes, visitation, and related factors of a sample of over three hundred African-Americans in six different communities in the

Eastern United States (Falk, 1995). The reasons given for non-attendance were usually lack of interest or lack of time. Most who do visit museums gave learning-related reasons for attendance. Content and word-of-mouth both highly affected the decision to attend. Ninety-one percent said they had never felt uncomfortable at a museum. Of those who had felt uncomfortable, less than half gave race-related reasons (Falk, 1995). Six different socio-demographic factors correlated with museum-going: community, marital status, age, education, income, and church involvement. Those most likely to visit museums were from ethnically-mixed communities, married, older, more educated, in higher income brackets, and church-goers (Falk, 1995). A number of museums have found success with attracting African-Americans by forming relationships with African-American churches (Falk, 1998a). The largest factor that keeps African-Americans from visiting museums is simply lack of a museum-going tradition (Falk, 1995).

The research has reported that African-Americans overall have less interest in horticulture, outdoors, and the environment than European-Americans (Washburne & Wall, 1980; Camp, 1995; Johnson et al., 1997; Newell & Green, 1997; Virden & Walker, 1999; Dorsey, 2001; Cordell et al., 2002; Payne et al., 2002). This suggests that cultural norms are one of the biggest barriers to African-American visitation to botanic gardens. In addition to cultural and personal history, other categories of variables that have been identified with regards to museum visitation are demographic factors, psychographic factors, and environmental factors (Hood, 1983; Falk, 1995; Falk, 1998b). Factors that have been identified as specifically affecting African-American visitation of museums include lack of interest, lack of time, and church attendance (Falk, 1995).

This study investigated the extent to which demographics, psychographic characteristics, personal/cultural history, and environmental factors affect African-American adults' visitation of botanic gardens in Orange County, FL during Fall and Winter 2005-2006 (September 2005-February 2006). The research questions I investigated include: Which factors are the best predictors of botanic garden visitation? How do demographics correlate with botanic garden visitation among African-Americans?

Methods

To answer the research questions, I completed a cross-sectional study using self-completion questionnaires (appropriate when there is no component of time to the study (DeVaus, 2001)). The population under study was African-American adults in Orange County, FL. The unit of analysis was the individual. This is appropriate to understand a defined ethnic population such as African-Americans because populations are made up of individuals (Babbie, 1998).

Orange County has approximately 965,000 residents (US Census, 2004a). Of those, about 126,000 are African-American adults. Over 185,000 people reside within the Orlando city limits, the major city in Orange County, and about 50,000 are African-American.

Because it was known which kinds of participants would provide the best information, purposive sampling methods were appropriate for this study (Sullivan, 2001). Participants were selected by contacting community groups including African-American churches, the African-American Chamber of Commerce, and related community groups. A similar strategy was used in a previous study interviewing African-Americans about their museum attitudes (Falk, 1995). Multiple approaches were

used to distribute and collect questionnaires. Some questionnaires were dropped off at civic organizations and picked up at a later date. Most of the questionnaires were obtained by attending African-American church services or events where a large proportion of African-Americans were present. These events included community youth football games, Martin Luther King Day celebrations, and the Zora Neale Hurston

