Dreaming of Eden: A Sociological Inquiry

into Sacred Selves and Public Places

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Abstract

A diverse literature from several different disciplines addresses the issues of identity, settings and spirituality. This paper focuses upon drawing these traditions together in order to understand the relationship from a more holistic perspective, and to discern to what degree the three domains interact in a sociological sense. Several hypotheses are tested to discover if setting influences the salience of people's spiritual identity or the levels of their spiritual transcendence, as well as whether or not age, controlling for other factors, explains or influences these two aspects of spiritual expression. Findings indicate that neither setting nor age significantly influence identity salience. Religious affiliation and sex are found to have significant relationships to spiritual identity salience. Additional findings indicate that while setting does not significantly influence transcendence, age and other controlling factors do have significant relationships to levels of transcendence. Several methods are used to test the hypotheses, including the McNemar Ratio, Ordinal Logistic Regression of Maximum Likelihoods, and OLS regression. Concluding comments suggest directions for future research.

Introduction

Musings, insights and words of wisdom from diverse cultures worldwide indicate that humanity has discerned a connection between the human spirit and the garden. Gardens have been used as symbols of wisdom,

> *"When I see Heaven and earth as My own garden, I live that moment Outside the Universe." -- Japanese Folk Saying[1];*

…symbols of enlightenment,

> *"If we could see the miracle of a single flower clearly, our whole life would change."-- Buddha, c. 600 BC[2];*

…symbols of salvation,

> *"But those who believe and do good deeds, We will admit them to gardens in which rivers flow, lasting in them forever..." -- Quran, 4:57[3];*

…and symbols of lost innocence,

> *"What is there about a garden that generates so much pleasurable response from so many? Perhaps we see the garden as a symbol — a place, yes, but more than a place, a space that represents some fulfillment of homogeneity*

lacking in our too frequently unsatisfying societies. Perhaps it beckons to us with a simple goodness, a lovely innocence to which we would like to return."--Rabbi Balfour Brickner (2002).

Poets, philosophers, religious leaders and faithful adherents have all offered their perspectives upon the relevance of the connection between nature and spirit, but what of sociology? Some scholars of religion posit that it was the awe experienced before the might of nature among the earliest humans that spawned religion or religious thoughts (Weber, 1993 [1922]; Durkheim, 1995 [1912]), but is there perhaps a deeper connection that is more relevant given recent academic progress?

In thinking about this connection through an objective and social scientific lens, several questions arise. First, does the identity salience of being 'a spiritual person' shift by setting? More specifically, do people identify themselves as being a spiritual person more often within the setting of a garden then outside of its borders? Second, does the spiritually transcendent state of a person remain fixed, or does such transcendence change in strength by location? Third, for people within a garden environment, how do age, demographic and other controlling characteristics influence both the salience of spiritual identity and the level of transcendence they experience? Finally, if setting does influence either (or both) the salience of spiritual identities and the strength of spiritual transcendence, what institutional or structural factors are existant which support them, and are these factors presented with a conscious motivation to enhance these characteristics?

This paper attempts to answer these questions by focusing upon the interactions of people and environment within a single setting to determine whether or not there is a socially relevant connection between setting and sacred selves, or if the instinctive connection which many avid gardeners or naturalists feel is simply a vestige of an agrarian past. The paper utilizes a meta-theoretical construction, and is organized into sections on background, methods, data, results and discussion. A brief conclusion presents limitations and suggests possibilities for future research.

Background

Literature from several disciplines is drawn together within this paper. Gerontology, psychological sociology, theology and horticulture each have made contributions toward obtaining an understanding of the triangulation of spirituality, setting and concepts of self identity. This three-part design, depicted in Figure 1 below, forms the core of the meta-theoretical foundation for this study.

Figure One: Space-Sensitive Dynamic of Spiritual Identities

Spirituality

Setting ←→ Self
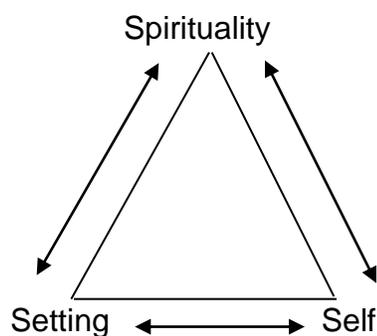
The existing literature upon which this study is based is multidisciplinary and theoretically diverse. In the following subsections, supportive research from each of the four primary disciplines involved is discussed, followed by a concluding synthesis.

<u>Identity Hierarchies and Self Regulation – Psychological Sociology</u>

Research on identity has been a foundational element of the sociological and psychological traditions for more than a century (McPhail, 1993). Beginning with George Herbert Mead, individual identity was seen as a socially constructed and socially maintained element of personality (McKinnon, 1978). Symbolic Interactionism, the theory that was developed to support this notion, has maintained that people act and react with one another in social ways that purposely support what they perceive to be their own, and each other's, concepts of self (Stryker, 2002). By the 1950's, emerging research on artificial intelligence led to the development of self-regulation theories, which adapted Symbolic Interactionism by providing a functional, cybernetic model for how the human brain receives input, compares that input to self-identities, then determines the correct behavior or affect that is needed as an output to maintain previously set reference points that establish a conceptualized self (McClelland, 1994).

Current research on self and identity has determined that single individuals can support simultaneous identities (Burke 2003), each of which rises and falls given specific social determinants. This research has tended to adopt elements of role theory, and roles and identity have become uniformly considered. The concept of role and identity salience has determined that any given identity will rise or fall among the full complement of

personal identities when a social situation is most supportive of that given identity. Multiple identities continue to be socially reinforced, with the possibility that group identity is also supported through repeated group activity, and through a shared process of perception of inputs and reference signals (McPhail, 1993). Research has also shown that identities are grouped into two larger categories of voluntary and involuntary identities with such identities as daughter being involuntary, while church member would be voluntary (Thoits, 2003).

Cybernetic theories of self-regulation focused largely upon affect as the response that most regulated the self in any given situation, eventually emerging as a new sociological theory known as Affect Control Theory (McKinnon, 1989). Affect Control Theory has since been divided into specialized sub-theories including Identity Control Theory (Stets and Burke, 2000) and Social Control Theory (Hogg and Ridgeway, 2003). While different researchers focused upon varying elements of the self-regulation process, the notion of identity salience has remained uniform and consistent.

Identity has been shown to be self-regulated (Powers; Carver and Scheier, 2000), socially constructed, socially maintained and to have a salience that is adjustable in response to specific social situations and interactions (Burke, 2002; Smith-Lovin and Douglass, 1992; Smith-Lovin, 2003). These processes are largely universal despite cultural, ethnic and linguistic differences (Heise, 2001).

While research on self-regulation and identity hierarchies is diverse and in many ways exhaustive, very little work has been performed probing the influence of physical setting upon salience. Through focusing upon this dynamic, this study promises to add to the existing literature on self.

