

**MOTIVATIONS FOR PARTICIPATION IN THE
HORTICULTURAL CERTIFICATE PROGRAMS AT LONGWOOD GARDENS**

by

Carl Justin Haefner

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

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Approved:

Dr. James E. Swasey, Ph.D.
Professor in charge of thesis on behalf of the Advisory Committee

Approved:

Dr. James E. Swasey, Ph.D.
Coordinator of the Longwood Graduate Program in Public
Horticulture Administration

Approved:

Dr. John C. Cavanaugh, Ph.D.
Interim Associate Provost for Graduate Studies

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ABSTRACT

The purpose of this thesis was to identify and to describe the motivational orientations of the participants in the horticultural certificate programs at Longwood Gardens, the world's premier public display garden located near Kennett Square, Pennsylvania. The specific objectives were to describe demographic and other characteristics of the participants, to determine the influence of different motivational orientation factors on participation, to determine any differences in the influence of the motivational orientation factors between participant groups, and to make recommendations related to the management of horticultural certificate programs. A survey was conducted of those attending the Fall courses in the two horticultural certificate programs at Longwood Gardens known as the Certificate of Merit in Ornamental Plants Series I and Series II. The questionnaire included the Education Participation Scale (EPS) along with other items. The EPS quantifies the influence of different motivational orientation factors which represent underlying motivations for participation in adult education. These factors are: social contact, social stimulation, professional advancement, community service, external expectations, and cognitive interest. Results from the survey indicate that

cognitive interest and professional advancement have the greatest influence of all EPS factors on participation in these horticultural certificate programs.

Significant differences in the influence of the motivational factors were found between participant groups primarily in the areas of professional advancement, external expectations, and cognitive interest. The results of this study provide broad direction for the management of horticultural certificate programs at public horticulture organizations.

Chapter 1

INTRODUCTION

It is evident from motivational research conducted in the field of adult education that there are a variety of reasons for participation in adult education programs. Previous research also indicates that the motivations for participation may vary depending on the demographic characteristics of the learners and the specific programs they attend.

One approach to investigating the motivations for participation in adult education, is to examine the motivational orientations of learners. Through this approach the influence of motivational orientation factors, or domains of underlying motivations for participation in adult education, are assessed.

Purpose

The purpose of this thesis was to identify and to describe the motivational orientations of the participants in the horticultural certificate programs at Longwood Gardens. The specific objectives were:

- to describe characteristics of the participants in terms of their demographics, previous participation in the certificate courses, decision to take the course for a certificate, and interest in horticulture for leisure or employment,

- to determine the influence of different motivational orientation factors on participation,
- to determine any differences in the influence of the motivational orientation factors between groups of participants based on participant characteristics, and
- to make recommendations related to the management of horticultural certificate programs.

Significance

This research provides base line data on the demographic characteristics and motivational orientations of the participants in the certificate programs at Longwood Gardens that may offer direction to the management of horticultural certificate programs. Although research in adult education has provided information on the demographics and motivations of typical adult education participants, no research has been identified on the motivations for participation in horticultural certificate programs offered by public horticulture organizations. As Merriam and Caffarella (1991, 75) indicate, it is possible “that different learning activities have different sociodemographic and motivational roots.” In addition to providing information for Longwood Gardens, this research provides those offering certificate programs for other public horticulture organizations with a basis for comparison with their own audience. Those not offering certificate programs or those desiring to develop new certificate programs may also learn

from this research in determining what the motivations may be for their potential audience.

Why conduct motivational research? For those managing certificate programs for public horticulture organizations it is valuable to conduct market research to understand why people participate in their program(s). Market research in adult education often focuses on assessing learning needs and interests. According to Campbell (1990, 7), "Needs alone, however, are an insufficient basis for program planning...To develop successful continuing education programs, we must try to understand what will motivate adults to participate in our programs." An understanding of the participants' motivations may help those managing these programs in expanding participation and improving the quality of the learning experience.

In addition to the research findings and conclusions presented in this thesis, others may learn from this study how to conduct motivational research for their own audiences.

Certificate Programs

Certificate programs represent one approach to adult education used by a number of public horticulture organizations. A 1992 institutional survey conducted by the American Association of Botanic Gardens and Arboreta identified thirty-six public horticulture organizations offering horticultural

certificate programs. Although these programs may vary in structure from one organization to another, the fact that they are identified as a certificate program implies that they incorporate a series of courses or lectures that culminates in the participant receiving a certificate, based on a requirement such as attendance or passing grade on a test. In Formal and Informal Education Programs in Museums, former staff member at New York Botanical Garden, Arnold Gussin (1990), lists the availability of certificate programs as one of the guidelines for successful education programs. According to Gussin (1990, 52), "People are anxious to earn certificates because they represent an important accomplishment." An indicator of current interest in certificate programs by public horticulture professionals is the inclusion of a discussion group, "Certificate Programs in Public Gardens," in the 1995 national meeting of the American Association of Botanic Gardens and Arboreta.

Longwood Gardens, the world's premier horticultural public display garden located near Kennett Square, Pennsylvania, offers two certificate programs as part of its overall continuing education program. These programs, known as the Certificate of Merit in Ornamental Plants Series I and Series II, are designed for amateur and professional gardeners and cover the identification, culture, and landscape use of plants for the Delaware Valley. Eight courses, covering different groups of plants, are taught in each series, and each six session course

is offered every other year and periodically as an intensive one week-long course. A student may complete all courses in each series in two years, and has the opportunity to learn about approximately 1,040 plants in both series. In 1994, the programs' enrollment was 1,188. As these programs demonstrate, certificate programs have the potential to reach many individuals and provide the public with an extensive opportunity for learning.

Prior to reporting on the methods and result, the literature on motivational research in adult education is reviewed to provided a context for this study. The results from this study are then reported and discussed as they relate to other research findings. From the results and conclusions of this study, recommendations are presented as they relate to the management of horticultural certificate programs. In addition, recommendations are made for future research.

Chapter 2

MOTIVATIONAL RESEARCH IN ADULT EDUCATION

The study of participation is of great importance to theory and practice in adult education. As Darkenwald and Merriam (1982) indicate, the majority of adults are voluntary learners which contributes to the concern for attracting adult learners and developing programs that are congruent with their unique requirements and preferences. According to Darkenwald and Merriam (1982, 117-118):

Adult educators do not usually have a captive audience, nor in most cases is a steady supply of learners assured. Thus in adult education the effectiveness and often the survival of education programs depends on a thorough understanding of the needs, problems, attitudes, and preferences of its clientele and potential clientele. In this sense, participation research in adult education is analogous to market research in the business sector, and equally as important to organizational effectiveness.

In the study of participation, one area of persistent research interest is the question of what motivates adults to participate in adult education.

In investigating this question, motivational research in adult education has involved a variety of approaches from in-depth interviews identifying typologies of learners, to factor analytic studies examining motivational orientations, to

national surveys assessing the importance of specific reasons for participation. In addition, the hypothesis that participation in adult education is associated with life transitions has been tested. The following is a description of key studies beginning with the landmark study conducted by Houle (1961) investigating the motivational typology of adult learners.

Houle's Typology

One of the first and most influential investigations into the motivations for adult learning was conducted by Houle (1961) and published in The Inquiring Mind. Through in-depth interviews of 22 active learners, Houle proposed a three-way typology of learners: goal-oriented, activity-oriented, and learning-oriented. While not excluding the existence of other reasons, each typology represents a central emphasis in the reasons individuals have for participation in learning.

For goal-oriented learners, education provides the opportunity to accomplish specific objectives. Learning for these individuals is episodic and is initiated by the recognition of a need or interest. They satisfy their need or interest through a variety of institutions or methods depending on how well the institution or method meets the goal which they wish to accomplish.

The activity-oriented learners participate in education for the sake of the activity rather than the purpose of developing new knowledge or skills. There

are many reasons why these learners take part in educational activities. Some of these reasons include: to relieve loneliness, to find a spouse, to escape from a personal problem or unhappy relationship, to amass credits, diplomas, certificates or degrees, or to carry on a family or cultural tradition. These learners are course-takers and group-joiners. They may go to one or a number of different institutions in order to learn, but what they seek most are the social contact and human relationship aspects of the activity.

Those who are learning-oriented, engage in learning for its own sake. For these learners, education is a constant activity and is characterized by a strong desire to know.

Motivational Orientations

Following Houle's investigation into the adult learner, quantitative studies were conducted to further investigate the typology. Rather than trying to identify a "type" of learner, these studies identified groups of related reasons by examining the statistical relationships among different reasons for participation in adult education. One instrument used in these studies is the Education Participation Scale (EPS) (Boshier 1971; Boshier 1982).

This research methodology involves factor analysis of data collected from the EPS instrument in order to determine underlying motivations or motivational orientation factors. Factor analysis involves complex statistical procedures, and

in the Dictionary of Statistics and Methodology: A Nontechnical Guide for the Social Sciences (Vogt 1993) it is defined as:

Any of a several methods of analysis that enable researchers to reduce a large number of variables to a smaller number of variables, or "Factors,"....Factor analysis is done by finding patterns among the variations in the values of several variables; a cluster of highly interrelated variables are a factor.

Six factors were identified in independent studies using the EPS. Boshier and Collins (1983) identified the six factors as: social contact, social stimulation, professional advancement, community service, external expectations, and cognitive interest. These six factors represent groups of related reasons or constructs that identify the underlying structure of the responses to the instrument, and are labeled by a name that describes the central theme indicated by all the reasons included in a factor.

A number of other studies investigated how different groups of adults compare on these six motivational factors. According to Boshier and Collins (1983, 165) "a persistent theme in motivational research concerns the structure of 'motives' for participation and their relationship to variables in the life cycle (age, sex, marital status, number of children) and socio-economic domain (occupation, income)." Studies revealed that there is a relationship between the EPS factors and demographic variables and that there are differences in the influence of these factors between demographic groups (Boshier and Collins 1993; Morstain and Smart 1974).

The motivational orientation research indicates that there are a number of different motivational domains associated with participating in adult education and that the motives are more complex than Houle's three-way typology. In addition, while Houle's typology suggests that an adult's motivation for learning is constant over time, motivational orientation research leaves more room for the possibility that an individual's reasons for participation may vary over time or under different circumstances.

National Surveys

Another approach used to study the motivations for adult learning are national surveys that typically incorporate a checklist of specific reasons for participation in adult education. Two of the first national surveys were conducted by Johnstone and Rivera (1965) and Carp, Peterson, and Roelfs (1974). In the Johnstone and Rivera survey the following question was asked: "In which of the following ways had you hoped the course would be helpful to you?" The frequency of responses to the eight choices were: become a better informed person (37%), prepare for a new job or occupation (36%), on the job I held at that time (32%), spend my time more enjoyably (20%), meet new and interesting people (15%), carry out everyday tasks and duties at home (13%), get away from daily routine (10%), and carry out everyday tasks and duties away from home (10%). From this survey, Johnstone and Rivera (1965, 144) concluded

that “vocational goals most frequently direct adults into continuing education.”

This study, as well as others, have also revealed differences in the reasons for participation in adult education among demographic groups.