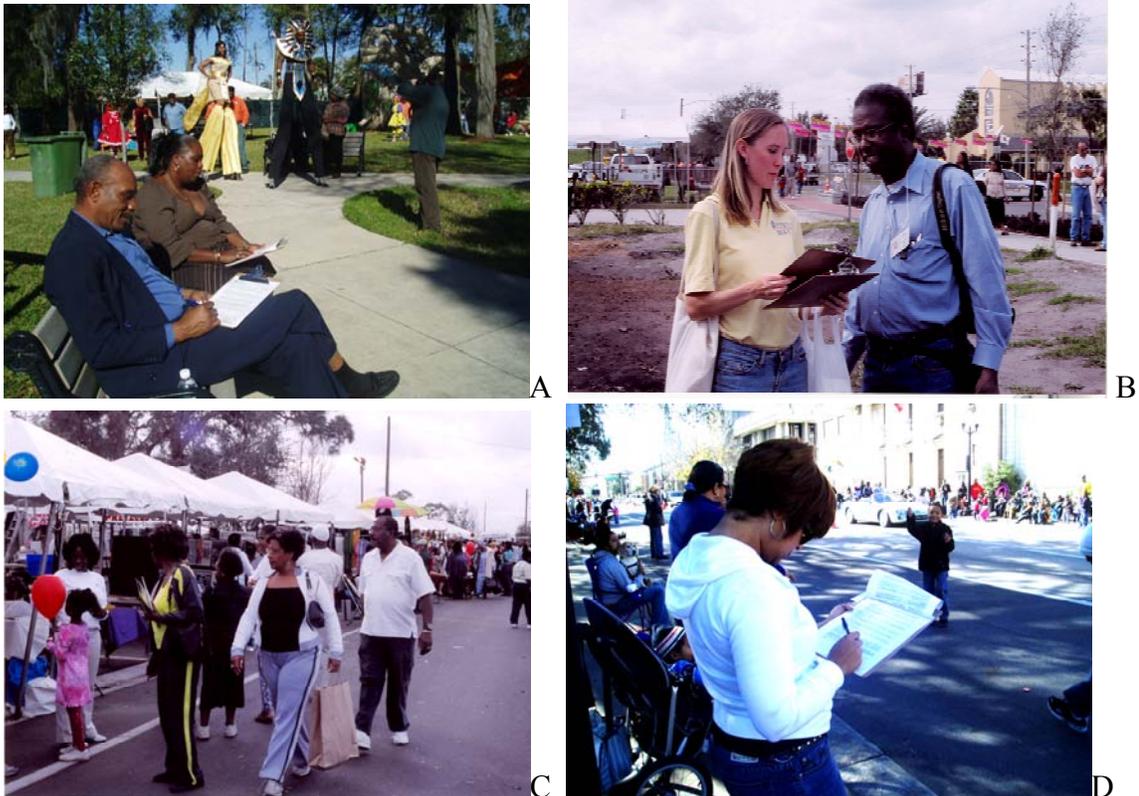


Figure 4-1. Collecting data in Orange County. A) Completing surveys at Unity Heritage Festival in Winter Park. B) Asking an attendee to participate in the study at Zora Neale Hurston Festival in Eatonville. C) Attendees at Zora Neale Hurston Festival. D) Completing the survey instrument at Martin Luther King, Jr. Parade in Orlando.

Festival. Participants were offered one free admission to Harry P. Leu Gardens in Orlando, FL as an incentive. While the original goal was a sample size of 300 based on the size of the population (Krejcie & Morgan, 1970), a final total of 250 questionnaires were obtained due to low response rates. The time required for the questionnaire (ten to fifteen minutes) was a deterrent for many potential participants. Also, many did not want

to complete a questionnaire because they did not know what a botanic garden was. Since the main goal was to get a variety of respondents in order to determine relationships among variables, and not to make definitive statements about this population as a whole, the final sample size was considered sufficient.

The questionnaire was composed of three fill-in-the-blank, ten check-box questions, two open-ended questions and thirty-two Likert-type scale (1=strongly disagree, 5=strongly agree; Edwards, 1957) items to determine which factors are important in the decision whether or not to visit a botanic garden. (See Appendix C for sample questionnaire.) The questionnaire was reviewed by a panel which included Geraldine Thompson, executive director of the Wells' Built Museum of African-American History in Orlando, Florida, Myron Floyd, an associate professor at University of Florida who conducts research on the topic of race, ethnicity and leisure, and Deborah Johnson-Simon, who conducted research in Orange County about African-Americans and their support of African-American museums. A pilot test of sixteen church attendees was conducted (Isaac & Michael, 1997).

The factors considered in the questionnaire were taken from the museum studies research previously mentioned. The categories of variables are demographic, psychographic, personal and cultural history, and environmental factors (Falk, 1998b).

The demographic variables measured in this study were gender, age, income, and education (Falk, 1998b). Race was not necessary to measure because all participants were of the same race. The demographic variables were measures with check boxes in section three of the survey.

Psychographic variables are psychological in nature and include motivations (Hood, 1983). Section one of the questionnaire used nine Likert-type scale items to measure individual psychographic preferences. Section two used four Likert-type items to measure whether individuals perceived botanic gardens to satisfy those psychographic preferences (items 29, 32, 33, and 34).

Personal and cultural history refers to whether a person was taken to museums as a child, and how they perceived their museum experiences. In this study, church attendance and civic involvement were also included in this category, based on the fact that these activities influence cultural norms and personal preferences. While these factors have been previously identified by the literature (Falk, 1998b), they have not been previously included under personal and cultural history. These variables were measured through seven check-box and fill-in-the-blank questions in section one, as well as one index item in section two (item 35).

Environmental factors refer to a miscellaneous assortment of circumstances, as previously outlined in the literature review. These variables were all measured in section two using fifteen Likert-type items.

The dependant variable, garden visitation, was measured through fill-in-the-blank questions in section one. One item (#6) asked about visit frequency to Leu Gardens, a large local botanic garden. Another item (#5) asked about visit frequency to botanic gardens in general. These items were added to create a scale because these two items together create a total picture of garden visitation.

Relationships between the factors and the dependent variable were examined through linear regression. Six models were created. Four models looked at each of the

categories individually with each item considered separately. The fifth model looked at all the factors together, and the sixth model was the reduced overall model. The regression method cannot properly analyze the large number of items that were included in the questionnaire, so scales were created for groups of factors.

Results

The demographics measured in the study were gender, age, household income, and education. Other personal habits considered included childhood museum and garden experiences, church attendance, and civic involvement. The majority of the sample was female (see Figures 4-2 to 4-8 for details). In terms of age, the largest group (28.9%) was 40-49 years old, and the second largest group (25.2%) was 30-39 years old. The largest group in terms of household income was those with an income of \$30,000-49,999 (31.7%), followed by those with an income of \$10,000-29,999 (22.6%). The largest education groups were those with a bachelor degree (29.4%) and those with only a high school diploma (22.4%). The percentage of respondents who visited museums less than once a year as a youth (38%) was about the same as those who visited occasionally as a youth (once or twice a year; 39.2%). Many more visited museums as a youth with school

