THE EFFECT OF EFFICACY IN INSTRUCTIONAL STRATEGIES AND MOTIVATIONAL ORIENTATIONS ON ADULT TENURE IN THE FLORIDA MASTER GARDENER PROGRAM

By

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To my mom, who never had the opportunity to go to college – I hope this serves as an example of what you did accomplish.

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M-EPS	Mergener's (1979) Education Participation Scale
TSES	Teacher Sense of Efficacy Scale
UFMGP	University of Florida Master Gardener Program

Abstract of Dissertation Presented to the Graduate School
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With increased budget cuts and a shortage of funding sources, Cooperative Extension needs a consistent corps of effective volunteers to deliver organizational objectives. Master Gardeners are very important in assisting Cooperative Extension deliver horticultural information to local citizens. Developing an understanding of volunteer motivations will assist Extension agents in identifying and retaining those adults. The theoretical framework of this study was based on self-efficacy theory and Houle's Typology.

The purpose of this study was to develop an understanding of the teaching self-efficacy of Florida Master Gardeners, and adult motivations to participate in the Florida Master Gardener program. The questionnaire included the instructional efficacy construct from the Teacher Sense of Efficacy Scale (TSES), forty-one items from the Mergener Education Participation Scale and questions about participant demographics. The sampled population was 613 adult Master Gardeners with a total response rate of 86.79%. The majority of participants were mainly women, white, earned some type of higher education degree, and 70% of the participants were 56 years old or older.

Participants felt at least “some influence” in their effective teaching responsibility as a volunteer educator. Participants felt a Competence related Curiosity had “much influence” on their participation in MG. Retaining adults as volunteer educators in the Master Gardener program extends the reach of Cooperative Extension throughout Florida’s communities. Developing an understanding of adult motivational orientations will assist practitioners alter the program to best meet the needs of Master Gardener participants.

Florida Master Gardener participants are primarily learning-oriented and have a moderate level of instructional efficacy. Instructional efficacy, community service, and vary routine predicts an adult’s tenure in the Florida Master Gardener program. Of those independent variables only instructional efficacy can be enhanced by Master Gardener coordinators at the state and local level. This finding underpins the need for professional development in teaching strategies for Florida Master Gardeners. The higher the efficacy in instructional strategies, the longer adults will be members of the Florida Master Gardener program. Due to the importance of MG participation to the University of Florida and horticulture’s impact to the state of Florida, MG coordinators should work with segments of the horticultural industry to enhance instructional efficacy in MG participants.

CHAPTER 1
INTRODUCTION

History of Cooperative Extension

One of the darkest times in American history birthed a higher education achievement. As the Civil War was raging, President Abraham Lincoln signed the Morrill Act into law in 1862. This federal legislation established "land-grant universities" in the United States to educate individuals in agriculture, home economics, and mechanical arts (Rasmussen, 1989). As part of the Act, each state received 30,000 acres, per Senator, from the government to sell with the income going toward the creation of these universities. The Morrill Act of 1862 brought a practical form of education to a large portion of the U.S. population (NASULGC, 2008).

The second Morrill Act of 1890 created land grant universities for minority students mainly in states that were a part of the Confederacy. The Morrill Act of 1994 created land grant colleges for Native Americans, and these institutions are mainly in the mid to western United States. A total of 106 land grant institutions exist today, and there is at least one in each state and U.S. territory (NASULGC, 2008).

The Hatch Act was signed into law in 1887. This piece of federal legislation provided funding for agricultural experiment stations for the land-grant universities created by the Morrill Act of 1862. These experiment stations were designed to provide the latest information from agricultural research and became another component to the land grant university.

The United States Congress created Cooperative Extension in 1914, through the Smith-Lever Act, to tackle primarily rural concerns and subject matter in agriculture. The main objectives of the Smith-Lever Act were for Cooperative Extension to institute practical applications of research, as well as provide education and practical demonstrations of enhanced practices in agriculture (Seevers, Graham, & Conklin, 2007). Cooperative Extension would

provide the public the information produced from the agricultural experiment stations, as well as bring the land grant universities to the local community. The Smith-Lever Act authorized the United States Department of Agriculture to supply each state with funding constructed from a formula based on each state's population.

Cooperative Extension became the third component (teaching, research, & extension) of the land grant institutions created from the Morrill Act (NASULGC, 2008). The system involves an alliance among federal, state, and local governments to make scientific knowledge and the practical application of that knowledge available to communities. All levels of government working together is the meaning of the word "cooperative". Cooperative Extension refers to cooperation in levels for government funding, and cooperation for program development. Cooperative Extension was formed to respond to farm, rural, suburban and urban concerns within communities (Seevers et al., 2007). Cooperative Extension's objectives are to design, implement, and evaluate educational experiences to assist groups or individuals by increasing their knowledge and skills in solving problems (Seevers et al.).

The educational program is the hallmark of Cooperative Extension. Improving the success of educational programs has been and continues to be a priority both internally and externally for Extension (ECOP LAC, 2007). Lopez et al. (1999) suggested the development of Extension programs is influenced by societal needs or trends. Educational programs dictate each decision the organization makes (ECOP LAC, 2006). Most Extension programs are first identified as a need on the local level and are carried out by the organization to meet the needs of citizens (Rasmussen, 1989). Extension's educational programs are available to anyone who wishes to participate. Various programming components are unique to Cooperative Extension. 4-H Youth Development, Master Gardener, Integrated Pest Management, Money Matters, and Master

Naturalist are some of the many programs offered by Cooperative Extension. Program areas are Agriculture, Family and Community Science, 4-H/Youth Development, and Community Resource Development (UF IFAS/Extension, 2008).

Master Gardener

Agriculture is second only to tourism as the largest industry in the state of Florida (Florida Department of Agriculture and Consumer Services, 2007). Horticulture is the leading agricultural industry in Florida with a total annual economic impact of $909,212,711 in sales (USDA National Agricultural Statistical Service, 2007). Florida Cooperative Extension is responsible for delivering adult educational programs in the state of Florida (UF IFAS/Extension, 2008). Florida Cooperative Extension initiated the Master Gardener program in 1979 as a result of the importance of the state's horticulture industry and homeowners' desire for gardening information (T. MacCubbin, personal communication, July 10, 2008).

The primary objective of the Florida Master Gardener Program is to broaden the outreach of the University of Florida/Institute of Food and Agricultural Sciences (UF/IFAS) as a component of the land grant system (University of Florida Master Gardener Program [UFMGP], 2008). Master Gardeners contribute to a variety of distinctive extension and educational activities. The Florida Master Gardener Program is for adults that are both fond of gardening and will enjoy instructing the public about gardening (T. Wichman, personal communication, June 2, 2008). Master Gardener is the prototype for designing and implementing an educational program targeted to education and community service (Savanick & Boyd, 2005). Master Gardeners assist the local Extension agent with questions from homeowners', and educate clientele through the use of demonstration gardens (Reiners et al., 1991). With horticulture subject matter, Extension horticulture agents identify, recruit, educate, and evaluate adult volunteers from the community.

Once certified to be Master Gardeners, adult volunteers share horticultural information they are educated on with public audiences in their local communities (UFMGP, 2008).

Extension offices receive numerous questions from homeowners on subject matter that relates to gardening. Extension agents have a difficult time in managing and answering all of these questions from their constituents. The Master Gardener Program is a unique volunteer training program in that adults submit an application, are required to pay for the course, and then are required to donate a minimum of 75 volunteer hours annually. Master Gardeners provide people, time, and organizational expertise for local program coordinators (Meyer, 1997). The 2007 Florida Master Gardener report indicated that more than 3,835 volunteers contributed 425,445 hours to local county horticulture extension educational programs, providing services to citizens of Florida worth $7.9 million (UFMGP, 2008).

As part of the process of becoming a Master Gardener, potential volunteers must purchase the curriculum and materials at a maximum cost of $100 to participate in the training course (UFMGP, 2008). Master Gardeners fulfill approximately fifty hours of UF/IFAS sponsored training for certification. Master Gardeners meet their volunteer requirements in a number of ways: teaching educational programs, conducting evaluations of soil examples, answering horticulture questions (face-to-face, telephone, publications), assisting with local garden projects, assisting with 4-H activities, and assisting with the Florida Yards & Neighborhoods Program (UFMGP, 2008).

Of the 67 counties in Florida, 58 have an active Master Gardener Program as approved by the County Extension Director (UFMGP, 2008). More than 80% of those 58 counties educate a class of adults every year (T. Wichman, personal communication, June 2, 2008). The Extension professional responsible for the local Master Gardener Program is the coordinator (often an

Extension agent but not always) assigned to the program (T. Wichman, personal communication, June 2, 2008). The Master Gardener coordinator is the Extension agent or program assistant assigned to the program in each county. This individual identifies volunteers, educates them, and administers the program (UFMGP, 2008). Florida Cooperative Extension has a Master Gardener program with an organizational structure including a state Extension horticulture specialist, a state Master Gardener coordinator that provides guidance and standardized curriculum to agents in counties with Master Gardener programs, and local Extension agents as program coordinators (Dorn & Relf, 2000).

Statement of the Problem

According to Schrock et al. (1999), demographic characteristics alone cannot be used to predict prolonged participation in the Master Gardener program. More rigorous research is needed to learn why adults continuously participate in Master Gardener. Developing a comprehension of characteristics Master Gardener participants on a state by state basis is needed due to the lack of a standard national Master Gardener program (Kirsch & VanDerZanden, 2002). Extension should utilize trained Master Gardeners in as many volunteer opportunities as possible for several years in order to get a good return on their investment (Meyer & Hanchek, 1997; Swackhamer & Kiernan, 2005). National statistics have revealed that on the average, one out of three volunteers in any given organization discontinue volunteering after one year of service (Corporation for National and Community Service, 2006). Schrock et al. (2000) recommended keeping quality Master Gardeners to decrease the cost of the program and increase the effectiveness of Extension in terms of delivery of services.

An essential component to any volunteer organization or educational program that relies on volunteers is retention. Volunteers are individuals searching for information while cooperating with individuals or organizations with mutual interests (Rost, 1997). A straightforward

explanation does not exist as to what motivates adults to volunteer for the Master Gardener program (Flagler, 1992). With a total value of Florida Master Gardener volunteer hours in 2007 worth approximately $8,000,000, it is crucial that UF IFAS/Extension personnel as well as the horticulture industry understand why Master Gardener participants are electing to become active or inactive in the program (L. Arrington, personal communication, June 1, 2008). Many Florida communities rely upon Master Gardeners to assist them with projects, as well for educational horticulture advice, and therefore would benefit from an increase in the retention rate among this generous group of individuals (T. Wichman, personal communication, June 2, 2008).

Purpose and Objectives of the Study

The purpose of this study was to understand adult volunteer characteristics, efficacy in instructional strategies and motivational orientations on Florida Master Gardener tenure. The primary objectives of the study were

1. To describe participant demographics in the Florida Master Gardener program.
2. To describe Master Gardeners' efficacy in instructional strategies as volunteer educators; specifically: (a) ability to respond to difficult questions, (b) ability to gauge client comprehension of the information taught, (c) ability to craft good questions for clients, (d) ability to adjust information to the proper level for individual clients, (e) comfort with using evaluation strategies, (f) ability to provide an alternative explanation when clients are confused, and (g) the ability to implement alternative teaching strategies in their instruction.
3. To describe the motivational orientations of adults participating in Master Gardener; specifically: (a) Competence-related curiosity, (b) Interpersonal relations, (c) Community service, (d) Professional advancement, (e) Compliance with external influences, and (f) Escape from routine.
4. To determine if significant differences exist between efficacy in instructional strategies based on participant demographics.
5. To determine if significant differences exist between motivational orientations based on participant demographics.
6. To describe any existing relationships between efficacy in instructional strategies and motivational orientations for adults participating in Master Gardener.

7. To test the unidimensionality of Mergener's (1979) Education Participation Scale.
8. To understand the effects of motivational orientations and efficacy in instructional strategies on Master Gardener tenure.

Theoretical Framework

The theoretical framework of this study included Houle's (1961) Typology and self-efficacy theory (Bandura, 1993). The overlapping frameworks were implemented to address the research objectives. The Mergener Education Participation Scale (Mergener, 1979) and the Teacher Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001) were utilized to measure the research objectives associated with motivational orientations and instructional efficacy on participation.

Houle (1961) outlined three separate classifications that described adults' motivations to participate in continued learning, and are based upon adults' purposes and values of education. The three taxonomies were goal-oriented, activity-oriented and learning-oriented (Houle). Goal-oriented adults' initial thoughts before participating in an educational program are the realization of their need for the education or a personal interest they want to comprehend to a higher degree. An activity-oriented adult chooses the educational program based upon the amount of relations that they will receive with other adults. Learning-oriented adults perceive continued learning as a duty, and education will enhance their lives.

Self-efficacy theory is the extent to which individuals' beliefs regarding their aptitude to stimulate their authority over their own stratum of performance and over incidents that influence their lives (Bandura, 1993). The affect of self-efficacy contributes to an adult's motivation to participate in an activity. Self-efficacy will impact how adults cogitate, form opinions, inspire themselves, and act (Bandura, 1997). Tschannen-Moran and Woolfolk Hoy (2001) suggested

educator self-efficacy describes an instructor's confidence to bring about learner engagement and learning outcomes including challenging learners.

Houle's (1961) Typology and Bandura's (1993) Self-efficacy theory were required to give an explanation of why adults participate beyond their first year of contribution in the Master Gardener program. Houle's Typology (1961) regarding the three learning orientations and Bandura's (1993) self-efficacy theory provided the foundation for this study. Motivational orientations and instructional efficacy were utilized to comprehend volunteer retention in the Florida Master Gardener program.

Significance of the Study

The study was significant for a variety of reasons. Master Gardener's volunteer time and expertise are an asset to UF/IFAS Extension, the organization losses a large number of participants annually and participants serve as ambassadors for Cooperative Extension in local communities across the state. The more MG participants can lead to more organizational advocacy for Cooperative Extension. Master Gardeners have proven to be a true asset to UF IFAS/Extension programming and outreach efforts across the state (J. Dusky, personal communication, August, 21, 2008). Yet, a discrepancy exists between the number of participants who complete the Master Gardener training program and the number of Master Gardeners who remain active as volunteer educators in their respective county Extension programs. The Florida Master Gardener program had a few hundred adults leave the Master Gardener program after their first year (E. Eubanks, personal communication, July 8, 2009). Master Gardeners can become strong advocates for Extension based upon their enhanced horticultural educational knowledge and community development skill set (Relf & McDaniel, 1994).

Current adult educators' vocation is dependent on attracting participants (Boshier & Collins, 1985). The factors that lead an adult to participate in education should initiate a research

project centered on adult education (Boshier, 1971). Ahl (2005) recommended adults' motivation to participate in continued education is a pressing concern, because continued education is the solution to today's issues. Morstain and Smart (1974) recommended researchers should gain more comprehension of the characteristics and beliefs of learners in order to enhance program development in adult education. Comprehending adult motivations for participation in an educational program have been difficult due to the lack of a model and suitable instrument to warrant a scholarly hypothesis (Boshier, 1977). Barbuto, Jr., Trout, and Brown (2004) recommended sources of motivation be identified to assist agricultural educators in developing and implementing effective educational programs. Characteristics that lead adults to educational programs are an increasing research arena (Boshier & Collins). The National Research Agenda for agricultural education recommended that research is needed to "identify what motivates stakeholders to participate in agricultural education programs" (Osborne, n.d., p. 14).

A need exists for volunteers throughout Cooperative Extension. Hoover and Connor (2001) indicated volunteers are significant components of each Extension program area in Florida. Master Gardener volunteers stretch the reach of Cooperative Extension (Swackhamer & Kiernan, 2005). As Extension programs at land grant institutions throughout the nation have continued to face budget deficits and decreased funding, the role of the Extension volunteer has become increasingly more significant for the organization to provide reliable services to the general public (Steele, 1994). Phillips and Bradshaw (1999) reported Master Gardener volunteers are relied on by Florida Cooperative Extension. A continuous stream of volunteers is essential to the operation of Extension objectives (Smith, 2005). Stouse and Marr (1992) suggested Master Gardener volunteers serve as walking advertisements for the program.

Training volunteers accurately, and providing the right type of experiences for volunteers, may allow adults to feel motivated to carry on with their volunteer service (Corporation for National and Community Service, 2006). An Extension agent must have an understanding of what appeals to and motivates volunteers in order to effectively recruit, train, and retain these volunteers (Boyd, 2004). Master Gardener coordinators should equip volunteers the capacity to assist clientele in their communities (Peronto & Murphy, 2009). Boyd recommended in order to better recruit, prepare, and retain these adults, staff members and administrative personnel must be aware of the factors that contribute to successful volunteer commitment and adapt their management strategies to align with these factors. Finally, Cooperative Extension is employing volunteers to embody the university and assist the public through education (Bobbitt, 1997). An adult who is secure and self-confident with the volunteer responsibility is more likely to remain involved in Master Gardener (Swackhamer & Kiernan, 2005).

This study should uncover the motivational orientations that influence adult participation in Florida Cooperative Extension's Master Gardener program. At a rate of $17.55/hour of volunteer time donated × 75 minimum annual volunteer hours required × 1200 participants, UF IFAS/Extension has lost a potential of $1, 579, 500 of volunteer time, over the past five years, due to the loss of continued volunteer educators in Master Gardener. This study may assist Cooperative Extension by providing state and local coordinators methods to retain adults as volunteer educators in MG in order for the organization and local programs to receive maximum benefit from this resource.

This study may find alternative methods to prepare Master Gardeners as volunteer educators in order to retain adult participants. Also, this study may discover the level of instructional efficacy Master Gardeners have as volunteer educators. The state specialist, state

coordinator, and local coordinators could use the findings to improve program participants' instructional efficacy, and potentially retain more adults as volunteer educators to assist Florida Cooperative Extension in fulfilling its mission as the educational outreach component of the land-grant university.

Definition of Terms

EXTENSION AGENT. An individual in a specific county or region who instructs adults in assigned subject matter areas (referred to as Extension educator and/or Extension faculty in some states).

COOPERATIVE EXTENSION SERVICE. An organization that is research based and charged with the mission of taking knowledge and skills from the land grant institutions in an array forms to the public (Rasmussen, 1989).

ECOP. The Extension Committee on Organizational Policy formed by the Association of Public and Land-Grant Universities.

INSTRUCTIONAL EFFICACY. An educators' perceived effectiveness in teaching is instructional efficacy (Bandura, 1997).

EXTENSION PROGRAM. An educational program is a planned series of demonstrations, lectures, events, etc. by the Extension agent to accomplish educational objectives from the organization (UF IFAS/Extension, 2008).

LAND GRANT INSTITUTION. A land grant institution is a higher education institution created through the Morrill Acts of 1862, 1890 or 1994. They are charged with providing practical education to a large segment of the population.

MASTER GARDENER COORDINATOR. The Master Gardener coordinator is the local Extension agent or program assistant responsible for the Master Gardener program.

MOTIVATIONAL ORIENTATIONS. Motivational orientations are paradigms associated with the intentions of adults for participating in educational programs (Houle, 1961).

UF/IFAS EXTENSION. The University of Florida Institute of Food and Agricultural Sciences Extension. The University of Florida became a land grant institution from the 1862 Morrill Act, and Florida A&M became a land grant institution from the 1890 Morrill Act.

VOLUNTEER EDUCATOR. Volunteer educators are individuals who provide their time, expertise, and skills in order to instruct the public about specific subject matter (Corporation for National and Community Service, 2006).

Limitations and Assumptions of the Study

The study was limited to Master Gardener adult participants in Florida. The population was restricted to Florida and may not be characteristic of other adult Master Gardeners or Master Gardener programs in other states. Also, the findings cannot be generalized to other adult education programs or adult associations.

Chapter Summary

Cooperative Extension is an organization that is devoted to diverse adult educational programs. This chapter explained the background and the need for an in-depth study on adult motivations and instructional efficacy to participate in the Extension Master Gardener program. Chapter 1 included the history of Cooperative Extension, background information on Master Gardener, the statement of the problem, the purpose and objectives of the study, a brief summary of the theoretical framework, the significance of the study, definitions of key terms, and the study's limitations. The theoretical framework of the study included Houle's (1961) Typology, and Bandura's (1993) self-efficacy theory. Chapter 2 will provide literature associated with Houle's Typology and Mergener's (1979) Education Participation Scale. Literature associated to Bandura's (1993) self-efficacy theory and Tschannen-Moran and Woolfolk Hoy's (2001) Teacher Sense of Efficacy Scale will be examined in Chapter 2 as well. The literature review will focus on different Master Gardener programs throughout the nation and explore adult motivations for joining, and remaining active in Master Gardener.

CHAPTER 2
REVIEW OF LITERATURE

Overview of Theoretical Framework

This chapter reviewed the relevant literature that provided the background for this research. The theoretical framework for this study was Houle's (1961) Typology and Bandura's (1997) Self-Efficacy as they relate to the pursuit of adult education and perceived self-efficacy. Both theories are used to explain why adults participate beyond their first year involvement in the Extension Master Gardener program. Master Gardeners demonstrate convictions in volunteerism, and use their knowledge to assist clientele (Peronto & Murphy, 2009). Adults are primarily motivated to participate in the first year to acquire knowledge (Finch, 1997; Moravec, 2006; Schott, 2001; Schrock et al., 2000; Schrock, 1999; Simonson & Pals, 1990; Wolford, Cox, & Culp III, 2001). The second year and beyond adults are primarily teachers of the program to citizens across their respective county (Rohs & Westerfield, 1996).

Houle's research was presented first. The Mergener Education Participation Scale (1979) will be presented as it was constructed from Houle's (1961) Typology, and Boshier's (1971) Education Participation Scale. The Mergener Education Participation Scale was incorporated to assist the researcher in determining characteristics that navigate adults to Master Gardener. Literature relating to Houle's Typology and variables associated with the Mergener Education Participation Scale was included.

Bandura (1997) defined self-efficacy and detailed its impact on individuals' motivation to participate in an activity. Bandura described four methods to develop self-efficacy in adults. The researcher employed the Teachers' Sense of Efficacy Scale developed by Tschannen-Moran and Woolfolk Hoy (2001) in order to examine Master Gardener's self-efficacy of teaching strategies toward clients. Research related to Self-Efficacy Theory and the Teachers' Sense of Efficacy

Scale were incorporated. The study's conceptual framework is presented at the end of this chapter.

Houle's Typology

Houle (1961) researched adult characteristics that motivated their participation in continuing adult learning. Common characteristics of adults that were universal to specific groups were found. Adults with higher incomes are more apt to participate than low income adults in continued learning. Individuals with religious backgrounds are more involved in educational programs than atheistic adults. Older adults are more apt to participate in continued learning than younger adults. Individuals who are married participate in education more than adults who are single. Adults with children are more apt to participate in programs versus those married adults who do not have children. The more formal education an adult has received the more probable it is that individual will participate in continued learning. Houle found previous formal education reinforces income, age, religious characteristics, married, and having children as attributes of adults that participate in continued learning opportunities. Rogers' (2003) research on early adopters confirms Houle's findings due to the fact they have received more formal education and are more apt to be accepting of educational opportunities.

Researchers should understand the features, beliefs, and accomplishments of adults who participate in continuing education in order to understand the phenomena (Houle, 1961). Houle outlined three separate classifications that describe motivations of adults to participate in continued learning and are based upon adults' purposes and values of education. The three taxonomies are goal-oriented, activity-oriented and learning-oriented.