After summarizing the findings of group differences in an analysis of the results from 30 independent studies, Cross (1981, 91-92) concluded:

The reasons people give for learning corresponds consistently and logically to the life situations of the respondents. People who do not have good jobs are interested in further education to get better jobs, and those who have good jobs would like to advance in them. Women, factory workers, and the poorly educated, for example are more likely to be pursuing education in order to prepare for new jobs, whereas men, professionals, and college graduates are more likely to be seeking advancement in present jobs. Men are more interested in job related learning than women are, and younger people are far more interested in it than older people are. Interest in job-related goals begins to decline at age 50 and drops off sharply after age 60. Those who are not currently participating in learning activities (most often the economically disadvantaged and poorly educated) are even more likely to express an interest in job-related education than are their more advantaged peers, who can afford the luxury of education for recreational and personal satisfaction.

A number of studies were also conducted by the National Center for Education Statistics. The most recent of these surveys identified four main reasons for participating in adult education (Kopka and Peng 1993). These reasons included to improve, advance, or keep up in a job (19%); personal, family, or social reasons (10%); for diploma or degree (4%); and training for a new job (3%).

These surveys provide broad generalizations for why adults participate in education, and can be used for comparison with the participants in specific programs. It is evident from these studies that job-related reasons seem to dominate other reasons for participation.

Life Transitions

Rather than investigating motivational typologies, motivational orientation factors, or specific reasons for participation in adult education, Aslanian and Brickell (1980) tested the hypothesis that the reasons for participating in adult education are related to life transitions and trigger events. Life transitions are those changes in life status that make learning necessary, while the triggers are those specific events that result in the decision to learn. Eighty-three percent of those interviewed in the national sample who were active learners, reported that they were learning in order to cope with life changes. The top three transition areas were career (56%), family (16%), and leisure (13%). Trigger events were primarily in the areas of career (56%) and family (36%). In addition to describing reasons for learning this research provides some direction for understanding what are some of the possible causes of learning and under what circumstances learning might be initiated.

Together, these key studies provide a framework for conducting motivational research. In addition to their contribution to the body of knowledge on adults' participation in education, they provide guidance for identifying

research questions and selecting research methodologies for investigating the motivations for participation in specific programs.

Chapter 3

METHODS

Survey

A survey was conducted of the participants in the Certificate of Merit in Ornamental Plants programs at Longwood Gardens during the Fall of 1994. The certificate programs at Longwood Gardens were selected because they were accessible and established programs representative of one type of horticultural certificate program offered by a public horticulture organization. The participants surveyed included those attending two Series I courses (Annuals and Biennials I and Deciduous Trees) and two Series II courses (Perennials II and Ornamental Grasses). This sample was selected, because it represented all participants attending certificate courses in the two programs during the Fall of 1994 when the data were collected. Staff, volunteers, and students working at Longwood Gardens were excluded from the survey in order to include only those who were paying for the course. The questionnaire was distributed as attendees arrived for the first class of each course and returned at the end of the first class period.

For this research, an exemption from full Human Subjects Review Board review was received. A copy of the exemption letter can be found in Appendix A.

Education Participation Scale

The first section of the questionnaire included the EPS (Boshier 1982), a published scale which was used to assess the motivational orientations of the participants. The use of this scale made it possible to quantify the influence of different motivational orientation factors on participation in the programs of study. This instrument was selected because it is recognized as a valid and reliable method for identifying motivational orientation factors and has been used in numerous motivational studies.

Items in this scale were originally compiled from the responses of continuing education participants to open-ended questions and a review of The Inquiring Mind. Their reliability was determined by the author of the scale based on a test-retest procedure (Boshier 1971). The version of the EPS used in this study includes forty items on a four point scale. Those responding to the instrument indicate, on a scale from one to four, the level of influence each reason had on their decision to enroll in an adult education class. The four point scale is labeled: no influence, little influence, moderate influence, and much influence.

The motivational orientations assessed by this scale are based on a factor analytic study conducted by Boshier and Collins (1983). In this analysis, the data from 48 studies were compiled to create a master file of 12,191 cases. These data, collected mostly from Canada and the United States between 1969 and 1981, included all types of adult education participants. From this study six motivational orientation factors were identified. Alpha coefficients, measures of the internal consistency of each factor, were reported between .88 and .80.

The following is a description of the motivational orientation factors based on a review of the literature (Boshier and Collins 1983; Morstain and Smart 1974) and the items included in the EPS.

- **Social contact** reflects a desire to improve or develop relationships with other people. For example, those who participate for social contact tend to have a desire to meet new people, make new friends, participate in group activities, and share an interest with a friend.
- **Social stimulation** reflects a need for stimulation as an escape from routine, boring, or frustrating situations. Among other reasons, those enrolling for social stimulation tend to want a relief from boredom, a break in the routine of home or work, an escape from an intellectually narrow occupation, and a few hours away from responsibilities.
- **Professional advancement** reflects a desire to improve occupational performance or status. Included in this job related orientation is the desire to gain knowledge, skills, and credentials that will help secure advancement in a profession, gain higher status in a job, increase job competency, and help keep up with competition.
- **Community service** reflects a humanitarian concern and desire to participate in community work. Those who participate for community service reasons want to prepare for community work by improving their ability to serve others.

- **External expectations** reflects a desire to enroll based on a pressure external to the participant. This pressure may be the result of instructions, suggestions, or recommendations of an individual or organization with which the participant is associated.
- **Cognitive interest** reflects a desire to learn for the sake of learning. Those who enroll for cognitive interest reasons have an inquiring mind, enjoy learning, and desire to gain knowledge for its own sake.

Other Questionnaire Items

In addition to the EPS, questions determining characteristics of the participants were included in order to further describe the participants and to provide a basis for comparison of the influence of the motivational orientation factors between participant groups (Appendix B). Demographic questions covered gender, age, and race-ethnicity along with socio-economic questions including highest level of education completed, annual household income, and primary occupation. In addition, questions were included to determine the respondents' previous participation in certificate courses at Longwood Gardens, interest in horticulture for employment or leisure, and decision to take the course for a certificate (for the individual course or the series).

Four additional items, assessing reasons not covered by the EPS, were included in the survey that were derived from responses to an open-ended question included in a pre-test. These questions were structured in the same scale format as the EPS items and covered the following reasons: to participate in an education program with a good reputation, to gain access to the gardens or

plant collections, to improve skills and abilities to garden at home, and to prepare for a career change or new career.

Data Analysis

Following the survey of the participants in all four classes, data from the questionnaires were entered into the computer and analysis was conducted using the statistical package SPSS for UNIX. With 334 questionnaires distributed in the four classes and 259 questionnaires returned, the analysis was conducted on the data with a 78% response rate.

For the demographic and other participant characteristics, frequencies were determined by calculating percentages of participants in each category. The demographic frequencies were then compared to national statistics reported by the National Center for Education Statistics (Korb, Chandler, and West 1991)

For each motivational orientation factor, mean scale scores and standard deviations were determined for the entire sample. The mean scale scores were calculated by summing the mean for each item in a factor and dividing by the number of items in each factor. Factor scoring was based on a scoring key reflecting the results of the factor analysis conducted by Boshier and Collins (1983). In addition to calculating factor scores, correlations were determined in order to assess the relationships among factors. The factor scores were also compared to norm scores reported by Boshier and Collins (1983).

For the purpose of comparing participant groups, age, occupation, and income were categorized into three groups. Gender, education, previous participation in certificate courses at Longwood Gardens, decision to take the course for a certificate, and interest in horticulture for employment or leisure were categorized into two groups.

In order to determine any differences in the motivational orientations of participant groups, statistical tests were conducted. For these tests, the scale scores served as the dependent variables and the participant characteristics served as the independent variables. A t-test was conducted for the comparison of two groups and an Analysis of Variance was conducted for the comparison of three groups. For the Analysis of Variance, the Tukey test was used to determine the differences between specific groups. For all tests, statistical significance was recorded at the $p < .05$, $p < .01$, and $p < .001$ level. In addition, mean factor scores and standard deviations were determined for all comparison groups.

Chapter 4

RESULTS AND DISCUSSION

The results from the survey of the participants in the horticultural certificate programs at Longwood Gardens are reported and discussed in two sections: participant characteristics (including demographics and other characteristics) and participant motivational orientations. These results are based on the responses from those attending the four certificate courses offered in the Fall of 1994. In addition to reporting on the participant characteristics, the demographics are compared to the results from a recent national survey on participation in adult education. In the section on participant motivational orientations, the overall EPS factor scores are reported along with their inter-correlations. In addition, the factor scores determined in this study and norm EPS factor scores are compared, as well as the scores of selected participant groups.

Participant Characteristics

The following includes a description of the demographics of the participants, a comparison of the participants with national statistics, and a

description of other characteristics including their previous participation in the certificate courses, decision to take the course for a certificate, and interest in horticulture for leisure or employment.

Demographics

Over two thirds of the participants (70.5%) were women, over half (59.8%) were between the ages of 35 and 54, and almost all (98.4%) were Caucasian. With a mean age of 44.0 years and a standard deviation of 11.8 years, the youngest was 17 and the oldest was 78. Less than 2% were African American, Native American, or Latin American.

Socio-economic indicators revealed that the participants tended to be well educated with a high level of occupational status and annual household income (Table 1). More than three-quarters (77.6%) of the participants completed some level of post-secondary education. Almost one-half (43.8%) of the participants were in higher level occupations (i.e., professional/technical, or managerial) compared to 14.9% in lower level occupations (i.e., laborer/operator, crafts/trades, or clerical/sales). Nearly 22% were homemakers, while 2.3% were students, and 6.3% were retired. Annual household income was \$40,000 plus for approximately three-quarters (74.9%) of the participants and \$100,000 plus for almost one-quarter of the participants (23.3%).

Table 1 Demographic Characteristics of Participants

Variable	Frequency (n)	Percent
Gender		
Male	76	29.5
Female	182	70.5
Age (mean=44, standard deviation=11.8, minimum=17, maximum=78)		
Under 35	55	21.8
35-54	155	61.5
55 and over	42	16.7
Race-Ethnicity		
Caucasian	252	98.4
Other (African American, Native American, Latin American)	4	1.6
Highest Level of Education Completed		
Grade School	1	.4
High School	47	18.2
Technical/Vocational	10	3.9
College	132	51.2
Graduate School	68	26.4
Primary Occupation		
Student	6	2.3
Homemaker	56	21.9
Retired	16	6.3
Laborer/Operator	13	5.1
Crafts/Trades	10	3.9
Clerical/Sales	15	5.9
Professional/Technical	90	35.2
Managerial	22	8.6
Other	28	10.9
Annual Household Income		
Under \$20,000	18	7.6
\$20,000-\$39,999	41	17.4
\$40,000-\$59,999	48	20.3
\$60,000-\$79,999	47	19.9
\$80,000-\$99,999	27	11.4
\$100,000 and over	55	23.3

(percentages were calculated excluding missing data from non-responses)

Comparison of Participant Demographics with National Statistics

National surveys on participation in adult education provide information on typical participants in adult education. According to Merriam and Caffarella (1991, 74) "The profile of the adult learner first advanced by Johnstone and Rivera in the 1960s has changed little. Compared to those who do not participate, participants in adult education are better educated, younger, have higher incomes, and are most likely employed full time."

Comparisons of the participant demographics in the certificate programs at Longwood Gardens with national adult education participant demographics reported by the National Center for Education Statistics (NCES) (Korb, Chandler, and West 1991) revealed differences between those attending the certificate programs and the national population of adult education participants.