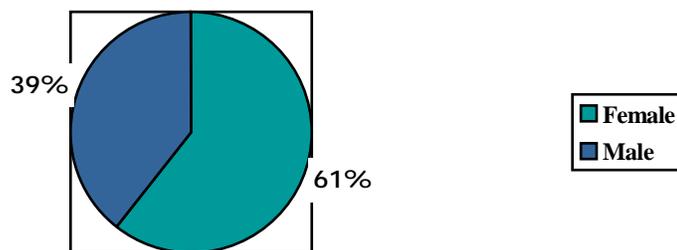


Figure 4-2. Gender as percentage of Orange County sample of African-Americans

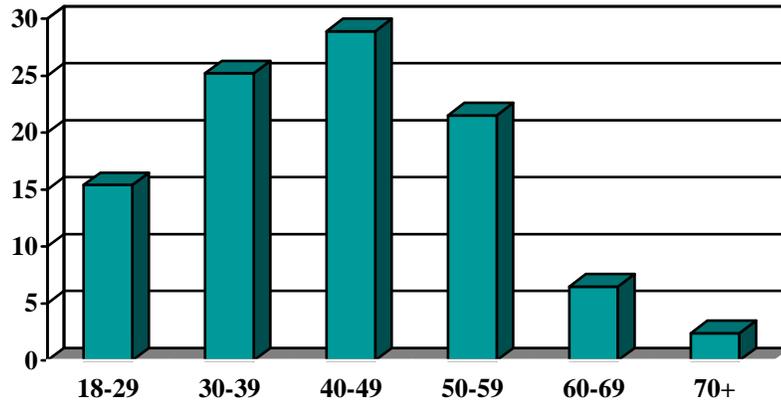


Figure 4-3. Age groups as percent of Orange County sample of African-Americans.

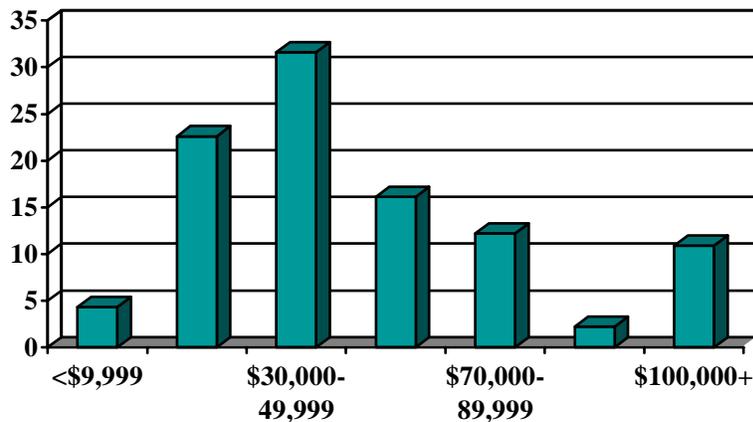


Figure 4-4. Household income of Orange County sample of African-Americans.

than with family. The majority also visited a public garden as a youth. The vast majority of respondents attended church regularly, belonged to a civic organization, and volunteered for community activities.

The demographic factors' (gender, age, income, and education) relationships with current garden visitation were examined in Model 1 (see Table 4-1). None of the demographic variables had a significant relationship with botanic garden visitation.

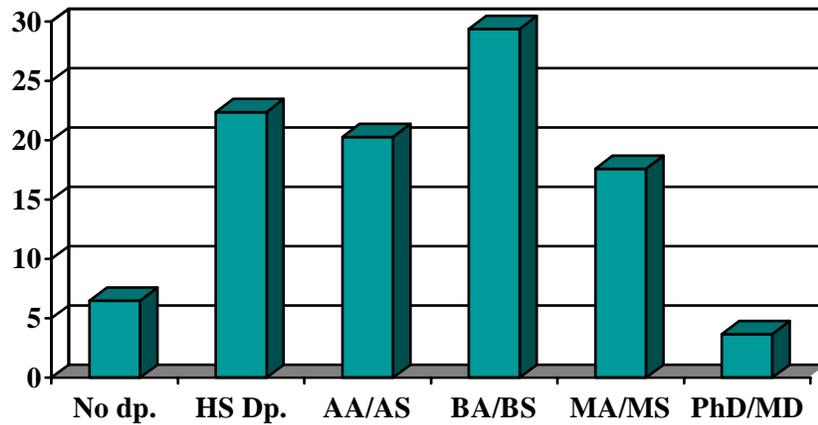


Figure 4-5. Highest level of education achieved as percentage of Orange County sample of African-Americans.

After demographics, the psychographic factors were examined in Model 2. Two items had a significant relationship with garden visitation. Individuals who thought that botanic gardens were a good place to spend time with family and friends visited botanic gardens more frequently than the overall sample ($r=0.370$, $P<0.001$). Individuals who thought that botanic gardens were a good place to experience something new and different visited botanic gardens less frequently ($r=-0.246$, $P<0.05$).

Looking further, personal and cultural history were examined in Model 3. Again, two items had a significant relationship with garden visitation. Those who attended museums more frequently also attended botanic gardens more frequently ($r=0.302$, $P<0.001$). Also, those who had previously had positive experiences at botanic gardens visited gardens more frequently ($r=0.146$, $P<0.05$).

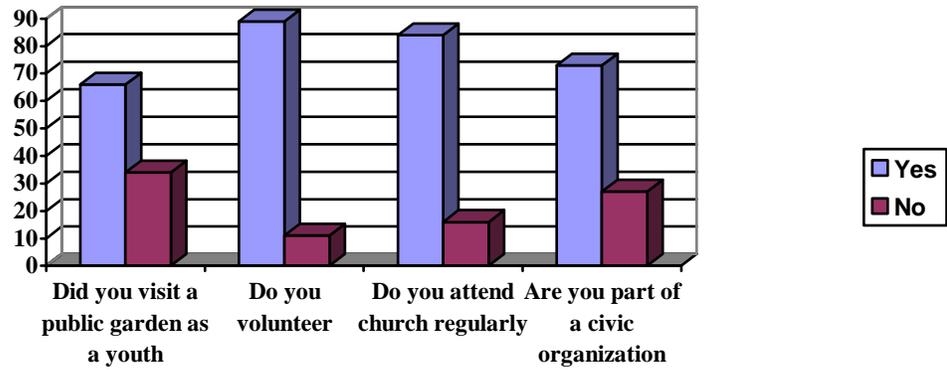


Figure 4-6. Survey responses as a percentage of sample in a study of African-Americans in Orange County