The first classification is the goal-oriented group. Houle (1961) identified adults in this category are motivated to participate in education to address objectives they desire to accomplish. The initial thought an adult undergoes before participating in an educational

program is the realization of the need for the education or an identified personal interest to develop to a higher degree. The adult's objective always instigates the educational endeavor and courses are chosen on the basis of accomplishing an objective (Houle). The goal-oriented adults did not commence their continued learning until at minimum their mid-twenties. Previously, they expressed minor regard for education. However, an episode occurred for each one in this classification. Those episodes range from trivial to significant depending upon the adult's specific experience. An episode could range from an adult's perceived need to better the community to learning the complexities of a new health care plan for their family.

The second classification was the activity-oriented group. Social contact is the primary attribute that motivates activity-oriented adults to participate in education (Houle, 1961). Adults in this typology chose the educational program based upon the amount of relations that they will have with other adults. However, other activity-oriented adults participate in education to escape their current situation (Houle). Activity-oriented adults initiate a continuous pursuit of learning when a dilemma necessitates a solution. Individuals self-reflect before they decide to partake in continued learning (Houle). Adults that are activity-oriented have a need for self reflection due to the fact individual needs are usually basic or too broad.

Houle (1961) described activity-oriented adults as motivated to participate in continuing education for motives dissimilar to the objectives or subject matter of the program. Organizations providing educational programs offer opportunities for adults to meet new people. Houle suggested some adults are motivated to participate in continuing education to avoid a personal situation, to seek a new relationship, or leave a relationship where they are discontented. Others enroll in education to accrue certificates or credits. Finishing the endeavor is significant to those

adults. Some adults participate in education due to the tradition in their family or their background leads them to continuing education.

The third and final classification was the learning-oriented. Houle (1961) identified education is a constant pursuit for adults in this grouping. Learning-oriented adults are devoted readers and formulate life decisions due to the likelihood of enhanced personal growth. Learning-oriented adults tend to perceive continued learning as a duty and believe that pursing education will enhance their lives. Being learning-oriented comes naturally to some adults and certain individuals have a difficult time distinguishing between learning and other portions of their life (Houle).

Two separate self-conceptions of learning surface from those in the learning-oriented classification. First, Houle (1961) identified these adults as individuals who are yearning to know and have a strong desire to learn. Houle observed their attitude was typically formed during childhood. Learning-oriented adults admit they are dissimilar from the majority of their contemporaries in this regard. Second, adults in this classification acknowledge that continued learning is a method that leads to personal enjoyment. In certain situations, fun may be the distinct purpose for an adult's participation in continued learning (Houle).

To summarize Houle's (1961) observations, no particular orientation is better than the others. The differences in adults are the focal point of Houle's Typology. The similar attribute of each individual is a perpetual learner. However, learners' differences are what should be studied. Comprehending that adults are in one of these three classifications is helpful in discerning and guiding adult education (Houle). A specific course or educational program may draw individuals from all three classifications with each participating for their own respective objectives. The adult is considerably "more able than the youth to know, to understand, to explore, to appreciate,

discern subtle relationships, to judge, and to look behind the surface of things to their deeper meaning" (Houle, p. 30).

Motivational Orientations

Boshier constructed the Education Participation Scale consisting of forty-eight items as a derivative of Houle's adult learning orientation typology (Merriam, Caffarella, & Baumgartner, 2006). Given the depth of the scale, the need existed to develop sub-constructs. The EPS was segregated into three modules: Cognitive Interest, Orientation to Activities, and Professional Advancement (Boshier & Collins, 1985). Each module of the EPS consisted of more in-depth designations related to adult learning orientations. Mergener (1979) developed his version of the EPS from Boshier's. Mergener found the EPS was composed of six factors explaining adult orientations to learning: cognitive interest, interpersonal relations, community service, professional advancement, escape from routine, and compliance with external influence. The literature has been organized according to these six factors as well as literature on motivations to participate in Extension programs. The following are descriptions of each motivational orientation outlined by Mergener:

Cognitive Interest

Cognitive interest is searching for knowledge for the sake of knowledge (Boshier, 1971). The M-EPS has been utilized to understand the effect of cognition on learning motivation. Mergener (1979) found cognitive interest was the chief motivational orientation for pharmacists to participate in continuing education programs. Cognitive interest was the most prominent variable for non-traditional students participating in a post-graduate pharmacy education program (Garst & Ried, 1999).

Cognitive interest was the primary motivation for adults choosing to participate in adult education courses (Carr, 1982). Adults participated in a non-traditional degree program because

they felt an internal need to learn (Phipps, 1987). Lenick (1986) found cognitive interest was the chief motivation for non-traditional adult women returning to postsecondary education. Goad (1984) found adult white females participated in continued education for cognitive interests. Sprouse (1982) indicated cognitive interest was the highest motivator for adults participating in continuing education.

Health care professionals reported cognitive interest was the chief motivation for participation in continued education. Nurses participated in advanced educational opportunities in order to increase their professional knowledge (Gale, 1991; Garrett, 1984; Mangubat, 2005). Increased cognition was the leading motivation for public health workers to participate in continuing education (Towers, 2003).

Cognitive interest was the central motivation for retirees to participate in educational programs (Fisher, 1986; Garofolo, 1995; Russett; 1999). Edlow (1983) reported adults were motivated by their cognitive interest to participate in Elderhostels. Increasing cognition drove retired professionals and nonprofessionals to participate in a continuing professional education program in Mississippi (Farmer, 2008). Also, older adults reported cognitive interest was their motivation for beginning law school (Waring, 1995).

Adults were motivated by cognitive interest to participate in vocational programs and higher education. Kolner (1983) indicated cognitive interest was the primary motivation for adults participating in supplemental vocational programs. Adults enrolled in college courses mainly for addressing their cognitive interest (Cherwony, 1982). Reynolds (1986) reported adults participated as part-time students at a community college for cognitive interest.

Cognitive interest was the motivation for diverse groups participating in a variety of educational programs. Okafor (1997) found adult inmates at correctional institutions participated

in educational programs for cognitive development. Miller (1991) reported learners in a college of agriculture off-campus certification program were primarily motivated to participate due to cognitive interest. Boccolucci (1992) found insurance company staff participated in an educational program primarily to increase their cognitive development. Adults participating in a sponsored community church program were motivated by cognitive interest (Baxter, 1990). Adults were motivated to participate in educational programs on music due to their cognitive interest (Heintzelman, 1989; Spell, 1989).

Interpersonal Relations

The EPS has allowed researchers to understand participatory motives of adults beyond cognitive interest. Social contact was the main motivation for adult learners to participate in Christian educational programs (Atkinson, 1990). Gallagher (1985) reported social contact motivated adults to participate in a religious program. Pastors participated in graduate religious schools in order to serve their community (Pai, 1990; Utendorf, 1985).

Older adults recognized the influence of social contact on their participation in education. Sprouse (1981) indicated acquiring social contact was the primary motivation for older adults in attending classes within their community. Baxter (1990) found retirees from an apartment complex participated in educational opportunities for social contact.

Social contact was reported as the preliminary motivational orientation for adults to participate in varied levels of education. Adults participated in a vocational program for social contact (McKenna, 1985). Long (1982) indicated adults participated in a GED preparation program mainly for social contact. Scott (1989) found adult women entering a nursing program were motivated by social contact more than any other variable. Adults participated in graduate school primarily for social contact (Allen, 1986; Pfeifer, 1996). Social contact and professional

advancement motivated school educators to participate in staff development training (Barry-Cybulski, 1991).

Professional Advancement

Previous literature suggested the professional development orientation was the primary motivation for adults to participate in education associated with assorted professions. Utilizing the EPS, Kremer (2006) found professional development was the chief motivation for staff at a law firm to participate in educational programs. The possibility of advancing in their profession motivated adults to participate in a vocational program (McKenna, 1985). Professional advancement motivated nurses to participate in continuing education (Irwin, 1996; Nishikawa, 1988; Thomas, 1984; Wai, 1993). Miller (1996) reported professional advancement was the chief motivation for females to participate in postsecondary technical education.

Palmer (1991) found the primary motivation for adults participating in community adult education centers was career development. Smith (1985) reported adult learners' chief motivation for participating in educational programs was professional development. Ives (2003) found professional advancement was the main motivator for public school staff to participate in continued education. Gourley (1983) found professional advancement to be the primary motivation for adult to participate in community college programs. Professional advancement motivated adult learners to forego their career and enter higher education (Harper, 1994).

Escape from Routine & Compliance with External Influence

Mergener (1979) reported pharmacists participating in mandatory continuing education had more motives from the compliance with external influence construct than pharmacists participating in non-mandatory continuing education programs. Escape from routine was the least motivational variable for students participating in pharmacy education (Garst & Ried, 1999). However, very little research was published in regards to the escape from routine, and

compliance with external influence constructs. This study will uncover if and how these two constructs influence adult participation in the Florida Master Gardener program.

Cognitive Interest & Professional Advancement

Multiple constructs collectively and equally predicted adult motivations to participate in continued education. The combination of cognitive interest and professional development was identified as equally motivating for adults to participate in a variety of educational opportunities. Cognitive interest and professional advancement were the main motivators for adult learners in a program featuring an asynchronous lesson (Kreszock, 1994). Oetman (1991) found cognitive interest and professional advancement were the main motivations for pastors participating in a continuing education program. Brown (1987) reported professional advancement and cognitive interest lead adults to participate in a distance telecourse. Law enforcement officers participated in continuing education for professional advancement and cognitive interest motives (Johnson, 1987). Adults participating in community college courses were predominately motivated for cognitive interest and professional advancement (Ensley, 1987; Westbrook, 1991).

In summary, cognitive interest accentuates individuals who participate in education for the happiness it provides, desire to enquire about the solution to a problem or for simply the purpose of learning (Boshier & Collins). Social stimulation emphasizes adults seeking acceptance from others, and desiring to escape boredom and frustrations from their current environment. Community service describes adults who desire to enhance their communities. External expectations details individuals that participate due to the advice of an authority figure or a personnel friend. Professional advancement accentuates adults striving to enhance their careers, complete a certification, or mandate to participate due to a professional requirement (Boshier & Collins, 1985). The literature has been organized according to theses six factors, as well as research regarding adult participating in Extension programs.

Master Gardener Demographic Characteristics

Previous studies of Master Gardeners have indicated, the majority of respondents were older, white, educated, and average income adults (Rohs, Stribilng, & Westerfield, 2002; Rouse & Clawson, 1992; Ruppert et al., 1997; Waliczek, Zajicek & Lineberger, 2005). This study seeks to learn if identical demographic characteristics describe Florida Master Gardeners.

Participation in Extension Programs

One variable to assist researchers in determining why adults participate in Extension programs is learning. Overall, learning has been identified as the primary motivation for adults choosing to participate in an Extension Master Gardener program (Finch, 1997; Moravec, 2006; Schott, 2001; Schrock et al., 2000; Schrock, 1999; Simonson & Pals, 1990; Wolford, Cox, & Culp III, 2001). These findings illustrate that adults have been primarily interested in the Master Gardener Program for the educational opportunities.

Research has identified various reasons adults volunteered for the Master Gardener program. Adults continued to volunteer for Master Gardener mainly to learn new information (Finch, 1997; Meyer, 2004; Rouse & Clawson, 1992; Wolford, Cox, & Culp III, 2001). Volunteers reported increased knowledge was the most important advantage they received from Master Gardener (Kirsch & VanDerZanden, 2002). However, knowledge was not the only benefit that adults received from Master Gardener.

Community service is an important aspect of Master Gardener opportunities provided to adult participants (Stouse & Marr, 1992). Serving people is a chief reason adults volunteered for the Master Gardener program (Schrock, 1999). Rohs, Stribilng, and Westerfield (2002) found adults volunteered in the Master Gardener program for the sense of belonging to a group. Master Gardeners' volunteer time provided them experiences and opportunities to interact with others through their teaching experiences (Flagler, 1992). Rohs and Westerfield (1996) reported adults

were more likely to volunteer for Master Gardener when the potential for them to receive personal benefits was high. Master Gardener provided adults an increase in self-esteem, social endeavors, and physical exercise (Boyer, Waliczek, & Zajicek, 2002; Waliczek, Zajicek & Lineberger, 2005). Prison inmates in South Carolina participated in Master Gardener in order to learn new vocational skills (Polomski, Johnson, & Anderson, 1997).

Motivational orientations can best be summarized by illustrating (a) Competence related Curiosity is the motivation to learn, (b) Community Service is the motivation to serve one's local community, (c) Interpersonal Relations is the motivation to meet new people, (d) Escape from Routine is the motivation to participate in something different in life, (e) External Influence is the motivation to participate based upon extrinsic factors, (f) Professional Advancement is the motivation to participate for reasons associated with a profession.

Self-Efficacy Theory

Bandura (1993) said self-efficacy was the extent beliefs regarding the capacity to stimulate control over performance and incidents that influence their lives. The affect of self-efficacy contributes to an adult's motivation to participate in an activity. Bandura (1986) suggested self-efficacy is correlated with learner motivation. Self-efficacy will impact how adults cogitate, form opinions, inspire themselves, and act (Bandura, 1997). Tschannen-Moran and Woolfolk Hoy (2001) suggested educator self-efficacy describes an instructor's confidence in the aptitude to bring about learner engagement and learning outcomes including demanding learners.

Adults that have low self-efficacy in specific duties are less likely to participate in activities that require attributes involving those same duties (Bandura, 1997). These individuals struggle motivating themselves and concede defeat abruptly when confronted with trials. They are characterized as lowly motivated and lacking a strong commitment in pursuit of personal objectives. Adults with low self-efficacy fixate on imperfections, the challenges of a goal, and

the undesirable consequences of letdowns in strenuous environments. Bandura (1997) indicated these individuals squander time reflecting on insufficiencies and potential mishaps. As a result of this, individuals become weakened due to the intentions of attempting to ensure personal objectives are addressed. Additionally, they require more time to recuperate feelings of efficacy following letdowns or obstacles than adults with high self-efficacy. Individuals quickly lose confidence in aptitude due to the analysis of poor accomplishment as inadequate skills. Low self-efficacy adults become casualties of stress and dejection (Bandura, 1993).

Enhanced sociocognitive meaning is produced from individuals with high self-efficacy. Adults confident in their abilities address complex undertakings as opportunities to be successful (Bandura, 1997). The facet of challenging opportunities encourages their interest and engages individuals in endeavors. High self-efficacy adults establish lofty goals, sustain a robust obligation to those goals, devote enhanced efforts in their duties, and improve their efforts in the face of letdowns. Higher sociocognitive adults consider advantages by continuing to be task oriented in times of trials and accredit letdowns to inadequate efforts. High self-efficacy adults are success oriented and thus promptly recuperate their feeling of efficacy after letdowns (Bandura, 1993). These adults address perils believing they can manage them. Adults with higher efficacy have improved accomplishments, decreased stress levels, and are less susceptible to dejection (Bandura, 1997). These attributes of self-efficacy operationally contribute to individual accomplishments.

Bandura described methods to construct self-efficacy in adults. Individual influences affect the variety and formation of their environments (Bandura, 1993). Human motivation, action, and affect are examples of individual influences. Environmental pressures impact adults' motivation and achievements are heavily arbitrated through individual influences (Bandura).

Individual influences function as significant affects at the center of unexpected incidents. The most persistent means of activity are individuals' convictions regarding their ability to control personal meaning and episodes that shape their lives. Bandura (1992) reported individual self-efficacy beliefs create varying outcomes through four processes. Those processes are cognitive, motivational, affective, and selection (Bandura, 1993).

Cognitive Processes

Aptitude is a broad capacity where cognitive, social, motivational, and behavioral competences must be coordinated and operationally implemented in order to serve various objectives (Bandura, 1993). Individuals create objectives according to a personal assessment of their aptitude. Adults are more committed to enhanced personal goals they have constructed due to confidence in their efficacy (Bandura, 1991). Bandura (1993) reported individuals' perceptions of self-efficacy dictate how they compose and prepare for anticipated circumstances in their lives.

Performance is impacted by the degree of self-efficacy individuals have. Bandura (1993) indicated individuals with increased self-efficacy demand successful environments that assist performance and include positive mentors. Likewise, individuals with decreased self-efficacy possess uncertainty and assume the worst will occur. An accomplishment is hard to attain when one is skeptical of one's own capabilities (Bandura, 1993). Possessing knowledge and capabilities does not translate into an individual capable of utilizing them. Bandura (1993) found personal confidence of efficacy is required for individuals to be able to attain their achievements. Individuals with identical knowledge and skills may perform differently under equal circumstances due to differences in self-efficacy. Efficacy is required for individuals to remain task oriented while undergoing difficult circumstances (Bandura, 1993).

Individuals evaluate their aptitude in comparison to the achievements of their peers. Those peers impact how individuals determine their aptitudes (Bandura, 1997). Also, social comparisons affect individuals' self-esteem and the level of satisfaction attributed from their achievements. Bandura (1993) suggested robust individual efficacy inferences are derived from comparison assessments. The manner individual progress is evaluated on social comparisons of objectives may robustly affect efficacy and thus modify the sequence of goal achievement (Bandura, 1997). Bandura (1993) recommended providing individuals with feedback on their personal development due to the fact this accentuates individual aptitude.

Also, learning environments play a significant role in the attainment of individual efficacy. Learning environments that interpret aptitude as a learnable skill, pay less attention to social comparison competitions, and underscore personal comparisons of development and achievements are a best fit for constructing an efficacy setting that encourages enhanced learning (Bandura, 1993).

The exercise of control is the extent to which individuals feel their circumstances are controllable (Bandura, 1992). An individuals' environment provides opportunities and constraints in exercising self-efficacy. Bandura (1997) reported adults with low efficacy deliver insufficient change in environments with prospective opportunities due to doubt of their attempts. Individuals owning a robust confidence in their efficacy create methods to exercise control regardless of the limitations present in their environment (Bandura, 1993). Individuals' professed self-efficacy affects the implementation of objectives and critical thinking.

Motivational Processes

Bandura (1991) found motivation is an offspring of individuals' perceptions of efficacy. People develop attitudes in regards to what they can accomplish. Individuals motivate themselves and pursue their exploits through the application of anticipation (Bandura, 1993).

Individuals construct objectives for themselves and set up sequences of exploits designed to fulfill meaningful attributes. Bandura (1993) suggested discretion is explained into incentives and appropriate action through self-regulatory methods. Individuals rely on personal attitudes to acquire accomplishments and personal attitudes measure the anticipated results of performance. Bandura (1997) found numerous opportunities are not taken due to individuals' lack of aptitude. Thus, self-beliefs of potential dictate the likely motivation of expected results (Bandura, 1993).

Behavior is conducted and motivated by the objectives at the moment versus being drawn through an unfulfilled prospective condition (Bandura, 1993). Objectives are self-influenced rather than controlled through motivation and deeds. Individuals navigate their behavior and construct rewards in order to endure attempts until their objectives are completed (Bandura, 1993). Bandura (1997) indicated individuals pursue fulfillment through accomplishing assessed objectives and are stimulated to strengthen their attempts by dissatisfaction with poor achievements.

Bandura (1997) said perceptions of self-efficacy establish the objectives that individuals set for themselves, the attempts they supply to accomplish those objectives, the extent they endure in hardships, and their resistance to disappointments. These influences explain primary shares of differences in motivation. Bandura (1992) reported individuals with compelling attitudes in their aptitude put forth enhanced efforts after they fail in accomplishing an objective. Those who doubt their ability relax their attempts or surrender abruptly when confronted with barriers or disappointments. Performance achievements are typically attributed to robust perseverance from individuals (Bandura, 1993).

The incongruity between individuals' understood performance and accepted standard stimulates exploits to decrease the discrepancy in efficacy (Bandura, 1993). Motivation requires

proactive management and reactive response. Bandura (1997) suggested individuals motivate and direct their exploits through proactive management by establishing challenging objectives that construct a condition of disequilibrium. A robust sense of efficacy causes individuals to set enhanced objectives after their initial objective is accomplished (Bandura, 1997). Implementing additional challenges constructs new motivating differences for individuals to achieve. Bandura (1993) indicated individual motivation involves a twofold management process of motivating performance in discrepancies followed by decreasing discrepancies.

Affective Processes

Bandura (1997) reported individuals' perceptions of their aptitude and degree of motivation affect the amount of anxiety and dejection they experience in intimidating or challenging conditions. Individuals who feel they are able to cope with challenges do not create thought processes centered on anxiety. Likewise, individuals experience high anxiety due to their beliefs that they cannot cope with challenges due to a lack efficacy (Bandura, 1993). These individuals become concerned about incidents that seldom occur and amplify their seriousness. This facet weakens their degree of propelling toward the recognized objective (Bandura, 1997).

Anxiety is influenced through identified coping efficacy and perceived efficacy to manage bothersome thinking (Bandura, 1993). The perception of self-efficacy to manage thinking mechanisms is a chief component in controlling thought generated anxiety and despair. Ozer and Bandura (1990) found individual self-efficacy and thought management function together to decrease anxiety and escaping behavior.

Disappointments lessen learners' perceived efficacy and they become apprehensive regarding educational requirements. Learners possessing low efficacy to cope with academic requirements are susceptible to success anxiety (Bandura, 1997). However, when learners' efficacy withstands disappointments, individuals remain focused. Bandura (1993) reported

learner's perceptions of aptitude in mastering educational subject matter predict their ensuing educational achievements. This implies the need to reduce educational stress. Bandura (1993) reported constructing a robust sense of efficacy is the best antidote for decreasing educational anxiety. A sense of efficacy is built through the development of cognitive aptitudes and self-regulative proficiencies for managing educational assignments (Bandura, 1997).

Selection Processes

Standards of self-efficacy can form the path individuals choose by influencing the selection of actions and surroundings (Bandura, 1993). Individuals avoid endeavors when they feel those surpass their coping aptitudes. However, individuals accept challenging endeavors and choose scenarios they are capable of handling. Factors influencing selection behavior can deeply affect their course of personal development. Through their selections, individuals develop distinct competencies, pastimes, and social networks that influence life directions. Efficacy control procedures influence how present cognitive skills are employed in coping with requirements of daily life.

The responsibility of constructing environments beneficial to learning leans profoundly on the aptitudes and self-efficacy of instructors. Bandura (1997) indicated instructors with a minimal amount of teaching efficacy spend more time on non-educational activities, more quickly concede defeat with learners, and criticize learners for failing to achieve success. Literature indicates learning environments are to some extent established by instructors' beliefs in their teaching efficacy. Instructors who have strong beliefs in their teaching efficacy produce mastery experiences for their learners (Bandura, 1993). Likewise, instructors who doubt their aptitude create learning environments that are likely to weaken learners' self-efficacy and cognitive growth. Teachers with a minimal level of teaching efficacy prefer a managing orientation that leans on extrinsic enticements and negative measures to get students to learn.

Instructors confident in their teaching efficacy encourage learners' intrinsic pursuits and self-directed learning.

Supporting Literature

Agricultural Teacher Education

Research indicates efficacy is a factor in assisting the success of preservice agricultural educators. Knobloch and Whittington (2002) found collective efficacy was theoretically and operationally similar to teacher efficacy. Teaching in a setting similar to what students would encounter as professionals improved their teaching efficacy (Knobloch, 2001). Knobloch (2002) reported teachers may have felt efficacious in their teaching and their student teaching experiences confirmed their beliefs. Kelsey (2007) found increased self-efficacy was the influential variable that characterized women who succeeded as a secondary agricultural education teachers. Professional and life experiences influenced preservice agriculture teachers' level of efficacy (Duncan & Ricketts, 2006; Rocca & Washburn, 2006).