Aging and Spirituality – Gerontological Perspectives

The analysis of the spirituality and religiosity of elders predates the formation of gerontology as a specialized field by more than five decades. As early as 1911, psychologists were already debating the causes and considerations of religiosity among older adults (Schultz-Hipp, 2001). While some research has indicated that there is no increase in spirituality or religiosity with age, and that people remain in later old age as they were in younger periods of the life course (Orbach, 1961; Palmore, 1980; Blazer and Palmore, 1976), still others have stressed that spirituality is not a static element of the human experience (Stokes, 1990). Religion has been viewed as a means of overcoming the fear of death, to maintain a sense of meaningfulness and significance in life (Carlsen, 1999; Moody, 1998; McFadden and Hanusa, 1998), to cope with loss or loneliness (Bondevik and Skogstad, 2000) and to meet social needs (Rogers, 1976).

The concept of transcendence, or entering or achieving an altered way of viewing the material world in relation to spiritual dimensions, has been shown to increase in advanced ages among varying groups and cultures (Ahmadi, 2000; Tornstam, 1994; Leder, 1999; Maldonado, Jr., 1994). Increased experience of transcendence has been shown to include a number of characteristics, such as an increased sense of unity with

the cosmos, a decreased fear of death, an altered perception of time and the individual's relationship to it, and a decreased focus upon material considerations (Tornstam, 1989). The social theory of aging termed Gerotranscendence posits that the developmental processes of aging are supported and completed through this experience of transcending the material (Ahmadi, 2000; Tornstam 1989, 1992), and that increased religiosity and spirituality are nothing less than the culmination of Erikson's Eighth Stage of Human Development (Tornstam, 1989) and the best completion of a human life (James, 1961 [1902]). Several empirical studies have been published which establish the functionality of Gerotranscendence as a working, structural component of the aging process (Ahmadi, 2000; Tornstam, 1989, 1992, 1994, 1996a, 1996b, 1997, 1999a, 1999b).

The importance of successfully achieving Erikson's Eighth Stage of Development, that which he termed overcoming the conflict between ego integrity and despair, or the attainment of wisdom, led Erikson to suggest that the entire process of aging must be "re-observed and rethought" (Erikson, 1982). Without successfully completing the cycle of human development, Erikson claimed that humans would be lost to despair, lacking coherence, wholeness and integrity in their lives at its final stages (Erikson, 1982). Failure to successfully complete any given developmental stage can lead to continued conflict and mental health crises, including lost self-esteem, heightened feelings of depression and increased emotional frailty (Smyer and Qualls, 1999). This is perhaps more true for elders then anyone else along the life course as they are confronted with the conflicts of the final stage of human development. Even as shifts toward post-

modernists frameworks make it more difficult to understand what being old means, thus

clouding or hampering the formation or maintenance of identity among the elderly

(Polivka, 2000), elders are faced with the challenge of passing the last developmental

hurdle.   Socially, the cost in human terms of failing to overcome this final

developmental challenge can be measured in terms of the condemnation of 19% of the

elderly population to living with depression and 90% of the nursing home population to

living with mental illness (Smyer and Qualls, 1999). Transcendence is socially

significant in terms of the lost human potential for those who fail to achieve integrity, and

the costs associated with that loss.

Sacred Spaces – Theological Perspectives

The connection between physical space and religiosity has been addressed by a variety

of scholars with diverse intentions. Physical sites have been shown to elicit fervent

religious response in members of a particular faith community, due to the historical

actions of key religious actors at those locations (Dhanjal, 1994; Davies, 1994; Bennett,

1994), or due to a traditional understanding of deistic actions associated with them

(Boord, 1994). Beyond this element of specific religious contexts, however, there is a

broader association between religious practice, spirituality and setting. In fact, multiple

religious traditions perceive a connectivity between nature in general, particularly

elements of the natural world such as woodlands, mountains or waterways, with

heightened experience of spirituality (Choudhury, 1994; Reader, 1994).

In his study on the sacredness of place in the religious traditions of the United States,

Belden Lane offers several hypotheses regarding how space is made or perceived as

sacred: 1) Sacred places are not chosen, they choose; 2) Ordinary places become

sacred through ritual practiced at that particular site; and 3) the impulse of a sacred

place is both local and universal (Lane, 1988). Lane further suggests that, through the

processes of the Enlightenment and the industrial and technological revolutions,

Americans have lost their attachment to a given sacred place, a place in which to

ground their spiritual selves, and therefore have remained spiritually uprooted. This

mobility has created the need to find spaces that invoke a spiritual connection, and

landscapes, both natural and constructed, fulfill that need (Lane, 1988). This sensitivity

to the spiritual aspects of landscape has in fact spawned a new American theological

perspective, eco-theology, which stresses a spiritual connectivity between man and

creation that must be nurtured in order to preserve the future of both (McDaniel, 1990).

<u>Horticulture as Therapy – Horticultural Perspective</u>

> While diagnosed and living with Post Traumatic Stress Disorder (PTSD) in 1990,
> I finally won the lottery for a community gardening plot. It became a central
> feature of my recovery…a source of relief. – *Sally Shannon*[4].

Sally Shannon is not alone in her observations regarding the therapeutic effects of

gardening and horticulture. According to Prof. Diane Relf, the knowledge of the positive

benefits of horticulture as a therapeutic tool predates the emergence of psychiatry as a

science, even to the point of the inclusion of garden spaces within hospitals in Spain as early as 1806[5]. Relf maintains that horticultural therapy provides long lasting benefits for intellectual, social, physical and emotional well-being[6].

Landscapes, gardening and horticulture have been shown to have particularly therapeutic benefits for persons experiencing disabilities, the elderly and in the general population (Goldman and Mahler, 2000). The actions associated with nurturing plants may be used to re-establish links to a time when, as youth, people felt nourished themselves. Dr. Bill Thomas, a nursing facility medical director, developed a concept called the Eden Alternative for enhancing overall wellness and a sense of wholeness in care facilities by enriching the environment with plants and garden spaces (Goldman and Mahler, 2000), a notion since replicated in other facilities (Bassen and Baltazar, 1997). In addition, victims of extreme trauma find benefits from simply being in a garden environment[7].

<u>Synthesis</u>

Each of the perspectives presented through these multidisciplinary theories and approaches merge within this proposed study as a means of understanding the connection between spiritual identities and settings, particularly among the elderly. It would be a simple matter to assert that the elders who frequent gardens do so for strictly aesthetic reasons, or because it supports their identity as a gardener or a plant-lover. The literature would certainly support the notion that the behavior of visiting a gardens or other botanical or natural setting, and the emergent displays of positive

affect associated with that behavior, are agentic methods of reinforcing a concept of self. However, it is the task of this study to determine if there are alternate mechanisms at work that facilitate shifts in identity and are supportive of continued human development through assisting with the process of transcendence.

Previous research has shown that identities shift in salience (Burke, 2003), that spiritual transcendence increases with age (Tornstam, 1989) and is a critical element of the successful completion of human development at the life course (Erikson, 1982), and that setting influences the experience of spirituality (Davies, 1994). This study will determine whether or not all of these issues converge within the environment presented within a single garden, and suggestively, to other such settings and environments. Ultimately, this study will determine if a garden provides a setting in which spiritual identity increases in salience and spiritual transcendence increases in strength, and if so, for whom, or if people simply enter the garden environment with a set identity hierarchy that does not shift outside of human interaction. Finally, assuming these hypotheses are supported, a presentation of finding will be made concerning the institutional or organizational role in supporting the presentation of spiritual identities within a public garden environment.