In terms of gender, the certificate programs were attracting a much higher percentage of women, while national statistics revealed more of a balance between male and female participation. Although the NCES reported a higher percentage of female participants (55%) compared to male participants (45%) in adult education (Korb, Chandler, and West 1991), this difference was modest. However, the results from this study revealed a much higher percentage of women (70.5%) participating in the certificate programs. This may be partially accounted for by the relatively high percentage of female homemakers (21%),

although there was also a high percentage of women participating who were in higher level occupations. Out of the 43% of those who were in higher level occupations, 61% were female.

Regarding age, it appears that those attending the certificate courses tend to be slightly older than adult education participants in general. Approximately 21% of the participants surveyed in this study were under the age of 35, compared to 43% reported in the NCES study (Korb, Chandler, and West 1991). This difference was compensated by a higher percentage in the age groups 35-54 (59% compared to 44%) and over 55 (16.2% compared to 13%). However, in the over 55 age group there was only a modest difference. The older age of those attending the certificate programs at Longwood Gardens may be partially accounted for by the high percentage of those taking the courses who are primarily interested in horticulture for leisure. Those who are younger may not have the disposable income or time available for investing in an education program to support a leisure interest.

A difference was also found with race-ethnicity, revealing that the participants in the certificate programs do not reflect the racial or ethnic mix of adult education participants identified by the national survey. While less than 2% of those surveyed in this study were other than Caucasian, the NCES study revealed that 17% of those participating in adult education were from other racial

or ethnic groups (Korb, Chandler, and West 1991). There may be a number of factors contributing to this lack of diversity. As Ross-Gordon (1990) indicates, socio-economic variables such as education and income may be more predicative of participation in adult education than race, and, although individuals from under represented racial-ethnic groups may be found across the socio-economic spectrum, evidence indicates that they are disproportionately located in the lower socio-economic level as indicated by income, education, and occupation. The finding that the certificate programs seem to be attracting those of higher socio-economic status may provide a partial explanation for this lack of diversity. Other explanations may be lack of awareness of the programs, location of residence, or lack of involvement or interest in horticulture as a leisure time activity or employment field.

It appears that those participating in the certificate programs have a higher annual household income than is typical for adult education participants. The national statistics from the NCES study indicated equal numbers participating in adult education between those with household incomes above and below \$40,000 (Korb, Chandler, and West 1991). In contrast, approximately three-quarters of the participants surveyed in this study had a household income of \$40,000 and over.

This difference in income is also reflected by much higher levels in educational attainment. While 39% of those in the NCES study completed an associates degree or higher (Korb, Chandler, and West 1991), 77% of the participants surveyed in this study completed some level of post secondary education. The idea that education leads to further education, appears to be even more relevant to the participants in the certificate programs than to adult education participants in general.

Comparisons based on occupation are less clear due to differences in data collection; however, it does appear that more people are participating in these certificate programs who are not in the labor force, and that the high percentage of those in higher level occupations is typical of adult education participants in general. If homemakers, students, and retired persons are considered to not be in the labor force, then there was a higher percentage (30.5%) identified in this study compared to the NCES data (14.2%) (Korb, Chandler, and West 1991). In regards to the high percentage of those in higher level occupations, Courtney (1992) indicates that roughly one-third of all adult education participants are in the professional or technical area of the labor force.

From this comparison, it appears that those participating in the certificate programs tend to be more frequently women, older, and Caucasian with higher

levels of socio-economic status (indicated by education and household income), than adult education participants in general.

Other Characteristics

The majority of the participants had previously participated in certificate courses and were taking the course for a certificate (Table 2). More than two-thirds (70.4%) of the participants had previously taken a certificate course at Longwood Gardens. This indicates a high level of continued enrollment as might be expected in a certificate program requiring the completion of a series of courses. However, the fact that almost twenty percent had not previously taken a certificate course indicates that the program is also attracting new participants.

Table 2 Other Characteristics of Participants

Variable	Frequency (n)	Percent
Previous participation in the Certificate Courses at Longwood Gardens		
No previous participation	76	29.6
Previous participation	181	70.4
Taking the course for a certificate (for the individual course or series)		
Taking for certificate	204	80.6
Not taking for certificate	49	19.4
Interest in horticulture		
Primarily for leisure	113	45.0
Primarily for employment	15	6.0
For both leisure and employment	123	49.0

(percentages were calculated excluding missing data from non-responses)

In terms of their decision to take the course for a certificate, more than three-quarters (80.6%) were taking the course for a certificate for the individual course or the series. This finding supports the value of the certificate to the participants and the integrity of the program.

There was a wide range in the participants' interest in horticulture for employment or leisure (Table 2). Almost all of the participants had some degree of leisure interest (94%) and over half (55%) had some degree of employment interest. While almost half (49%) were interested for both leisure and employment, less than half (45%) were interested primarily for leisure, and six percent were interested primarily for employment. This indicates that the programs are attracting a balance of those involved in horticulture for leisure and employment, but that the majority of those who are involved in horticulture for employment are also engaged in it as a hobby.

Analysis of interest in horticulture and decision to take the course for a certificate revealed that the majority of those taking the course for a certificate had some degree of employment interest. Out of 81% taking the course for a certificate, 62.2% had some degree of employment interest. In addition, the analysis revealed that the majority of those not taking the course for a certificate had primarily leisure interest. Out of 20% not taking the course for a certificate, 69.4% were interested in horticulture primarily for leisure. It is worth

noting, however, that 30.2% of all the participants were interested in horticulture primarily for leisure and were taking the course for a certificate. This indicates that the certificate has value to those with a leisure and employment interest in horticulture.

Motivational Orientations of Participants

EPS Factor Scores

The EPS factors receiving the highest mean scale scores were cognitive interest (3.38) and professional advancement (2.01). The scores were lower for social stimulation (1.74), social contact (1.53), community service (1.52), and external expectations (1.25). However, the range of factor scores revealed minimum scores on all factors of 1.00 and maximum scores ranging from 3.33 to 4.00 with social contact the lowest and cognitive interest the highest. Although the different factors received a relatively low to high overall mean, this finding indicates that there were individuals who scored as low as no influence and as high as moderate to much influence on all factors.

As identified in the previous chapter, those scoring high on cognitive interest want to learn for the sake of learning. They have an inquiring mind, a desire to gain knowledge, and enjoy the learning process. Related to the content of the course, one might think of these individuals as strongly motivated to learn about plants; their identification, growing requirements, and landscape

use. This apparent intellectual curiosity may or may not be associated with other personal or professional goals.

Those scoring high on professional advancement want to gain the knowledge, skills, and credentials to improve their job performance or prepare for a better job. One might think of these learners as wanting to make themselves more competent or marketable in an employment field related to horticulture. For a sales person at a garden center or nursery, this may translate into a desire to provide accurate information on plants to customers. For a nursery manager, it may relate to the desire to select and sell quality landscape plants. For the landscape designer or architect, it may be associated with the desire to extend the palette of plants they include in their landscape projects.

Although the other factors of social contact, social stimulation, community service, and external expectations received lower mean scale scores, they do merit attention as there were individuals who scored relatively high on all of these factors. In terms of social contact, these learners desire to develop relationships with other people, possibly those with common interests in plants. Those motivated by social stimulation, are seeking an intellectually stimulating activity as a break from the routine of everyday life. It is possible that what they are seeking in these courses is an extension of what they seek in their home gardening; a break from everyday work activities. In regard to community

service their motivation may be translated into an environmental concern (e.g. making the world a better place through gardening) or a desire to provide service to the community through volunteerism at public horticulture or other community organizations. Those influenced by external expectations are complying with the recommendations or suggestions of others, possibly a friend, family member, or employer.

The great importance placed on cognitive interest appears to indicate a strong desire to learn and gain knowledge for its own sake. In interpreting the importance of the cognitive interest domain, the nature of this factor must be considered. It is possible that this factor tends to receive a higher score due to its broad and socially desirable nature. It may be difficult for people to say they are not attending an education program in order to gain knowledge or that they do not enjoy learning. In addition this factor must also be considered within the context of other reasons for participation, recognizing that this desire to learn may exist within the context of reaching personal or professional goals.

In commenting on survey research revealing a high level of importance placed on learning for its own sake, Cross (1981) draws attention to what people learn in conjunction with why they learn. Cross states, "When subject matter interests are tallied, practical how-to-do it courses rank far above subjects that might be pursued because they satisfy intellectual curiosity--a finding that is not

obvious from the high ratings given global idealistic reasons.” In addition Cross (1981) explains that research has shown a high interest in learning for immediate use. Cross further explains that the many surveys conducted following the pioneer survey reported in Volunteers for Learning have not changed the authors’ general conclusion: “It is quite clear from the results of our study that the major emphasis in adult learning is on the practical rather than the academic; on the applied rather than the theoretical; and on skills rather than knowledge or information” (Johnstone and Rivera 1965, 3). This would suggest that the high rating of cognitive interest would more often be associated with other practical goals of the learners.

The more activity-oriented factors of social contact and social stimulation appear to be of less importance to the participants in the certificate programs at Longwood Gardens. This seems to agree with the nature of the certificate programs, as their intensity requires a considerable commitment of time and effort which those primarily motivated by a desire to develop personal relationships or escape from a hectic life may not be willing to make.

Relationships Among EPS Factors

Correctional analysis among factors revealed statistically significant relationships ranging from weak negative correlations to strong positive

correlations (Table 3). Professional advancement correlated strongly ($r=.56$) with external expectations. This relationship appears to reflect the practical nature of these factors as those who are more influenced by recommendations or requirements have a tendency to attend more for professional goal-oriented reasons as represented by professional advancement. A moderate to strong pattern of correlations was also found between social contact and social stimulation ($r=.44$) and social contact and community service ($r=.56$). This seems to reveal the more activity-oriented nature of these factors as these motivations relate to reasons not directly related to the content or purpose of the courses. Cognitive interest, a learning-oriented factor, correlated moderately to weakly with social contact ($r=.34$), social stimulation ($r=.34$), and community service ($r=.26$) revealing that those attending for the more activity-oriented reasons also tend to enroll more for learning-oriented reasons. In relation to

Table 3 Correlations Among EPS Factors

	Social Contact	Social Stimulation	Professional Advancement	Community Service	External Expectations	Cognitive Interest
Social Contact	--	.44 ***	.21 **	.56 ***	.34 ***	.34 ***
Social Stimulation		--	-.14 *	.21 **	.09	.34 ***
Professional Advancement			--	.19 **	.56 ***	-.17 **
Community Service				--	.26 ***	.26 ***
External Expectations					--	-.09
Cognitive Interest						--

* $p < .05$, ** $p < .01$, *** $p < .001$

professional advancement, there was a weak negative correlation ($r=-.17$) with cognitive interest, indicating that those who attend more for professional goal-oriented reasons tend to enroll less for learning-oriented reasons.

This analysis provides a context for understanding how the factors relate to one another. It is apparent from these findings, that generally agree with those of Morstain and Smart (1974), that there is partial evidence of Houle's typology.

Comparison with Norm EPS Factor Scores

The comparison of the mean scale scores of the participants in the certificate programs at Longwood Gardens with the norm means reported by Boshier and Collins (1983) can be seen in Figure 1. The norm means, derived from a base sample of 12,191 adult education participants, were used in this study to represent the motivational orientations of typical adult education participants.