Preservice agriculture teachers viewed themselves as having the highest efficacy in instructional practices after their student teaching experience (Roberts, Harlin, & Ricketts, 2006; Stripling et al., 2008). Likewise, student teachers may experience a high efficacy due to having a cooperating instructor providing a supportive teaching environment (Knoblach, 2006). Knoblach and Whittington (2003) found agricultural education teachers with a high sense of teaching efficacy were more likely to cope and thrive when faced with difficult teaching assignments. In a study conducted in Oregon and Washington, agricultural educators had a high sense of efficacy for instructional strategies in teaching mathematics (Jansen, 2008).

Volunteers

Educational programs relying on volunteers in the public sector should utilize adults that have efficacy in their roles in order for the organization to be the most effective (Brudney, 1999).

The inclusion of adult volunteers with instructional efficacy has proven to be beneficial for educational programs and professional educators. Kagan et al. (2001) reported volunteers with instructional efficacy had more success in communicating through intervention with patients than volunteers with little instructional efficacy. Adult volunteers' instructional efficacy provided professional educators with assistance in improving English language learning for Chinese adults (Zheng et al., 2006).

Literature identified the effectiveness of older volunteers as volunteer educators in delivering educational programs. Dorph, Wik, and Steen (2003) found elderly adult volunteers helped CPR professionals to deliver effective training to more participants due to their instructional efficacy. Older adults' instructional efficacy as volunteer educators was effective in a nationwide caregiving program (Etkin et al., 2006).

Adult volunteers' instructional efficacy as classroom paraprofessionals assisted elementary school teachers in improving students reading comprehension (Rebok et al., 2004). In a study conducted by Kim (2005), volunteers who possessed more instructional efficacy were more willing to participate in training related to teaching strategies. Trainin and Andrezejczak (2006) reported volunteer educators in Nebraska improved elementary students reading scores through their instructional efficacy.

Cooperative Extension

A deficiency exists in the amount of research published as to the effect of adult volunteer motivational orientations and instructional efficacy on participation in the Master Gardener program. This study attempts to alleviate a portion of this deficiency. Volunteer educators are important to the objectives of Cooperative Extension. Adult volunteers are clients and representatives of UF IFAS/Extension (Ruppert, Bradshaw, & Stewart, 1997). Collins and Layne (2003) reported volunteers who were trained to teach had more instructional efficacy than

volunteers who were not trained or prepared in an Extension program focused on wellness education. VanDerZanden (2001) suggested getting the most out of the skills and expertise of Master Gardener volunteers is a functional method to improve the quality of the program.

Summary

Chapter 2 presented data related to the theoretical framework of the study. Houle's (1961) Typology was presented and described the three orientations for adults to participate in education: goal, activity and learning. The Mergener (1979) Education Participation Scale was explained along with the six constructs of learner motivation embedded in the instrument: cognitive interest, interpersonal relations, community service, professional advancement, escape from routine and compliance with external influence.

Bandura's (1997) definition of self-efficacy was presented. Tschannen-Moran and Woolfolk Hoy's Teacher Sense of Efficacy Scale (2001) was described the construct of instructional efficacy. The inclusion of instructional efficacy was important to understand as Master Gardeners are volunteer educators.

Information on how the theoretical framework guided the selection of variables for the study was presented. Supporting literature associated with the study's variables (adult learner motivations and instructional efficacy) was presented. The conceptual framework for the study is illustrated on the next page (Figure 2-1). The conceptual framework illustrates the interaction of demographic characteristics, motivational orientations (Competence related Curiosity, Interpersonal Relations, Community Service, Escape from Routine, Professional Advancement and External Influence) and instructional efficacy of Master Gardeners predicts MG tenure.

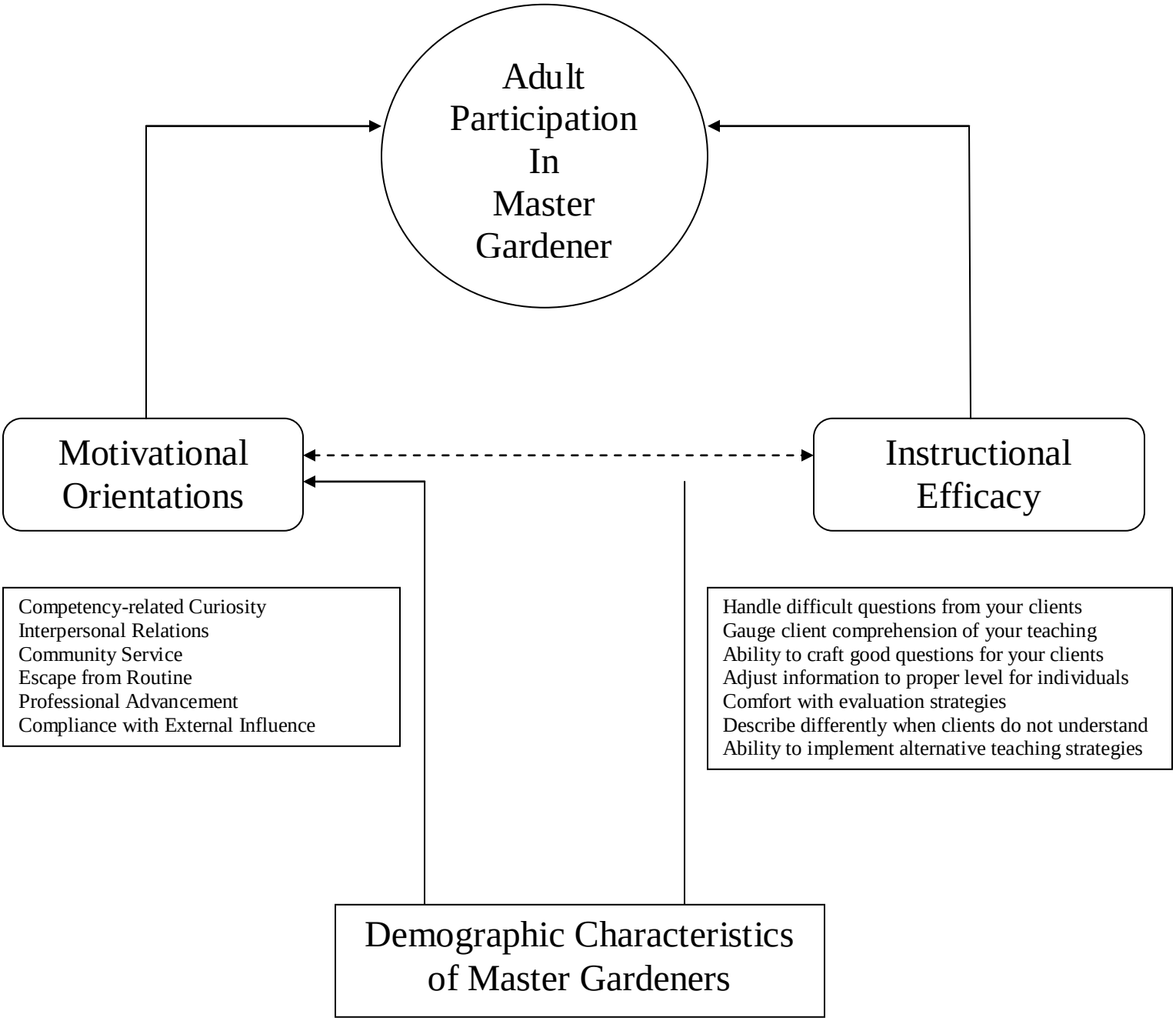


Figure 2-1. Conceptual Framework Highlighting the Foundations of the Study

CHAPTER 3
RESEARCH DESIGN AND METHODS

Introduction

Chapter 1 indicated the need and purpose of this study was to measure the motivational orientations and teacher efficacy of Florida Master Gardener participants as volunteer educators. The study sought to measure motivational orientations and teacher efficacy through the implementation of the Mergener's (1979) Education Participation Scale and the Teacher Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001). As reported in Chapter 2, previous literature and relevant theoretical conceptual frameworks were examined. Chapter 3 explains the research design, the objectives of this study, the target and actual population, how the population was sampled, the Mergener Education Participation Scale and Teacher Sense of Efficacy Scale's measures of validity and reliability, data collection, and analysis.

Research Design

Quantitative research inquiry was selected as the research paradigm for this study. Quantitative research is initiated with a hypothesis, has a theory, manipulates and controls variables, analyzes each piece, and uses numerical data (Agresti & Finlay, 1997). Quantitative research examines cause and effect, is developed prior to the study, utilizes deductive reasoning to examine theories, employs standardized measurements, and analyzes numerical data (Ary et al., 2006). The quantitative research design served as the preeminent approach in assisting the researcher in ascertaining the solution to the research question.

The researcher utilized an ex post facto design to assist with answering the research question. An Ex post facto design is employed to investigate cause-and-effect relationships when the researcher is unable to manipulate the independent variable (Ary et al., 2006). Groups are compared with differing independent variables to ascertain their effect on the dependent variable.

The study's independent variables were participant demographic characteristics, instructional efficacy, Competence related Curiosity, Community Service, Interpersonal Relations, Escape from Routine, External Influence, and Professional Advancement motivational orientations. The dependent variable was adult volunteer tenure in the Florida Master Gardener program. Ary et al. said an ex post facto design can enable the researcher to test hypotheses regarding potential dependent variables while understanding the disparity that exists among the subjects on the independent variables. Shavelson (1996) said ex post facto designs are the most commonly utilized to describe the associations between two variables.

Ary et al. (2006) indicated common statistics used in experimental research are also used in ex post facto designs. The researcher should calculate the mean and standard deviation in each group. Second, a t test should be initiated to identify differences in the means of two groups or an ANOVA (analysis of variance) should employed if more than two groups assist in the study. Chi-square can be utilized to uncover if a result arises repeatedly in one group compared to a different group.

A researcher should take into account common cause, reverse causality, and the presence of other independent variables for interpreting ex post facto research due to the inability to control for the independent variables which reduces internal validity (Ary et al., 2006). Common cause refers to the potential that the independent and dependent variables are the offspring of a third variable. Reverse causality is opposite of the stated hypothesis. Perhaps the dependent variable produced the independent variable instead of the independent variable instigating the dependent variable as hypothesized (Ary et al.). Other independent variables besides the ones in the study can cause the observed effect in the dependent variable too.

Objectives of the Study

1. To describe participant demographics in the Florida Master Gardener program.

2. To describe Master Gardeners' efficacy in instructional strategies as volunteer educators; specifically: (a) ability to respond to difficult questions, (b) ability to gauge client comprehension of the information taught, (c) ability to craft good questions for clients, (d) ability to adjust information to the proper level for individual clients, (e) comfort with using evaluation strategies, (f) ability to provide an alternative explanation when clients are confused, and (g) the ability to implement alternative teaching strategies in their instruction.

3. To describe the motivational orientation for adults to participate in Master Gardener; specifically: (a) Competency-related Curiosity, (b) Interpersonal Relations, (c) Community Service, (d) Escape from Routine, (e) Professional Advancement, and (f) Compliance with External Influence.

4. To determine if significant differences exist between efficacy in instructional strategies based on participant demographics.

5. To determine if significant differences exist between motivational orientations based on participant demographics.

6. To describe any existing relationships between efficacy in instructional strategies and motivational orientations for adults participating in Master Gardener.

7. To test the unidimensionality of Mergener's (1979) Education Participation Scale.

8. To understand effects of motivational orientations and efficacy in instructional strategies on Master Gardener tenure.

Population

The population in this study was adult participants of the Florida Extension Master Gardener program. Approximately 3,822 adult Floridians participate in the Master Gardener program (E. Eubanks, personal communication, March 8, 2009). There are 58 counties in the state of Florida that have Master Gardener programs (T. Wichman, personal communication, March 6, 2009). Master Gardener programs exist in each of the five Florida Extension districts.

According to Cochran (1977), a sample size of 362 usable surveys was required for a confidence interval of +/- 5 when N = 3,822. Response rates reported in recent literature are utilized to determine the potential response rate for future research involving a mail survey with a similar population (Bartlett, Kotrlik, & Higgins, 2001). For mail surveys, 5 to 10 % should be added to the total sample size in order to account for incorrect participant mailing addresses,

participants who may have recently passed away, and for questionnaires with incomplete participant responses (Babbie, 1990; Salkind, 1997).The response rate was anticipated to be between 62 and 68% due to response rates in previous research utilizing a mail survey with Master Gardeners (Rexroad, 2003; Schott, 2001; Schrock, 1999; Sutton, 2006). The sample size was 613 Master Gardener participants (362 usable surveys ÷ 65% average response rate × 10% = a sample size of 613).

The result of this approach is oversampling. However, oversampling is not viewed as a detriment in social science research because estimating response rates is not an exact science (Fink, 1995). The implementation of oversampling ensures a sufficient sample size through the completion of an oversampling approach in a more direct procedure (Cohen, 2004).

Sampling Method

The researcher utilized stratified sampling to select the population. Stratified sampling provides more representative samples than simple random sampling by ensuring the proper representation of the stratification variables and this results in improving the representation of other variables related to them (Babbie, 2007). Stratified random sampling separates the population into distinct groups, and then chooses a simple random sample from each group (Agresti & Finlay, 1997). Ary et al. (2006) suggested stratified sampling can offer a more descriptive sample than simple random sampling due to the sampled population not being homogenous. The study incorporated proportional sampling in order for the proportions in each group to be equal to those in the total population. Stratified random samples should explain "the variances of subpopulations, strata, or clusters before an estimate of the variability in the population as a whole can be made" (Israel, 1992, p. 4). The advantage of stratified random sampling is that the approach allows the researcher to divide the population into subgroups and identify differences among each subgroup of the total population (Ary et al.).

A geographical stratified sampling method was employed for this study. Florida Cooperative Extension is divided into five distinct districts: Northwest, Northeast, Central, South Central, and South (UF IFAS/Extension, 2008). The Northwest District had 586 Master Gardeners, the Northeast had 521 Master Gardeners, the Central had 1,209 Master Gardeners, the South Central had 876 Master Gardeners, and the South had 630 adult Master Gardeners (T. Wichman, personal communication, May 6, 2009). The sum of Master Gardeners in the five Extension districts (stratum) was N = 3,822. Proportional sample allocation was utilized as the sampling technique to select the samples. The sample size in each stratum (district) was selected in proportion to the size of the stratum. The samples were:

1. Number of sample in Northwest district = (586/3,822) 613 = 94
2. Number of sample in Northeast district = (521/3,822) 613 = 84
3. Number of sample in Central district = (1,209/3,822) 613 = 194
4. Number of sample in South Central district = (876/3,822) 613 = 140
5. Number of sample in South district = (630/3,822) 613 = 101

A total of 613 Master Gardeners were randomly selected for this study. A list of the Master Gardeners in each county was provided by the Master Gardener coordinator in that county. Counties were purposively selected from each district according to the stratum needed in that district in order for the study to be representative of the total population. Respondents were selected with the use of random number generator in Excel 2007. Escambia County (n = 93 Master Gardeners), Okaloosa County (n = 86 Master Gardeners), and Bay County (n = 18 Master Gardeners) counties were selected in the Northwest district (n = 197 Master Gardeners). These counties provided the researcher the appropriate number of respondents for the Northwest district stratum (N = 94).

In the Northeast district, Clay County (n = 92 Master Gardeners), Columbia County (n = 34 Master Gardeners), and Alachua County (n = 79 Master Gardeners) were purposively

selected. The counties offered the appropriate number of respondents (N = 97) needed from the Northeast district. With (n = 403), Volusia County (n = 150 Master Gardeners), Lake County (n = 97 Master Gardeners), Osceola County (n = 91 Master Gardeners), and Seminole County (n = 65 Master Gardeners) were purposively selected for the Central district. These Central district counties provided the researcher the appropriate number of subjects for this stratum (N = 194). Also, the researcher chose not to select counties in the Central district where he was employed as an Extension agent in order to avoid researcher bias (Ary et al., 2006).

For the South Central Extension district, Sarasota County (n = 118 Master Gardeners), Hillsborough County (n = 116 Master Gardeners), and Collier County (n = 79 Master Gardeners) were selected with a total n = 313. The purposive sampling of these counties met the stratum for the South Central district (N = 140). Martin County (n = 102 Master Gardeners), St. Lucie County (n = 66 Master Gardeners), and Highlands County (n = 48 Master Gardeners) were chosen to sample for the South district (n = 216). These counties met the stratum for the South district (N = 101).

Instrumentation

Mergener's Education Participation Scale

Two instruments were used to gather data for this study. Mergener (1979) constructed his version of the Education Participation Scale consisting of forty-three items as a derivative of Houle's (1961) adult learning orientation typology and Boshier's (1971) Education Participation Scale. Given the depth of the scale, the need existed to develop sub-constructs. Each module of the M-EPS consisted of more in-depth designations related to motivational orientations. Garst and Ried (1999) reported the M-EPS was constructed of six factors explaining adult orientations to learning: Competency-related Curiosity (CRC), Interpersonal Relations (IR), Community

Service (CS), Escape from Routine (ER), Professional Advancement (PA), and Compliance with External Influence (CEI).

Variables on Mergener's (1979) Education Participation Scale were measured on a 5 point scale: "1 = very much influence, 2 = much influence, 3 = moderate influence, 4 = little influence, 5 = very little influence" (Garst & Ried, 1999, p. 301). Mergener's EPS was derived from the EPS developed by Boshier (1971). A reliability and factoring experiment was conducted on Boshier's Education Participation Scale, and all 48 items correlation coefficients had a critical value significant at the .001 level (Boshier). The results indicated all items were reliable.

Garst and Ried (1999) reported the M-EPS was a valid instrument for assessing influential motivations of pharmacists in pharmaceutical education. Each of the factors had alphas equal or larger than .70 except Professional Advancement. Table 3-1 illustrates the reliability coefficients of each construct of the M-EPS reported by Garst and Ried.

Table 3-1. Reliability Coefficients for each construct of the Mergener Education Participation Scale

Construct	Alpha
Community Service	.86
Interpersonal Relations	.85
Competency-related Curiosity	.83
Escape from Routine items	.78
Compliance with External Influence	.70
Professional Advancement	.60

Six factors were extracted by the factor analysis of the M-EPS (Mergener, 1979). In order for a factor to be considered important, at a minimum three statements must have loaded on it. A loading of +0.40 or considerably larger on a statement was explanation enough for a statement to be included in a factor (Mergener). This process was conducted through the maximum likelihood method of factor analysis with varimax rotation (Mergener). The factor loadings accounted for 48% of the total variance and 89% of the explained variance (Mergener).

The M-EPS has not been used to discover what motivates adults to participate in the Master Gardener program. Boshier and Collins (1983) reported variables on the M-EPS predicted how constructs involved the dependent variable. The researcher's pilot study will serve to add to the research in regards to the reliability and validity of the M-EPS.

Teacher Sense of Efficacy Scale

Tschannen-Moran, Woolfolk Hoy, and Hoy (1998) identified teaching efficacy as the aptitude of the instructor to investigate the objective related to teaching and feel proficient in achieving the objective. The Teacher Sense of Efficacy Scale is composed of 24 items that include three constructs. The three constructs were efficacy in classroom management, efficacy in student engagement, and efficacy in instructional strategies. For this study, the construct of efficacy in instructional strategies was utilized.

Tschannen-Moran and Woolfolk Hoy (2001) measured variables on a nine point scale with the TSES consisting of a long form with 24 items and a short form with 12 items. Respondents were asked "How much can you do?" with 9 = *a great deal*, 7 = *quite a bit*, 5 = *some influence*, 3 = *very little*, and 1 = *nothing*. Principal-axis factoring analysis with varimax rotation yielded the three factors (efficacy for instructional strategies, efficacy for classroom management, efficacy for student engagement) with loadings varying from 0.50 to 0.78 (Tschannen-Moran & Woolfolk Hoy). The factor loadings from instructional strategies for the seven questions on efficacy in instructional strategies ranged from 0.57 to 0.72 (Tschannen-Moran & Woolfolk Hoy). The reliability levels for the teacher efficacy subscales were 0.91 for instruction, 0.90 for management, and 0.87 for engagement (Tschannen-Moran & Woolfolk Hoy). Intercorrelations among the long and short forms for the total scale and three subscales ranged from 0.95 to 0.98.

Goddard, Hoy, and Hoy (2000) found the Teacher Sense of Efficacy Scale (TSES) to be valid and reliable in a study with 70 schools across five states. The TSES was found to be valid

and reliable in a study of elementary school teachers in Texas (Henson, Kogan, & Vacha-Hasse, 2001). Heneman, Kimball and Milanowski (2006) reported the TSES met the requirements of construct validity and reliability with an alpha of 0.91 in their study of over 1,000 classroom teachers in a large school district in Nevada. In a study consisting of over 130 teachers in juvenile correction facilities in the United States, the TSES was determined to be valid and reliable (Ren et al., 2008). Capa (2005) found the TSES was a valid and reliable instrument for assessing factors influencing first year teacher's efficacy in Ohio.

Brouwers and Tomic (2003) indicated the TSES was a valid instrument for surveying secondary school teachers in the Netherlands. In a study involving over 700 elementary and middle school teachers in Canada, Cyprus, Korea, Singapore and the United States, the TSES was concluded to be valid and reliable (Klassen et al., 2008). Cheung (2008) reported the TSES was valid and reliable in a study involving approximately 1,300 in-service primary school educators in Shanghai and Hong Kong with Cronbach's alpha for teaching efficacy being .87. The TSES was a valid and reliable instrument in evaluating 23 educators in 9 rural and impoverished schools in Zimbabwe (Dunham, & Song'ony, 2008).

Tschannen-Moran and Woolfolk Hoy (2001) utilized literature and a panel of experts to establish content validity and reliability for the TSES. The reliability alpha for instructional practices was .91. Tschannen-Moran (2000) reported subscale scores of the TSES may be employed to evaluate teaching efficacy. For this study, it was concluded that the short version of the TSES construct of instructional strategies would appropriately measure Master Gardener's teaching efficacy.

Both long and short forms were examined by Tschannen-Moran and Woolfolk Hoy (2001) with two distinct factor analyses (one with preservice teachers and the other with inservice

teachers). Principal-axis factoring with varimax rotation explained 54% of the variance on the long form and 65% on the short form for inservice teachers. Preservice teachers' responses accounted for 57% on the long form and 61% of the variance on the short form. Reliability of the 24 item scale was 0.94 on the long form and 0.90 for the short form. Therefore, both subscales scores (24 item & 12 item) and total scores can be utilized to measure efficacy (Tschannen-Moran & Woolfolk Hoy).

The correlation of the Teacher Sense of Efficacy Scale and other correlations of teacher efficacy measures addressed construct validity. Tschannen-Moran and Woolfolk Hoy (2001) found total scores on the TSES long form (24 items) were positively related to the general teacher efficacy (GTE) factor ($r = 0.16$, $p < 0.01$), and the Gibson and Dembo (1984) teaching efficacy measure ($r = 0.64$, $p < 0.01$). The positive correlations with other measures of teaching efficacy provide verification of construct validity. The 12 item scale results were similar to those from the long form. Tschannen-Moran and Woolfolk Hoy reported the results of these analyses indicate that the TSES is reasonably valid and reliable. The TSES instructional efficacy construct has not been used to discover how Master Gardeners perceive their instructional strategies as volunteer educators.

Data Collection

Survey Design

The questionnaire included the M-EPS (Part I), the efficacy in instructional strategies construct of the TSES long form (Part II), and demographic questions (Part III). The data collection instrument was printed in an 8.5" x 11" booklet layout and then mailed to the sampled population. Participants were asked to mail the questionnaire back to the researcher. Data was collected October 25 thru December 1, 2009.