Methods

The study design for this paper was based upon identification of identity and spiritual states within a single garden environment. Duke Gardens, a publicly accessible botanical site adjacent to Duke University in Durham, North Carolina, was selected as

the test site for this study. Reasons for selection included proximity to the principal investigator, free access to the public (thus ensuring the potential for participation across socio-economic status), and active support for the project by the staff and administration of Duke Gardens.

The methods for this study were designed as a triangulation of three tactics including participant observation, surveys and interviews. Each is briefly discussed below.

Participant Observation: The first method, participant observation, was largely ethnographic. Observations at the Duke Gardens began in October, 2003 and extended through March, 2004. Observations were utilized to denote differences in composition of who uses the Gardens, and how they are using it. In addition, different areas of the Gardens were observed with a focus upon how the physical setting and the choice in landscape design influenced this use. These observations were intended to facilitate an understanding for the principle investigator of the basic patterns of use within Duke Gardens by its patrons.

Surveys: The second method involved the use of two surveys. In the first phase, patrons of the Gardens were offered the opportunity to participate, through a systematic sampling method, in a brief survey which focused upon identity hierarchies, levels of spiritual transcendence, and a variety of controls. The second phase included a follow-up survey for those Duke Gardens' patrons who chose to participate. All those who completed an initial survey were offered the opportunity to participate in the follow-up.

The second phase re-tested the identity hierarchy and levels of spiritual transcendence in a setting outside of Duke Gardens. All individuals completing surveys were offered the results when completed, but no other compensation was provided. The first phase of surveys occurred from February through March, 2004, while the second phase extended from March through April, 2004.

Interviews: Assuming that there would be findings suggesting a relationship between setting and either spiritual identities or levels of spiritual salience, interviews were conducted with Duke Gardens administrators and staff. The purpose of the interviews was to discern if the organization makes active decisions that support spiritual identities and experiences within the Duke Gardens environment. All interviews were conducted between October, 2003 and April, 2004.

<center>Systematic Sampling Design</center>

For the purposes of this study, the population is defined as everyone who visits Duke Gardens. It is from this population that a sample was drawn, and it is only to this population that any inference can be made. This limitation in population and sample establishes that results can only be viewed as suggestive toward other botanical or public settings.

At the time of this writing, it was impossible to capture the total population of Duke Gardens patrons, as there are no ticket sales, no admissions and no official means of collecting attendance data. The only known estimate of attendance was collected by a

planning firm in 1999 as part of the development of a five year business plan. Currently, no grants or funding are received that force the collection of such data, and the philosophical orientation of Duke Gardens remains fixed upon its identity as a no-fee attraction. This being the case, the planning estimation is still the only record of note that is functional in attempting to assess the true population value for the population of Duke Gardens patrons.

According to this estimation, there are 300,000 visitors to Duke Gardens each year. However, as an annual estimation, the entire 300,000 patrons were not available during the data collection phase of this project. A simple annualized portion of this figure is not a valid figure, as according to administrators, 80% of its patrons visit the Gardens between April 1 and August 31. Over a 5 month period of time, 240,000 people wander the paths of the Duke Garden, leaving just 60,000 for the final seven months. Again, simple division is not the most accurate predictor, as observation has shown that the Duke Gardens are sparsely visited in the winter. However, there is no other rational basis, as attendance is largely driven over the 'off-season" by weather events. For the purposes of this study 1/7th of the 60,000 'off-season' patrons was the calculation used to define the total population for the first phase of surveys. This figure totals 8,571 patrons. This study utilized a relatively small sample size, aiming for a variability of (+/-) 10%. This degree of accepted variability required a sample size of 99 given a total population of 8,571, within a confidence level of 95%[8].

As a result of observations, exits were chosen as the survey locations. Duke Gardens is constructed with a focus upon movement, with each of its many paths directing the wanderer to new discoveries or peaceful places. While the movement may help to sustain interest and to entertain, it presents a challenge for survey work. Exits were selected for three reasons: First, to ensure that everyone sampled had the opportunity to be influenced by the setting; to ensure that people were not overly selected from specific areas of the Garden which may or may not promote more spiritual reflection, and finally, to minimize the intrusion of the survey process upon potential subject's enjoyment or use of the grounds. Surveys were collected on 10 different occasions, with each collection rotating by both exit and time of day. Rotation by day of week was not possible due to inclement weather, but at least one survey period was conducted during each day of the week. More specific information on sampling design can be viewed in Appendix A (Sampling Plan). The systematic sampling design was developed in order to maximize the equal probability of selection for any Duke Garden's patron, and to minimize any selection effects in choosing potential subjects.

Survey Design

The survey instrument was designed with two primary objectives in mind. First, it was essential that at least a minimum amount of information could be gathered on identity hierarchies, levels of spirituality, and a variety of control variables. Second, because Duke Gardens patrons tend to be in motion, brevity was considered critical to success. Certainly, the need to maintain a simple design instrument limited the survey's effectiveness in some ways. However, pretests indicated that the questions asked were

far removed from everyday thoughts and required deep thought to complete them honestly and accurately. The final design included 11 questions and took approximately 5-10 minutes to complete. The only comments received by subjects who completed surveys were positive, with most indicating that the survey was thought provoking.

Hypotheses

Several testable hypotheses were developed to address the original research questions stated in the introduction of this paper. Each hypothesis is detailed below.

H1: The salience of a person's spiritual identity will be higher at Duke Gardens then at an alternate location.

The first research question posed in this study is whether or not the salience of spiritual identity will shift within the Duke Gardens environment. Identity hierarchies have been shown to shift within various social situations (Burke, 2003), but no work as yet indicates that setting, apart from social contexts, may influence identity structures. The first hypothesis is established to determine if there is a significant relationship between setting and changes in identity salience.

H2: The level of a person's spiritual transcendence will be higher at Duke Gardens then at an alternate location.

The second question is whether or not the level of an individual's spiritual transcendence will increase within the Duke Gardens environment. Previous research suggests that transcendence increases in old age through the use of disengagement (Tornstam, 1989) or as a result of life crises (Tornstam, 1994). This hypothesis addresses the role of setting in influencing levels of spiritual transcendence.

H3: Age will positively impact the increase of spiritual identity, controlling for other factors.

H4: Age will positively impact the level of spiritual transcendence experienced by patrons of Duke Gardens, controlling for other factors.

The third and fourth research question asks whether age, or other factors, influences spiritual salience and the level of transcendence at Duke Gardens. The work of Lars Tornstam (1989, 1992, 1994, 1996a, 1996b, 1997, 1999a, 1999b) forms the basis for this line of questioning, and informs the final two hypotheses. Age, particularly later old age, is predicted to be a significant determinant regarding who sustains a spiritually salient identity and who sustains significant levels of spiritual transcendence within the environment of Duke Gardens.