For cognitive interest, the factor score of the participants in the certificate programs was higher than the norm factor score, suggesting that the participants in the certificate programs had a greater desire to gain knowledge for its own sake than adult education participants in general. On all other factors, the scores were lower than the norm scores. The greatest of these differences was for community service and external expectations, indicating that the participants'

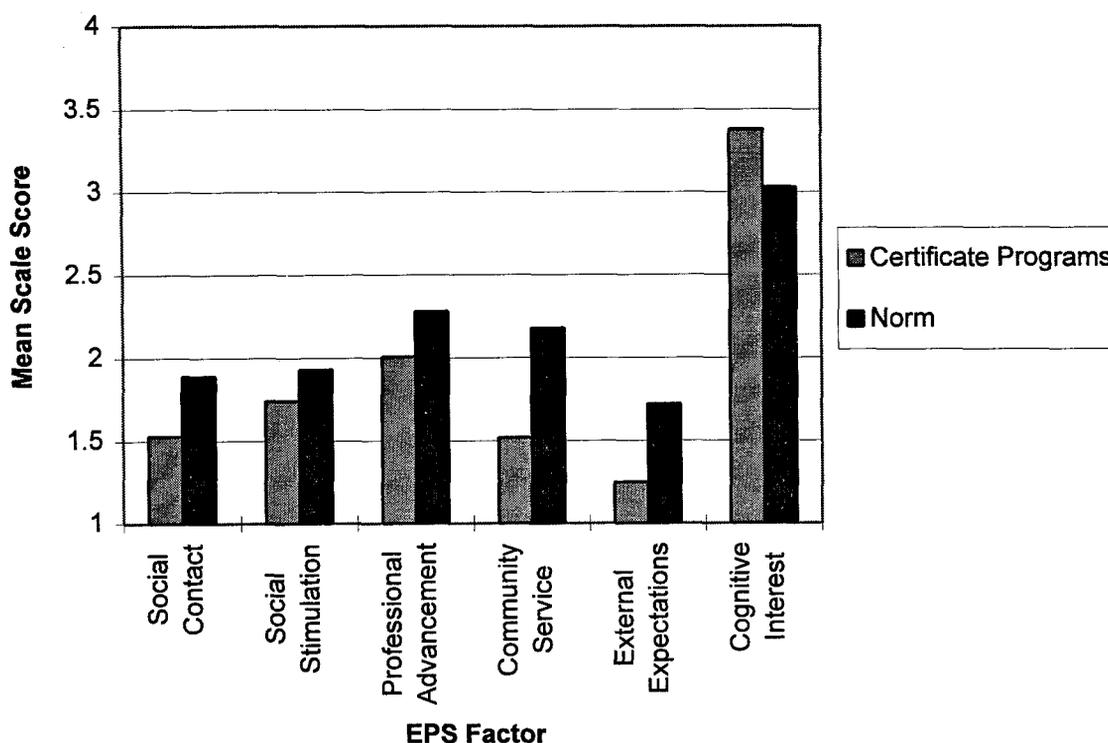


Figure 1 Comparison of the Participants' EPS Factor Scores with Norm EPS Factor Scores

motivation for participation was referenced much more on their own needs and interests than those of others as they were less inclined to enroll to prepare themselves for service to others or to comply with the recommendations or requirements of someone else. The next greatest difference was for social contact, indicating that the participants in the certificate programs were less motivated by a desire to develop relationships with others. In addition, this comparison reveals that the participants were only slightly less motivated by a

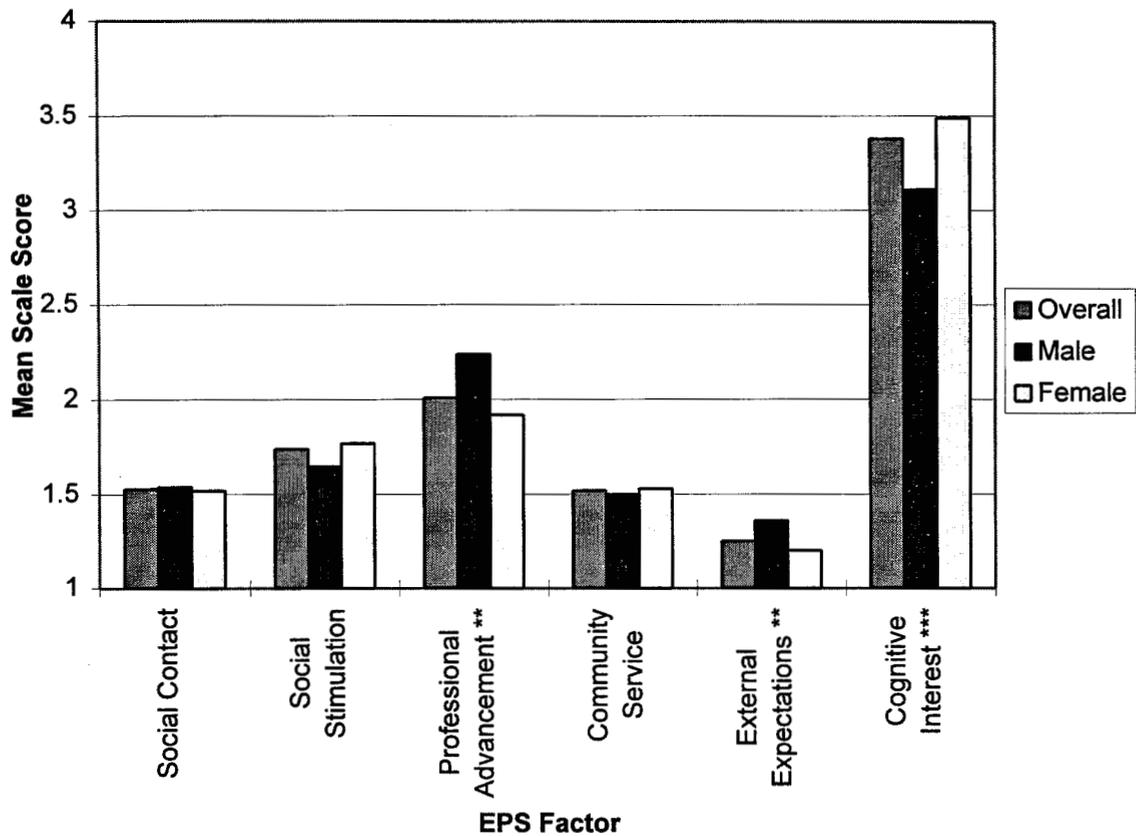
desire to escape the routine of everyday life (social stimulation) and improve in their job or advance in their career (professional advancement).

Comparison of EPS Scores Between Participant Groups

Statistically significant differences were found in the EPS factor scores between selected participant groups attending the certificate programs. These differences were found in professional advancement, external expectations, cognitive interest, and social stimulation.

The following is a report of the differences between demographic groups and groups based on previous participation, decision to take the course for a certificate, and interest in horticulture for leisure or employment. For each comparison, the statistically significant differences are described. A chart accompanies each description, indicating the overall score for each factor in addition to the group scores. Comparisons were not made between race-ethnic groups due to insufficient numbers for statistical analysis. The mean scale score and standard deviation values for all participant groups are reported in Appendix C along with the statistical values.

Gender. As seen in Figure 2, male participants scored higher on professional advancement and external expectations than female participants, while female participants scored higher on cognitive interest than male participants.



* $p < .05$, ** $p < .01$, *** $p < .001$

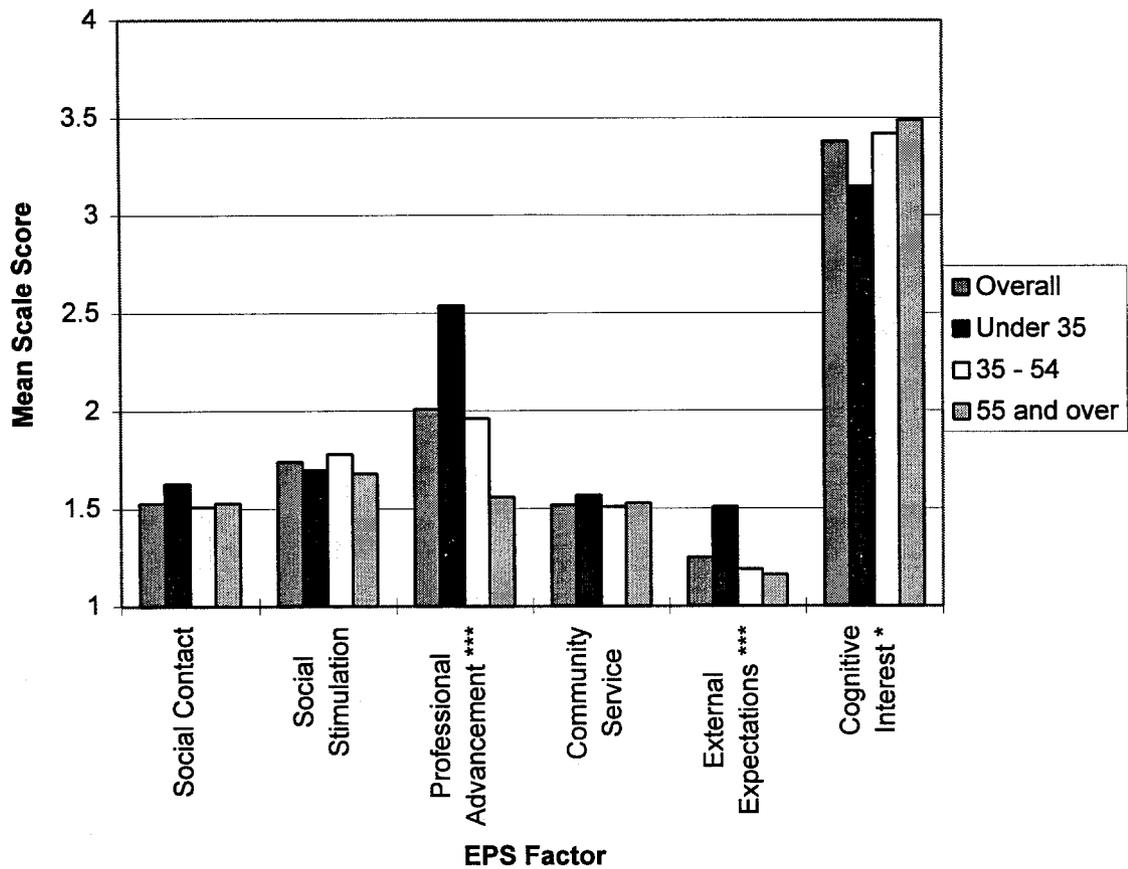
Figure 2 Comparison of EPS Factor Scores Between Male and Female Participants

This difference is reflected by an analysis of the data that indicates fewer men attending the programs with a primarily leisure interest in horticulture. Out of 29.2% who were male, 32.9% were primarily interested in horticulture for leisure. However, there were almost equal percentages of women with primarily leisure interest and some degree of employment interest. This difference may be partially accounted for by the relatively large number of female homemakers.

Out of 21.7% who were homemakers, 61.1% were interested in horticulture primarily for leisure.

Age. As seen in Figure 3, those who were less than 35 years of age scored higher on professional advancement and external expectations than those who were older. The influence of professional advancement on participation continued to decline between the age groups of 35-54 and 55 and over, while there was no statistically significant difference, as determined by the Tukey test, between these age groups in terms of external exceptions. For cognitive interest, those under 35 scored lower than those 35 and over. According to the results from the Tukey test there were no statistically significant differences between the age groups 35-54 and 55 and over for cognitive interest.