The researcher's survey design and data collection methodology was based on the Dillman, Smyth, and Christian's (2009) Tailored Design Method. The Tailored Design Method consists of five facets: a respondent-friendly questionnaire, up to five contacts with the questionnaire addressee, included stamped return envelopes, correspondence that is personalized, and a token financial incentive that is sent with the survey request. Dillman et al. recommended the questionnaire should be easy to understand and visually appealing to the participant. Each of the five contacts must be different than the previous one. Dillman et al. suggested the first contact is when the subject receives a prenotice letter from the researcher detailing their involvement in the study is voluntarily and valuable. The second contact is the mailed questionnaire that includes a cover letter describing why the response is important. The third contact is a thank you postcard that is sent to the subject a few days up to a week after the questionnaire (Dillman et al.). The fourth contact includes a replacement questionnaire for the nonrespondents two to four weeks after the initial questionnaire mailing. Lastly, the fifth contact is initiated a week after the fourth contact by telephone (Dillman, et al.). Four contacts were made in this study.

Communicating with respondents is an integral part of conducting a mail survey. Dillman, et al. (2009) recommended pre-letters should alert respondents to the survey. Cover letters should follow informed consent procedures by having participants sign consent forms and mailing them back to the researcher. Post card reminders should be used between questionnaire mailings. Follow-up mailings have proven to be essential for the best response (Dillman et al.).

Dillman, et al. (2009) contact sequence outlines methods to increase response rate from participants. Based on Dillman et al., a pre-letter was mailed to selected participants on Monday, October 26th. A detailed cover letter including the questionnaire was mailed to participants three days later on Thursday, October 29th. On Wednesday, November 4th (six days after the cover

letter and questionnaire mailing), a thank you post card or a reminder was sent by the researcher. On Thursday, November 12th, a second questionnaire was mailed to nonrespondents with special contact information (Dillman et al.). Data collection concluded on Tuesday, December 1st.

In order to establish trust, the researcher should have the research sponsored by a reputable organization and inform participants that the survey is important (Dillman, et al., 2009). In order to enhance rewards, the researcher should be positive, grateful, and solicit input. In order to decrease social costs, the researcher should make the survey short, be convenient and not gather too much personal information (Dillman et al.).

Dillman, et al. (2009) suggested notions on exchange should be communicated through visuals in order to construct the instrument. A researcher should understand their population, content and who is paying for the survey to construct successful methods enhancing rewards and improving response. A successful Tailored Design reduces survey errors from coverage, sampling, nonresponse and measurement. Dillman et al.'s Tailored Design Method was administrated in order to enhance response rate.

Response Rate

The total N in the stratified sampled population was 613. Two reminders were sent to nonrespondents in the sampled population. Five hundred thirty-two responses (86.79%) were received with 530 usable responses. Six pre-notice letters were returned to the researcher due to incorrect mailing addresses.

Nonresponse

Nonresponse error is the outcomes of individuals who reply to a survey but do not supply utilizable information or are dissimilar from sampled individuals who did not answer at all and have differentiating characteristics that are valuable to the study (Dillman, 2007). The researcher must ensure results are not different than if 100 percent response rate was achieved for

generalizability to be met (Richardson, 2000). Failing to address and control for nonresponse error are threats to external validity (Lindner, Murphy, & Briers, 2001). Nonresponse error was controlled for in this study by comparing early and late respondents.

Late respondents should be operationally defined as individuals who respond during the final wave of respondents in consecutive follow-ups to a survey (Lindner, Murphy, & Briers, 2001). Lindner et al. recommended the minimum number of late respondents should be 30 in order for the number of late respondents to be statistically important. Major variables of interest served as assessments between early and late respondents. If no dissimilarities exist between early and late respondents then the study's outcomes are generalizable to the intended population (Lindner et al.). No significant differences existed; therefore the findings from this study were generalizable.

Data Analysis

SPSS 17 for WindowsTM was utilized to analyze the data from this study. Descriptive statistics, analysis of variance, and regression analysis were selected as the procedures to analyze the study's objectives. The appropriateness of each procedure was based on each research objective and the study's research design. Descriptive statistics determine attributes of different groups in order to measure their attitudes toward a specific item. Descriptive statistics are a "set of concepts and methods used in organizing, summarizing, tabulating, depicting and describing collections of data" (Shavelson, 1996, p. 8). Arranging research data into frequency distributions is a fundamental aspect of descriptive statistics (Ary et al., 2006). In this study, the research data was organized to present descriptive statistics in a table format.

Survey research employs questionnaires to gather data from the population. Ary et al. (2006) explained survey research allows the researcher to condense the results of characteristics of dissimilar groups in order to assess their attitudes and opinions. A concern of survey research

is representative sampling. Researchers should utilize either simple random, stratified random, proportionate, or non-probability as sampling techniques to ensure a representative sample of the total population in order to avoid sources of bias in survey research (Davis, 1971).

Descriptive statistics were utilized in order to address the study's first, second, and third objectives. Agresti and Finlay (1997) identified descriptive statistics as the statistical method to encapsulate the information in a compilation of data. Shavelson (1996) suggested descriptive statistics are approaches and procedures applied in arranging, summarizing, calculating, and describing data. The variables indicate descriptive statistics were the most appropriate statistical method for measuring motivation orientations (Ary et al., 2006).

Objective four (to determine if significant differences exist between motivational orientations based on participant demographics) and objective five (to determine if significant differences exist between efficacy in instructional strategies based on participant demographics) were measured through the implementation of t-tests and analysis of variance (ANOVA). A t test determines whether the difference between two sample means is statistically significant (Ary et al., 2006, p. 211, ¶3). The total variance of all subjects can be subdivided into variances between groups and variances within groups. The resulting F ratio, in ANOVA, uses the variance of group means as a measure of observed difference among groups (Agresti & Finlay, 1997). ANOVA can examine the difference in two or more means. Shavelson (1996) reported if the F is significant, then at a minimum one of all potential comparisons between comparisons of means will be significant. However, the F test does not provide data on the strength of the treatment effect (Agresti & Finlay).

Effect sizes are statistics that evaluate the direction and strength of a difference between two means (Ary et al., 2006). A large effect size is $d = .80$, a medium effect size is $d = .50$, and a

small effect size is *d* = .20 (Cohen, 1988). Cohen's d is calculated with the standardized difference between two means divided by the data's standard deviation. Cohen's definitions of small, medium, and large effect sizes have been widely recognized and implemented into numerous social science studies (Shavelson, 1996). Effect sizes should be reported for t-tests and ANOVA's (Babbie, 1990).

The sixth objective was to describe any existing relationships between efficacy in instructional strategies and motivational orientations for adults participating in Master Gardener. Correlation coefficients are calculated to represent the correlation (Agresti & Finlay, 1997). Shavelson (1996) suggested the Pearson r reveals the strength and direction of the association among two variables. Correlations signify whether the association between variables is positive or negative.

According to Davis (1971), there are tenets for formulating measures of the degree of association among variables: (1) When X and Y are independent they should equal .00, (2) A maximum of +1.00 exists for the strongest possible positive association, (3) X and Y should have a maximum of -1.00 for the strongest possible negative correlation, and (4) an intrinsic meaning should be present in the values. A value of r = +.70 or higher indicates a very strong association, +.50 to +.69 signifies a substantial positive association, +.30 to +.49 is a moderate positive association, +.10 to +.29 suggests a low positive association, +.01 to +.09 implies a negligible positive association, .00 means no association exists, -.01 to -.09 indicates a negligible negative association, -.10 to -.29 denotes a low negative association, -.30 to -.49 represents a moderate negative association, -.50 to -.69 suggests a substantial negative association, and -.70 or lower indicates a very strong negative association (Davis). Independent variables that are not highly or moderately correlated with the dependent variables should not be included in a regression model.

The seventh objective sought to test the unidimensionality of Mergener's (1979) Education Participation Scale. Principal component analysis (PCA) with orthogonal varimax rotation and the Kaiser criterion was utilized to test the unidimensionality of the M-EPS. Agresti and Finlay (2009) identified PCA as an approach to identify patterns in data in order to emphasize similarities and differences in the dataset. Costello and Osborne (2005) said orthogonal varimax rotation is the most commonly used extraction method to refine a study's data structure into factor loadings. The loading of a variable on a factor is referred to as the correlation of the variable with the factor (Agresti & Finlay). Factor loadings range from .40 (low) to .70 (moderate) in social science research (Costello & Osborne). Communality is defined as the squared loadings for a variable that represents the proportion of its variability explained by factors (Agresti & Finlay, p. 533, ¶3). The Kaiser criterion produces all items with eigenvalues greater than one (Costello & Osborne).

The eighth objective sought to understand effects of the combined attributes of motivation orientations and efficacy in instructional strategies on Master Gardener participation. Poisson regression was employed to measure the dependent variable's (Florida Master Gardener tenure) relationship to explanatory variables (demographic characteristics, instructional efficacy and motivational orientations). Agresti and Finlay (2009) said Poisson regression models are implemented to predict data counts (number of youth, number of telephone calls, etc.). A Poisson regression model coefficient is illustrated as: $\log_e(Y) = \beta 0 + \beta 1X1 + \beta 2X2 + \ldots \beta nXn$. A Poisson regression model assists the researcher by expressing the log outcome rate as a linear function of a set of predictors (McCullagh & Nelder, 1983). Since negative values correspond to

expected counts between 0 and 1, there is no problem with negative predicted values due to the log of the expected count is modeled (McCullagh & Nelder).The researcher utilized model Chi-Square and Deviance statistics as the model fit for the Poisson regression analysis (Mittlböck & Waldhör, 2000).

The usage of regression models is assessed by the R^2 or the coefficient of determination (Agresti & Finlay, 1997). Cohen (1998) reported an R^2 of .001 signifies a weak relationship, an R^2 of .009 signifies a moderate relationship, and an R^2 of .025 represents a strong relationship. Agresti and Finlay indicated the coefficient of determination is the relative amount of data in the dependent variable that is described by the independent variable. This statistical procedure allows the researcher to weight two or more independent variables to generate the highest correlation with one dependent variable (Ary et al., 2006). These methods assist the researcher in avoiding errors in ex post facto designs (Ary et al.).

Reliability by Instrument Construct

Reliability levels for the internal scales of the pilot and formal study were calculated ex post facto (Table 3-2). The internal consistency of items in a scale are measured by Cronbach's alpha coefficients (Cronbach, 1951). These coefficients are utilized to indicate each item's reliability (Ary et al., 2006).

Table 3-2. Reliability Levels of Internal Scales

Internal Scale	α Levels Pilot Study	Formal Study
Instructional Efficacy	.94	.93
Professional Advancement	.82	.70
Escape from Routine	.81	.81
Competence related Curiosity	.80	.76
Community Service	.77	.84
Interpersonal Relations	.76	.77
External Influence	.63	.79

Note: Reliability levels≥ .80 were considered acceptable (Cronbach, 1951).

Chapter Summary

The methods utilized in sampling the population and the statistical methods for analyzing data to address this study's objectives were described in this chapter. The survey instruments (Mergener's Education Participation Scale & Teacher Sense of Efficacy Scale) were also described, and the validity and reliability of each. The data collection procedures were explained through the implementation of a mail survey, and addressing nonresponse error in this study was described. Descriptive statistics, correlations, and multiple regression statistics were employed to analyze data gathered by the M-EPS and TSES. The data analysis procedures were presented including descriptive statistics, t-tests, ANOVA (analysis of variance), correlation coefficients, and Poisson regression to predict the association of motivational orientations and instructional efficacy on Master Gardener tenure. Chapter 4 will present findings from the statistical analyses.

CHAPTER 4
RESULTS AND DISCUSSION

Introduction

This chapter presents the results of the data analysis procedures that were described in Chapter 3. The findings are organized into the study's eight objectives. The first section describes the characteristics of participants. The second section describes Master Gardeners' efficacy in instructional strategies as volunteer educators. The third section describes the motivational orientations for adults participating in the Florida Cooperative Extension Master Gardener Program. The fourth section describes if significant differences existed between motivational orientations based on participant demographics. The fifth section describes if significant differences existed between efficacy in instructional strategies based on participant demographics. The sixth section describes any existing relationships between efficacy in instructional strategies and motivational orientations for adults participating in Master Gardener. The seventh objective tests the unidimensionality of Mergener's (1979) Education Participation Scale. The eighth section explains the effects of the combined attributes of motivation orientations and efficacy in instructional strategies on Master Gardener participation.

Objective 1: Findings

The first objective of the study was to describe participant demographics (Table 4-1) in the Florida Cooperative Extension Master Gardener Program. As reported in Table 4-1, 73.01% of respondents were women and 92.08% of respondents were white. Eighty percent of respondents were 56 years of age or older. Also, 79.44% of respondents had obtained at least an Associate's Degree. As reported in Table 4-1, 85.12% of respondents' annual income tended to be $25,000 or more. Over 80% of respondents had participated in the program over two years. Fifty-seven

percent of respondents lived in Florida for 21 years or longer, though, 88.12% of respondents were not born in Florida. Table 4-1 summarizes the demographic characteristics of respondents.

Table 4-1. Participant Demographics

Characteristic	*f*	%
Gender		
Female	387	73
Male	143	26
Ethnicity		
African American	9	2
Asian	8	2
Hispanic	12	2
Native American	4	1
Pacific Islander	0	0
White	488	92
Other	7	1
Age		
18 – 34 years old	7	1
35 – 45 years old	13	3
46 – 55 years old	87	17
56 – 65 years old	186	35
66 years or older	235	45
Education		
High School Diploma or Equivalent	113	21
Associate's Degree	96	18
Bachelor's Degree	162	31
Master's Degree	111	21
Doctoral Degree	15	3
Professional Degree	31	6
Income		
$24,999 or less	71	15
$25,000 to $49,999	142	30
$50,000 to $74,999	117	25
$75,000 to $99,000	66	14
$100,000 or more	72	15
Tenure in Master Gardener		
More than One Year	103	19
2 – 4 years	162	31
5 – 10 years	192	36
11 or more years	73	14
Lived in Florida		
10 years or less	128	24
11 – 20 years	102	19
21 – 30 years	98	18
31 years and over	202	39
Born in Florida		
Yes	65	12
No	463	88

Objective 2: Findings

The second objective of the study was to describe Master Gardeners' efficacy in instructional strategies as volunteer educators. The overall mean for the construct was 6.27 (*SD* = 1.53). Table 4-2 illustrates the descriptive statistics for the instructional efficacy construct. Responses ranged from quite a bit (*M* = 6.66, *SD* = 1.72) to some influence (*M* = 5.80, *SD* = 2.10). The highest means occurred for the questions "How well can you respond to difficult questions from your clients? (*M* = 6.66, *SD* = 1.72) and "To what extent can you craft good questions for your clients?"(*M* = 6.58, *SD* = 1.79). The lowest mean was associated with the question "How much can you gauge client comprehension of what you have taught?" (*M* =5.80, *SD* = 2.10).

Table 4-2. Descriptive Statistics for the Instructional Efficacy Construct

	N	*M*	*SD*
How well can you respond to difficult questions from your clients?	530	6.66	1.72
To what extent can you craft good questions for your clients?	530	6.58	1.79
How much can you gauge client comprehension of what you have taught?	530	6.28	1.87
To what extent can you provide an alternative explanation or example when clients are confused?	530	6.24	1.80
How much can you do to adjust your information to the proper level for individual clients?	530	6.21	1.74
How well can you implement alternative strategies in your teaching?	530	6.11	1.74
How comfortable are you using evaluation strategies?	530	5.80	2.10

Note: Overall *M* = 6.27, *SD* = 1.53. Scale: 9 = *a great deal*, 7 = *quite a bit*, 5 = *some influence*, 3 = *very little*, 1 = *nothing*.

Objective 3: Findings

The third objective was to describe the motivational orientation for adults to participate in Master Gardener. Motivational orientations were: (a) Competence-related curiosity, (b) Interpersonal relations, (c) Community service, (d) Professional advancement, (e) Compliance

with external influences, and (f) Escape from routine. Competence related Curiosity was perceived to have much influence (*M* = 4.35, *SD* = .63) on adult participation in MG. Community Service was perceived to have moderate influence (*M* = 3.22, *SD* = .97), and Interpersonal Relations was perceived to have little influence (*M* = 2.74, *SD* = .79). Escape from Routine (*M* = 1.87, *SD* = .90), External Influence (*M* = 1.32, *SD* = .63), and Professional Advancement (*M* = 1.20, *SD* = .53) were perceived to have no influence on adult participation. Table 4-3 illustrates the overall means for each construct.

Table 4-3. Overall Means for Each Construct

Construct	*N*	*M*	*SD*
Competence related Curiosity	530	4.35	.63
Community Service	530	3.22	.97
Interpersonal Relations	530	2.74	.79
Escape from Routine	530	1.87	.90
External Influence	530	1.32	.63
Professional Advancement	530	1.20	.53

Scale: 5 = *very much influence*, 4 = *much influence*, 3 = *moderate influence*, 2 = *little influence*, 1 = *no influence.*

Competence related Curiosity

Overall, respondents tended to perceive the Competence related Curiosity construct as having much influence (*M* = 4.35, *SD* = .63). Respondents tended to rate the five items associated with the Competence related Curiosity construct as having "much influence" (Table 4-4).

Table 4-4. Descriptive Statistics for the Competence related Curiosity Construct

	N	*M*	*SD*
To Feed an Appetite for Knowledge	530	4.48	.75
To Satisfy Intellectual Curiosity	530	4.47	.82
To Satisfy an Inquiring Mind	530	4.42	.79
To Obtain Practical Benefit	530	4.37	.92
To Seek Knowledge for its Own Sake	531	4.01	1.14

Note: Overall M = 4.35, *SD* = .63. *Scale:* 5 = *very much influence,* 4 = *much influence,* 3 = *moderate influence,* 2 = *little influence,* 1 = *no influence.*

Adults believed "to feed an appetite for knowledge" (*M* = 4.48, *SD* = .75), "to satisfy an intellectual curiosity" (*M* = 4.47, *SD* = .82), "to satisfy an inquiring mind" (*M* = 4.42, *SD* = .79),

"to obtain a practical benefit" (*M* = 4.37, *SD* = .92), and "to seek knowledge for its own sake?"(*M* = 4.01, *SD* = 1.14) had much influence on their decision to participate in the MG Program. Table 4-3 summarizes the descriptive statistics for the Competence related Curiosity construct.

Community Service

Overall, respondents tended to perceive the Community Service construct as having moderate influence (*M* = 3.22, *SD* = .97). Responses for the five items associated with the Community Service construct ranged from "moderate influence" to "little influence." Respondents reported "to be a more effective citizen" (*M* = 3.58, *SD* = 1.23), "to improve my community work" (*M* = 3.55, *SD* = 1.22), and "to improve their ability to serve mankind" (*M* = 3.51, *SD* = 1.24) were moderate influences on their participation. Adults believed "to gain insight into human relationships" (*M* = 2.26, *SD* = 1.25) had little influence on their participation (Table 4-5).

Table 4-5. Descriptive Statistics for the Community Service Construct

	N	*M*	*SD*
To Be a More Effective Citizen	531	3.58	1.23
To Improve My Community Work	531	3.55	1.22
To Improve My Ability to Serve Mankind	530	3.51	1.24
To Prepare for Community Service	531	3.25	1.33
To Gain Insight into Human Relationships	531	2.26	1.25

Note: Overall M = 3.22, *SD* = .97. *Scale:* 5 = *very much influence*, 4 = *much influence*, 3 = *moderate influence*, 2 = *little influence*, 1 = *no influence.*

Interpersonal Relations

Overall, respondents tended to perceive the Interpersonal Relations construct as having little influence (*M* = 2.74, *SD* = .79). Responses for the seven items associated with the Interpersonal Relations construct ranged from "moderate influence" to "little influence." Respondents reported "to respond to the fact that I am surrounded by people who continue to learn" (*M* = 3.70, *SD* = 1.23) and "to share a common interest with someone else" (*M* = 3.64, *SD*

= 1.23) had much influence on their MG Program participation. Adults reported "to maintain or improve my social position" (*M* = 1.32, *SD* = .73) had no influence on their participation (Table 4-6).

Table 4-6. Descriptive Statistics for the Interpersonal Relations Construct

	N	*M*	*SD*
To Respond to the Fact that I am Surrounded by People Who Continue to Learn	530	3.70	1.23
To Share a Common Interest with Someone Else	530	3.64	1.23
To Participate in Group Activities	530	3.16	1.24
To Become Acquainted with Congenial People	530	3.02	1.21
To Fulfill a Need for Personal Associations	531	2.57	1.24
To Take Part in an Activity Which is Customary in the Circles in Which I Move	531	2.15	1.25
To Improve Social Relationships	531	2.04	1.17
To be Accepted by Others	530	1.77	1.05
To Comply with the Fact that People with Status and Attend Adult Education Classes	530	1.68	1.05
To Maintain or Improve My Social Position	530	1.32	.73

Note: Overall M = 2.74, *SD* = .79. *Scale:* 5 = *very much influence*, 4 = *much influence*, 3 = *moderate influence*, 2 = *little influence*, 1 = *no influence.*

Escape from Routine

Overall, respondents tended to perceive the Escape from Routine construct as having no influence (*M* = 1.87, *SD* = .90). Respondents tended to rate the four items associated with the Escape from Routine construct as having "little influence." Respondents reported "to provide a contrast to the rest of my life" (*M* = 2.21, *SD* = 1.19), "to get a break from the routine of home or work" (*M* = 1.93, *SD* = 1.159), "to have a few hours away from responsibilities" (*M* = 1.66, *SD* = 1.08), and "to gain relief from boredom" (*M* = 1.66, *SD* = 1.07) had little influence on their participation in the MG Program (Table 4-7).

Table 4-7. Descriptive Statistics for the Escape from Routine Construct

	N	*M*	*SD*
To Provide a Contrast to the Rest of My Life	531	2.21	1.19
To Get a Break from Routine of Home or Work	531	1.93	1.15
To Have a Few Hours Away from Responsibilities	531	1.66	1.08
To Gain Relief from Boredom	530	1.66	1.07

Note: Overall M = 1.87, *SD* = .90. *Scale:* 5 = *very much influence*, 4 = *much influence*, 3 = *moderate influence*, 2 = *little influence*, 1 = *no influence.*

External Influence

Overall, respondents tended to perceive the External Influence construct as having no influence (*M* = 1.32, *SD* = .63). Respondents tended to rate the four items associated with the External Influence construct as having "no influence." Respondents reported "to comply with recommendations from someone else" (*M* = 1.47, *SD* = .95), "to carry out the recommendations from some authority" (*M* = 1.37, *SD* = .88), "to fulfill my professional obligation" (*M* = 1.26, *SD* = .76), and "to fulfill the requirements of a government agency" (*M* = 1.16, *SD* = .62) had no influence on their participation (Table 4-8).

Table 4-8. Descriptive Statistics for the External Influence Construct

	N	*M*	*SD*
To Comply with Recommendations from Someone Else	530	1.47	.95
To Carry Out the Recommendations from Some Authority	531	1.37	.88
To Fulfill My Professional Obligation	531	1.26	.76
To Fulfill Requirements of a Government Agency	530	1.16	.62

Note: Overall M = 1.32, *SD* = .63. *Scale:* 5 = *very much influence*, 4 = *much influence*, 3 = *moderate influence*, 2 = *little influence*, 1 = *no influence.*

Professional Advancement

Overall, respondents tended to perceive the Professional Advancement construct as having no influence (*M* = 1.20, *SD* = .53). Respondents tended to rate the three items associated with the Professional Advancement construct as having "no influence." Respondents reported "to secure professional advancement" (*M* = 1.27, *SD* = .674), "to give me a higher status on the job" (*M* = 1.20, *SD* = .70), and "to comply with my employer's policy" (*M* = 1.13, *SD* = .59) had no influence on their participation in the MG Program. Respondents may have indicated Professional Advancement had no influence due to the vast majority of participants were over 55 years old. The study's findings of the descriptive statistics for the Professional Advancement construct toward this adult audience are illustrated in Table 4-9.