Data

Over the course of the sampling period, 169 initial surveys were offered, of which 105 were completed, for a response rate of 62%. After recodes and the use of listwise

deletion of missing values, total sample size for the first survey was n = 83. Of those

who were offered but refused the opportunity to participate, 81% were white and 51%

were female. Race and gender of those refusing closely mirrored that of subjects

completing the process, indicating that selection did not appear to be of concern within

the sampling process. Approximate ages (based upon physiometric estimation) of

those refusing the survey varied, with no noticeable clusters to denote selection effects

by age. Reasons given for refusing the survey varied from language barriers (6%) to

being too tired (8%), with the highest percentage offering no reason for their refusal

(33%). Of the reasons given, only language barriers indicate a problematic issue

related to selection bias, as all of those refusing for this reason were of non-white race

or ethnicity. That stated, the fact that the completed sample size aligned with the

refusals by race or ethnicity limits concerns over the introduction of bias through the

initial survey process.

Of the 105 subjects who completed surveys, 48 indicated that they were willing to

receive a follow-up instrument mailed to their home. Of the 48 mailed, 26 were

completed and returned for a 54% response rate. After recodes, total sample size for

the second survey was n=24. No information is available on reasons for refusals, and

no patterns among respondents emerged concerning clusters of self-selectivity.

<u>Variables and Operationalization</u>

The variables utilized for this study include a basic set of SES determinants, a set of

variables measuring particular interest in gardening, a measurement of life changes

experienced, the salience of spiritual identity, and levels of spiritual transcendence. Each of these variables, along with the rationale for using them, or explanations of their construction, is provided below. Descriptive statistics are discussed, and are also summarized in Table One.

Dependent Variables

There are 2 dependent variables which are operationalized in order to test the previously stated hypotheses: Spiritual Identity and Spiritual transcendence. Spiritual Identity is used to test H1 (utilizing McNemar Ratio as a means of hypothesis testing) and H3 (based upon ordinal logistic estimation of Maximum Likelihood). Spiritual Transcendence is used to test H2 (again through the McNemar Ratio) and H4 (using an OLS regression estimation). Each variable is defined and described below.

Spiritual Identity Salience: Determination of identity salience was measured through the use of a survey question asking the subject to rank their identities from a list of 10 options (1 being highest and 10 being not at all important), by that identity's importance to them at the time the survey was completed. For the purposes of this study, only the rank selected for spiritual identity was relevant. Other identity choices included employee/student, spouse/partner, sibling, child, parent, friend, volunteer or member of a religious group. This method of determining the salience of particular identities has been utilized effectively in other research that attempts to address shifts in salience within particular social interactions (Thoits, 2003).

Responses to the issue of the salience of spiritual identity included the entire range of options provided, with a minimum value of 1 and a maximum value of 10. The mean ranking of spiritual identity within Duke Gardens was 5.157. For the purposes of testing the first hypothesis, identities are established as being salient if they fall within the first tertile of rankings, meaning an importance ranking of 1, 2 or 3.

Spiritual Transcendence: Levels of spiritual transcendence were determined by asking respondents to rank how strongly they disagreed or agreed with a series of statements, using a 5 point Likert Scale. Statements included such concepts as connections to the cosmos, materialistic outlooks, and fear of death. For example, respondents were presented with the statement, "Knowing that life will continue on Earth is more important than my individual life", and were then asked to indicate their level of agreement with the statement (1 being strongly disagree, 5 being strongly agree). The statements used to determine the level of transcendence were developed by Tornstam (Tornstam, 1997), who utilized them effectively to determine the levels of transcendence among Swedish men and women between the ages of 25 and 85.

The total score for each statement was added together to create a spiritual transcendence composite score which could range from 9 to 45. The mean level of transcendence experienced by those sampled was 30.028, while the value of the final measurement of transcendence ranged form a minimum value of 18 to a maximum value of 41. Responses were normally distributed. Similar to salience, tertitles will be used for determining states of transcendence for the second hypothesis. In this case, a

subject is considered to be spiritually transcendent if they achieve a score of 31 or higher.

<u>Independent Variables</u>

Several independent variables were utilized to test H3 and H4. Each of these variables is described below.

Age: Age is measured as a continuous variable. Only people over the age of 18 were surveyed for this study. Age ranged from 19-77, with a mean age of 39.657, close to the national median age of 31 years (according to the US 2000 Census[9]).

Age-Squared: Age-Squared is constructed as Age * Age, and is utilized to capture any non-linear effects of aging.

White: A dummy variable for White is included as a control. The omitted category for this dummy variable includes any race other than White. Of those surveyed, 86% were white, slightly higher then the national standard of 75%.

Female: Sex is captured as a dummy variable, with male serving as the omitted category and female serving as the category of interest. 51% of respondents sampled were female, exactly matching the national mean.

Income: Income is rendered into a continuous form by recoding the midpoints of the 8 income ranges offered as choices in the survey (ranging from less then $10,000 to more than $150,000 per year). The mean household income for all respondents was $51,145. This fell within a few hundred dollars of the national statistic.

Religious Preference: Religious Preference was coded into a set of dummy variables, each utilizing 'None', meaning no religious preference, as the omitted category. Each of the dummy variables is provided below with explanation of how they compare to national standards to follow.

- Protestant: 44% of respondents selected Protestant as their preference.
- Atheist: 9.6% of respondents selected Protestant as their preference.
- Jewish: 1.2% of respondents selected Protestant as their preference.
- Catholic: 16.9% of respondents selected Protestant as their preference.
- Other – 13.3% of respondents selected Other as their preference. When prompted for more information on what denomination or faith the subject preferred, responses included Baptist, Mennonite, Quaker, and Bahai.

The largest departure from national standards of religious preference is in the Atheist category. While over 9% of respondents stated that they were atheist in this sample, only 0.3% do so at the national level. 'Other' also is fairly high, with 13% of respondents selecting this preference given the options stated above (Moslem was also given as an option, but was not selected). Nationally in the US, 55% of the population states a Protestant affiliation, with 28% choosing Catholic. Proximity to Duke University is the

main assumed cause for differences between the religious preference within the Duke Gardens sample and the national population. As inference will only be made to the population of Duke Gardens patrons and not to the general national population, the differences should present no problems. They are provided here for informational purposes only.

Duke Affiliation: This measure was intended to control for the status of anyone affiliated with the University, either as a student, faculty, employee or volunteer. The mean among respondents was 28% expressing official affiliation with Duke University.

Hours Spent Gardening: This variable is meant to identify the respondent's interest in gardening or gardens. This is a continuous variable, and is measured by the number of hours spent each week engaged in such activities. This variable is one of three controlling for selection bias among subjects who are enmeshed in gardening culture or activities. Values ranged from 0 to 20 hours per week, with a mean of 1.355 hours.

Number of Visits to Other Gardens: Another means of controlling for selection bias among active gardeners or garden enthusiasts is to control for the number of visits a respondent has made in the past twelve months to other botanical sites. This is a continuous variable and is drawn from a raw number provided in the survey instrument. Responses varied from a minimum of 0 to a maximum of 5 other sites visited. The mean was 1.795.

Number of Visits to Duke Gardens: The final control for garden-enthusiast selection bias is a determination of the number of visits a subject has made in the past twelve months to Duke Gardens. This variable is in a continuous form and is based upon a raw number provided in the survey instrument. The range varied from 0 (meaning the visit at which the subject was surveyed was their first visit to Duke Gardens) to 365 (given by students who utilized the Gardens as a thoroughfare from parking to campus). The mean number of visits was 19.916.