Out of all demographic groups examined in this study, those in the youngest age group revealed the highest influence by professional advancement. Considering that the adults in the younger age group are most likely in the early stages of a career it is not surprising that they are more motivated by job related reasons and the recommendations of others. This finding is supported by moderate correlations between age and professional advancement ($r=.43$, $p<.001$) and between age and external expectations ($r=.33$, $p<.001$).

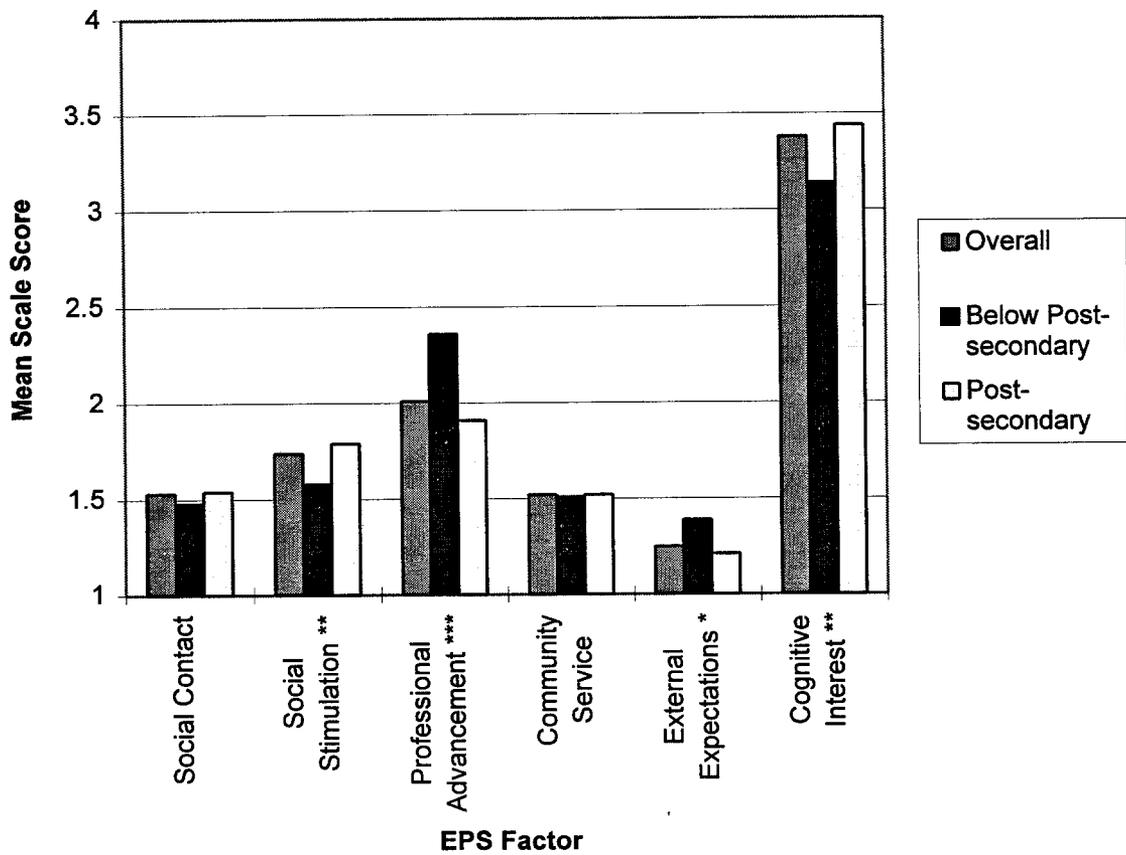


* $p < .05$, *** $p < .001$

Figure 3 Comparison of EPS Factor Scores Among Participant Groups Based on Age

Education. In comparing the influence of the EPS factors based on educational attainment, the participants were divided into two groups; those who had not completed post-secondary education and those who had completed some level of post-secondary education.

As seen in Figure 4, those who had not completed post-secondary education scored higher on professional advancement and external expectations and lower on cognitive interest than those who had completed some level of post-secondary education. In addition, those who had completed post-secondary education scored higher on social stimulation than those who had not.



* $p < .05$, ** $p < .01$, *** $p < .001$

Figure 4 Comparison of EPS Factor Scores Between Participant Groups Based on Level of Educational Attainment

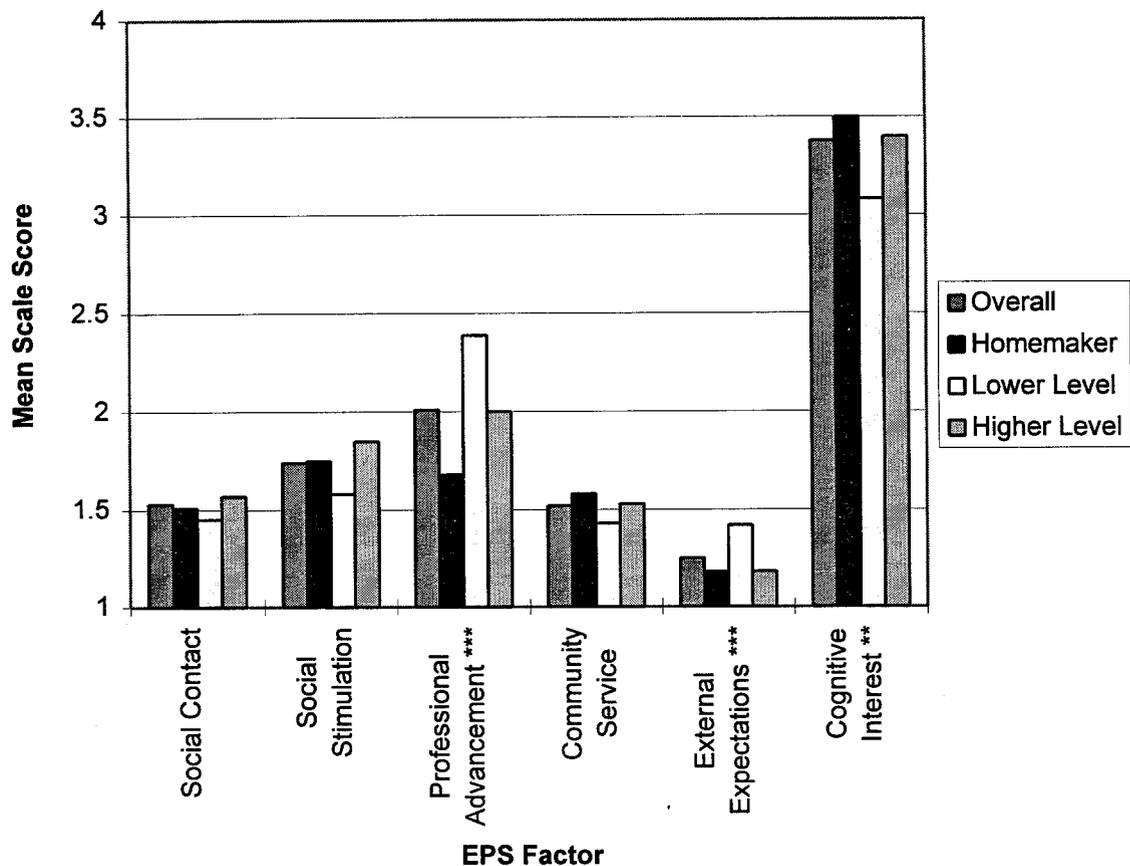
For those with less education, it appears that the certificate programs serve a more important role in regards to employment, than those with more education. For these participants the certificate programs may provide an important supplement to their previous education and provide a significant accomplishment to include on a resume.

The difference found in social stimulation indicates that those who have completed higher levels of education view learning as a stimulating activity or as an escape from daily routine more so than those with less education. This may be due to a familiarity with and enjoyment of education as a result of their past experiences in post-secondary education.

Occupation. Three occupational groups were selected for comparing the influence of the EPS factors. The one non-employed occupational group was represented by homemakers. Students and retired persons were not included in this analysis due to insufficient numbers for statistical analysis. The two employed occupational groups included lower level occupations and higher level occupations.

The differences between occupational groups can be seen in Figure 5. As a non-employed occupation group, homemakers scored considerably lower on professional advancement than both employed occupational groups. Those in lower level occupations scored higher on professional advancement and

external expectations, and lower on cognitive interest than homemakers and those in higher level occupations. The only difference between those in higher level occupations and homemakers was in professional advancement. Results from the Tukey test revealed no statistically significant differences between homemakers and those in higher level occupations on external expectations and cognitive interest.



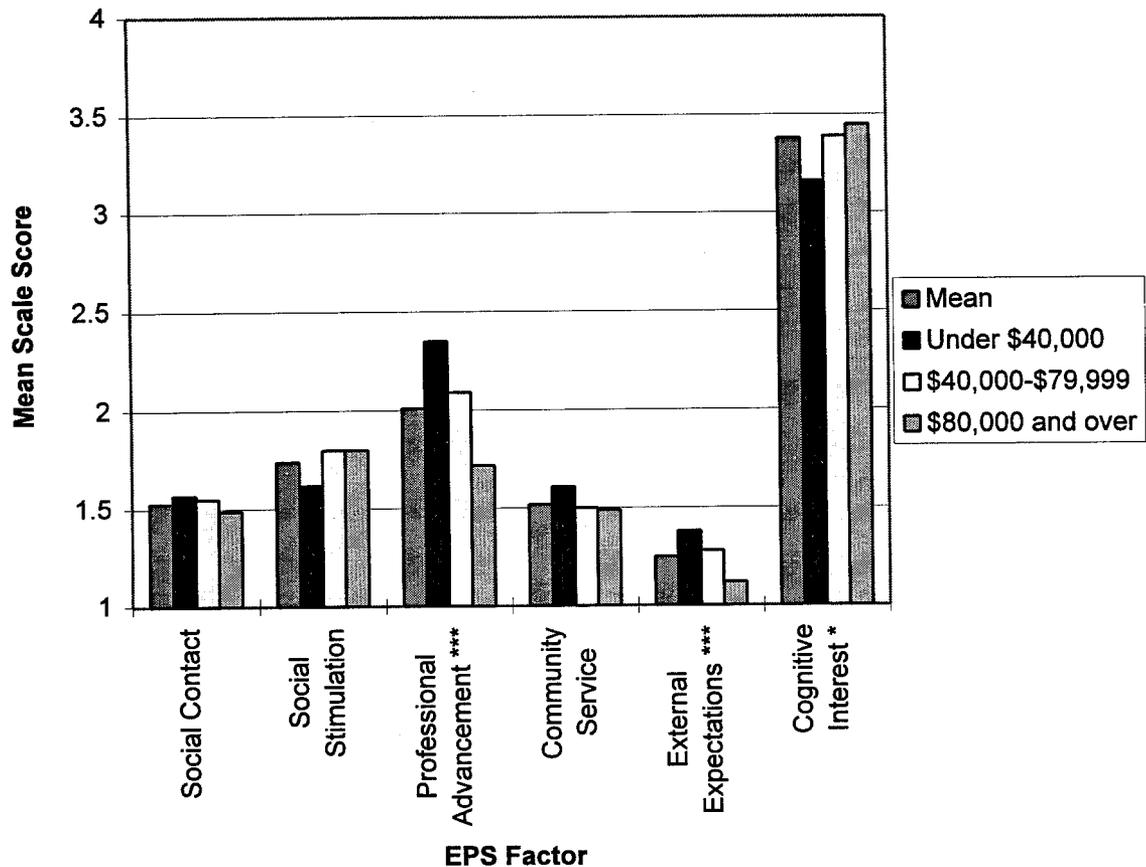
** p<.01, *** p<.001

Figure 5 Comparison of EPS Factor Scores Among Participant Groups Based on Occupational Status

As might be expected, these results reveal that those who have lower level jobs are more motivated by professional advancement and appear to be attending the certificate programs in order to improve their occupational performance or status more so than those who have higher level jobs. Although homemakers seem to be much less influenced by reasons related to employment, the fact that the professional advancement factor did reveal some influence may be due to a desire to prepare for a future job in horticulture.