Table 4-9. Descriptive Statistics for the Professional Advancement Construct

	N	*M*	*SD*
To Secure Professional Advancement	530	1.27	.74
To Give Me Higher Status on the Job	531	1.20	.70
To Comply with My Employer's Policy	530	1.13	.59

Note: Overall M = 1.20, *SD* = .53. *Scale:* 5 = *very much influence*, 4 = *much influence*, 3 = *moderate influence*, 2 = *little influence*, 1 = *no influence.*

Objective Four: Findings

The study's fourth objective was to determine if significant differences existed between efficacy in instructional strategies based on participant demographics (gender, age, race, education, income, length of Master Gardener tenure, length of Florida residence, state of birth). There was no significant difference in gender and instructional efficacy (Table 4-10).

Table 4-10. Independent Samples t-test for Gender and Instructional Efficacy

Gender	*n*	*M*	*SD*	*F*	*p*
Male	143	6.26	1.48	.03	.86
Female	384	6.28	1.52		

There was no significant difference in age and instructional efficacy. Table 4-11 illustrates the results.

Table 4-11. Analysis of Variance for Age and Instructional Efficacy

Age	*n*	*M*	*SD*	*F*	*p*
18 – 45 years old	20	6.05	1.20	.94	.42
46 – 55 years old	86	6.30	1.83		
56 – 65 years old	184	6.40	1.39		
66 years old and over	235	6.18	1.48		

There was a significant difference in education, F (4, 520) = 5.55, $p < .05$. The effect size was negligible ($\eta^2 = .04$). Education accounts for 4% of the variance inefficacy. Tukey's post hoc analysis was conducted to determine if differences existed in levels of education. There was a significant difference ($p < .05$) from respondents who had earned a high school diploma (M = 6.09, SD = 1.42) and those who had earned a Master's Degree (M = 6.69, SD = 1.41). Also, there was a significant difference ($p < .05$) from respondents who had earned an Associate's Degree (M = 5.83, SD = 1.56) and those who had earned a Master's Degree (M = 6.69, SD = 1.41), and

respondents who had earned an Associate's Degree (M = 5.83, SD = 1.56) and those who had earned a Doctoral/Professional Degree (M = 6.65, SD = 1.71).

Table 4-12. Analysis of Variance for Education and Instructional Efficacy

Education	*n*	*M*	*SD*	*F*	*p*
High School Diploma	113	6.09	1.42	5.55*	.00
Associate's Degree	96	5.83	1.56		
Bachelor's Degree	161	6.28	1.45		
Master's Degree	110	6.69	1.41		
Doctoral/Professional Degree	45	6.65	1.71		

*Note: *p < .01.*

There was no significant difference in income and instructional efficacy. Table 4-13 illustrates the results.

Table 4-13. Analysis of Variance for Income and Instructional Efficacy

Income	*n*	*M*	*SD*	*F*	*p*
24,999 or less	71	5.88	1.29	2.07	.07
25,000 – 49,999	141	6.23	1.55		
50,000 – 74,999	116	6.38	1.44		
75,000 – 99,999	64	6.48	1.71		
100,000 or more	73	6.61	1.54		

There was no significant difference in race and instructional efficacy. Table 4-14 illustrates the results.

Table 4-14. Independent Samples t-test for Race and Instructional Efficacy

Race	*n*	*M*	*SD*	*F*	*p*
White	488	6.27	1.50	.01	.91
Non-white	40	6.30	1.60		

There was no significant difference in Master Gardener tenure and instructional efficacy. Table 4-15 illustrates the results.

Table 4-15. Analysis of Variance for Master Gardener Tenure and Instructional Efficacy

Tenure	*n*	*M*	*SD*	*F*	*p*
More than One Year	103	5.85	1.20	1.12	.32
2 – 4 years	162	6.36	1.38		
5 – 10 years	173	6.48	1.25		
11 or more years	92	6.66	1.77		

There was no significant difference in length of Florida residence and instructional efficacy. Table 4-16 illustrates the results.

Table 4-16. Analysis of Variance for Length of Florida Residence and Instructional Efficacy

Lived in Florida	*n*	*M*	*SD*	*F*	*p*
10 years or less	128	6.64	1.86	.78	.91
11 – 20 years	102	6.60	1.93		
21 – 30 years	98	6.11	1.18		
31 or more years	202	6.13	1.41		

There was no significant difference in place of birth and instructional efficacy. Table 4-17 illustrates the results.

Table 4-17. Independent Samples t-test for Born in Florida and Instructional Efficacy

Born in Florida	*n*	*M*	*SD*	*F*	*p*
Yes	65	6.19	1,42	2.05	.11
No	462	6.28	1.51		

Objective Five

The study's fifth objective was to determine if significant differences existed between motivational orientations (Competency-related Curiosity, Interpersonal Relations, Community Service, Escape from Routine, Professional Advancement, and Compliance with External Influence) based on participant demographics (gender, age, race, education, income, length of Master Gardener tenure, length of Florida residence, and place of birth).

Gender

There was a significant difference in respondents' motivational orientations by gender. There was a significant difference for the Competence related Curiosity construct by gender, t (529) = -3.69, $p < .05$, with women having significantly higher means than men. The effect size was small ($d = .38$). There was a significant difference for gender, t (529) = 2.70, $p < .05$, with men ($M = 1.46$, SD = .79) receiving higher means than women ($M = 1.27$, $SD = .56$) for External Influence. The effect size was small ($d = .28$). There was a significant effect for gender, t (529) = 1.70, $p < .05$, with men ($M = 1.27$, $SD = .57$) receiving higher means than women ($M = 1.18$, $SD = .52$) for Professional Advancement. The effect size was small ($d = .17$). There were no other significant differences between respondents' motivational orientations by gender (Table 4-18).

Table 4-18. Independent Samples t-test for Gender and Motivational Orientations

Constructs	*n*	*M*	*SD*	*t*	*p*
Competence related Curiosity					
Male	143	4.17	.71	-3.69*	.00
Female	387	4.42	.59		
Community Service					
Male	143	3.14	1.00	-1.33	.19
Female	386	3.26	.95		
Interpersonal Relations					
Male	143	2.73	.82	-.21	.84
Female	386	2.75	.79		
Escape from Routine					
Male	143	1.91	.87	.62	.36
Female	387	1.86	.91		
External Influence					
Male	142	1.46	.79	2.70*	.01
Female	386	1.27	.56		
Professional Advancement					
Male	143	1.27	.57	1.70*	.02
Female	386	1.18	.52		

Note: $*p < .01$.

Age

Respondents significantly differed in their motivational orientations by age (Table 4-19). Due to a small number of respondents in the age 18 – 35 years old and the 36 – 45 years old categories, both groups were merged to create the 18 – 45 years old category. Explain your age groupings since you combined some age ranges. There was a significant difference for Competence related Curiosity by age, F (3, 524) = 3.81, ($p < .05$). The effect size was negligible ($\eta^2 = .02$). Age accounts for 2% of the variance in Competence related Curiosity as a motivational orientation. Tukey's post hoc analysis was conducted to determine if differences existed in respondent's age. There was a significant difference ($p < .05$) from respondents who were 56 – 65 years old ($M = 4.45$, $SD = .54$) and those who were age 66 or over ($M = 4.27$, $SD = .66$).

There was a significant difference in age, F (3, 523) = 2.93, $p < .05$, for Community Service. The effect size was negligible ($\eta^2 = .17$). Age accounts for 1.70% of the variance in

Community Service as a motivational orientation. Tukey's post hoc analysis was conducted to determine if differences existed in age. Also, there was a significant difference ($p < .05$) from respondents who were 46 – 56 years old ($M = 2.96$, $SD = .95$) and those who were 56 – 65 years old ($M = 3.30$, $SD = .92$). There was a significant difference ($p < .05$) from respondents who were 46 – 56 years old ($M = 2.96$, SD = .95) and those who were age 66 or over ($M = 3.29$, $SD = .97$).

There was a significant difference in age, F (3, 523) = 6.95, $p < .05$, for Interpersonal Relations. The effect size was negligible ($\eta^2 = .38$). Age accounts for 3.80% of the variance in Interpersonal Relations as a motivational orientation. Tukey's post hoc analysis was conducted to determine if differences existed in age. There was a significant difference ($p < .05$) from respondents who were 46 – 56 years old ($M = 2.40$, $SD = .76$) and those who were ages 56 – 65 ($M = 2.82$, $SD = .77$). There was a significant difference ($p < .05$) from respondents who were 46 – 56 years old ($M = 2.40$, $SD = .76$) and those who were age 66 or over ($M = 2.82$, $SD = .78$).

There was a significant difference in age, F (3, 524) = 4.15, $p < .05$, for External Influence. The effect size was negligible ($\eta^2 = .23$). Age accounts for 2.30% of the variance in External Influence as a motivational orientation. Tukey's post hoc analysis was conducted to determine if differences existed in age. There was a significant difference ($p < .05$) from respondents who were 56 – 65 years old ($M = 1.24$, $SD = .50$) and those who were ages 66 or over ($M = 1.41$, $SD = .75$). There was a significant difference in age, F (3, 523) = 3.65, p < .05, for Professional Advancement. The effect size was negligible ($\eta^2 = .20$). Age accounts for 2.0% of the variance in Professional Advancement as a motivational orientation. Tukey's post hoc analysis was conducted to determine if differences existed in age. There were no significant differences. Table 4-19 illustrates the findings for the ANOVA for age and motivational orientations.

Table 4-19. Analysis of Variance for Age and Motivational Orientations

Learning Orientations	*n*	*M*	*SD*	*F*	*p*
Competence related Curiosity					
18 – 45 years old	20	4.15	.74	3.81*	.01
46 – 55 years old	87	4.43	.66		
56 – 65 years old	186	4.45	.54		
66 years old and over	235	4.27	.66		
Community Service			.		
18 – 45 years old	20	3.16	1.07	2.93*	.03
46 – 55 years old	87	2.96	.95		
56 – 65 years old	186	3.30	.92		
66 years old and over	235	3.29	.97		
Interpersonal Relations					
18 – 45 years old	20	2.72	.90	6.95**	.00
46 – 55 years old	87	2.40	.76		
56 – 65 years old	186	2.82	.77		
66 years old and over	235	2.82	.78		
Escape from Routine					
18 – 45 years old	20	2.06	1.07	.66	.58
46 – 55 years old	87	1.88	.95		
56 – 65 years old	186	1.81	.83		
66 years old and over	235	1.90	.92		
External Influence					
18 – 45 years old	20	1.49	.75	4.15*	.01
46 – 55 years old	87	1.21	.46		
56 – 65 years old	186	1.24	.50		
66 years old and over	235	1.41	.75		
Professional Advancement					
18 – 45 years old	20	1.45	.74	3.65*	.01
46 – 55 years old	87	1.31	.74		
56 – 65 years old	186	1.14	.38		
66 years old and over	235	1.20	.53		

Note: $*p < .05$. $**p < .01$.

Education

There was a significant difference in education F (4, 521) = 6.10, $p < .05$, for External Influence (Table 4-20). The effect size was negligible ($\eta^2 = .44$). Education accounts for 4.40% of the variance in External Influence as a motivational orientation. Tukey's post hoc analysis was conducted to determine if differences existed in education levels. There were no significant differences. The results of the ANOVA for education and motivational orientations are illustrated in Table 4-20.

Table 4-20. Analysis of Variance for Education and Motivational Orientations

Constructs	*n*	*M*	*SD*	*F*	*p*
Competence related Curiosity					
High School Diploma	113	4.30	.66	.65	.63
Associate's Degree	96	4.34	.65		
Bachelor's Degree	162	4.33	.64		
Master's Degree	110	4.41	.56		
Doctoral/Professional Degree	46	4.43	.61		
Community Service					
High School Diploma	113	3.37	.91	.82	.52
Associate's Degree	96	3.19	1.00		
Bachelor's Degree	162	3.21	.96		
Master's Degree	110	3.15	.96		
Doctoral/Professional Degree	46	3.24	.98		
Interpersonal Relations					
High School Diploma	113	2.86	.85	1.95	.10
Associate's Degree	96	2.83	.83		
Bachelor's Degree	162	2.70	.73		
Master's Degree	110	2.74	.76		
Doctoral/Professional Degree	46	2.52	.77		
Escape from Routine					
High School Diploma	113	1.02	.96	.79	.53
Associate's Degree	96	1.88	.92		
Bachelor's Degree	162	1.82	.81		
Master's Degree	110	1.83	.89		
Doctoral/Professional Degree	46	1.82	.86		
External Influence					
High School Diploma	113	1.56	.88	6.10*	.00
Associate's Degree	96	1.33	.67		
Bachelor's Degree	162	1.26	.54		
Master's Degree	110	1.20	.38		
Doctoral/Professional Degree	46	1.21	.43		
Professional Advancement					
High School Diploma	113	1.33	.73	2.16	.07
Associate's Degree	96	1.19	.52		
Bachelor's Degree	162	1.19	.47		
Master's Degree	110	1.15	.42		
Doctoral/Professional Degree	46	1.12	.41		

Note: $*p < .01$.

Income

There was a significant difference in income, F (5, 460) = 4.25, $p < .05$, for External Influence (Table 4-21). The effect size was negligible ($\eta^2 = .44$). Income accounts for 4.40% of the variance in External Influence as a motivational orientation. Tukey's post hoc analysis was conducted to determine if differences existed in income levels. There were no significant differences. There was a significant difference in income, F (5, 461) = 3.01, $p < .05$, for Professional Advancement. The effect size was negligible ($\eta^2 = .32$). Income accounts for 3.20% of the variance in Professional Advancement as a motivational orientation. Tukey's post hoc analysis was conducted to determine if differences existed in respondent's income. There were no other significant differences between income levels and motivational orientations.

Table 4-21. Analysis of Variance for Income and Motivational Orientations

Constructs	*n*	*M*	*SD*	*F*	*p*
Competence related Curiosity					
24,999 or less	71	4.38	.74	1.94	.09
25,000 – 49,999	142	4.29	.64		
50,000 – 74,999	117	4.35	.64		
75,000 – 99,999	65	4.49	.52		
100,000 or more	73	4.50	.52		
Community Service					
24,999 or less	71	3.24	.92	.78	.56
25,000 – 49,999	142	3.28	.99		
50,000 – 74,999	117	3.26	.92		
75,000 – 99,999	65	3.41	.97		
100,000 or more	73	3.14	.98		
Interpersonal Relations					
24,999 or less	71	2.81	.77	.97	.44
25,000 – 49,999	142	2.86	.87		
50,000 – 74,999	117	2.70	.75		
75,000 – 99,999	65	2.79	.77		
100,000 or more	73	2.75	.75		
Escape from Routine					
24,999 or less	71	1.93	.95	.48	.79
25,000 – 49,999	142	2.00	1.01		
50,000 – 74,999	117	1.85	.79		
75,000 – 99,999	65	1.90	1.00		
100,000 or more	73	1.88	.88		
External Influence					
24,999 or less	71	1.42	.72	4.25**	.00
25,000 – 49,999	142	1.49	.79		

Table 4-21. Continued

Constructs	*n*	*M*	*SD*	*F*	*p*
Competence related Curiosity					
50,000 – 74,999	117	1.25	.53		
75,000 – 99,999	65	1.21	.56		
100,000 or more	73	1.14	.33		
Professional Advancement					
24,999 or less	71	1.24	.64	3.01*	.01
25,000 – 49,999	142	1.33	.64		
50,000 – 74,999	117	1.17	.49		
75,000 – 99,999	65	1.14	.49		
100,000 or more	73	1.05	.21		

Note: $p < .05$. ** $p < .01$.

Race

There was a significant difference in race, t (525) = -2.80, $p < .05$, with non-whites (M = 3.63, SD = .92) having higher means than whites (M = 3.20, SD = .95) for Community Service. There was a medium effect size (d = .46). There was a significant difference in race, t (5, 461) = 7.17, $p < .05$, with non-whites (M = 1.58, SD = .75) having higher means than whites (M = 1.30, SD = .62) for External Influence (Table 4-22). The effect size was medium (d = .41). There were no other significant differences between race and motivational orientations.

Table 4-22. Independent Samples t-test for Race and Motivational Orientations

	n	*M*	*SD*	*F*	*p*
Competence related Curiosity					
White	488	4.36	.63	.33	.57
Non-white	40	4.30	.65		
Community Service					
White	488	3.20	.95	-2.80**	.00
Non-white	40	3.63	.92		
Interpersonal Relations					
White	488	2.74	.79.	-.61	.55
Non-white	40	2.82	.85		
Escape from Routine					
White	488	1.87	.90	.24	.81
Non-white	40	1.84	.92		
External Influence					
White	488	1.30	.62	-2.28*	.03
Non-white	40	1.58	.75		
Professional Advancement					
White	488	1.19	.53	-1.69	.10
Non-white	40	1.35	.57		

Note: $*p < .05$. ** $p < .01$.

Master Gardener Tenure

There was a significant difference in Master Gardener tenure, F (3, 526) = 2.96, $p < .05$, for Interpersonal Relations. The effect size was negligible ($\eta^2 = .16$). Master Gardener tenure accounts for 1.60% of the variance in Interpersonal Relations as a motivational orientation. Tukey's post hoc analysis was conducted to determine if differences existed in income levels. There were no significant differences. There were no significant differences among Master Gardener tenure and any other motivational orientations. Table 4-23 illustrates these findings.

Table 4-23. Analysis of Variance for Master Gardener Tenure and Motivational Orientations

	n	*M*	*SD*	*F*	*p*
Competence related Curiosity					
2 years or less	162	4.40	.68	.68	.56
3 – 5 years	155	4.30	.61		
6- 10 years	140	4.36	.63		
11 years or more	73	4.33	.59		
Community Service					
2 years or less	162	3.21	.96	.09	.97
3 – 5 years	155	3.21	.96		
6- 10 years	140	3.21	.91		
11 years or more	73	3.27	1.08		
Interpersonal Relations					
2 years or less	162	2.65	.81	2.96*	.03
3 – 5 years	155	2.76	.73		
6 – 10 years	140	2.73	.78		
11 years or more	73	2.97	.86		
Escape from Routine					
2 years or less	162	1.81	.84	2.18	.09
3 – 5 years	155	1.82	.87		
6 -10 years	140	1.87	.84		
11 years or more	73	2.11	1.14		
External Influence					
2 years or less	162	1.29	.59	2.06	.10
3 – 5 years	155	1.28	.57		
6 -10 years	140	1.30	.56		
11 years or more	73	1.49	.90		
Professional Advancement					
2 years or less	162	1.24	.63	2.32	.08
3 – 5 years	155	1.16	.45		
6 -10 years	140	1.15	.45		
11 years or more	73	1.32	.59		

Note: $*p < .05$.

Length of Residence

There was a significant difference in length of Florida residency, F (72, 454) = 7.17, p < .05, for External Influence. The effect size was negligible (η^2 = .25). Length of residence accounts for 2.50% of the variance in External Influence as a motivational orientation. Tukey's post hoc analysis was conducted to determine if differences existed in residence categories. There was a significant difference (p < .05) from respondents who had lived in Florida 11 – 20 years (M = 1.42, SD = .76) and those who had lived in Florida 31 or more years (M = 1.23, SD = .42). There was a significant difference (p < .05) from respondents who had lived in Florida 21 – 30 years (M = 1.46, SD = .81) and those who had lived in Florida 31 or more years (M = 1.23, SD = .42). Table 4-24 illustrates these findings. There were no other significant differences between length of Florida residence and motivational orientations.

Table 4-24. Analysis of Variance for Length of Florida Residence and Motivational Orientations

	n	*M*	*SD*	*F*	*p*
Competence related Curiosity					
10 years or less	132	4.35	.63	.40	.76
11 – 20 years	105	4.30	.68		
21 – 30 years	97	4.40	.68		
31 or more years	194	4.35	.59		
Community Service					
10 years or less	132	3.32	.95	.61	.61
11 – 20 years	105	3.18	1.01		
21 – 30 years	97	3.23	.91		
31 or more years	194	3.19	.97		
Interpersonal Relations					
10 years or less	132	2.76	.81	.85	.47
11 – 20 years	105	2.69	.81		
21 – 30 years	97	2.85	.83		
31 or more years	194	2.71	75.		
Escape from Routine					
10 years or less	132	1.77	.85	2.30	.08
11 – 20 years	105	1.94	.91		
21 – 30 years	97	2.04	1.00		
31 or more years	194	1.81	.86		
External Influence					
10 years or less	132	1.26	.59	4.53*	.01
11 – 20 years	105	1.42	.76		
21 – 30 years	97	1.46	.81		
31 or more years	194	1.23	.42		

Table 4-24. Continued

	n	*M*	*SD*	*F*	*p*
Competence related Curiosity					
Professional Advancement					
10 years or less	132	1.18	.56	1.94	.12
11 – 20 years	105	1.26	.61		
21 – 30 years	97	1.28	.65		
31 or more years	194	1.15	.38		

Note: $*p < .05$.

Florida Native or Not

There were no significant differences between respondents born in Florida versus respondents that were not and motivational orientations. Table 4-25 illustrates these findings.

Table 4-25. Independent Samples t-test for Place of Birth and Motivational Orientations

	n	*M*	*SD*	*F*	*p*
Competence related Curiosity					
Florida	65	4.37	.51	.46	.71
Other	462	4.35	.65		
Community Service					
Florida	65	3.33	.92	1.65	.18
Other	462	3.21	.97		
Interpersonal Relations					
Florida	65	2.77	.68	1.77	.15
Other	462	2.74	.81		
Escape from Routine					
Florida	65	1.94	.91	1.13	.34
Other	462	1.85	.90		
External Influence					
Florida	65	1.26	.49	.99	.40
Other	462	1.32	.65		
Professional Advancement					
Florida	65	1.18	.45	1.66	.19
Other	462	1.20	.54		

Objective Six

The study's sixth objective was to describe any existing relationships between respondents' efficacy in instructional strategies and motivational orientations (a) Competence related Curiosity, (b) Community Service, (c) Interpersonal Relations, (d) Escape from Routine, (e) External Influence, and (f) Professional Advancement.

Competence related Curiosity and Instructional Efficacy exhibited a significant low positive relationship, r (525) = .23, $p < .05$ (Table 4-26). A significant low positive association existed between Community Service and Instructional Efficacy, r (525) = .25, $p < .05$. Interpersonal Relations and Instructional Efficacy exhibited a significant negligible positive association, r (525) = .09, $p < .05$. No other significant relationships existed.

Table 4-26. Correlations between Motivational Orientations and Instructional Efficacy

	Instructional Efficacy		
Motivational Orientations	*r*	*p*	Magnitude
Competence related Curiosity	.23*	.00	Low
Community Service	.25*	.00	Low
Interpersonal Relations	.09*	.03	Negligible
Escape from Routine	-.00	.93	Very Strong
External Influence	.01	.90	Negligible
Professional Advancement	.01	.87	Negligible

Note. Magnitude: .01 ≥ *r* ≥ .09 = Negligible, .10 ≥ *r* ≥ .29 = Low, .30 ≥ *r* ≥ .49 = Moderate, .50 ≥ *r* ≥ .69 = Substantial, *r* ≥ .70 = Very Strong.
*$p < .05$.

Objective Seven: Findings

The study's seventh objective was to test the unidimensionality of Mergener's (1979) Education Participation Scale. Initially, the factorability of the 41 M-EPS items was examined. Responses to the 41 items on the M-EPS were factor analyzed by the method of principal component analysis and then rotated to achieve orthogonal and oblique structure according to the varimax criteria of Babbie (2007). Factor loadings of .43 or more were considered acceptable (Table 4-27).