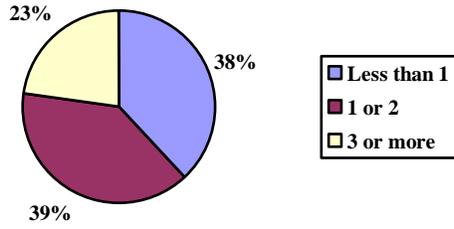


Figure 4-7. Visits per year to a botanic garden as a youth in an Orange County sample of African-Americans

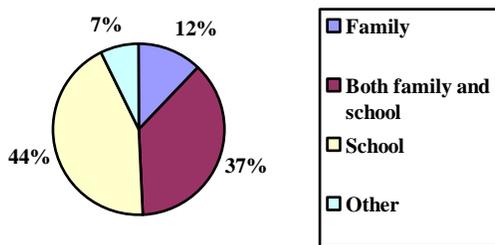


Figure 4-8. Survey responses to the question “Who took you to museums as a youth?” in a study of African-Americans in Orange County

The last group of variables, environmental factors, was examined in Model 4. Out of all the environmental factors considered, two had a significant relationship with visitation. Individuals who were willing to pay admission to a botanic garden visited

more frequently ($r=0.165$, $P<0.05$), while those who thought that botanic gardens welcomed all types of visitors visited botanic gardens less frequently ($r=-0.175$, $P<0.05$).

All four groups of variables were considered in Model 5. There were too many items to run them through the regression as individual items, so scales were created for categories of factors. The demographics were considered different enough individually that they were not combined in a scale. The reliability of the personal and cultural history scale was not high enough to use. When the psychographic scale was created, the garden-specific items were left out because two of the items were significant on their own. The remaining scale was reliable ($\alpha=0.77$). A scale was also created of the environmental factors, and it was reliable ($\alpha=0.72$). Three significant relationships were observed. Those who saw botanic gardens as being a good place for social interaction were still more likely to visit gardens frequently ($r=0.276$, $P<0.05$). On the other hand, those who saw botanic gardens as a change from the usual visited botanic gardens fewer times per year ($r=-0.296$, $P<0.05$). Finally, those who visited museums frequently also visited botanic gardens frequently ($r=0.299$, $P<0.005$).

The final reduced model had four items. One of the variables had a negative relationship with visitation, while the other three had a positive relationship with visitation. Those who believed gardens provided new and different experiences visited less frequently ($r=-0.283$, $P<0.01$), but those who believed gardens were a good place for social interaction visited more ($r=0.268$, $P<0.05$). Frequent museum attendees were also frequent garden visitors ($r=0.309$, $P<0.001$). Finally, those who previously had positive experiences at botanic gardens also attended more frequently ($r=0.162$, $P<0.05$). In the

final model, these four variables together explained seventeen percent of variation in the sample (Adjusted $R^2=0.170$).

Table 4-1. Linear regression models of Orange County study of African-Americans

	Model 1	Model 2	Model 3	Model 4	Model 5	Reduced overall
Demographics						
Gender	.033				.018	
Age	.043				-.022	
Income	.144				.132	
Education	-.048				-.039	
Psychographic						
Social interaction		-.048				
New experiences		-.025				
Being alone		.070				
Learning		-.066				
Comfort		-.019				
Active participation		.045				
Something worthwhile		.090				
Thinking		-.009				
Excitement over comfort		.018				
No new experiences		-.062				
Psychographic scale					.069	
<i>Garden evaluation</i>						
Provides learning		.071			.037	
Provides social interaction		.370***			.276*	.268*
Provides new experiences		-.246*			-.296*	-.283**
Provides active participation		-.004			-.104	
Personal/cultural history						
Childhood museum attendance			.042		.023	
Childhood museum guidance			-.003		-.004	
Childhood garden attendance			.072		.084	
Current museum attendance			.302***		.299***	.309***

Table 4-1. Continued

	Model 1	Model 2	Model 3	Model 4	Model 5	Reduced overall
Church attendance			-.028		-.023	
Civic involvement			-.009		-.040	
Volunteerism			-.060		-.053	
Previous garden experience			.146*		.154	.162*
Environmental factors					.019	
<i>Perceptions of gardens</i>						
Good value1				-.005		
Worth paying for				.165*		
Good value2				.138		
For young families				.044		
For older adults				.043		
Welcome all visitors				-.175*		
For rich people				.054		
Are irrelevant				.086		
Have helpful staff				.091		
Should have diverse staff				-.040		
Should be involved in community				.086		
Is for tourists				.044		
Is well-known in community				.048		
<i>Personal constraints</i>						
No time				-.117		
Too far				.074		
R ² Adjusted	.005	.010	.134	.028	.146	.170
F value	1.267	1.150	5.197	1.418	2.999	11.369
Cases	221	197	209	199	192	199

*significant at the .05 level **significant at the .01 level ***significant at the .001 level