Number of Life Changes: One of the issues identified in research that may cause increased attention to religion or spirituality by elders is the presence of major life changes or crises in their lives (Tornstam, 1997; Rosenthal, 1999; Rogers, 1976). This study controls for these influences by utilizing an independent variable for the number of major life changes a given respondent has experienced in the past year. The question that prompts the generation of this number is, "How many major life changes or crises have you experienced in the past year? Examples may include retirement, job loss, serious medical condition or injury, or the death of a family member or close friend." Responses ranged from 0 to 6, with a mean of 1.65 life changes. Contrary to the principle investigator's assumptions, people of younger ages were much more likely to identify a higher number of life changes then were older respondents.

While the number of variables included for control and interest purposes both adds to the complexity of the models and reduces the degrees of freedom available, a hazard due to the relatively small sample size, the controls identified above are both

theoretically and substantially important. Table One below provides a summary of the

descriptive statistics noted above.

Table One: Descriptive Statistics (n=83)

VARIABLE	MEAN	SD	MIN. VALUE	MAX. VALUE
Spiritual Salience (0-9)	5.156	3.366	1	10
Level of Transcendence (0-45)	30.928	4.901	18	41
Female	0.506	0.503	0	1
White	0.868	0.341	0	1
Income	51,145	39,508	5,000	150,000
Protestant	0.446	0.50	0	1
Catholic	0.169	0.377	0	1
Jewish	0.0121	0.11	0	1
Atheist	0.096	0.297	0	1
Other	0.133	0.341	0	1
Duke Affiliate	0.289	0.456	0	1
Hours Spent Gardening (per wk.)	1.355	2.953	0	20
Number of Visits to Other Botanical Sites (in past 12 months)	1.795	1.482	0	5
Number of Visits to Duke Gardens (per year)	19.916	59.651	0	365
Number of Life Changes (in past 12 months)	1.651	1.338	0	6
Age	39.657	15.793	19	77
Age-Squared	1819.08	1410.37	361	5929

Models

H1 – Test of Salience

The test of change for the salience of spiritual identities was conducted through

construction of a McNemar Ratio, a hypothesis test designed for binary outcomes of

matched pairs[10]. The McNemar Ratio was originally developed to determine the

significance of risk factors in contracting disease in epidemiological studies utilizing a control versus case experimental design. Responses for individuals providing follow-up information outside of Duke Gardens were used as the 'case group', with the identification of a salient spiritual identity serving as the test factor. The 'control group' was comprised of the responses from the same subjects within the Duke Gardens environment. Regarding H1, the McNemar Ratio tests the null hypothesis that setting has no effect upon the salience of spiritual identity through construction of a chi square. Rejection of the null hypothesis would indicate support for H1, that spiritual identity is influenced by setting.

H2 – Test of Spiritual Transcendence

As with H1 above, the model for testing spiritual transcendence by location was conducted through the use of a McNemar Ratio. In this case, the null hypothesis being tested states that a state of spiritual transcendence is not influenced by setting. The same change versus control group defined for the test of Hypothesis One was utilized to test transcendence, with the Duke Gardens cases providing the control, and the follow-up group the case. Rejection of the null hypothesis would indicate support for H2 that setting impacts the levels of transcendence.

H3 – Test of Aging and Salience

In order to fully test the influence of age and other factors upon the salience of spiritual identity among Duke Gardens patrons, a series of nested models was developed. This approach supports analysis not only of the effects of individual variables, but also for

determination of whether or not the inclusion of any given set of variables impacts

overall effectiveness in explaining levels of spiritual salience. Four models were used

for this process, each including an additional variable or set of variables. Equations

One, Two, Three and Four below specify these models.

Equation One: Spiritual Identity and Age (H3), Model One

$$Y = \beta 1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 5X5 + \beta 6X6 + \beta 7X7 + \beta 8X8 + \beta 8X8 + e$$

Model One tests the effects of the control variables for race (where White is X2); sex

(where female is X3); religious preference (where Protestant is X4, Atheist is X5, Jewish

is X6, Catholic is X7 and Other is X8); and affiliation status with Duke University (X9); all

upon the salience of spiritual identity (Y). Error terms are captured as well (e).

Equation Two: Spiritual Identity and Age (H3), Model Two

$$Y = \beta 1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 5X5 + \beta 6X6 + \beta 7X7 + \beta 8X8 + \beta 9X9 + \beta 10X10 + \beta 11X11 + e$$

Model Two adds variables used to measure the interest level of the individual in

gardening activities as additional controls. These variables include hours spent

gardening per week (X9); number of visits made to other botanical sites during the past

12 months (X10); and the number of visits made to Duke Gardens, also during the past

12 months (X11).

Equation Three: Spiritual Identity and Age (H3), Model Three

$$Y = \beta 1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 5X5 + \beta 6X6 + \beta 7X7 + \beta 8X8 + \beta 9X9 + \beta 10X10 + \beta 11X11 + \beta 12X12 + e.$$

Model Three adds the influence of the number of life changes the individual has experienced in the past year (X12).

Equation Four: Spiritual Identity and Age, Model Four

$$Y = \beta 1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 5X5 + \beta 6X6 + \beta 7X7 + \beta 8X8 + \beta 9X9 + \beta 10X10 + \beta 11X11 + \beta 12X12 + \beta 13X13 + e.$$

Finally, Model Four states the full model with the inclusion of Age-Squared (X13).

The validity of H3 was tested through a determination of the differences in model strength, utilizing the BIC Prime and Likelihood Ratio statistics. These tests of difference determine which model has the most explanatory power. For H3 to be fully supported, one would expect that Model Four would offer the most explanatory power, that age-squared would be found to be significant when added to the model and that the model itself would also remain significant. In each case, the dependent variable utilized is the ranking of spirituality as a salient identity. Because spiritual identity salience is measured through an ordinal scale, ordinal logistic regression was utilized as the appropriate analytical method.

H4 – Test of Aging and Transcendence

A similar framework as that explained above was used to test the influence of age and other factors upon levels of transcendence. With the exception of using transcendence scores as the dependent variable (Y), the nested models are identical to those expressed in the test of H3 above. Again, four models are specified, each of which adds the additional variable or set of variables described in Equations One through Four above. Equations Five, Six, Seven and Eight below specify these models, with Equation Eight containing the full model. Because transcendence scores are recorded as a continuous variable, analysis was conducted through OLS regression. Differences in R-Squared are used to test the hypothesis, with the expectation being that the model containing age-squared (Model Four) should offer the best model fit. In addition, age-squared would be a significant determinant of transcendence, and the model itself should remain significant.