Certain items loaded on separate constructs than Mergener (1979) reported in the M-EPS. To account for the new and altered constructs, the new constructs were labeled with different names. Competence related Curiosity became 'Learning', Interpersonal Relations became 'Socialization', Escape from Routine became 'Vary Routine', and Professional Development and External Influence were combined to form 'Professional Enhancement'. Community Service

remained Community Service. A new construct was formed (Other's Perceptions). Six items were dropped from the analysis due to the inability of forming the items into two separate constructs.

Six items loaded on the Learning construct and items ranged from .82 to .45 (Table 4-27). Five items loaded on the Community Service construct ranging from .78 to .43 and five items loaded on the Socialization construct ranging from .76 to .56. Seven items loaded on the Vary Routine construct and items ranged from .79 to .50. Eight items loaded on the Professional Enhancement construct and items ranged from .80 to .45. Four items loaded on the Other's Perceptions construct and items ranged from .65 to .51. Items loading on two separate constructs ranged from .66 to .42.

Table 4-27. Partition of Variance among Factors in Mergener's (1979) Education Participation Scale

Constructs	*Factor Loadings*
Competence related Curiosity (Learning)	
To Feed an Appetite for Knowledge	.82
To Satisfy an Inquiring Mind	.81
To Satisfy Intellectual Curiosity	.75
To Seek Knowledge for its Own Sake	.64
To Obtain Practical Benefit	.46
To Respond to the Fact that I am Surrounded by People Who Continue to Learn	.45
Community Service	
To Improve My Ability to Serve Mankind	.78
To Prepare for Community Service	.76
To Be a More Effective Citizen	.74
To Improve My Community Work	.70
To Comply with the Ethics of the Horticulture Industry	.43
Interpersonal Relations (Socialization)	
To Participate in Group Activities	.76
To Become Acquainted with Congenial People	.74
To Share a Common Interest with Someone Else	.69
To Fulfill a Need for Personal Associations	.66
To Improve Social Relationships	.56
Escape from Routine (Vary Routine)	
To Get a Break from Routine of Home or Work	.79
To Gain Relief from Boredom	.70
To Provide a Contrast to the Rest of My Life	.66
To Have a Few Hours Away from Responsibilities	.62
To Stop Myself from Becoming Stagnant	.55

Table 4-27. Continued

Constructs	*Factor Loadings*
Escape from Routine (Vary Routine)	
To Provide Contrast to My Previous Education	.51
To Escape the Intellectual Narrowness of My Occupation	.50
Professional Development & External Influence (Professional Enhancement)	
To Give Me Higher Status on the Job	.80
To Secure Professional Advancement	.78
To Fulfill My Professional Obligation	.69
To Fulfill Requirements of a Government Agency	.64
To Help Me Earn a Degree, Diploma or Certificate	.62
To Maintain or Improve My Social Position	.61
To Carry Out the Recommendations from Some Authority	.58
To Comply with My Employer's Policy	.45
Other's Perceptions	
To Comply with the Fact that People with Status and Prestige Attend Adult Education Classes	.65
To Take Part in an Activity which is Customary in the Circles in which I Move	.59
To Be Accepted by Others	.57
To Gain Insight into Human Relationships	.51
Items Loaded into a Separate Construct	
To Comply with Recommendations from Someone Else	.66
To Keep Up with Others	.60
To Supplement a Previous Narrow Education	.54
Items Loaded into a Separate Construct	
To Clarify What I Want to Be Doing 5 Years from Now	.58
To Overcome the Frustrations of Day to Day Gardening	.51
To Acquire Knowledge that Will Help with Other Courses	.42

Objective Eight: Findings

The eighth objective was to understand effects of the combined attributes of demographic characteristics, motivational orientations, and efficacy in instructional strategies on Master Gardener tenure. Poisson regression was used to assess the net effect of each measure of demographic characteristics, motivational orientations, and instructional efficacy on MG tenure. The Poisson regression model was significant and indicated a good fit, with x^2 (1, N = 465) = 4.96, $p < .05$.

Age was the only demographic characteristic that proved significant $p < .05$. Instructional efficacy was significant on MG tenure as well $p < .05$ (Table 4-28). As age increased one unit, Master Gardener tenure increased .23. As instructional efficacy increased one unit, Master

Gardener tenure increased .12. Learning, Social, Vary Routine, and Other's Perceptions were the motivational orientations found significant on MG tenure $p < .05$. However as Learning and Socialization increased, MG tenure decreased. As Learning increased one unit, Master Gardener tenure decreased -.10. When Socialization increased one unit, Master Gardener tenure decreased -.10. As Vary Routine increased one unit, Master Gardener tenure increased .09. As Other's Perceptions increased one unit, Master Gardener tenure increased .14. A Poisson regression model coefficient is illustrated as: loge (Y) = $\beta 0 + \beta 1X1 + \beta 2X2 + ... \beta nXn$. The Poisson regression model for this study was illustrated as: Master Gardner tenure = .16 + .23 Age + .12 Instructional Efficacy + (-.10) Learning + (-.10) Socialization + .09 Vary Routine + .14 Other's Perceptions.

The researcher tested for interactions among demographic characteristics, motivational orientations, and instructional efficacy in the Poisson model. Age was identified as the sole demographic characteristic that produced a significant interaction ($p < .05$) with other items. The model provided further support that respondents were more likely to continue participating in MG when they possessed instructional efficacy. There was a significant interaction ($p < .05$) with age and instructional efficacy on MG tenure. For these data, the expected log count for each unit of instructional efficacy and age increased, MG tenure increased .03.

Certain motivational orientations produced significant interactions ($p < .05$) with age as well. As one unit of Community Service and age increased, MG tenure decreased -.02. When Other's Perceptions and age increased, a unit of MG tenure increased .03. As each unit of Vary Routine and age increased, MG tenure increased .02 (Table 4-29).

Table 4-28. Summary of Poisson Regression Analysis of Master Gardener Tenure on Demographic Characteristics, Motivational Orientations and Instructional Efficacy

	N	*B*	*SE B*	*p*
Intercept	465	.16	.21	
Gender	465	.05	.05	.29

Table 4-28. Continued

	N	*B*	*SE B*	*p*
Race	465	.02	.08	.79
Age	465	.23	.03	.00*
Income	465	.02	.02	.18
Education	465	.00	.02	.96
Instructional Efficacy	465	.12	.02	.00*
Learning	465	-.10	.04	.01*
Community Service	465	.03	.03	.34
Socialization	465	-.10	.03	.00*
Vary Routine	465	.09	.03	.01*
Professional Enhancement	465	-.06	.05	.25
Other's Perceptions	465	.14	.03	.00*
Instructional Efficacy**Age	465	.03	.00	.00*
Learning**Age	465	-.01	.01	.34
Socialization**Age	465	.01	.01	.30
Community Service**Age	465	-.02	.01	.00*
Vary Routine**Age	465	.02	.01	.01*
Professional Enhancement**Age	465	-.01	.01	.37
Other's Perceptions**Age	465	.03	.01	.00*

*Note: *p < .05. ** = test for significant interaction*

Summary

This chapter included the findings from objectives of the study. The findings were produced from descriptive statistics, t-tests, ANOVA's, principal component analysis, and Poisson regression. Chapter 5 will present the study's conclusions, implications, recommendations for research, and recommendations for practice.

CHAPTER 5
CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

This chapter includes the summary of the research findings from the study. Chapter 5 includes a summary of the conclusions, implications, and future recommendations for research and future recommendations for practice.

Summary of the Study

According to Schrock et al. (1999), demographic characteristics alone cannot be used to predict prolonged participation in the Master Gardener program. More rigorous research is needed to learn why adults continuously participate in Master Gardener. Developing a comprehension of characteristics of the volunteer team (Master Gardener participants) in a state by state basis is needed due to the lack of a standard national Master Gardener program (Kirsch & VanDerZanden, 2002). Extension should utilize trained Master Gardeners in as many volunteer opportunities as possible for several years in order to get a good return on their investment (Meyer & Hanchek, 1997; Swackhamer & Kiernan, 2005). National statistics have revealed that on the average, one out of three volunteers in any given organization discontinue volunteering after one year of service (Corporation for National and Community Service, 2006). Schrock et al. (2000) recommended keeping quality Master Gardeners is a method to decrease the cost of the program, and increase the effectiveness of Extension in terms of service delivery.

Volunteers are essential elements to any organization relying on volunteers. Rost (1997) said volunteers cooperate with organizations with shared interests. A straightforward explanation does not exist as to what motivates adults to volunteer for the Master Gardener program (Flagler, 1992). With a total value of Florida Master Gardener volunteer hours in 2007 worth approximately $8,000,000, it is crucial that University of Florida Extension personnel as well as the horticulture industry understand why Master Gardener participants are electing to become

active or inactive in the program (L. Arrington, personal communication, June 1, 2008). Many Florida communities rely upon Master Gardeners to assist them with projects, as well for educational horticulture advice, and therefore would benefit from an increase in the retention rate among this generous group of individuals (T. Wichman, personal communication, June 2, 2008).

Summary of Purpose and Objectives

The purpose of this study was to understand adult volunteer characteristics, efficacy in instructional strategies, and motivational orientations on Florida Master Gardener tenure. The primary objectives of the study were:

1. To describe participant demographics in the Florida Master Gardener program.
2. To describe Master Gardeners' efficacy in instructional strategies as volunteer educators; specifically: (a) ability to respond to difficult questions, (b) ability to gauge client comprehension of the information taught, (c) ability to craft good questions for clients, (d) ability to adjust information to the proper level for individual clients, (e) comfort with using evaluation strategies, (f) ability to provide an alternative explanation when clients are confused, and (g) the ability to implement alternative teaching strategies in their instruction.
3. To describe the motivational orientations of adults participating in Master Gardener; specifically: (a) Competence-related curiosity, (b) Interpersonal relations, (c) Community service, (d) Professional advancement, (e) Compliance with external influences, and (f) Escape from routine.
4. To determine if significant differences exist between efficacy in instructional strategies based on participant demographics.
5. To determine if significant differences exist between motivational orientations based on participant demographics.
6. To describe any existing relationships between efficacy in instructional strategies and motivational orientations for adults participating in Master Gardener.
7. To test the unidimensionality of Mergener's (1979) Education Participation Scale.
8. To understand the effects of motivational orientations and efficacy in instructional strategies on Master Gardener tenure.

Summary of Methodology

The population for this study was adults participating in the Florida Master Gardener program. Approximately 3,822 adult Floridians participate in the Master Gardener program (E. Eubanks, personal communication, March 8, 2009). The sample size was 613 Master Gardener participants. Data were collected through the implementation of a mail survey. Participants were contacted via mail using the Tailored Design Method outlined by Dillman, Smyth, and Christian (2009).

A final response rate of 86.79% (N = 532) was attained. According to Cochran (1977), a sample size of 362 usable surveys was required for a confidence interval of +/- 5 when N = 3,822. There were 530 usable responses. Early and late respondents were analyzed via the procedure identified by Lindner, Murphy, and Briers (2001). No significant differences were found between early and late respondents. The study's findings are generalizable to adults participating in the Florida Master Gardener program.

The study's independent variables were (a) gender, (b) ethnicity, (c) age, (d) education, (e) income, (f) Master Gardener tenure, (g) length of Florida of residence, and (h) if participants were native Floridians. The dependent variable was adult volunteer tenure in the Florida Master Gardener program. The Statistical Package for the Social Sciences (SPSS), version 17.0, was used to analyze the data according to the research objectives. Objectives one through three were analyzed using descriptive methods. Objectives four and five were analyzed utilizing analysis of variance (ANOVA). Objective six was analyzed through the calculation of correlation coefficients. Objective seven was analyzed using principal component analysis. Objective eight was analyzed through the implementation of Poisson regression.

Conclusions, Implications, and Recommendations

Objective One: Conclusions

The first objective was to describe participant demographics in the Florida Master Gardener program. The demographic characteristics measured were: (a) gender, (b) ethnicity, (c) age, (d) income, (e) Master Gardener Tenure, (f) length of residence in Florida, and (f) if participants were native Floridians.

Most of the respondents were women. Women accounted for 73.01% (*n* = 387) of the responses. Males accounted for 26.90% (*n* = 143) of the responses.

Most respondents were white. Whites accounted for 92.07% (*n* = 488) of the responses. Hispanics accounted for 2.26% (*n* = 12), African Americans accounted for 1.69 % (*n* = 9), Asians accounted for 1.50% (*n* = 8), Other accounted for 1.32% (*n* = 7), and Native American accounted for .75% (*n* = 4).

Most respondents were 56 years old or older. Seventy percent of respondents (*n* = 421) were 56 years old or over. Very few respondents were between 18 and 45 years old. The

18 – 45 years old individuals accounted for 3.77% (*n* = 20) of the responses. Adults 46 – 55 years old accounted for 16.41% (*n* = 87) of the responses.

A large percentage of respondents had obtained some form of higher education. Seventy-nine percent (*n* = 415) of respondents had earned at least an Associate's Degree. Adults with a high diploma or equivalent accounted for 21.32% (*n* = 113) of the responses.

Most respondents earned between $24,999 and $99,999 annually. Adults indicating their annual income was between $24,999 and $99,999 annually accounted for 61.32% (*n* = 325) of the responses. Respondents earning $24,999 or less accounted for 13.39% (*n* = 71) of the responses. Respondents earning $100,000 or more annually accounted for 13.58% (*n* = 72) of the responses.

A large portion of respondents had been Master Gardeners between 2 and 10 years 66.79% (*n* = 354) of the responses. Respondents who had been Master Gardeners over one year accounted for 19.43% (*n* = 103). Fourteen percent of respondents (*n* = 73) had been involved in the program for 11 or more years.

Most (75.84%, *n* = 402) of the respondents had lived in Florida for at least eleven years. Of those respondents, nearly 40% had lived in Florida for 31 years or more. Despite these numbers, few (12.26%, *n* = 65) respondents were native Floridians. Eighty-eight percent of respondents (*n* = 463) were not born in Florida.

Objective One: Implications

Age, education, income were specific demographic characteristics of respondents that reinforced Houle's (1961) Typology. Houle identified common characteristics of adults that were universal toward their participation in continued learning. Adults with higher annual salaries are more likely to participate in educational programs than adult with low incomes. Younger adults are less likely to participate in continued learning opportunities than older adults. Adults who have earned formal education degrees are more likely to participate in educational programs versus those who have not (Houle).

Respondents in this study were homogenous (older, white, women, educated and well-off). Boshier (1971, p. 6, ¶ 2) said "identified motivational orientations cannot be assumed to exist in other participant samples when the studied group is homogenous". Master Gardeners are a population that has been determined to be homogenous in other studies (Rohs, Stribilng, & Westerfield, 2002; Rouse & Clawson, 1992; Ruppert et al., 1997; Waliczek, Zajicek & Lineberger, 2005). The guidelines required to participate in Florida MG may align with the homogenous adult demographic characteristics identified from this study.

Rogers' (2003) research on early adopters confirms Houle's findings due to the fact Master Gardeners have received more formal education and are more apt to being accepting of educational opportunities. The findings from this study support Rogers' and Houle's theories on adult participation in continued learning. Formal education was a precursor to adults' participation in MG. Bandura's (1997) self-efficacy theory does not indentify adults' demographic characteristics as influential in determining level of efficacy.

Objective One: Recommendations for Research

Further research is needed on other existing state Master Gardener programs to ascertain if the majority of Master Gardeners are similar in demographic make-up as to those in Florida. This would provide a broad picture of what Master Gardener demographic characteristics look like in the respective state program, and more holistically across the nation. This information would be helpful to state administrators, state MG coordinators and program planners to develop an understanding of MG participant characteristics in order to serve participants most appropriately. The findings would inform state Extension administrators of the demographic make-up of this corps of volunteer educators. Additionally, this would allow MG coordinators to develop an understanding of what the characteristics of potential participants are in order to market the program with the goal of gaining new participants annually.

Further research is needed to determine if demographic characteristics of respondents in this study and their MG coordinator are similar. Specifically, the facets of agent and client homophily and heterophily on program participation should be studied. This would inform researchers and practitioners if Rogers' (2003) findings of change agent and client homophily and heterophily are present in the Florida Master Gardener program. If Florida Master Gardeners are homophilic to their MG coordinator, this could explain another facet to adult participation. This recommendation could easily be conducted with the dataset produced from this study to

represent Florida MG participants, and MG coordinators. This facet could help in explaining the findings of the demographic characteristics of respondents from this study.

The researcher utilized a mail survey to administer the M-EPS. Further research should offer a website link within the first notice in order for participants who prefer to complete the questionnaire online the opportunity. A follow-up study should be conducted in Florida within the next ten years to learn if adults' motivational orientations have changed. The researcher recognizes by that time all Florida MG participants may have high speed internet access. However, the mail survey was initiated due to the lack of all Florida MG participants having access to high speed internet.

Objective One: Recommendations for Practice

Since the demographic characteristics of Florida Master Gardeners have been identified, Florida MG coordinators should take those characteristics into consideration when promoting the program with the purpose of including more participants. This study found Florida Master Gardeners were primarily women, white, attained some form of higher education, and had average or above average incomes. The awareness of these characteristics should assist MG coordinators with better understanding their current and potential audience.

If the Florida Master Gardener program seeks to include participants with more demographic diversity, then steps will need to be incorporated to promote the inclusion of adults with characteristics dissimilar than those that emerged from this study. Specific demographic data for each Florida County should be considered when the local MG coordinator promotes and plans their program. The researcher admits time requirements of an adult to be a Master Gardener may not be available to all adults. Nonetheless, the attempts to market MG to a broader audience should be researched in order for Cooperative Extension to broaden its fleet of volunteer educators (Relf & McDaniel, 1994) and clientele (Peronto & Murphy, 2009). UF

IFAS/Extension should strive to identify, recruit, and train a more ethnically diverse group of adults as volunteer educators for MG.

Objective Two: Conclusions

The study's second objective was to describe Master Gardeners' efficacy in instructional strategies as volunteer educators: (a) ability to respond to difficult questions, (b) ability to gauge client comprehension of the information taught, (c) ability to craft good questions for clients, (d) ability to adjust information to the proper level for individual clients, (e) comfort with using evaluation strategies, (f) ability to provide an alternative explanation when clients are confused, and (g) the ability to implement alternative teaching strategies in their instruction.

The results from this study indicated that respondents felt at least "some influence" over their instructional efficacy. The means ranged from 6.66 (*SD* = 1.72) to 5.80 (*SD* = 2.10) on a nine point Likert type scale for questions related to instructional efficacy. Respondents felt the most efficacious in their ability to respond to difficult questions from their clients (*M* = 6.66, *SD* = 1.72). Respondents' answers to each of the TSES questions indicated Florida Master Gardeners possessed "some influence" to "quite a bit" of instructional efficacy.

Respondents were the least efficacious in their ability to utilize evaluation strategies with clientele (*M* = 5.80, *SD* = 2.10). This indicates that among all instructional efficacy items respondents felt the least comfortable with conducting evaluations after their instruction.

Objective Two: Implications

Bandura (1993) said self-efficacy was the degree an individual's beliefs regarding their ability to control their level of performance and events that influence their lives. Findings from this study indicate respondents had at least a moderate level of instructional efficacy. Respondents felt some level of comfort in teaching clientele recommended horticultural information provided by UF IFAS/Extension. An individual's level of efficacy can guide

participation in an activity. Bandura suggested self-efficacy contributes to an adult's motivation to participate in an endeavor. Motivational efficacy is the production of an individual's belief of efficacy (Bandura, 1991).

Individuals with high self-efficacy are success oriented and thus quickly recover their belief of efficacy after disappointments (Bandura). Adults with higher efficacy have enhanced achievements, decreased anxiety levels, and are less prone to dejection (Bandura, 1997). These attributes of self-efficacy operationally contribute to individual accomplishments. When instructional efficacy is high, individuals are motivated to be successful in their experiences and when instructional efficacy is low, individuals become frustrated and seek other opportunities (Tschannen-Moran & Woolfolk Hoy, 2001). Respondents' level of instructional efficacy indicated adults felt comfortable in their role as volunteer educators. An adult who has efficacy with his/her volunteer duties is more likely to continue his/her participation in the Master Gardener Program. This is important for Master Gardener participation due to Cooperative Extension's need for volunteers and specifically those that can serve as effective volunteer educators for their local Master Gardener Program.

Respondents indicated Master Gardeners had lower efficacy in evaluation strategies than any other instructional efficacy category. This could lead respondents to avoid conducting evaluations with their clients. Bandura (1997) reported adults that have lower self-efficacy in specific duties are less likely to participate in activities that require attributes involving those same duties. Individuals with lower efficacy will struggle with self-motivation and quickly admit defeat and move on to another opportunity (Bandura). Adults with low efficacy may discontinue their participation in an activity. This study found respondents' instructional efficacy was slightly above average in evaluation strategies and thus it is unlikely they would have a vigorous

commitment to those objectives (Tschannen-Moran & Woolfolk Hoy, 2001). The goals of the Master Gardener Program are to enable adult volunteers to assist Cooperative Extension in teaching research-based horticultural information to local constituents (Relf & McDaniel, 1994) Cooperative Extension should be concerned if Master Gardeners have average or low self-efficacy due to the likelihood adults will discontinue their participation (Tschannen-Moran & Woolfolk Hoy).

Objective Two: Recommendations for Research

Master Gardeners felt the least efficacious in their ability to utilize evaluation strategies. This could be due to their MG coordinator having low efficacy in evaluation strategies themselves, and this translates to adult participants being less comfortable in conducting evaluations. Master Gardeners should have a professional development plan constructed for them.

A significant aspect of the plan should include methods to enhance instructional efficacy. This would address cultivating cognitive efficacy in Master Gardeners. Cognitive efficacy is the extent individuals construct goals according to a personal assessment of their aptitude (Bandura, 1997). A MG professional development plan should be researched in order to determine participants' level of instructional efficacy before the professional development experience, during the middle of their involvement in the program, and their level of instructional efficacy after their participation has concluded. This aspect would inform researchers and practitioners if the professional development plan improved Master Gardeners' instructional efficacy. If not, the professional development plan should be altered in order to make sure volunteer educators are properly trained and prepared to educate Florida's citizens.

Objective Two: Recommendations for Practice

The inclusion of a formal mentoring program is recommended as well. More seasoned Master Gardeners identified to have high instructional efficacy should be utilized to mentor less seasoned participants in instructional methods. This mentoring system should be researched to identify participants' level of instructional efficacy at the beginning, middle, and the conclusion of the mentoring process. This information would assist researchers, and state and local program planners in learning the value of this type of professional development, and changes could be made to enhance the program accordingly. A robust sense of efficacy causes individuals to set enhanced objectives after their initial objective is accomplished (Bandura, 1997). This experience could enhance the motivational efficacy of Master Gardeners with high instructional efficacy by providing another objective to their role as volunteer educators for the program. Implementing additional challenges constructs new motivating differences for individuals to achieve (Bandura). This facet would provide another method in improving current and future Florida Master Gardeners' instructional efficacy.

Given their economic value (total value of Florida Master Gardener volunteer hours in 2007 worth approximately $8,000,000, L. Arrington, personal communication, June 1, 2008) and subsequent roles as ambassadors of UF IFAS/Extension across the state, Master Gardeners are one of the most prized resources the university has. The inclusion of more quality volunteer educators in the MG program would be a benefit to UF IFAS/Extension.