Discussion

The data suggests that African-American adults who perceive botanic gardens as being a good place to spend time with friends and family will visit botanic gardens more frequently. This variable was not only significant in the reduced overall regression model, but it was also included in the open-ended responses. When asked “What could

botanic gardens do to make you more likely to visit, or would make you visit more often,” several participants mentioned friends or family in their response. For example, one participant answered, “programs and ads that appeal to families.” This appears to be contrary to the previous research which suggested that frequent visitors to museums would not attend museums for social interaction (Hood, 1983). Since botanic gardens are outdoors, unlike a more traditional art or history museum, they might be seen as more suitable for social interaction. These findings also suggest that botanic gardens could attract more African-American visitors by marketing themselves as a good place to take the family or a group of friends. In addition to offering classes where individuals learn and participate, group activities for the whole family may attract more African-Americans. For example, having a children’s garden or informal children’s activities would encourage families to spend the day with their children. While the data did not support a relationship between church attendance or civic involvement and garden

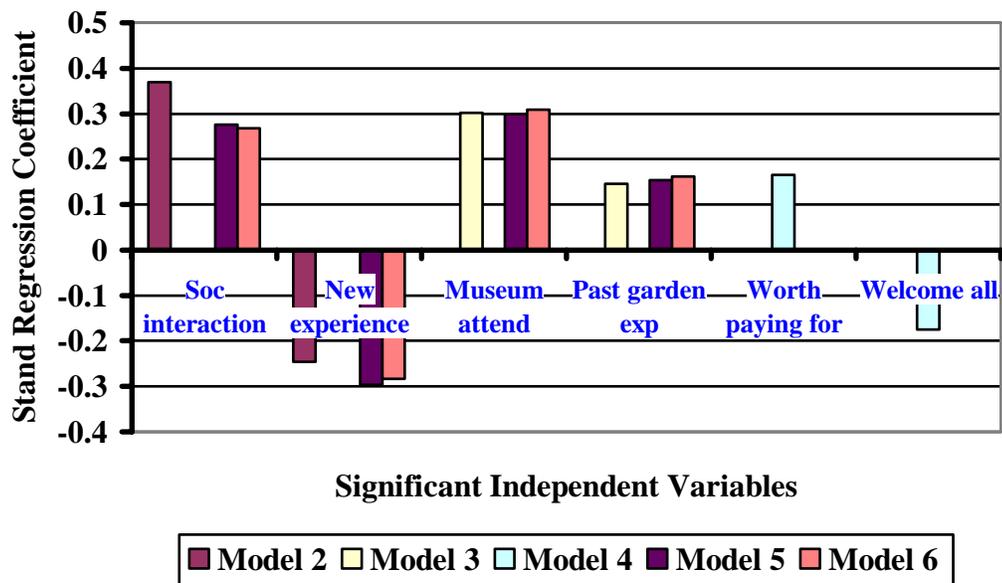


Figure 4-9. Standardized regression coefficients for variables having significant relationships with botanic garden visitation among African-Americans

visitation, churches and civic groups are both good places to build relationships with groups of African-Americans. Similarly, botanic gardens could design themselves in a way that would encourage visitors to bring their friends and family. Groupings of benches or chairs in appropriate areas of the garden might invite a group of friends to sit and talk.

The evidence from the final regression also indicates that African-American adults visit botanic gardens less frequently if they see them as a change from the ordinary. Previous research reported that frequent museum visitors typically prefer new experiences in their leisure time (Hood, 1983). While the survey participants did not outright self-identify as preferring leisure activities that change little, the results suggest that African-Americans overall do not prefer new experiences as frequent museum visitors usually do. Botanic gardens might encourage more visits by ensuring that all new visitors feel comfortable, an attribute that is more important for infrequent museum visitors and non-visitors (Hood, 1983). For example, brochures and maps should be provided that can answer most questions, and volunteers or staff should be available to answer any remaining questions. Gardens also could change public perception by offering more “pop culture” activities such as concerts. Many participants suggested that events would encourage them to visit more. One respondent, for example, wrote, “Have different activities, such as art shows or chamber/jazz music performances to bring different target groups out.” Another respondent recommended that gardens should “be more culturally diverse in activities.” By introducing the gardens through an event that community members are more familiar with, this could create connections with the community.

Unsurprisingly, the results in the final regression model demonstrated that African-Americans who were frequent visitors to botanic gardens are also frequent visitors to museums. This supports the grouping of and comparison between botanic gardens and museums in future research. While some research has pointed out the differences between visitors of different types of museums, the results of this study emphasize that frequent museum-goers tend to be interested in museums in general, despite differences in content (Falk & Dierking, 1992; Falk, 1993). The literature has also pointed out that frequent museum-goers share common demographic and psychographic profiles (Hood, 1983; Falk, 1998b). If this is so, then a simple and easy place to recruit more African-American visitors to botanic gardens is from museum visitors. Other types of institutions that can be included in this are zoos and aquariums. Gardens may use this to their advantage by cooperating with museums in public relations and marketing. They especially might attract more African-American visitors by offering garden brochures at African-American museums. For example, Orange County has the Zora Neale Hurston Museum, a museum about an African-American author, and the Wells'-Built Museum of African-American History.

Finally, the evidence from the reduced overall model suggests that African-Americans who enjoy their visits to botanic gardens will visit more. The literature has reported that visitors expect gardens to meet their wants and needs, whether that is handicapped-accessibility, gardening classes, or beautiful flower displays (Robinson, 1996). As recommended previously, botanic gardens can encourage more visits by helping first-time visitors to enjoy themselves. While botanic gardens cannot make everyone happy all of the time, a regular evaluation program that asks visitors their

opinion can go a long way in helping gardens know the wants and needs of their visitors. This study did not address museum evaluation, but there are many books and articles available for gardens that wish to start an evaluation program.