Equation Five: Transcendence and Age (H4), Model One

$$Y = \beta_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_8 X_8 + e$$

Equation Six: Transcendence and Age (H4), Model Two

$$Y = \beta_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + e$$

Equation Seven: Transcendence and Age (H4), Model Three

$$Y = \beta_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \beta_{12} X_{12} + e.$$

Equation Eight: Transcendence and Age (H4), Model Four

$$Y = \beta 1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 5X5 + \beta 6X6 + \beta 7X7 + \beta 8X8 + \beta 9X9 + \beta 10X10 + \beta 11X11 + \beta 12X12 + \beta 13X13 + e.$$

Multicollinearity was tested utilizing the VIF test as a part of a preliminary linear

regression estimation for the tests of H3 and H4. Table Nine, presenting the results of

the VIF test, are available in Appendix B. According to the VIF test, the OLS

assumptions regarding multicollinearity were met for the tests in both H3 and H4.

Tests of autocorrelation were conducted to ensure that randomness in error sample

estimates was sustained. The fully detailed correlation matrix is attached in Appendix B

(see Table Ten). The only autocorrelation among the variables was between age and

age-squared, which had a very strong correlation coefficient at 0.987 (Allison, 1991).

After running the model with both age and age-squared, and again with just age-

squared, it was determined that the correlation caused bias in the final outcome, with

age-squared falsely mediating the significance of age. This was corrected by removing

the non-linear effects of age from the final model for both H3 and H4. No other

variables approached any meaningful level of autocorrelation.

Results

In keeping with the general organizational structure of this paper, results are described

separately for each hypothesis in the paragraphs below. Results are also summarized

in several tables throughout this section. Summary statements concerning
interpretation are provided in the Discussion section which follows.

H1 Results

As noted in the methods section, tertiles were used for determination of salience, with
the upper tertile (ranks 1-3) providing the definition of salience of spiritual identities.
While the mean was considered as a potential cut-point, the more conservative
approach of the upper tertile was selected in order to ensure that effects were not
spurious. Means offered too broad a definition for what could be considered salient
within an identity hierarchy. The Quick-Calc software package[11], provided by Graph-
Pad Software, Inc., was used to determine the McNemar Ratio calculations.

According to this test, there were 4 discordant pairs. In 1 case, spiritual salience was
achieved outside of the Duke Gardens environment but not within. In 3 cases, spiritual
salience was achieved within but not outside of Duke Gardens. In the remaining 22
cases, salience was either achieved or not achieved equally in both settings. These
results produced a Chi Square of 0.250 with 1 degree of freedom, a P Value of 0.617,
Odds of 0.333, and a 95% Confidence Interval of 0.006 to 4.151. These results indicate
that the model is not significant, and that the null hypothesis that setting has no effect
upon spiritual identity salience cannot be rejected. In this analysis, there is no
significant support for the hypothesis that setting influences identity.

<u>H2 Results</u>

As was the case with H1 above, tertiles were utilized as cut-points for defining a transcendent state. In the case of transcendence, the upper tertile is defined as achieving a score of 31 or greater on the transcendence scale. Once again, the Quick-Calc software package was used to calculate results.

According to this test, there were 5 discordant pairs. In 1 case, spiritual transcendence was achieved outside of the Duke Gardens environment but not within. In 4 cases, spiritual transcendence was achieved within but not outside of Duke Gardens. In the remaining 21 cases, transcendence was either achieved or not achieved equally in both settings. These results produced a Chi Square of 0.800 with 1 degree of freedom, a P Value of 0.371, Odds of 0.250, and a 95% Confidence Interval of 0.005 to 2.526. Once again, these results indicate that the null hypothesis, that setting has no influence upon levels of transcendence, cannot be rejected. As was the case with identity salience, there is no significant support for the hypothesis that setting influences levels of transcendence.

Table Two: Results of McNemar Ratio Tests for H1 and H2.

	H1	H2
Number of Discordant Pairs	4	5
P Value	0.617	0.371
Chi Square	0.250	0.800
Odds	0.333	0.250
95% Confidence Interval	0.006 to 4.151	0.005 to 2.526

Significance Level Notation (p>t), two-tailed tests : # .1, * .05, ** .01, ***.001

Table Three illustrates the parameter estimates and p values for each of the nested

models testing H3. Due to the relatively small sample sizes, significance levels are set

at 0.10. Though considered to be marginally significant, for the purposes of this

analysis, this level of significance is theoretically acceptable and should not introduce

bias in interpretation.

As Table Three indicates, there are several aspects of the hierarchical model that

remain constant. First, according to this analysis, there are several control variables

that have no significant relationship to the salience of spiritual identity. Neither race nor

affiliation with Duke University is significant in any model. In addition, none of the

control variables added in Model Two to test the influence of garden enthusiasts offer

any significant relationship to spiritual identity salience. Finally, the primary test variable

of age-squared also fails the tests for significance. The only variables that produce

significant results, beyond most of the intercepts, are the control variable for sex and

those estimating the influence of religious participation.

According to the nested model, being female increases the probability of expressing a

higher ordered ranking of spiritual identity salience by 0.741 in the most restricted

model, and by 0.706 in the full model. Both of these estimates are compared to males,

and controlling for all other factors. In all models, sex is significant at the 0.1 level.

Table Three: Nested Model for H3, Age and Spiritual Salience

Spiritual Identity Salience	Model One	Model Two	Model Three	Model Four
Intercept 1	-3.161** (0.0019)	-2.715* (0.01)	-2.819* (0.011)	-2.818* (0.011)
Intercept 2	-2.633** (0.009)	-2.19* (0.036)	-2.293* (0.037)	-2.292* (0.038)
Intercept 3	-2.456* (0.014)	-2.014# (0.053)	-2.116# (0.054)	-2.116# (0.054)
Intercept 4	-2.228* (0.025)	-1.787# (0.085)	-1.889# (0.084)	-1.889# (0.084)
Intercept 5	-1.623# (0.098)	-1.18 (0.25)	-1.282 (0.237)	-1.281 (0.237)
Intercept 6	-1.273 (0.191)	-0.829 (0.418)	-0.930 (0.388)	-0.93 (0.389)
Intercept 7	-0.962 (0.321)	-0.511 (0.617)	-0.613 (0.569)	-0.612 (0.57)
Intercept 8	-0.334 (0.729)	0.158 (0.877)	0.054 (0.96)	0.055 (0.096)
Intercept 9	-0.252 (0.794)	0.247 (0.809)	0.143 (0.894)	0.144 (0.893)
White	-0.219 (0.726)	-0.124 (0.842)	-0.072 (0.914)	-0.075 (0.912)
Female	0.741# (0.077)	0.721# (0.089)	0.705# (0.097)	0.706# (0.099)
Income	-.0000006 (0.905)	-.0000002 (0.966)	-0.0000002 (0.975)	-0.0000002 (0.97)
Protestant	1.785** (0.005)	1.609* (0.015)	1.622* (0.014)	1.62* (0.014)
Atheist	0.829 (0.321)	0.956 (0.288)	0.946 (0.294)	0.949 (0.307)
Jewish	1.943 (0.304)	1.624 (0.396)	1.4 (0.493)	1.386 (0.509)
Catholic	1.373# (0.061)	1.197 (0.109)	1.208 (0.107)	1.209 (0.11)
Other	2.275** (0.006)	2.153* (0.01)	2.149* (0.01)	2.149* (0.011)
Duke Affiliate (squared)	0.075 (0.637)	-0.006 (0.971)	-0.003 (0.988)	-0.003 (0.985)
Gardening Hours (squared)	---	0.002 (0.69)	0.002 (0.705)	0.002 (0.706)
Visits to Other Gardens (squared)	---	-0.011 (0.727)	-0.012 (0.721)	-0.012 (0.721)
Visits to Duke Gardens (squared)	---	-0.00003 (0.172)	-0.00003 (0.173)	-0.00003 (0.176)
Life Changes (squared)	---	---	0.0116 (0.746)	0.012 (0.745)
Age (squared)	---	---	---	0.000004 (0.982)
BIC Prime (-2 Log L)	330.214	326.612	326.524	326.524
Likelihood Ratio / df	13.909 / 9	17.511 / 12	17.599 / 13	17.594 / 14
Model Significance	< .0001***	< .0001***	< .0001***	<.0001***