Income. The income groups selected for comparison included those with an annual household income less than \$40,000, \$40,000-\$79,999, and \$80,000 and over.

As seen in Figure 6, those with an income less than \$80,000 scored significantly higher on professional advancement and external expectations than those with an income \$80,000 and over. Results from the Tukey test revealed no statistically significant differences between those with income under \$40,000 and \$40,000-\$79,999 for professional advancement and external expectations. In addition, those with an income \$80,000 and over scored higher on cognitive interest than those with an income under \$40,000. The Tukey test did not reveal statistically significant differences between those with an income \$40,000-\$49,999 and the other two income groups for cognitive interest. The differences between income groups on professional advancement is supported by a



* $p < .05$, *** $p < .001$

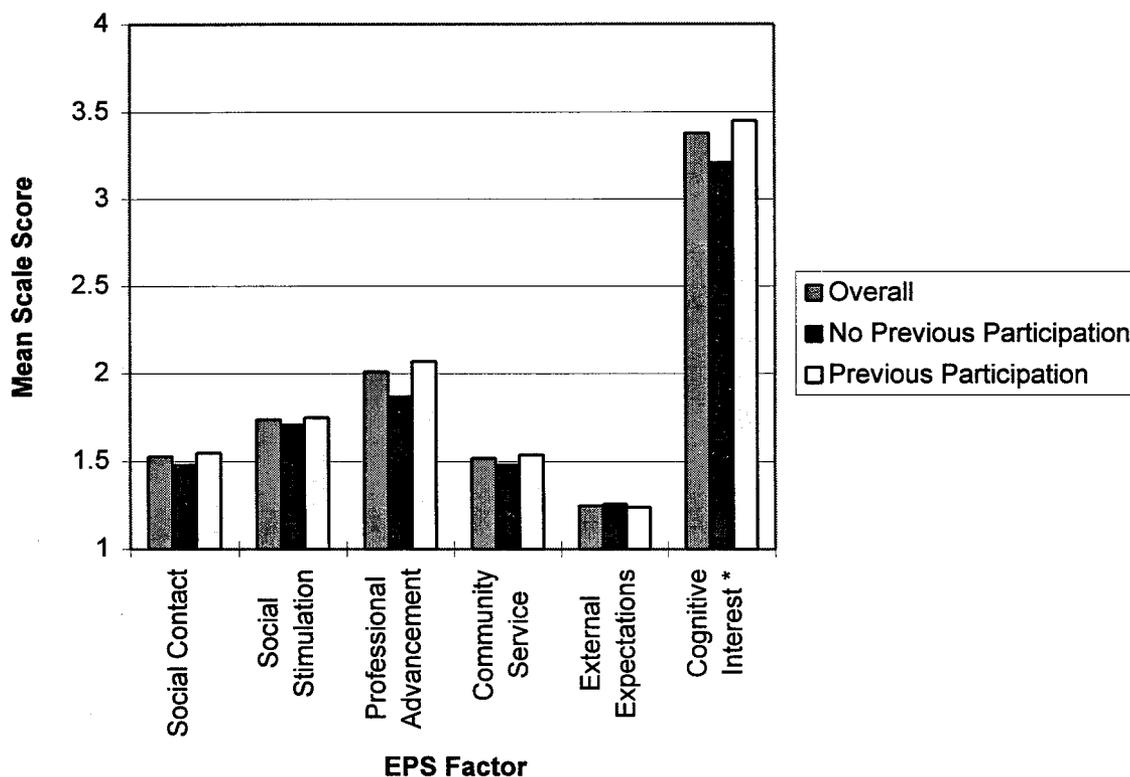
Figure 6 Comparison of EPS Factor Scores Among Participant Groups Based on Annual Household Income

moderate-negative correlation between income and professional advancement ($r = -.38$, $p < .001$).

It would appear from this analysis that those who have lower incomes possibly participate in the certificate courses in order to augment their ability to generate higher incomes (as indicated by the greater influence of the

professional advancement factor) more so than those with higher levels of income.

Previous Participation. Figure 7 shows that those who had previously participated in the certificate courses scored significantly higher on cognitive interest than those who had not previously participated on the certificate



* $p < .05$

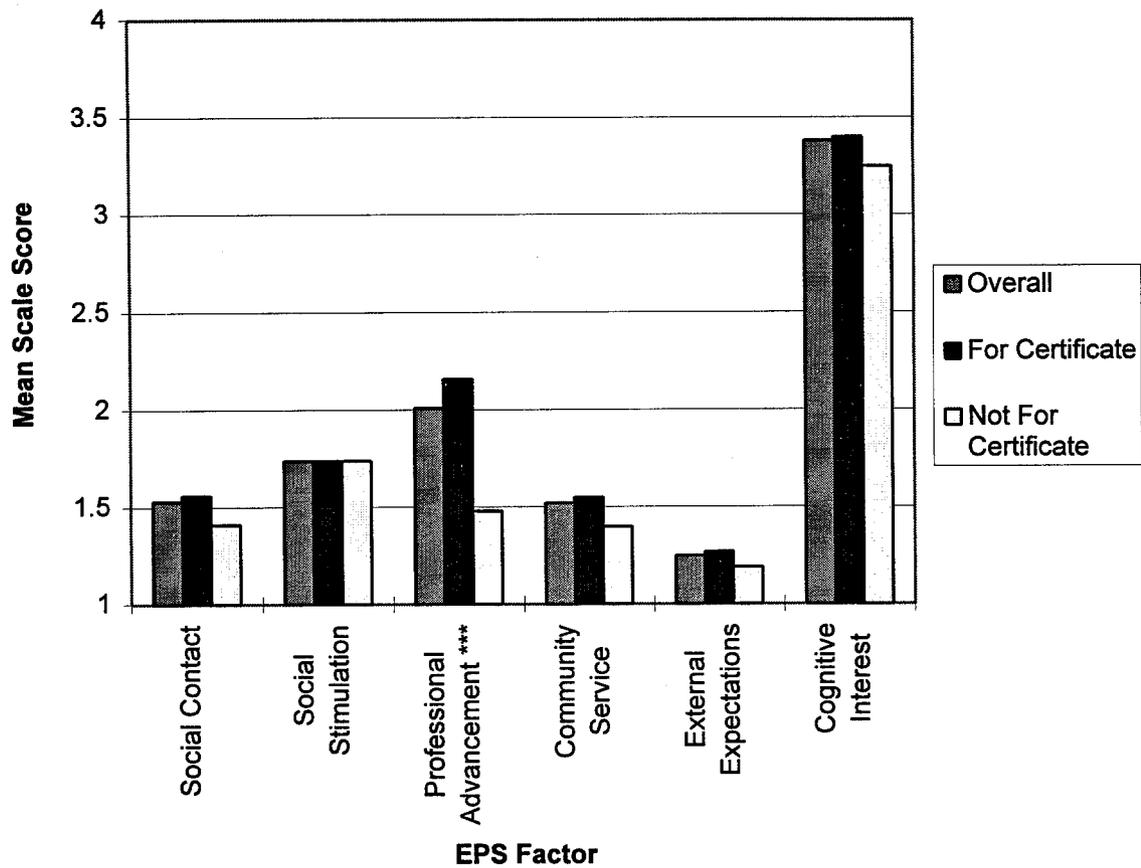
Figure 7 Comparison of EPS Factor Scores Between Participants Who Had Previously Participated in Certificate Courses at Longwood Gardens and Participants Who Had Not Previously Participated in Certificate Courses at Longwood Gardens

courses. No other statistically significant differences were found between the mean scale scores of the other factors.

This finding reveals a general consistency in the motivations for participating in the certificate programs between previous and new participants. This may reflect a consistency in promotion that continues to attract similar participants. However, the slightly greater motivation to learn for the sake of gaining knowledge may be considered to be a positive reflection on the programs as it appears that participation in these programs may strengthen this desire.

Taking the Course for a Certificate. As seen in Figure 8, those who were taking the course for a certificate scored significantly higher on professional advancement than those who were not taking the course for a certificate.

This finding reveals the strong connection between the certificate nature of the program and its importance to those who have a professional motive. This is further supported by an analysis revealing that the majority of those who were not taking the course for a certificate were interested in horticulture primarily for leisure, while the majority of those who were taking the course for a certificate had some employment interest.



*** $p < .001$

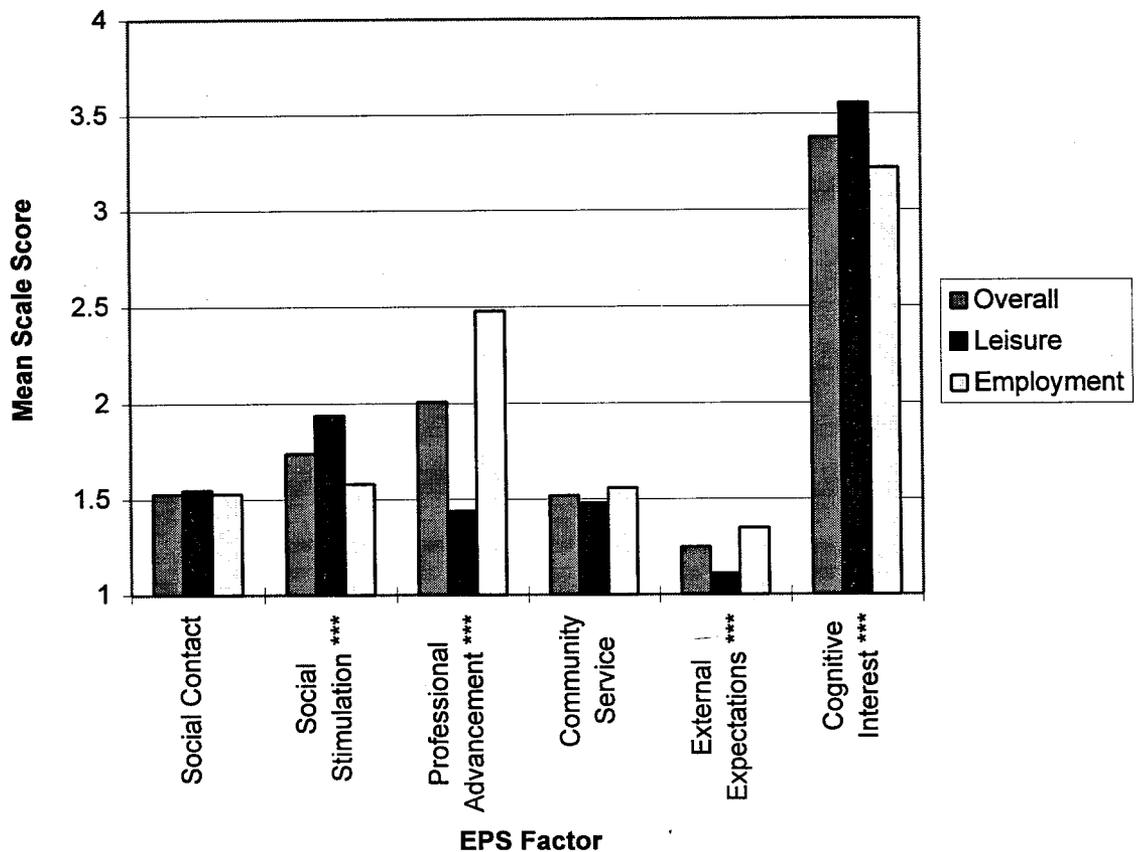
Figure 8 Comparison of EPS Factor Scores Between Participants Taking the Course for a Certificate and Participants Not Taking the Course for a Certificate

Interest in Horticulture for Leisure or Employment. Two groups were compared in terms of the participants' interest in horticulture; those interested primarily for leisure and those who had some degree of employment interest.