Just as this study has drawn from museum research to examine botanic gardens, museums may also draw from this garden research as well. Many of the suggestions offered for botanic gardens might also be applied to museums to attract and serve minorities better. Museums should consider that African-Americans will visit more if they find museums to be a good place for social interaction and design programming accordingly. Creating ties with the community would cause African-Americans to view museums as a less of a change from the ordinary and more of a place to visit regularly. Visitors of other museums, botanic gardens, and other museum-like institutions are an easy way to increase awareness of a museum and attract new visitors from minority groups.

CHAPTER 5 EXECUTIVE SUMMARY

Botanic garden benefits are numerous to both their communities and visitors. However botanic gardens must provide the public with what they want and need to obtain funding from tax dollars, individual contributions, or gate admissions. Consequently, gardens should appeal to all ethnic groups, but visitors to botanic gardens are predominantly Caucasian.

Much research has been done examining why people do or do not visit museums and parks, but little previous research has examined why people visit botanic gardens, and none has evaluated African-American botanic garden visitation.

Two studies were conducted to examine factors affecting botanic garden visitation by African-Americans. The first study investigated how differences in demographics and visitation habits influence visitors' interest in an ethnic garden display during Summer and Fall (July-November) 2005 at Leu Gardens, a botanic garden in Orange County, FL. The second study investigated the extent to which demographics, psychographic characteristics, personal/cultural history, and environmental factors affect African-American adults' visitation of botanic gardens in Orange County, FL during Fall and Winter 2005-2006 (September 2005-February 2006).

The first study measured visitor response to an ethnic garden display and attitude towards Leu Gardens. The ethnic garden display highlighted African-American contributions to horticulture.

Results suggested that race did not affect visitors' attitudes towards the botanic garden overall. Younger visitors, those who visit gardens more frequently, and weekend visitors had higher positive ratings than the statistical average rating. Race was related to attitude towards the African-American horticulture display. Europeans/European-Americans and Hispanics liked the African-American horticulture display less than African-Americans did. Also, as income increased, attitude towards the African-American display decreased. On the other hand, as education increased, attitude towards the display increased. Frequent garden visitors and those who enjoy vegetable gardening also liked the display more than the average visitor. Race was also related to preference for ethnic displays in general. European-Americans had less preference for ethnic displays than African-Americans. Fall visitors had less preference for ethnic displays than summer visitors. As education increased, preference for ethnic displays increased.

The second study asked African-American community groups and attendees at African-American community events to complete questionnaires about botanic garden visitation. Responses were measured using fill-in-the-blank, check-box questions, and Likert-type scale ratings.

When all the variables were examined with regards to African-Americans visiting botanic gardens, relatively few variables were significant. African-Americans who attended museums frequently and those who had positive experiences at botanic gardens visited gardens more frequently. Those who perceived botanic gardens as good places to spend time with family and friends also visited more. Those who perceived botanic gardens as a nice change in their activities visited less.

The results revealed that visitors to Leu Gardens were younger. Gardens could substantially benefit from involving this large younger population as volunteers and donors. Special events or giving clubs for younger donors can help achieve this

The research showed that African-Americans have a positive attitude towards ethnic displays, especially garden displays featuring their culture or history. The research also suggests that African-Americans who had positive experiences at botanic gardens will visit gardens more frequently. Therefore, African-Americans may visit botanic gardens more if they feature displays about African-Americans. The research also showed that that their frequent botanic garden visitors would enjoy the addition of an ethnic display.

Botanic gardens can also encourage more visits by helping first-time visitors to enjoy themselves. While botanic gardens cannot make everyone happy all of the time, a regular evaluation program that asks visitors their opinion can go a long way in helping gardens know the wants and needs of their visitors.

African-Americans who visit museums more frequently also visit gardens more frequently. This suggests that a simple and easy place to recruit more African-American visitors is from museum visitors. Other research suggests that zoo and aquarium visitors respond as museum visitors do. Gardens especially might attract more African-American visitors by offering garden brochures at African-American museums.

African-American adults visit botanic gardens less frequently if they see them as a change from the ordinary. Gardens could change public perception by offering more “pop culture” activities such as concerts. By introducing the gardens through an event that

community members are more familiar with, this could create connections with the community.

African-American botanic garden visitations would increase if public relations efforts by botanic gardens communicated to African-Americans that gardens are a good place to spend time with family and friends on a regular basis. This suggests that group activities for the whole family would attract more African-Americans. For example, having a children's garden or informal children's activities would encourage families to spend the day with their children. While the data did not support a relationship between church attendance or civic involvement and garden visitation, churches and civic groups are both good places to contact groups of African-Americans. The results of this research can help botanic gardens implement practices to better serve their communities and increase the diversity of their frequent visitors.