Significance Level Notation (p>t), two-tailed tests : # .1, * .05, ** .01, ***.001

Among the variables controlling for religious preference, only Protestant, Catholic and Other indicate significant relationships. In the case of Catholic preference, the estimate is only significant in Model One. However, the estimate remains slightly beyond the marginal significance level in each of the other variables, indicating a weak predicted relationship in all models. In Model One, stating a preference for Catholicism increases the probability of expressing a higher ordered spiritual salience by 1.373 compared to people with no religious preference, and all else being equal. Protestant affiliation on the other hand is strongly associated with the identity salience of spirituality. All else held constant, expressing a Protestant preference is significant at the .01 level in Model One, and at the .05 level in each of the remaining three nested models. In Model One, the probability of expressing a higher ordered spiritual identity is 1.785 compared to people with no religious preference, a figure that declines slightly to 1.62 in Model Four. Affiliation with preferences of 'Other' denominations or faiths is also highly significant, controlling for all other factors. Significance levels for 'Other' mirror those for Protestant affiliations, but the parameter estimates are much stronger. Compared to people with no religious preference, people selecting 'Other' preferences have a probability of 2.275 of stating a higher ordered spiritual identity rank in Model One. This estimate declines to 2.149 in Model Four.

Though many subjects indicating the 'Other' category for religious preference indicated such typically Protestant denominations as Baptists or Congregationalists, the Pearson Correlation Coefficient between Other and Protestant is not worrisome (0.351). In fact the correlation between Protestant and Catholic is higher (0.404). According to these

results, while perhaps related at some insubstantial level, Protestant and Other behave differently enough, with sufficient variation, to be treated as uniquely influential characteristics in understanding spiritual identity among Duke Gardens patrons.

Beyond testing the significance of individual variables, the nested model also enables the use of a test of difference in BIC Primes and Likelihood Ratios as a means of determining if the null hypothesis, that age has no significant relationship to spiritual identity salience, can be rejected. The test of difference was conducted, and the comparison results in BIC Primes and LR tests are provided in Tables Four and Five below.

Table Four: Results of Test of Difference in BIC Primes, H3

	M1-M2	M1-M3	M1-M4	M2-M3	M2-M4	M3-M4
Difference in BIC Prime	3.602	3.69	3.69	0.088	0.088	0
Evidence of Model Improvement	*Modest*	*Modest*	*Modest*	*Weak*	*Weak*	*None*

Table Five: Results of Test of Difference in Likelihood Ratios, H3[12]

	M2-M1 /df2-df1	M3-M1 /df3-df1	M4-M1 /df4-df1	M3-M2 /df3-df2	M4-M2 /df4-df2	M4-M3 /df4-df3
Difference in Likelihood Ratio (Chi-Square)	3.602 / 3 df	3.69 / 4 df	3.685 / 5 df	0.088 / 1 df	0.083 / 2 df	-0.005 / 1 df
Level of Significance	*0.50*	*0.50*	*0.75*	*0.90*	*0.975*	*none*
Evidence of Model Improvement	*Weak*	*Weak*	*Weak*	*Weak*	*Weak*	*None*

As the tables illustrate, Model Four fails in each test of the null hypothesis. Model Two, including the control variables for garden enthusiasts, provided the most substantial

improvement in model fit, though differences in Likelihood Ratios did not approach significance in any comparison of the four models. Each of the four models were highly significant individually. Due to the failure of Model Four to substantially or significantly improve the model, and due to the failure of age-squared to prove significant as an explanatory variable, the null hypothesis cannot be rejected and H3 is not supported.

<div align="center">H4 Results</div>

Table Six below illustrates the parameter estimates and p values for each of the nested models testing H3. Once again, significance levels are set at 0.10 to allow for sufficient explanations to be offered given the small sample sizes.

There are several characteristics that significantly influence levels of transcendence. First, according to Model One, being white increases levels of transcendence by 5.426, controlling for all other factors, with significance at the 0.001 level. In Model Four, this effect is reduced by the inclusion of other factors, but remains significant at the 0.05 level and continues to add 4.48 to transcendence levels. These increases in transcendence are in comparison to the omitted category of non-white.

Second, Income remains barely insignificant in most models, becoming significant at the 0.1 level only in the case of Model Two. Using data form Model Two, every dollar of income increases transcendence by 0.000007, all else being equal. In more manageable terms, every $10,000 increase in household income adds .07 to transcendence. A household income of $51,000 will increase transcendence by a

modest 0.35, or barely a third of a point, controlling for other factors. Again, significance

levels remain marginal or just above marginal throughout this analysis. Overall, income

has modest to negligible effects upon levels of transcendence.

Table Six: Nested Model for H4, Age and Transcendence

VARIABLE	MODEL ONE		MODEL TWO		MODEL THREE		MODEL FOUR
Intercept	24.693*** (<.0001)		23.966*** (<.0001)		24.657*** (<.0001)		24.384*** (<.0001)
White	5.426*** (0.0008)		5.542*** (0.001)		5.144** (0.004)		4.48* (0.012)
Female	-0.012 (0.991)		0.031 (0.977)		0.102 (0.926)		0.318 (0.771)
Income	0.00002 (0.112)		0.00003# (0.089)		0.00002 (0.109)		0.000007 (0.682)
Protestant	1.402 (0.372)		1.712 (0.304)		1.637 (0.327)		1.644 (0.318)
Atheist	0.207 (0.923)		0.126 (0.955)		0.152 (0.946)		1.232 (0.593)
Jewish	8.970# (0.069)		9.449# (0.063)		10.921* (0.045)		8.744 (0.111)
Catholic	0.321 (0.862)		0.519 (0.782)		0.379 (0.845)		0.834 (0.666)
Other	3.408# (0.097)		3.547# (0.095)		3.579# (0.093)		3.939# (0.063)
Duke Affiliate (squared)	-0.304 (0.457)		-0.194 (0.663)		-0.184 (0.68)		-0.231 (.599)
Gardening Hours (squared)	---		-0.009 (0.405)		-0.009 (0.890)		-0.005 (0.637)
Visits to Duke Gardens (squared)	---		0.00002 (0.548)		0.00002 (0.536)		0.00001 (0.716)
Visits to Other Gardens (squared)	---		0.008 (0.923)		0.01 (0.907)		0.0056 (0.947)
Life Changes (squared)	---		---		-0.074 (0.0.426)		-0.068 (0.458)
Age (squared)	---		---		---		0.0008# (0.082)
R-Squared	0.215		0.227		0.234		0.267
Model Significance	0.03*		0.083#		0.101		0.062#

Significance Level Notation (p>t), two-tailed tests : # .1, * .05, ** .01, ***.001

Third, Being Jewish is significant in Models One and Two at the 0.1 levels, and in Model Three at the 0.05 level. Significance falters in Model Four, falling just shy of marginal levels. Using Model Two data and holding all else constant, being Jewish increases levels of transcendence by 9.449, compared to people who have no religious preference. In Model Three, being Jewish elevates transcendence by 10.921 points, all else being equal. This is the single largest significant effect of any variable upon transcendence.