As seen in Figure 9, those interested in horticulture primarily for leisure scored higher on social stimulation and cognitive interest, while those who had

some employment interest scored higher on professional advancement and external expectations.

As this finding indicates, those with employment interest in horticulture are more motivated by job-related reasons and the recommendations of others than those with primarily leisure interest in horticulture. In regards to the greater



*** $p < .001$

Figure 9 Comparison of EPS Factor Scores Between Participants Interested in Horticulture Primarily for Leisure and Participants with Some Degree of Employment Interest in Horticulture

importance placed on escaping the routine of every day life (social stimulation) by those with primarily leisure interest, it is possible that the certificate programs provide what these participants may seek in their gardening activities; a break from everyday work activities.

These analyses revealed differences between participant groups. Although these differences only partially accounted for the variation in factor scores, and the differences were not always large, they do indicate the general motivational tendencies of the different participant groups.

Although differences were found in the influence of the cognitive interest factor between participant groups, its influence was the greatest of all factors for all groups. The comparisons revealed, however, a tendency for those groups scoring higher on this factor to score lower on professional advancement and external expectations.

As indicated by the correlations between professional advancement and external expectations and seen in the group comparisons, those more motivated by professional reasons tended also to be more motivated by the suggestions or recommendations of others. The differences between groups tended to agree with what one might expect in that those who are men, younger, less educated, in lower level occupations, and with lower incomes were the most motivated by professional goal-oriented reasons and more influenced by the

recommendations of others. It is important to note that while external expectations related to professional advancement it tended to receive the lowest score across all participant groups. Its greatest influence, along with professional advancement was with those in the youngest age group.

There were no differences in the influence of social contact and community service between groups of participants. From a demographic perspective this reveals that differences in gender, age, or indicators of socio-economic status do not appear to account for differences in attending the programs in order to improve or develop social relationships or to prepare for community service.

Other Reasons for Participation

It is important to note that the identification of motivational orientations through factor analysis is dependent on the items included in the scale. It is possible that other reasons for participation and motivational domains may exist.

There may be a leisure goal-oriented motivational domain that is not assessed by the EPS. An additional item included in the questionnaire assessed the importance of improving skills and abilities for gardening at home. This item received a high mean (3.58). For these learners, becoming more masterful in gardening by gaining knowledge and improving their home gardening skills and abilities, may be of primary importance. They may wish to gain confidence in their

gardening activities, learn about the most successful plants for growing in their region, or select plants that are less common than what they ordinarily find in the garden center or their neighbors' landscape. The high mean of this item does appear to provide evidence for a motivational domain related to leisure goals that seems to be of great importance to the participants in the certificate programs. However, it is not appropriate to directly compare the mean of this item with the factor scores since it is represented by only one item and the inclusion of more specific language related to the course topic may have influenced the rating.

It is interesting to note that this item correlated moderately with cognitive interest ($r=.38, p<.001$) indicating that those more motivated by a desire to improve their gardening were more motivated to learn for its own sake. In addition, a weak negative correlation was found between this item and professional advancement ($r=-.20, p<.01$) indicating that those more motivated by a desire to improve in their gardening were less motivated by professional reasons.

Further investigation into this motivational domain would allow for a more accurate assessment of its influence on participation, and for comparisons among participant groups.

The goal-oriented domain of professional advancement was extended by an additional item related to enrolling in the course to prepare for a career

change or new career. This item received a relatively high mean (2.47), and correlated moderately with the professional advancement factor ($r=.45$, $p<.001$). This finding partially extended the professional goal-oriented domain of professional advancement to include those who were taking advantage of the certificate programs in order to facilitate a career change.

Two other additional reasons included in the questionnaire merit attention. One item was included that assessed the influence of participating in an education program with a good reputation. Receiving a mean of 3.38, this item highlights the importance of a good program or institutional reputation in attracting these participants. As the world's premier public display garden, Longwood Gardens has an established reputation for quality and excellence in horticultural display, and it would appear that this reputation extends into its continuing education programs.

Another item assessed the influence of gaining access to the gardens or plant collections at Longwood Gardens. This item received a relatively high mean (2.87). As plant collections are often a resource that public gardens have to offer that other educational institutions might not be able to provide, the fact that people were attending to gain access to the plants supports the value of the plant collections as part of the educational offering. As with the previous item

related to reputation, this reason for participation does not seem to relate to any of the motivational factors; however, its influence does seem to be important.

As demonstrated, the EPS can provide for a general understanding of participants' motivations for participating in horticultural certificate programs. However, there are limitations in its utility. The apparent absence in the instrument of a leisure goal-oriented motivational domain, does not allow for the assessment of the importance of practical leisure-goals. In addition, examining motivational orientations to make broad generalizations of the participants motives, does not allow for understanding the contextual richness, depth, and detail associated with the participants' reasons for taking part in the programs.

It is possible though, that it is not the instrument, but the process of asking questions about the reasons or motivations for participating in continuing education programs that is of greatest importance. Those managing education programs most likely have a basic understanding of what the motivations are for those participating in their programs, and spending time reflecting on these motivations may generate ideas for future program development. However, conducting motivational research may provide support for general beliefs or reveal information not currently recognized. It also can provide the data to support program decisions allowing for more confidence and accountability in the decision making process. Once the information is gathered it is most likely the

creative use of the knowledge gained that will translate into successful changes in program management.

Chapter 5

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

As a result of the diversity and complexity of reasons for participating in adult education it is challenging to understand the motivations for participation in adult education programs. Fortunately, previous research provides a framework of knowledge and methodology that offers guidance in the process of conducting motivational research. As in this study, motivational domains, represented by the motivational orientation factors, can be assessed through the EPS. Understanding the influence of these motivations provides a better understanding of the participants, thus offering broad direction for the management of continuing education programs.

In meeting the first objective of this research, demographic and other characteristics of the participants were described. Comparing the demographics with national statistics the researcher concludes that those attending the certificate programs at Longwood Gardens tend to be more often women, older, Caucasian, with higher levels of socio-economic status (indicated by education and household income) than adult education participants in general.

The second objective was met by using the EPS to assess the influence of different motivational orientation factors. From this assessment, the researcher concludes that cognitive interest and professional advancement have the greatest influence of all EPS factors for those participating in the certificate programs at Longwood Gardens. This knowledge provides support for the serious and practical nature of the certificate programs at Longwood Gardens, as the people attending these courses are highly motivated to learn and are taking advantage of the courses to make themselves more competent in their job and marketable in their career. In addition, it appears that a leisure goal-oriented motivational domain, related to the participants' desire to improve in their home gardening activities, may exist, which has great influence on the participants' decision to take part in the programs.

By comparing the EPS factor scores of participant groups, the third research objective was met. The researcher concludes that there are differences between participant groups primarily in professional advancement, external expectations, and cognitive interest. Possibly of most practical significance for increasing participation in the certificate programs is that those in the less represented groups (i.e., those who were men, younger, less educated, in lower level occupations, and with lower levels of income) are the most influenced by professional advancement.

The researcher also concludes from this study that the certificate nature of the program is an important component to serving the motivations of the participants, as the majority of those taking the courses are taking them for a certificate. Although this aspect of the program does seem to have more importance to those with a professional goal-oriented motivation, there are a number of those taking the courses for a certificate who are not interested in horticulture for employment. Thus a certificate may serve as a credential for employment purposes or as a symbol of personal accomplishment.

Recommendations for Program Management

The following recommendations, made by the researcher, are directed at managers of continuing education programs for public horticulture organizations. Although the population surveyed in this study is specific to Longwood Gardens, others may compare their programs and audience in order to determine how important and relevant the recommendations are to increasing participation and facilitating learning in their own programs.

The recommendations are presented in the controllable areas of product, price, place, promotion, where a manager has direct influence on offering a good or service.

Product

For program development and delivery related to the provision of educational services, the researcher recommends:

- **Offering credentials for the participants which recognizes their achievement.** A certificate is one way for a public horticulture organization to provide the participants with a measure of their achievement that may serve as a professional credential or symbol of personal accomplishment. Another possible option, not investigated in this study, is to provide Continuing Education Units (CEU). The CEU is a measure of contact hours that may be of particular value to professionals who require the units for reimbursement by employers or recognition from professional organizations.
- **Challenging the learners with the information provided.** In general, the information should relate to the practical goals of the learners (those related to employment or leisure); however, it is important to recognize the learning oriented nature of the participants and that knowledge may be sought simply for the sake of gaining knowledge.
- **Providing opportunities to conduct self-directed learning projects.** As social contact had a low level of influence on participation, self-directed learning projects can be incorporated into the program that provide participants the opportunity to explore their interests on their own. Related to the certificate courses at Longwood Gardens, independent projects may include landscape or garden designs or research reports on particular plants or groups of plants. These projects may also serve as an addition to, or substitute for, a test.
- **Offering independent or self directed study programs.** This is another way to recognize the low level of influence social contact had on participation. These programs would provide the opportunity for the learners to adjust the program to their own time schedule and interests. Video technology may be used in the delivery of these programs, which might require less resources to be invested into classroom facilities and instructional staff.
- **Developing programs targeted to those with a leisure interest and employment interest in horticulture.** Developing two-track programs based on leisure and employment interests in horticulture, may allow for

the opportunity to tailor the programs so that they more directly serve the leisure and professional goal-oriented motivations of the learners.

- **Recognizing the participants accomplishments with a graduation ceremony.** Recognizing that the majority of the participants have completed high levels of education, this is one way to contribute to the academic nature of the program and reward the participants.

Price

Regarding the price of the courses, the researcher recommends:

- **Considering income when making price decisions.** The high incomes suggest greater flexibility in setting prices for the courses, but the elasticity of demand for these courses is not known. Would an increase or decrease in price greatly effect enrollment? Would it affect the demographics of the participants?
- **Evaluating the importance of the program for employment.** For those more motivated by professional advancement, the demand may be more inelastic, less sensitive to price changes, than those more motivated by other factors. This recognizes that a professional goal-oriented motivation reflects a greater need for learning than, for example, a leisure goal-oriented motivation.

Place

Regarding the location for providing the educational service, the researcher recommends:

- **Offering programs where participants have access to plant collections or gardens.** Possibly, this has greatest relevance to those programs such as the certificate programs at Longwood Gardens that focus on learning the identification, culture, and use of landscape plants. The collections provide the learners with the opportunity for direct observation of the plant material within the context of a landscape setting.