APPENDIX A
PLANTS IN AFRICAN-AMERICAN DISPLAY

Common name	Scientific name	Family	Notes
<u>Vegetable Plants</u>			
Eggplant	<i>Solanum melongena</i>	Solanaceae	Slave introduction
Okra	<i>Abelmoschus esculentus</i>	Malvaceae	Slave intro, originally called “nkrumun” or “ochingombo”
Millet		Poaceae	Slave introduction
Sweet potato	<i>Ipomoea batatas</i>	Convolvulaceae	Slave intro, Carver did fertilizer comparisons, used in bread to reduce flour use during war
Yams	<i>Dioscorea spp.</i>	Dioscoreaceae	Slave introduction
Watermelon	<i>Citrullus lanatus</i>	Cucurbitaceae	Slave introduction
Cantaloupe	<i>Cucumis melo</i>	Cucurbitaceae	Slave introduction
West Indian gherkin	<i>Cucumis anguria</i>	Cucurbitaceae	Slave introduction
Black-eyed peas	<i>Vigna unguiculata</i>	Fabaceae	Slave introduction
Pigeon peas	<i>Cajanus cajan</i>	Fabaceae	Slave introduction
Sesame	<i>Sesamum orientale</i>	Pedaliaceae	Slave introduction
Collard greens	<i>Brassica oleracea</i> var. <i>acephala</i>	Brassicaceae	Slave introduction
Chili pepper	<i>Capiscum annuum</i>	Solinaceae	Used by African-Americans
Peanut	<i>Arachis hypogaea</i>	Fabaceae	Carver developed milk from peanuts, 115 uses
Corn	<i>Zea mays</i> var. <i>saccharata</i>	Poaceae	Carver experimented as food source for livestock
Cowpeas	<i>Vigna unguiculata</i>	Fabaceae	Carver found good for feeding people and animals and building the soil
Cotton	<i>Gossypium</i>	Malvaceae	Carver, medicinal—bark for abortion
Sugarcane	<i>Saccharum officinarum</i>	Poaceae	Carver grew at experiment station
<u>Medicinal plants</u>			
Blackberry	<i>Rubus</i>	Rosaceae	Roots for stomach pains, tea for dysentery and diarrhea
Boneset	<i>Eupatorium</i>	Asteraceae	Leaves in tonic for colds,

	<i>perfoliatum</i>		fevers, pneumonia
Comfrey	<i>Symphytum officinale</i>	Boraginaceae	Tea from leaves for body pains
Common ironweed	<i>Vernonia angustifolia</i>	Asteraceae	Root for snake bites, aphrodisiac
Mullein	<i>Verbascum</i>	Scrophulariaceae	Boiled leaves were wrapped around the body for fevers and swollen limbs, leaf tea for colds, kidney diseases
St. John's	<i>Hypericum</i>	Clusiaceae	Bathe with warm water and St. John's for sores
Button snakeroot	<i>Eryngium yuccifolium</i>	Apiaceae	Root tea w/ whiskey for colds and worms
Tadawas	<i>Aster spp.</i>	Asteraceae	Leaf tea for fever

APPENDIX B
QUESTIONNAIRE FOR VISITOR RESPONSES TO AN ETHNIC GARDEN
DISPLAY

Garden Visitor Questionnaire

We would like to know about your experiences and preferences. If there is a box, please place a ✓ in the box next to your answer. If there is a blank, please write your answer in the blank

Have you visited Leu Gardens before?

Yes No

If yes, about how many times a year, on average, do you visit Leu Gardens?

_____ times per year

Have you visited a public garden other than Leu Gardens before? (A public garden might include botanic gardens, historic estates, sculpture gardens, or other gardens open to the public)

Yes No

If yes, about how many times a year, on average, do you visit other public gardens?

_____ times per year

What are your favorite parts of Leu Gardens? Please choose the three you like best. If you can't find it on the list, write it in next to "other."

- | | |
|---|--|
| <input type="checkbox"/> Tropical stream garden | <input type="checkbox"/> Home demonstration garden |
| <input type="checkbox"/> Vegetable garden | <input type="checkbox"/> Rose garden |
| <input type="checkbox"/> White garden | <input type="checkbox"/> Palm garden |
| <input type="checkbox"/> Camellia collection | <input type="checkbox"/> Butterfly garden |
| <input type="checkbox"/> Leu house museum | <input type="checkbox"/> Other _____ |

Please rate the following statements about Leu Gardens by checking the appropriate box.

	Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
I would recommend Leu Gardens to my family and friends.					
My visit to Leu Gardens was boring.					
I would like to visit Leu Gardens again in the next six months.					
I would like to visit Leu Gardens again in the next year.					
I do not want to visit Leu Gardens again.					
I enjoy vegetable gardening.					
Botanic gardens should have more displays about the garden practices of different ethnic groups.					

Did you visit the vegetable garden today?

Yes No

If yes, please rate the following statements about the display. If no, please continue at the  symbol.

	Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
I would recommend the African-American Horticulture display to my family and friends.					
The African-American Horticulture display was very interesting.					
There should be more displays like the African-American Horticulture display in botanic gardens.					
The African-American Horticulture display was boring.					
The African-American					

- | | |
|---|---|
| <input type="checkbox"/> 9 th – 12 th grade, but no diploma | <input type="checkbox"/> Masters degree |
| <input type="checkbox"/> High school diploma | <input type="checkbox"/> Doctorate degree |
| <input type="checkbox"/> Two-year degree | |

What do you think public gardens could do differently to attract more diverse visitors?

What do you think could be changed about the African-American display?

APPENDIX C
QUESTIONNAIRE FOR GARDEN VISITATION FACTORS AMONG AFRICAN-
AMERICANS

Public Garden Questionnaire

Section I: Personal characteristics and experiences

First of all, please tell us a little bit about your experiences with museums and what you like to do. For questions with boxes, please place a ✓ in the appropriate box next to your answer. If there is a blank, please fill in the blank with your response.