The instructional efficacy findings from this study indicate reasons why adults may chose to terminate their involvement in the MG program. If participants have moderate or low instructional efficacy, the likelihood adults end MG involvement in increased (Tschannen-Moran & Woolfolk Hoy, 2001). Data on the instructional efficacy construct should assist local and state coordinators in understanding what does and does not cause adult retention in the MG program

(Flagler, 1992). When educators possess high instructional efficacy, they are more likely to remain in their teaching role (Tschannen-Moran & Woolfolk Hoy). Steps should be taken to enhance Master Gardeners' instructional efficacy in order for UF IFAS/Extension to get the most "bang for their buck" (Meyer & Hanchek, 1997; Swackhamer & Kiernan, 2005) from these volunteer educators, and to ensure that adults continue their participation in this program.

The findings indicate Master Gardeners need their own formal professional development experiences provided by the local MG coordinator, and overseen by the state coordinator. This type of program plan should include objectives that are specific and relevant, and an ongoing evaluation component to ascertain if participants are demonstrating higher efficacy in instructional strategies.

The study's findings in instructional efficacy indicates a need for a formal statewide mentoring program for MG. Adults new to the MG should be assigned to a mentor who has been identified by the local MG coordinator to possess high instructional efficacy. MG coordinators should utilize participants' instructional efficacy as a motivation (Bandura, 1997) to provide them more opportunities to teach and prepare Master Gardeners who are less efficacious with instructional strategies. Brudney (1999) recommended educational programs relying on volunteers in the public sector should utilize adults that have efficacy in their roles in order for the organization to be the most effective. This would address Bandura's recommendations of methods to improve efficacy in others. The new participant could accompany the seasoned Master Gardener when planning an educational program, when they teach clientele out in the community, and in the Extension office answering client questions via the telephone or webpage. This would assist the new members in actively learning the techniques in a realistic setting.

Again, the instructional efficacy of the new MG participants should be measured at the beginning, middle and the conclusion of the mentoring experience.

MG participants should be provided experiences to practice teaching with clientele. It is possible that MG participants will perceive instructional efficacy higher at the conclusion of those instructional opportunities than initial perceptions prior to teaching. Agricultural teachers have indicated an increase in perceived instructional efficacy after the student teaching experience (Roberts, Harlin, & Ricketts, 2006; Stripling et al., 2008). This method is yet another approach to enhance MG instructional efficacy. The benefit of instructional efficacy for agricultural teachers resulted in success in difficult environments. Knoblach and Whittington (2003) found agricultural teachers with a high sense of teaching efficacy were more likely to handle and succeed when confronted with challenging teaching assignments.

At the least, Florida Master Gardeners need professional development related to using evaluation strategies. This study found Master Gardeners felt the least comfortable in utilizing evaluation strategies. Since Master Gardeners are the least comfortable in implementing evaluation strategies, it may be due not being adequately trained in those techniques. Teacher efficacy in evaluation strategies indicates the level of comfort of analyzing instructional efforts by the educator (Tschannen-Moran & Woolfolk Hoy, 2001).

Possessing knowledge and capabilities does not translate into an individual capable of utilizing them (Bandura, 1993). Master Gardener coordinators and high instructional efficacy Master Gardeners should construct open and comfortable learning environments for ‘new’ Master Gardeners, and current participants possessing low instructional efficacy. Learning environments play a significant role in the attainment of individual efficacy (Bandura). The importance of including these types of learning environments in order to improve instructional

efficacy should be underestimated. Bandura said learning environments that interpret aptitude as a learnable skill, pay less attention to social comparison competitions, and underscore personal comparisons of development and achievements are a best fit for constructing an efficacy setting that encourages enhanced learning. Master Gardeners coordinators, local officer councils and participants with high instructional efficacy should work together to ensure learning environments are cultivating enhanced instructional efficacy for current and potential Master Gardeners. This approach may assist in retaining Master Gardeners who serve as advertisements for Cooperative Extension (Stouse & Marr, 1992), and improving current participants' instructional efficacy which should allow Cooperative Extension is to achieve organizational objectives (Smith, 2005).

Given Master Gardeners economic value to the UF IFAS/Extension, the organization should support an effort to offer professional development to participants. UF/IFAS Extension should provide resources to hire an individual with the responsibility of training MG participants in instructional efficacy and monitoring Master Gardeners' progress as volunteer educators. Along with the state coordinator, the individual's role would be to consistently evaluate current programming efforts and instructional practices of local coordinators and Master Gardeners in order to determine if teaching impacts are occurring and if not report those findings to the state coordinator in order to institute the appropriate changes.

Objective Three: Conclusions

The study's third objective was to describe the motivational orientation for adults to participate in Master Gardener: (a) Competence-related curiosity, (b) Interpersonal relations, (c) Community service, (d) Professional advancement, (e) Compliance with external influences, and (f) Escape from routine. Respondents' indicated a Competence related Curiosity had "much influence" on their participation in MG. The Community Service and Interpersonal Relations

constructs revealed to have “moderate influence” on adult participation. Respondents’ indicated Escape from Routine had “little influence” on their participation. The External Influence and Professional Advancement constructs revealed to have “no influence” on their participation.

The findings from this study were similar to other studies of Master Gardeners (Finch, 1997; Kirsch & VanDerZanden, 2002; Meyer, 2004; Rouse & Clawson, 1992; Schott, 2001; Schrock et al., 2000; Schrock, 1999; Simonson & Pals, 1990; Wolford, Cox, & Culp III, 2001) in that Florida Master Gardeners primarily participated to learn new information. Respondents had the highest motivational orientation means for the Competence related Curiosity construct (M = 4.35, SD = .63), and thus indicated the construct had “much influence” on their participation in the program. This study’s findings were similar to findings from previous studies indicating adults were primarily motivated to participate for a Competence related Curiosity (Baxter, 1990; Boccolucci, 1992; Cherwony, 1982; Edlow, 1983; Farmer, 2008; Fisher, 1986; Garofolo, 1995; Heintzelman, 1989; Kolner, 1983; Miller, 1991; Okafor, 1997; Reynolds, 1986; Russett; 1999; Spell, 1989; Waring, 1995).

The Community service and Professional Development constructs were associated with the goal-oriented classification (Mergener, 1979). In this study, respondents indicated Community Service had “moderate influence” on their MG participation. Respondents indicated Professional Advancement had “no influence” toward participation in MG. Houle (1961) said adults in the goal-oriented classification have identified a personal interest to develop to a higher degree, and through continued learning experiences.

Interpersonal Relations, Escape from Routine and External Influence were associated with the activity-oriented classification (Mergener, 1979). Social contact is the primary attribute that motivates activity-oriented adults to participate in continued education (Houle, 1961).

Respondents indicated Interpersonal Relations and Escape from Routine had “little influence” on their participation. External Influence had “no influence” on their participation.

Objective Three: Implications

In this study, the Competence related Curiosity construct had the highest means for Florida Master Gardeners, and had “much influence” on participation. The Competence related Curiosity construct addresses Houle’s (1961) learning-oriented group (Mergener, 1979). Respondents in this study were primarily learning-oriented and participated in MG to fulfill a desire to learn. Boshier and Collins (1985) defined the learning-oriented adults as individuals who participate in continued learning for the happiness from education and the need to identify a solution to a current problem. Florida Master Gardeners were learning-oriented and believe continued learning is an experience that is personally enjoyable (Houle). Learning-oriented adults tend to perceive pursing education will enhance their lives.

Community service was found to have “moderate influence” on adult participation in Florida MG. The results from the Community Service construct indicated adults were goal-oriented and more interested in the MG program for the opportunity to assist the community. Goal-oriented adults participate in continued learning in order to meet a personal goal (Houle).

The other activity-oriented construct (Professional Development) was found to have “no influence” on MG participation. Seventy percent of respondents were ages 56 or over. This would account for Professional Development having “no influence” MG participation as probably most respondents were either retired or contemplating retirement.

Activity-oriented adults tend to participate in continued learning to seek new friends or create a new routine (Houle, 1961). Results from this study indicated Florida MG participants were not activity-oriented. Constructs associated with the activity-oriented classification

(Interpersonal Relations, Escape from Routine and External Influence) were found to have "little or no influence" on adult participation. Florida MG participants were not activity-oriented.

Objective Three: Recommendations for Research

State MG programs should develop an understanding of what motivates adults to participate in their local program. Developing an understanding that adults are in one of the learning classifications (learning, goal, and activity) is advantageous in determining and leading adult education (Houle, 1961). The M-EPS illustrated six motivational orientations that explained why adults participated in the Florida MG program. Other state programs should assess why adults participate as volunteer educators in MG due to the benefit they provide the land-grant institution. The findings may assist state administrators and state program planners identify other avenues to include volunteer educators in other Extension programs in order to more effectively and efficiently "bring the university to the people" (Rasmussen, 1989). An educational program may draw adults from all three classifications but each adult participates for particular objectives (Houle).

A comprehensive study on if motivational orientations related to MG tenure and recruitment would be beneficial to program planners and local coordinators. The results would be beneficial in order to predict MG tenure, attract new volunteer educators, and to serve participant needs based upon motivational orientation as recommended by (Houle, 1961). If being learning-oriented contributed to MG tenure, then local coordinators could construct new and enhance current MG experiences to ensure improved learning opportunities exist. Developing an understanding that adults are in at least one of three groupings is beneficial in discerning and leading adult education (Houle).

Objective Three: Recommendations for Practice

MG participants in this study were neither goal nor activity-oriented. This study identified that Florida Master Gardeners were learning-oriented. Extension agents that serve as MG Coordinators can use this study to understand what does and does not motivate adults to participate in the MG Program (Flagler, 1992). Promotional materials can be altered to increase initial participation from adults primarily interested in learning and serving their local community. Marketing MG as the ideal organization for learning horticultural information and sharing the knowledge with local constituents in order to enhance Florida's communities would appear to be an attractive promotional slogan. This may entice adults who are interested in MG but unaware of what the program provides volunteer educators and clients. MG should continue to be marketed as the go-to outlet for horticultural information and thus, assist Cooperative Extension in increasing clientele's knowledge and skills in order to provide solutions to their problems (Seevers, Graham, & Conklin, 2007).

Adults were similar in their learning orientations associated with their participation in the local MG program. Participants should be provided more opportunities to learn detailed information from a state specialist based. Adults who are mainly interested in learning and sharing horticulture related subject matter may be more enticed to remain involved if opportunities to learn from a specialist are provided. This experience would provide more detailed knowledge for participants to share with clientele. As the findings indicate, Florida MG participants are learning-oriented. More learning experiences should be provided to current participants in order to enhance learning to assist in retaining adults in the program.

Objective Four: Conclusions

The study's fourth objective was to determine if significant differences exist between efficacy in instructional strategies (a) ability to respond to difficult questions, (b) ability to gauge

client comprehension of the information taught, (c) ability to craft good questions for clients, (d) ability to adjust information to the proper level for individual clients, (e) comfort with using evaluation strategies, (f) ability to provide an alternative explanation when clients are confused, and (g) the ability to implement alternative teaching strategies in their instruction based on participant demographics (gender, age, race, education, income, length of Master Gardener tenure, length of Florida residence, state of birth).

There was a significant difference in education, F (4, 520) = 5.55, $p < .05$, and the effect size was negligible ($\eta^2 = .04$). Education accounted for 4% of the variance in instructional strategies. There was a significant difference ($p < .05$) from respondents who had earned a high school diploma ($M = 6.09$, $SD = 1.42$) and those who had earned a Master's Degree ($M = 6.69$, $SD = 1.41$). There was a significant difference ($p < .05$) from respondents who had earned an Associate's Degree ($M = 5.83$, $SD = 1.56$) and those who had earned a Master's Degree ($M = 6.69$, $SD = 1.41$), and respondents who had earned an Associate's Degree ($M = 5.83$, $SD = 1.56$) and those who had earned a Doctoral/Professional Degree ($M = 6.65$, $SD = 1.71$).

Objective Four: Implications

According to Tschannen-Moran and Woolfolk Hoy (2001), self-efficacy predicts how educators will cultivate learning in their students. Education produced a significant difference in adults' instructional efficacy. Respondents who had earned at least a Bachelor's Degree had more instructional efficacy than individuals that did not. As respondents' level of education went up, adults' level of instructional efficacy went up. This could have been due to a level of comfort more educated respondents felt when given the responsibility of serving as a volunteer educator in a nonformal teaching environment. The more experiences higher educated individuals had with robust learning environments may have caused respondents' instructional efficacy to have higher means than less educated adults. Bandura (1997) said success provides adults confidence

and enhances in self-efficacy. The success respondents attained in earning more formal education degrees may have constructed an improved self-perception of instructional efficacy. The analysis produced no other significant differences in demographic characteristics and instructional efficacy.

Objective Four: Recommendations for Research

More research is needed on the influence of participants' level of education and instructional efficacy. This study found education to be lone demographic characteristic significantly ($p < .05$) influencing instructional efficacy. Further research should be conducted on participant demographic characteristics and instructional efficacy in state MG programs. A broader understanding of how demographic characteristics influence or do not influence instructional efficacy of MG participants, across the U.S., would build upon Bandura's (1997) self-efficacy theory and add to Tschannen-Moran and Woolfolk Hoy's (2001) research on educator's instructional efficacy.

Objective Four: Recommendations for Practice

The study's results provide Florida MG coordinators an understanding of how most demographic characteristics do not influence participant instructional efficacy. These findings reinforce Bandura's (1997) suggestions that cognitive and affective efficacy can be improved in all individuals. Due to the economic value MG participants provide Cooperative Extension, an importance exists for Master Gardeners to receive training in order to develop enhanced instructional efficacy. Instructional efficacy can be improved in all teachers (Tschannen-Moran & Woolfolk Hoy, 2001).Volunteers possessing more instructional efficacy were provided opportunities to develop through training and preparation (Collins & Layne, 2003). Swackhamer and Kiernan (2005) reported adults serving as volunteers possessing efficacy in their roles are more likely to continue participating in MG.

Objective Five: Conclusions

The study's fifth objective was to determine if significant differences existed between motivational orientations based on participant demographics. Women were more apt to participate in the MG program in order to learn than men. The study found men participated in MG due to an External Influence more than women. Men were more motivated to participate than women for Professional Advancement.

Even though there was a negligible effect, women were more learning-oriented than men. Men were more interested in participating in the MG program for an External Influence and Professional Advancement. According to Houle, this finding indicates men were more goal-oriented than women.

Respondents significantly differed in their motivational orientations by age. Adults age 56 – 65 were more motivated to participate in MG for the Competence related Curiosity construct than respondents ages 66 and over. This indicates the 56 – 65 years old group was more learning oriented than those 66 and over.

Community Service and Interpersonal Relations are constructs associated with Houle's (1961) activity-oriented classification Respondents between ages 46 – 55 years old were more apt to participate in MG for Community Service and Interpersonal Relations than adults 56 and over. Older respondents were less activity-oriented as a motivation to participate in Florida MG.

Other significant differences existed among demographic characteristics and motivational orientations. There was a significant difference in education, income, race and length of Florida residence on External Influence. Respondents with a High School Diploma were more motivated by an External Influence to participate than other adults. Individuals earning $25,000 – 49,999 annually were more motivated to participate than other respondents. Non-whites were

more motivated to participate for an External Influence than whites. Adults who have lived in Florida 21 – 30 years were motivated by External Influence than other individuals to participate.

A significant difference existed in income on Professional Advancement. There was a significant difference in race and Community Service. Non-whites were more interested in Community Service than whites. A significant difference existed between Master Gardener tenure and Interpersonal Relations. Adults serving 11 years or more were more interested in Interpersonal Relations as a motivational orientation than other MG participants.

Objective Five: Implications

Results from MG participation by gender have implications for Houle's (1961) Typology. Women were more learning-oriented than men. This finding is key due to the vast majority (73%) of MG participants were women. These results add to Houle's research. This population, composed mainly of women, was more interested in participating in MG for learning than men. Results from this study indicated men were more goal-oriented that women. Findings from this study strengthen Houle's findings in that men were more goal-oriented than women due to men being more motivated to participate by Professional Advancement or External Influence.

Additionally, results for MG participation by age have implications for Houle's (1961) Typology. Respondents ages 56 – 65 were more learning-oriented than adults ages 66 and over. Adults over 56 were less activity-oriented than younger adults. These results reinforce Houle's (1961) findings that older adults are more activity-oriented than younger adults. Younger adults were more motivated by External Influence to participate in MG than older adults. This would indicate that older respondents were less interested in participating in MG than younger adults to fulfill a professional obligation, the requirements of a government agency, to address recommendations from an authority, and to comply with someone else's recommendations.

External Influence was significant for education, income, race, and length of Florida residence. A significant difference existed in income on Professional Advancement, race and Community Service, and Master Gardener tenure and Interpersonal Relations. An educational program may attract adults for a variety of reasons (Houle, 1961).

Objective Five: Recommendations for Research

State MG programs should research the motivational orientation differences in gender on MG participation. Other state MG programs should examine if women are more learning-oriented than men. This study found that women were the majority of MG participants, and a significant difference existed among women's Competence related Curiosity than men. If women are the majority of participants in other states, then developing an understanding of women's primary motivational orientation would assist state and local coordinators in preparing current training and marketing techniques to target this population in order to meet their needs. Comprehending if men are more goal-oriented than women in other state MG programs would offer insight on how to address men's needs in MG participation.

Beyond motivational orientations, there may be other factors that influence Master Gardener tenure. Researchers should examine the relationship between the local MG coordinator and adult participants in the local program. The influence of the local coordinator may impact MG tenure in respective counties. The research findings should be made available to administrators, state staff and local practitioners.

Objective Five: Recommendations for Practice

Florida MG coordinators should utilize these findings to market the program depending on the gender of potential participants. Coordinators would want to ensure that all potential participants understood the advantages MG offered for learning horticultural subject matter though women are more learning-oriented than men. Potential male participants would be more

interested than women in learning how MG could improve them as professionals. Coordinators should understand that older adults are less interested in participating MG and Professional Advancement.

MG coordinators should understand that adults participate in the program for a variety of reasons. Results from this study indicated adults were significantly interested in MG for Community Service, Interpersonal Relations, External Influence and Professional Advancement. Houle (1961) said none of the motivational orientations are better than another but practitioners should understand the differences in motivational orientations and demographic characteristics.

Objective Six: Conclusions

The study's sixth objective was to describe any existing relationships between efficacy in instructional strategies and motivational orientations for adults participating in Master Gardener (a) Competence related Curiosity, (b) Community Service, (c) Interpersonal Relations, (d) Escape from Routine, (e) External Influence, and (f) Professional Advancement for adults participating in Master Gardener. Respondents' instructional efficacy was positively correlated with their Competence related Curiosity, Community Service, and Interpersonal Relations motivational orientations. Competence related Curiosity and Instructional Efficacy were significant low associated (r = .23). Community Service and Instructional Efficacy exhibited a significant low association (r = .25). Interpersonal Relations and Instructional Efficacy were significantly negligible associated (r = .09). There were no significant associations with Escape from Routine, External Influence and Professional Advancement between Instructional Efficacy.

Objective Six: Implications

Various motivational orientations exist as to the reasons adults participate in continued learning (Houle, 1961). Other aspects indicate adult participation in continued learning beyond

motivational orientations. This study found Instructional Efficacy was correlated with Competence related Curiosity, Community Service, and Interpersonal Relations.

Competence related Curiosity and instructional efficacy builds upon Houle's (1979) Typology and Bandura (1997) research. Competence related Curiosity is associated with the learning-oriented classification. Learning-oriented adults have a strong desire to learn and identify perpetual learning as a responsibility that will improve them as members of society (Houle). Bandura said individuals' self-efficacy affects the implementation of objectives and critical thinking. Learning oriented participants possessed instructional efficacy and desired to share horticultural knowledge with fellow citizens. The correlation of this two constructs (Competence related Curiosity and instructional efficacy) adds to the Houle's Typology and Bandura's self-efficacy theory and better helps explain participant MG tenure .

Respondents scored low on the Competence related Curiosity (r = .23) and Community Service (r = .25) constructs, and negligible on the Interpersonal Relations construct (r = .09) related to instructional efficacy. These findings indicate when the motivational orientations (Competence related Curiosity, Community Service and Interpersonal Relations) increase, then instructional efficacy increases. These results provide Florida Cooperative Extension knowledge that motivational orientations influenced Master Gardeners' instructional efficacy. This study previously uncovered that Florida MG participants are learning-oriented, and that classification improves instructional efficacy.

Objective Six: Recommendations for Research

This information could assist practitioners develop an understanding of features that motivate adults to volunteer for Cooperative Extension (Boyd, 2004). Other state MG participants should be researched in order for program planners and administrators to develop an understanding of why adults chose to volunteer for this program. Developing an understanding

of the associations among constructs may assist Cooperative Extension in retaining high quality Master Gardeners as volunteer educators in order for the organization to reap a high quality return on their investment (Meyer & Hanchek, 1997; Swackhamer & Kiernan, 2005). The instructional efficacy of learning oriented adults should be studied separately from goal and activity-oriented participants. The results should be made available to program planners and local coordinators due to the majority of MG participants in Florida were motivated to learn.

Objective Six: Recommendations for Practice

This research objective uncovered other facets that increase instructional efficacy. The findings that motivational orientations (Competence related Curiosity, Community Service and Interpersonal Relations) contribute to instructional efficacy should assist practitioners in learning additional factors that affect participants' instructional efficacy. Florida MG coordinators should include more opportunities for participants to learn, serve the community, and develop social relationships due to those attributes positively affecting instructional efficacy. This recommendation should assist practitioners to offer experiences that motivate adults to continue with volunteer responsibilities (Corporation for National and Community Service, 2006). Providing Master Gardeners opportunities to teach citizens in instructional teams may address participant motivational orientations (Competence related Curiosity, Community Service and Interpersonal Relations) and jointly enhance instructional efficacy.

Local MG coordinators and the state MG director of Cooperative Extension systems should develop an understanding of the many facets that lead adults to participate in the MG program. When this is addressed, local coordinators and the state director can focus program promotional material, and the lessons they utilize to train and prepare adults to be volunteer educators to meet the needs of these valuable resources. When participant's needs are met, adults are more likely to continue their participation (Houle).

Objective Seven: Conclusions

The study's seventh objective was to test the unidimensionality of Mergener's (1979) Education Participation Scale. The researcher utilized factor loadings produced by principal component analysis to examine the M-EPS. Previous items associated with constructs identified by Mergener, loaded on separate constructs in this study. Constructs were renamed due to new items loading on different constructs. The Competence related Curiosity construct was renamed 'Learning', the Interpersonal Relations construct was renamed 'Socialization', and the Escape from Routine construct was renamed 'Vary Routine'. Items on the Professional Advancement and External Influence constructs loaded jointly after testing with the principal component analysis and the construct was renamed 'Professional Enhancement'. One new construct, Others' Perceptions, was created from the factor loadings.

Six items loaded on the Learning construct and items ranged from .82 to .45. Five items loaded on the Community Service construct ranging from .78 to .43 and five items loaded on the Socialization construct ranging from .76 to .56. Seven items loaded on the Vary Routine construct and items ranged from .79 to .50. Eight items loaded on the Professional Enhancement construct and items ranged from .80 to .45. Four items loaded on the Other's Perceptions construct and items ranged from .65 to .51.

Objective Seven: Implications

Houle (1961) said adults participate in continued learning for a variety for reasons. Boshier (1971) constructed the Education Participation Scale composed of constructs based upon Houle's Typology. Mergener (1979) modified Boshier's work and constructed his own M-EPS. The constructs produced from testing the unidimensionality of the M-EPS in this study serve to further knowledge on Houle's original findings as well.

The modified constructs of the M-EPS fit Houle's (1961) Typology (Figure 5-1). The learning-oriented group includes the 'Learning' construct. The activity-oriented group includes the 'Socialization', 'Community Service', 'Vary Routine' and 'Other's Perceptions' constructs. The goal-oriented classification includes the 'Professional Enhancement' construct. Houle said the differences in adults are the focal point of his typology. The factors may have loaded differently due to dissimilar populations.