Promotion

In promotion, attention can be given to the channels of communication, choice of words, and visual presentation. For promotion of horticultural certificate programs, the researcher recommends:

- **Selecting channels of communication based on the demographics of the learners.** This research indicates that those attending the certificate programs at Longwood Gardens tend to be highly educated with high annual household incomes. Information such as this can be used to select publications for promoting the programs based on a match of the demographics between the readers of the publication and the participants in the program.
- **Informing potential participants of the intellectual nature of the program.** Although it is common to include course descriptions in promotional material, additional thought can be given to enticing the learning-oriented nature of participants. Elements of a program which may serve and satisfy the cognitive interest motive can be highlighted such as course content, learning resources, and instructional methods. In referring to course content, communication can be focused on what will be learned by indicating the breadth and depth of the information. In addition, an explanation can be given on what resources are available to assist participants in the learning process such as instructors, teaching assistants, printed materials, plant collections, and reference library. In terms of instructional methods, information can be provided on how the learning will occur such as lectures, guided plant walks, or projects.
- **Communicating to potential participants how the program will help them meet their professional or leisure goals.** This may involve the use of testimonials by providing examples of how participants benefit from the certificate programs in improving their job performance, advancing in their career, or entering a new career. In terms of leisure goals, examples can also be provided on how the program assists participants in the enjoyment and success of their gardening activities. Information on these benefits may be gathered by interviewing those who have completed the certificate program and asking them how the program helped them meet their leisure or career goals.

- **Giving attention to the social nature of the program.** Although social contact is not be the primary reason for participating, it is part of the broad spectrum of reasons that influence the participants' decision to enroll. Incorporating the social nature of the program into promotion can be as subtle as including photographs in promotional literature of a group of participants enjoying an educational activity or social time on a break.

Regarding all of these recommendations, it is important to give attention to whom you are trying to attract and serve in the program. There are two tracks a manager can take in increasing participation. Efforts can be focused on those who are most characteristic of the participants attending or resources can be placed on attracting those who are less represented as participants. Deciding on one or both of these routes, may depend on an evaluation of such factors as the saturation of the market, the potential for reaching under-served individuals, and the resources available to make program changes.

Recommendations for Future Research

The researcher recommends the following questions as the basis for future research on the motivations for participation in certificate programs offered by public horticulture organizations.

What are the motivational orientations of participants in other horticultural certificate programs? As this study only examined the motivational orientations of the participants in the certificate programs at one institution, it would be valuable to assess the motivational orientations of those

attending different programs offered by other organizations. If similarities are found, this would strengthen the ability to generalize the findings in this study. If differences were identified, one may then examine any differences in the demographics or the program design that may be contributing to these differences. For example, if it was found that another certificate program was attracting an audience more motivated by professional advancement, it would be valuable to know what aspects of this program may be contributing to attracting a more professionally goal-oriented audience. This knowledge could then be used in the development and promotion of certificate programs with an objective to serve those employed or desiring to be employed in the horticultural field.

Are there different types of learners attending horticultural certificate programs based on motivational orientation factor scores? This study examined the influence of the motivational orientation factors on participation and the differences between participant groups based primarily on demographic characteristics. However, cluster analysis can be used to identify groups of participants based on their factor scores (Morstain and Smart 1977). This may reveal different types of learners (e.g. high scores on professional advancement and external expectations) and the demographic characteristics of these participant types could then be identified.

Does a leisure goal-oriented motivational factor exist? It appears from this study that a motivational orientation related to leisure goals does exist. In order to test this hypothesis, it is necessary to gather and develop appropriate items to include with the other items and conduct factor analysis. One of these items may be: "to improve in a leisure activity." If this motivational domain does exist, assessments may reveal that this factor has a great influence on participation in horticultural certificate programs. It is possible that this factor would reveal the primary motivational orientation of those attending certificate programs that do not have an interest in horticulture for employment.

What life transitions and trigger events motivate adults to participate in horticultural certificate programs? By extending beyond motivational orientation research, the life transitions and trigger events associated with participation in these programs could be identified. Are the transitions experienced by the participants primarily in the areas of career, family, or leisure? Do trigger events such as moving to a new home, changing careers, or entering a new job influence participation? Answering these questions may provide further direction in identifying learners in terms of location and time.

In addition to quantitative studies, it would be beneficial to conduct qualitative studies to further understand the participants' motivations for participation in horticultural certificate programs. This study was based on previous research in adult education and utilized a developed psychometric

scale, the EPS. Although this scale is useful in making generalizations of participant motives in a program that can provide broad direction, the use of this scale limits understanding the depth and details of participant motives. Through qualitative methods, possibly including focus groups and interviews, other contributing factors might be identified which would benefit further quantitative research. For example, interviews may be used to gather information on items that may contribute to the identification of a leisure goal-oriented factor.

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Appendix A

EXEMPTION FROM HUMAN SUBJECTS REVIEW BOARD



OFFICE OF THE VICE PROVOST
FOR RESEARCH

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

20 July 1994

Mr. Carl Haefner
Longwood Graduate Program
Campus

Dear Mr. Haefner:

Subject: Human subjects approval for the project "Motivations for Participation in the certificate of Merit in Ornamental Plants Program at Longwood Gardens"

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

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

Please notify the Human Subjects Review Board if you make any changes in this project.

Sincerely,

A handwritten signature in cursive script that reads "Costel Denson".

Costel D. Denson
Vice Provost for Research
Chair, Human Subjects Review Board

cc: James E. Swasey

Appendix B

QUESTIONNAIRE ITEMS INCLUDED WITH THE EPS

To what extent did the following four reasons influence you to enroll in this class?

41.	to participate in an education program with a good reputation	No influence	Little influence	Moderate influence	Much influence
42.	to gain access to the gardens/plant collections	No influence	Little influence	Moderate influence	Much influence
43.	to improve your skills and abilities to garden at home	No influence	Little influence	Moderate influence	Much influence
44.	to prepare for a career change/new career	No influence	Little influence	Moderate influence	Much influence

Please provide the following information about yourself by marking the most appropriate response or filling in the blank under each item. Provide only one response for each item.

45. **Sex:**
 male
 female
46. **Age:**
 _____ years
47. **Marital Status:**
 single
 married
48. **Number of Children:**

49. **Race/Ethnicity:**
 Caucasian/White
 African American/Black
 American Indian/Native American
 Latin American/Hispanic
 Asian/Pacific Islander
 Other
50. **Highest Level of School Completed:**
 grade school
 high school
 technical/vocational school
 college
 graduate school
51. **Previous Participation in Certificate Courses at Longwood Gardens:**
 no previous participation
 previous participation
52. **Primary Occupation:**
 student
 homemaker
 retired
 laborer/operator
 crafts/trades
 clerical/sales
 professional/technical
 managerial
 other
53. **Yearly Household Income:**
 under 20,000
 20,000 - 39,999
 40,000 - 59,999
 60,000 - 79,999
 80,000 - 99,999
 100,000 and over
54. **Gardening/Horticultural Interests:**
 primarily for hobby/leisure activity
 primarily for employment
 for both hobby/leisure activity and employment
55. **Are you taking this course to receive a certificate (for the individual course or for the series)?**
 yes
 no

Appendix C
SURVEY DATA

Table 4 Comparison of EPS Factor Scores Among Participant Groups: Means, Standard Deviations, and Statistical Values

		Social Contact	Social Stimulation	Professional Advancement	Community Service	External Expectations	Cognitive Interest
Gender	Male	1.54 (.46)	1.65 (.54)	2.24 (.77)	1.50 (.59)	1.36 (.48)	3.11 (.78)
	Female	1.52 (.47)	1.77 (.65)	1.92 (.72)	1.53 (.59)	1.20 (.33)	3.49 (.59)
	t value	.23	-1.44	3.17 **	-.37	2.66 **	-3.71 ***
Age	Under 35	1.63 (.47)	1.70 (.56)	2.54 (.74)	1.57 (.58)	1.51 (.52)	3.15 (.76)
	35-54	1.51 (.48)	1.78 (.66)	1.96 (.71)	1.51 (.58)	1.19 (.33)	3.42 (.63)
	55 and over	1.53 (.39)	1.68 (.57)	1.56 (.49)	1.53 (.65)	1.16 (.26)	3.49 (.71)
	f ratio	1.43	.63	24.69 ***	.20	16.80 ***	4.03 *
Education	Below post-secondary	1.48 (.52)	1.58 (.46)	2.36 (.79)	1.51 (.58)	1.39 (.51)	3.14 (.68)
	Post-secondary	1.54 (.45)	1.79 (.66)	1.91 (.70)	1.52 (.59)	1.21 (.34)	3.44 (.66)
	t value	-.84	-2.70 **	4.09 ***	-.11	2.53 *	-2.98 **
Occupation	Homemaker	1.51 (.49)	1.75 (.56)	1.68 (.50)	1.58 (.64)	1.18 (.31)	3.50 (.60)
	Lower level	1.45 (.36)	1.58 (.61)	2.39 (.74)	1.43 (.50)	1.42 (.50)	3.08 (.74)
	Upper level	1.57 (.46)	1.85 (.64)	2.00 (.76)	1.53 (.58)	1.18 (.26)	3.40 (.63)
	f ratio	1.11	2.76	11.15 ***	.75	8.13 ***	5.01 **
Income	Under \$40,000	1.57 (.48)	1.62 (.61)	2.35 (.76)	1.61 (.67)	1.38 (.47)	3.16 (.74)
	\$40,000-\$79,999	1.55 (.48)	1.80 (.63)	2.09 (.78)	1.50 (.51)	1.28 (.41)	3.39 (.70)
	\$80,000 and over	1.49 (.46)	1.80 (.64)	1.72 (.59)	1.49 (.63)	1.12 (.28)	3.45 (.62)
	f ratio	.51	1.81	13.03 ***	.90	7.71 ***	3.38 *
Previous participation in certificate courses at Longwood Gardens	No previous participation	1.48 (.48)	1.71 (.66)	1.87 (.70)	1.48 (.55)	1.26 (.46)	3.21 (.83)
	Previous participation	1.55 (.46)	1.75 (.60)	2.07 (.75)	1.54 (.60)	1.24 (.36)	3.45 (.59)
	t value	-1.08	-.52	-1.96	-.67	.30	-2.29 *

Table 4 Continued

		Social Contact	Social Stimulation	Professional Advancement	Community Service	External Expectations	Cognitive Interest
Taking the course for a certificate	M (SD)	1.56 (.48)	1.74 (.62)	2.16 (.73)	1.55 (.60)	1.27 (.40)	3.40 (.64)
	M (SD)	1.41 (.40)	1.74 (.56)	1.48 (.55)	1.40 (.54)	1.19 (.34)	3.25 (.80)
	t value	1.97	-.03	7.15 ***	1.52	1.20	1.21
Interest in horticulture	M (SD)	1.55 (.47)	1.94 (.67)	1.44 (.40)	1.48 (.54)	1.11 (.23)	3.56 (.58)
	M (SD)	1.53 (.47)	1.58 (.52)	2.48 (.64)	1.56 (.63)	1.35 (.45)	3.22 (.72)
	f ratio	.31	4.69 ***	-15.45 ***	-1.10	-5.48 ***	4.10 ***

* p < .05, ** p < .01, *** p < .001 (statistical values calculated excluding small numbers of missing data)