1. How frequently, on average, did you attend museums as a youth (before the age of 18)?

3 or more times a year Once or twice a year Less than once a year

2. Who took you to museums as a child?

My family My school Both family and school Other _____

3. Did you visit any public gardens growing up? (including botanic gardens, historical/estate gardens, display gardens, and arboreta)

Yes No

4. About how often do you currently attend museums in a given year, on average?
_____ times per year

5. About how often do you visit botanic gardens in a year, on average?
_____ times per year

6. How frequently do you attend Leu Gardens in a given year?
_____ times per year OR have never been

7. Do you attend church or other religious services regularly?

Yes No

8. Are you involved in a civic group or other community activities, not including a religious group?

Yes No

9. Do you volunteer?

Yes No

<i>Please rate the following statements by checking the appropriate box.</i>	Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
It is important to spend time with family and friends in my free time.					
I want to be challenged by new experiences in my free time.					
I enjoy doing activities alone.					
Learning is fun.					
It is very important to be comfortable in my surroundings at all times.					
I prefer leisure activities in which I can actively participate.					
I want to spend my free time doing something worthwhile.					
On the weekends, I just want to relax and shut my brain off.					
I will sacrifice comfort if it means I can do something exciting.					
I like participating in activities that are the same every time.					

Section II: Opinions about botanic gardens

Now we would like to know what you think about botanic gardens. If you have not been to a botanic garden before, respond to the statement based on what you think a visit to a garden would be like.

	Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
Botanic gardens are NOT worth the amount that they charge for admission.					
I would only attend a botanic garden if it was free.					
Botanic gardens are a good value compared to other					

activities I might spend my money on.					
Botanic gardens are only for families with kids.					
Botanic gardens are only for older adults.					
Botanic gardens welcome all visitors from all backgrounds.					
Botanic gardens are only for rich people.					
Botanic gardens are boring.					
Botanic gardens are irrelevant to my life.					
Botanic gardens are good places to learn more about gardening.					
I do NOT have time to go to botanic gardens.					
Botanic gardens are a good place to relax.					
Botanic gardens are a good place to spend time with family and friends.					
Botanic gardens are a nice change from ordinary activities.					
There's always a lot to do at botanic gardens.					
My visits to botanic gardens have always been positive.					
Botanic garden staff members are always helpful and friendly.					
Botanic gardens must have a diverse staff.					
Botanic gardens should be involved in projects to help the community.					
If I were asked to participate in an advisory council to give a botanic garden new ideas, I would participate.					
Everyone in Orange County has heard of Leu Gardens.					
Leu Gardens is a place for tourists.					
I would go to Leu Gardens more if it were closer to my home.					

Section III: Demographics

Remember, your answers are completely confidential, so please answer all questions honestly.

1. What is your gender?
 male female

2. How old are you?
 18-29 60-69
 30-39 70-79
 40-49 80+
 50-59

3. What is your annual household income?
 under \$9,999 \$70,000-89,999
 \$10,000-29,999 \$90,000-99,999
 \$30,000-49,999 \$100,000-499,999
 \$50,000-69,999 \$500,000 and over

4. What is the highest level of education you have achieved?
 1st-8th grade Bachelor degree
 9th-12th grade, but no diploma Master degree
 High school diploma Doctorate degree
 Two-year degree

5. Are you a resident of Orange County?
 Yes No

Section IV: Open-ended Questions

Please answer these two questions to help us understand your point of view better.

1. If you do not visit botanic gardens, why don't you visit?

2. What could botanic gardens do to make you more likely to visit, or would make you visit more often?

3. Any additional comments?

APPENDIX D
GROUPS AND EVENTS SURVEYED FOR GARDEN VISITATION FACTORS
AMONG AFRICAN-AMERICANS

Organizations

- Metropolitan Orlando Urban League
- Wells' Built Museum of African-American History in Orlando, FL
- St. Mark AME Church in Orlando, FL

Events

- Dr. Martin Luther King, Jr. Commemorative Luncheon in Orlando, FL
- Dr. Martin Luther King, Jr. Parade in Orlando, FL
- Dr. Martin Luther King, Jr. Festival in Orlando, FL
- Unity Heritage Festival in Winter Park, FL
- Zora Neale Hurston Festival in Eatonville, FL
- Jazz concert at Wells' Built Museum of African-American History in Orlando, FL
- Orange County Youth Tackle Football Super Bowl

APPENDIX E LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

Because no previous research has been done on this topic, I have included this list of suggestions for future research based on what I learned in my own research.

- Future ethnic displays should be well marked. Many visitors missed the African-American display who would have enjoyed it because there were insufficient signs.
- Actual changes in attitude or visitation by minorities as a result of ethnic displays should be measured.
- Since most botanic gardens have almost no African-American visitors, researchers may want to coordinate a group of African-Americans who would agree to come to the garden to analyze the display.
- Many respondents suggested that lack of advertising was an issue in visitation. Future research should analyze what marketing methods are typically used by botanic gardens, and their effectiveness in reaching minority groups.
- Programs and events were frequently mentioned as methods of attracting minority groups. Future research may investigate if there is more diversity among event attendees than among garden visitors on a non-event day.

- The only surveys successfully returned were ones distributed in person. Mailed surveys will result in a very low response rate. The most effective way to survey is to network and find contacts who will direct the researcher to individuals, organizations, and events that will have the best response.

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BIOGRAPHICAL SKETCH

Melissa Marie Steinhauer, daughter of David and Lise (Schmidt) Steinhauer, was born July 21, 1982, in West Palm Beach, Florida. She entered Auburn University in August 2000. While in high school, visits to public gardens resulted in a desire to one day work in public gardens. This interest was cultivated in classes at Auburn and confirmed in internships at Bellingrath Gardens and Callaway Gardens, where she learned about some of the issues in managing public gardens. She graduated summa cum laude as a University Honors Scholar from Auburn University in 2004 with a Bachelor of Science in horticulture. To better prepare herself for management, she entered graduate school at University of Florida in August 2004. After graduating, she will work in a public garden in the Southeast United States.