The only other significant religious preference is 'Other'. Unlike the test of H3 regarding spiritual identity salience, 'Other' is significant even though Protestant is not. Controlling for other factors, affiliation with 'Other' increases transcendence levels by 3.939 in Model Four, compared to those professing no religious preference.

None of the control variables added in Models Two and Three approach significance, and only the addition of age-squared in Model Four offers an improved model fit and an additional significant variable over Model One. Age-squared is marginally significant, with a p-value of 0.082. The effect of age upon transcendence is weak, but present. Controlling for all other factors, each year of age increases levels of transcendence by 0.0008. According to this statistic, a centenarian would increase in transcendence by 0.08. While this increase is fairly insubstantial, it is important to remember that age-squared captures the non-linear effects of age upon transcendence. One would not expect increases in transcendence levels from age-squared to remain constant, but

rather would proceed in a non-linear fashion with more dramatic increases at different periods of the life course.

Table Seven: Test of Model Fit for H4, Comparison of R-Squares

	M2:M1	M3:M1	M4:M1	M3:M2	M4:M2	M4:M3
% Improvement	5.58%	8.84%	24.19%*	3.08%	17.62%	14.10%

* Greatest Improvement

For the null hypothesis to be rejected, this analysis posited that Model Four should offer the greatest explanatory power, that age squared should be a significant variable, and that the model itself would remain significant. Models One, Two and Four remain significant through each stage of the analysis, while Model Three drops just slightly beyond significance at 0.101. Comparison of the model fit indicates that Model Four has the greatest explanatory power with an R-squared of 0.267, 24% greater then Model One (comparisons of the R-squares are presented in Table Seven above). Finally, age-squared itself needed to be significant. As discussed previously, age-squared is marginally significant at the 0.1 level, even though its net effect upon transcendence is modest. As all three tests were met, the null hypothesis can be rejected, and H4, stating that transcendence is influenced by age, may be accepted.

Discussion

The following popular verse is inscribed or printed upon garden stones, coffee mugs and clay pots in countless homes around the world.

"The kiss of the sun for pardon,

The song of the birds for mirth,

One is nearer God's heart in a garden

Than anywhere else on earth."

--Dorothy Frances Guerney (c. 1900)

The verse symbolizes both a religious thought, that gardening is in itself a prayer, and expresses an identity that is shared across borders, both tangible and cultural. But how do popular concepts, adages and proverbs translate sociologically? An assumption of this study, one that was confirmed by over one hundred hours of observation, was that the gardens would appeal to different people for different reasons, and would by its nature support thoughts and attitudes that were conducive to concerns of the spirit, or that transcended the material.

Previous literature supported the confluence of dynamics presented by the garden environment. These included shifts in identity salience (Thoits, 2003; Burke, 2003); the effect of settings, particularly natural environments, upon spirituality and transcendence (Lane, 1988; Crosby, 2003; Cullen, 2003); the influence of age upon transcendence (Erikson, 1982; Tornstam, 1989); and finally, the benefits of gardening for the elderly (Bassen and Baltazar, 1997; Goldman and Mahler, 2000) and those suffering from life crisis (Relf, Internet Reference 3). That only the effects of aging upon transcendence proved significant does not reduce the validity of these other issues. Instead, it implies that a combination of elements may be important to add to the analysis in order to

improve the explanatory power, or to capture sufficient social characteristics that can better explain, in social terms, the dynamics between these many diverse ideas.

One final research question posited at the beginning of this paper has not yet been answered. Though there was insufficient support for the association between setting and spirituality, the question of organizational focus upon this issue can still be addressed. During the interview process with staff of Duke Gardens, it became clear that there was in fact some attention paid to the spiritual needs of the Gardens' patrons. According to one horticulturist, a dramatic shift in focus occurred in the late 1960's, with landscape architecture turning toward a greater degree of attention upon the people using formal gardens rather then to the physical structures that framed them. When asked what specific tactics were engaged in to enhance the spiritual enjoyment of Duke Gardens, the response included such things as focusing upon the placement of benches, creating illusions of privacy with shrubs and screening plants, and careful selection and maintenance of the trees forming the garden canopy. The net effect is that there are numerous spaces in every section of Duke Gardens, where people can find privacy in floral chapels, or think quiet thoughts beneath the branching domes of the Gardens' "natural cathedral". Duke Gardens was built upon a premise that was succinctly stated by its long-time Director, Richard H. Fillmore, that "Beauty is a necessity of life" (Carbonara, 1978). Through careful maintenance, and by design, the organization that sustains the garden, also nurtures the gardener. The benefits of this, organizationally, are the subject matter for a different day, and a different analysis.

Conclusion

There are several limitations that constrained the effectiveness of this study. First, the small sample size limited both the power of the analysis through reduced degrees of freedom, and through limiting variation among respondents. While the sample was sufficient to understand basic causal influences within those areas tested, the small size does reduce confidence in the results to the degree that significance levels itself had to be extended to the 0.10 level in order to ensure that explanatory effects were not unjustly ignored. Second, the limitation of inference mandated by the narrow focus upon Duke Gardens, reduces the scope of the results so that they can only be applied to this specific site. In order to develop hypotheses that can be extended beyond the low stone walls of Duke Gardens, replication of this study will be required in additional settings. Only by analyzing the confluence of spirituality with setting and social characteristics in a variety of locations, then comparing and contrasting the disparate results, can a comprehensive theoretical framing for these issues be forged.

One of the stated goals of the horticulturists at Duke Gardens is to "blur the lines between self and nature". It is possible that they have succeeded in this mission, and that purpose, echoed in the wisdom of the Japanese proverb noted at the beginning of this paper, is the reason that only one of four hypotheses was supported. This paper and its many questions, some answered and some just begun, presents the first step on a journey to better understand, sociologically, the human experience of the spiritual, and the places in which that spirit blooms.

Notes
[1] Quotes and sayings on gardens were taken from Spirituality and Mysticism, Part I: Quotes for Those that Love Gardens, Gardening and the Green Way, Michael P. Garofalo (see Internet Reference 1).
[2] ibid.
[3] ibid.
[4] See Internet Reference 2.
[5] See Internet Reference 3.
[6] ibid.
[7] See Internet Reference 4.
[8] According to the University of Florida's Cooperative Extension Service. See Internet Reference 5.
[9] All census data were downloaded form the US Census web site. See Internet Reference 6.
[10] See Internet Reference 7.
[11] See Internet Reference 8.
[12] Significance levels were obtained form a statistical table provided by StatSoft, Inc. See Internet Reference 9.

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