Mergener's (1979) study included pharmacy students participating in a continued learning experience mandated by the profession. Adults participating in MG as volunteer educators may have caused items to load on separate constructs in this study. The disparity in factor loadings may not solely be due to the population but could include the type of educational program. The difference of factor loadings could simply be explained by adults participating in mandated educational programs versus adults volunteering in an educational program.

Objective Seven: Recommendations for Research

Researchers should utilize the modified version of Mergener's (1979) Education Participation Scale to examine Master Gardener's motivational orientations for MG participation. The inclusion of the modified version may provide researchers and practitioners more insight on adult motivations in MG. The modified version of the M-EPS should be tested further in order to ascertain if identical items load on similar constructs as this study. MG participants should not be the only population researched with the modified M-EPS. Diverse adult populations should be studied with the modified version of the M-EPS due to the potential of gaining insight on adult motivations for participating in educational programs.

Objective Seven: Recommendations for Practice

The modified version of the M-EPS provided insight on motivational orientations of adults participating in Florida MG. The modified Learning construct related to Houle's

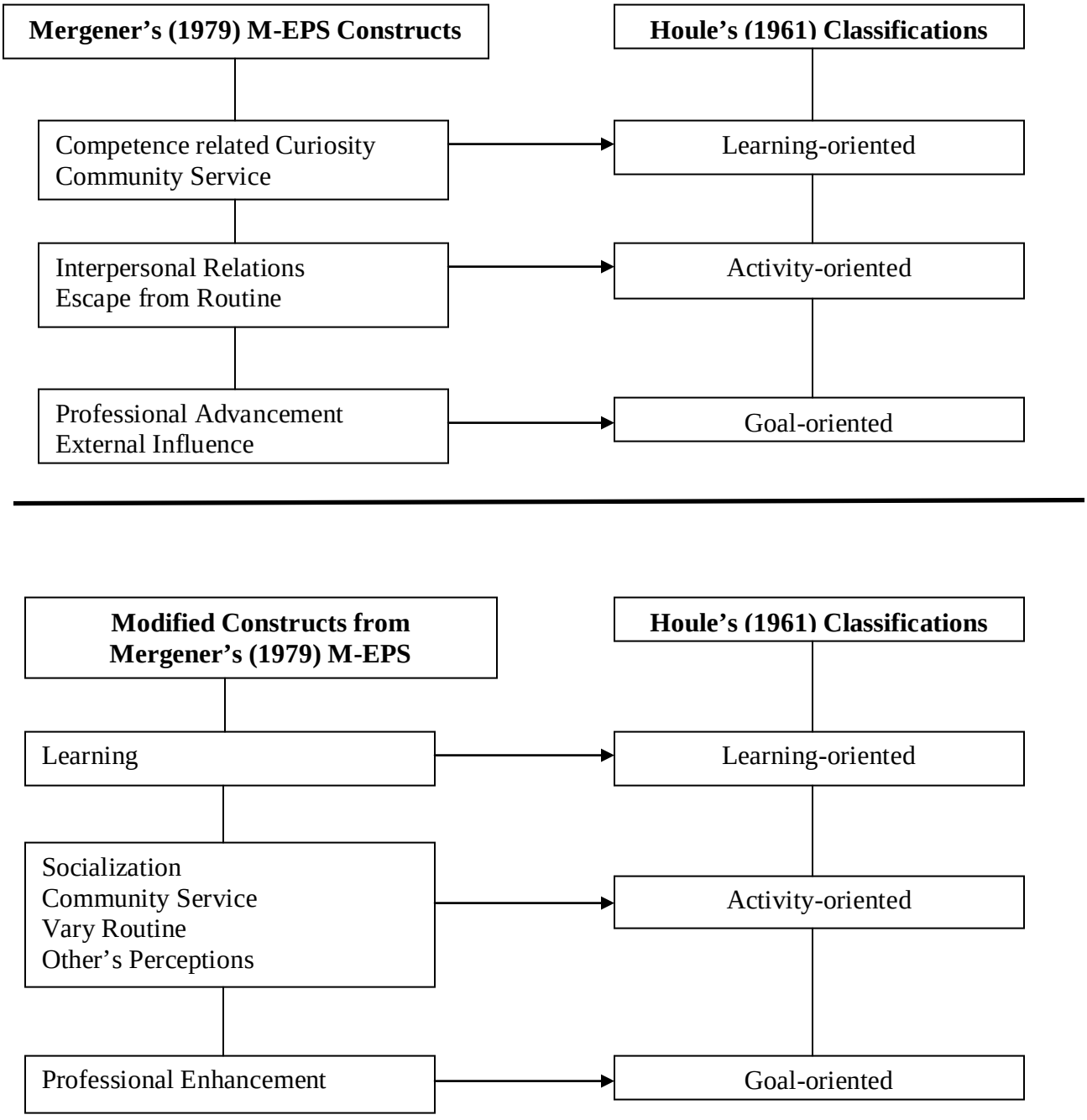


Figure 5-1. Houle and M-EPS Constructs Realigned Resulting from Principal Component Analysis

(1961) learning-oriented classification. This information should inform MG coordinators that adults in this classification are devoted to learning and participate in the educational program due to their constant quest of learning (Houle).

The modified constructs of Socialization, Community Service, Vary Routine and Other's Perceptions related to Houle's (1961) activity-oriented classification. These findings should assist practitioners in developing an understanding of adults in this classification participates in MG for diverse reasons associated with social contact (Houle).

The modified construct of Professional Enhancement relates to Houle's (1961) goal-oriented classification. These results should inform MG coordinators that adults in this classification would participate in MG in order to meet a professional objective or a goal someone has recommended to accomplish (Houle).

An essential need exists for local MG coordinators to learn adults' motivations for participating in the program. MG practitioners should be aware of these constructs and learning classifications in order to meet the needs of adult participants (Houle, 1961). An adult educator will be best prepared to educate adults when a complete understanding of reasons associated with the individual's participation is known (Boshier, 1971).

Objective Eight: Conclusions

The study's eighth objective was to understand effects of the combined attributes of motivation orientations and efficacy in instructional strategies on Master Gardener tenure. Age was the sole demographic characteristic that significantly predicted MG tenure. Instructional efficacy and the motivational orientations (Learning, Socialization, Vary Routine, and Other's Perceptions) were significantly associated with MG tenure.

Age, motivational orientations, and instructional efficacy were tested for significant interactions. This study indicated a significant ($p < .05$) interaction of participant age and level of instructional efficacy predicted adults' tenure in the MG program. A significant ($p < .05$) interaction of participant age and motivational orientations (Community Service and Other's Perceptions) predicted adults' tenure in MG. The Poisson regression model for this study was illustrated as: Master Gardner tenure = .16 + .23 Age + .12 Instructional Efficacy + (-.10) Learning + (-.10) Socialization + .09 Vary Routine + .14 Other's Perceptions.

Objective Eight: Implications

The researcher believed connections among the demographic characteristics, motivational orientations and instructional efficacy would have existed in the findings. Specifically, the researcher believed gender, age, race, education, and income would have been significant in determining a portion of MG tenure. As this study revealed, age was the lone significant ($p < .05$) demographic characteristic that affected MG tenure. Race may not have been significant due to 92% of the respondents were white. Education may not have been significant due to the majority of respondents had received higher education experience.

Instructional efficacy was anticipated to affect MG tenure due to the responsibilities have as volunteer educators in the program (UF Master Gardener Program, 2009). Findings revealed instructional efficacy was significantly ($p < .05$) related to MG tenure. This finding was anticipated due to Bandura (1997) reporting individuals with increased efficacy are more likely to continue their involvement in an activity due to efficacy.

The researcher expected specific motivational orientations (Learning, Socialization, Community Service, Vary Routine and Other's Perceptions) to significantly contribute to MG tenure but was surprised certain constructs did not. Learning was anticipated to affect MG tenure due to respondents from this study were primarily learning-oriented. In this study, adults were

primarily learning-oriented but other constructs also significantly affected MG tenure. Learning, Socialization, Vary Routine and Other's Perceptions were found to significantly ($p < .05$) affect MG tenure.

In this study, adults were neither activity or goal-oriented. However, findings indicated Socialization, Vary Routine and Other's Perceptions offered insight on various other reasons adults participate in MG. These findings paralleled Houle's (1961) Typology. Houle said a specific educational program may draw individuals from all three classifications.

Community service on its own was anticipated to significantly affect MG tenure due to participants' ages and roles individuals have as volunteer educators in MG. The results indicated community service, when not tested for an interaction with demographic characteristics, did not significantly affect MG tenure. The connections did not exist among Professional Enhancement and MG tenure due to the age of the population. Seventy-percent of the respondents were age 56 or over. The motivation to enhance one's ability in a profession would not be great due to age of the adult.

As the only demographic characteristic significantly affecting MG tenure, age was analyzed for significant interactions with instructional efficacy and the motivational orientations (Learning, Socialization, Community Service, Vary Routine, Other's Perceptions and Professional Enhancement). Significant ($p < .05$) interactions were revealed among age and instructional efficacy and age and the motivational orientations (Community Service, Vary Routine and Other's Perceptions). The researcher believed age and Learning did not produce a significant interaction due to the vast majority of participants were previously found to be learning-oriented.

Objective Eight: Recommendations for Research

Researchers should study adults who have terminated involvement in MG to understand reasons associated with turnover. Other state MG programs should seek to understand effects of the combined attributes of motivation orientations and efficacy in instructional strategies on Master Gardener tenure. This information would provide researchers, state and local coordinators and the broad academic discipline of Agricultural Education if age, instructional efficacy, Learning, Socialization, Community Service, Vary Routine and Other's Perceptions are variables that predict MG tenure across the U.S. All participants are perpetual learners but learner's motivational differences are what should be studied (Houle, 1961). The results would broaden the research and knowledge bases of Houle's (1961) Typology and Bandura's (1997) self-efficacy theory. This information would be beneficial to national MG program coordinators in determining MG tenure and assist Cooperative Extension in retaining volunteer educators (Meyer & Hanchek, 1997; Swackhamer & Kiernan, 2005; VanDerZanden, 2001).

Objective Eight: Recommendations for Practice

The revised conceptual framework illustrates the significant interactions of age and instructional efficacy on MG tenure (Figure 5-2). The significant interactions of age and Community Service, and age and Other's Perceptions are illustrated in the framework. Instructional efficacy and the motivational orientations (Learning, Socialization, Vary Routine, and Other's Perceptions) were significant on MG tenure.

Age was the sole demographic characteristic predicting MG tenure. Older adults may participate in MG due to the time requirement (minimum 75 hours annually) to serve as a volunteer educator. The researcher recommended MG coordinators continually strive to market MG to adults of all ages in order to broaden the potential of including participants with diverse backgrounds in the program. Spouses that are homemakers or unemployed may provide

practitioners more volunteer educators (Master Gardeners) given the time requirement. Adults too disabled for employment may offer coordinators more sources as volunteer educators.

Adults' instructional efficacy predicted MG tenure. This study underscores the importance of providing training and preparation in instructional strategies for current and future Master Gardeners. Clientele benefit from educator's high teaching efficacy. Teachers who have robust confidence in teaching efficacy create opportunities for learners to master the subject matter (Bandura, 1993). The findings from this study's eighth objective reinforce previous recommendations for practitioners to provide training in instructional strategies to Master Gardener volunteers.

Learning, Socialization, Vary Routine, and Other's Perceptions were significant on MG tenure (Figure 5-2). These findings provide practitioners more insight on the motivational orientations that predict MG tenure and provide a clear-cut description of what motivates adults to participate in the program (Flagler, 1992). Understanding motivational orientations of adults is the first step in preparing an educational program to meet participant needs (Houle, 1961). Florida MG coordinators should develop an understanding of the motivational orientations presented in this study from Mergener's (1979) modified M-EPS due to the fact that certain orientations predict MG tenure. The state and local coordinators should ensure the Florida MG program addresses these needs through instruction and opportunities presented participants as volunteer educators. Opportunities exist to train and prepare current and future Master Gardeners on-site of horticultural related businesses in respective county MG programs. Addressing participant needs, will positively affect their continued participation (Houle). Master Gardeners continued participation provides a valuable resource to Cooperative Extension (Meyer, 1997) by enhancing the organizations ability to deliver educational information to the

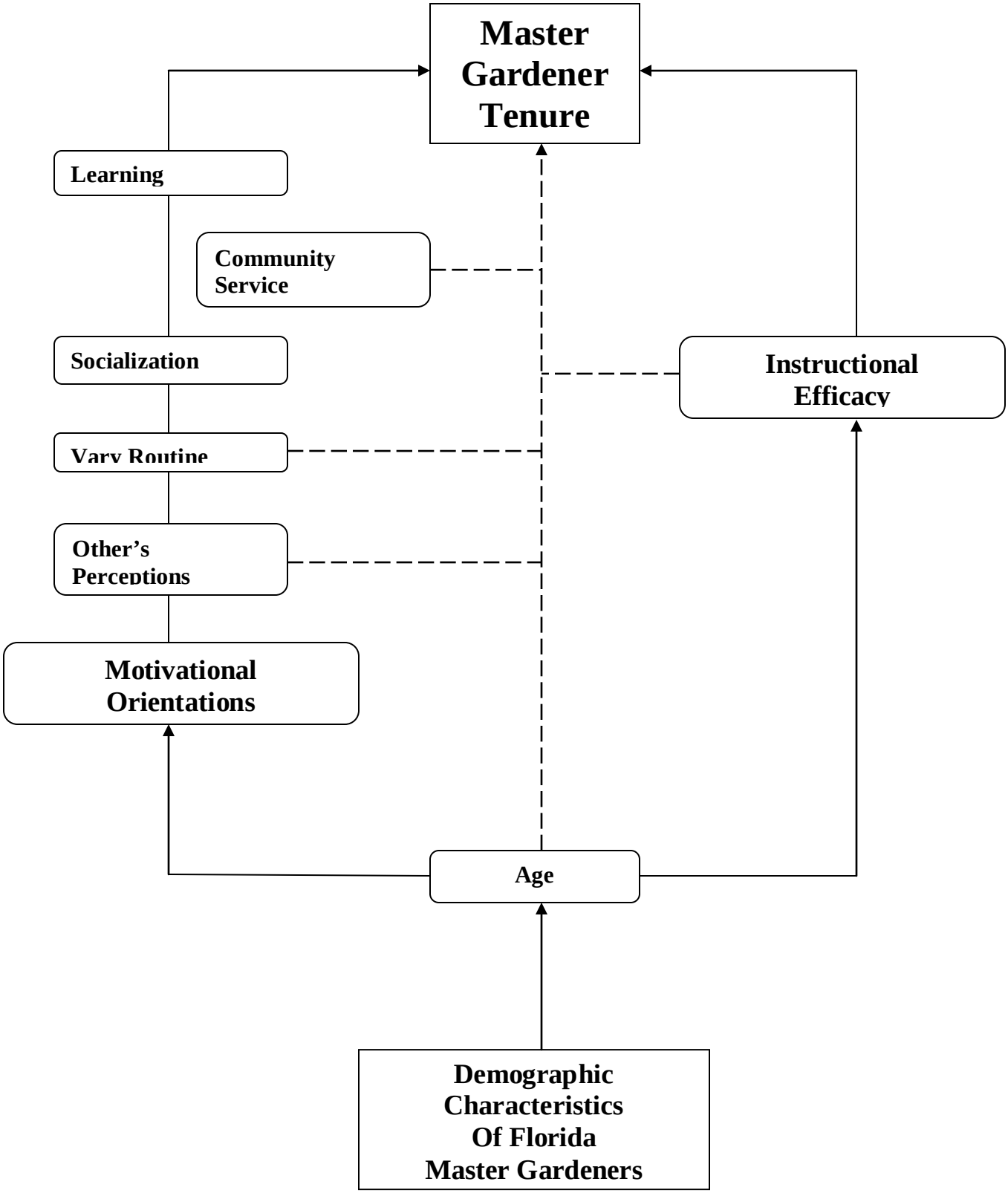


Figure 5-2. Altered Conceptual Framework Based upon the Study's Findings

general public (Rasmussen, 1989; Steele, 1994).

Opportunities exist to train adults in instruction at the statewide MG conference held annually. Even though the conference is only a one method approach, the experience would provide adults in attendance knowledge on how to utilize active, experiential and cooperative learning in educational content toward clientele in respective county programs. Utilizing the conference toward improving adults teaching efficacy is another example of professional development the MG state coordinator can institute for Florida Master Gardeners.

Chapter Summary

Results from this chapter reinforced Houle's research (1961) due to older, higher income adults are more apt to participate in continued learning. Participants were primarily learning-oriented but this facet did not predict tenure in the program. Specific motivational orientations were significantly correlated with instructional efficacy indicating multiple facets may predict MG tenure. Adults in this study had a moderate level of teaching efficacy, and thus, opportunities exist to improve teaching efficacy in volunteer educator responsibilities. Individuals may terminate involvement when efficacy is not high (Bandura, 1997). Also, moderate efficacy educators produce moderate learning outcomes.

Age, instructional efficacy and various motivational orientations significantly predicated MG tenure. Instructional efficacy was the lone independent variable predicting Master Gardener tenure that MG coordinators could directly enhance through professional development, practice teaching, and mentoring. Due to the importance of MG participation to the University of Florida and horticulture's impact to the state of Florida, MG coordinators should work with segments of the horticultural industry to enhance instructional efficacy in MG participants.

Summary of Research

Florida's climate allows homeowners the ability to garden most of the calendar year. Land-grant universities are responsible for delivering research-based information from the institution to citizens throughout the state. Cooperative Extension is the third of three components making the University of Florida a land-grant university. Master Gardeners are adult volunteer educators recruited and trained by local UF employed extension agents to teach homeowners horticultural knowledge. Due to budget shortages, the need exists to include more effective volunteer educators for UF through the MG program.

The researcher employed a stratified random sample design in order to ensure a consensus on the study's eight objectives was achieved from Florida MG participants. Participants were included from each of the five Extension districts in Florida. Due to the rigor in research methods, the inclusion of advanced prediction statistics and the institution of a mail survey, findings from this study can be generalized to the entire population of Florida Master Gardeners.

Findings from this study indicated Florida Master Gardeners were primarily white, educated, women with moderate incomes. The researcher was surprised participants were subsequently homogenous due to the demographic make-up of Florida's citizens. Results from this study reinforced Houle's research (1961) due to older, educated, higher income adults are more apt to participate in continued learning. The MG population may be homogenous due to the prerequisites needed (resources) in order to become a Florida Master Gardener.

Participants were unquestionably learning-oriented, and not goal or activity-oriented. Learning-oriented adults perceive continued learning as a duty, and believe pursuing education will enhance their lives. Goal-oriented adults participate in an educational program due to the realization of their need for education or because they have identified a personal interest they want to comprehend to a higher degree. An activity-oriented adult chooses an educational

program based upon the amount of social experiences with other adults (Houle). Florida Master Gardener were not goal nor activity-oriented.

Adults in this study had a moderate level of teaching efficacy, and thus, opportunities exist to improve teaching efficacy in volunteer educator responsibilities. This indicates adults may quit serving as a volunteer educator due to a lack of confidence in the role. Individuals may terminate involvement when efficacy is not high (Bandura, 1997). Also, moderate efficacy educators produce moderate learning outcomes. These facets underscore a tremendous need to provide opportunities to develop improved teaching abilities. When demographic characteristics, motivational orientations and instructional efficacy were tested to predict MG tenure, interesting results were produced.

Learning, which was identified as the reason adults flocked to MG, was found to be negatively related to tenure. This facet insinuates that adults learn what they want then terminate their involvement. Instructional efficacy was the lone variable predicting MG tenure that MG coordinators could directly enhance through professional development in active and experiential learning, practice teaching, and mentoring.

Improving Master Gardener's teaching efficacy will broaden the scope of the University of Florida by retaining more qualified adult volunteer educators in order to deliver research-based horticultural knowledge to local constituents, and thus, expand the impact of UF IFAS/Extension. The annual Florida MG conference is a venue to enhance instructional efficacy in participants. Due to the importance of MG participation to the UF and horticulture's impact to the state of Florida, MG coordinators should work with segments of the horticultural industry to enhance participant's instructional efficacy through active learning experiences.

APPENDIX A
PERMISSION FORMS

Informed Consent

Protocol Title: Factors Influencing Adults' Motivations for Participating in the Master Gardener Program

Please read this consent document carefully before you decide to participate in this study.

Purpose of the research study:

The purpose of this study is to assess reasons adults are involved in Master Gardener.

What you will be asked to do in the study:

Complete a survey on what motivates you to participate in Master Gardener.

Time required:

15-20 minutes

Approved by
University of Florida
Institutional Review Board 02
Protocol # 2009-U-733
For Use Through 07-09-2010

Risks and Benefits:

You will encounter no risks by participating in this study. We do not anticipate that you will benefit directly by participating in this experiment.

Compensation:

You will not be compensated for participating in this research.

Confidentiality:

Your identity will be kept confidential to the extent provided by law. Your name will be changed and your information will be assigned a code number. The instructors will not know who participated until the final exam grades have been posted. The list connecting your name to this number will be kept in a locked file in my faculty supervisor's office.

Voluntary participation:

Your participation in this study is completely voluntary. There is no penalty for not participating in the study.

Right to withdraw from the study:

You have the right to withdraw from the study at anytime without consequence.

Whom to contact if you have questions about the study:

Robert Strong, Doctoral Student, Department of Agricultural Education and Communication, P.O. Box 110540, Gainesville, Fl. 32611-0540, phone 352-275-4964.

Dr. Amy Harder, Assistant Professor, Department of Agricultural Education and Communication, P.O. Box 110540, Gainesville, Fl. 32611-0540, phone 352-392-0502 ext. 230

Whom to contact about your rights as a research participant in the study:

IRB02 Office, Box 112250, University of Florida, Gainesville, FL 32611-2250; phone 352-392-0433.

Agreement:

I have read the procedure described above. I voluntarily agree to participate in the procedure and I have received a copy of this description.

Participant: _____ Date: _____

Principal Investigator: Robert A Strong Date: 7/29/09

Approved by
University of Florida
Institutional Review Board 02
Protocol # 2009-U-733
For Use Through 07-09-2010

University of Florida
Agricultural Education and Communication
P.O. Box 110540
Gainesville, Fl. 32611-0540
Ph: 352-392-1663
Email: strong@ufl.edu

July 13th, 2009

To: Michael A Mergener, RPh, PhD

Re: Use of scale for my dissertation

Hello! I spoke to you on the telephone on Tuesday, July 7th about using your scale for my dissertation. I am researching reasons that adults are motivated to participate in a homeowner gardening program that requires them to donate a minimum of 75 volunteers hours annually. Thank you for allowing me to use your scale to answer my research question!

Please feel free to contact me at 352-275-4964 or strong@ufl.edu if you have questions.

Sincerely,

Robert Strong

Robert Strong
Doctoral Student
University of Florida
Department of Agricultural Education and Communication

THE OHIO STATE UNIVERSITY COLLEGE OF EDUCATION AND HUMAN ECOLOGY

ANITA WOOLFOLK HOY, PH.D.

PROFESSOR
PSYCHOLOGICAL STUDIES IN EDUCATION

Dear

You have my permission to use the *Teachers' Sense of Efficacy Scale* in your research. A copy of both the long and short forms of the instrument as well as scoring instructions can be found at:

http://www.coe.ohio-state.edu/ahoy/researchinstruments.htm

Best wishes in your work,

Anita Woolfolk Hoy

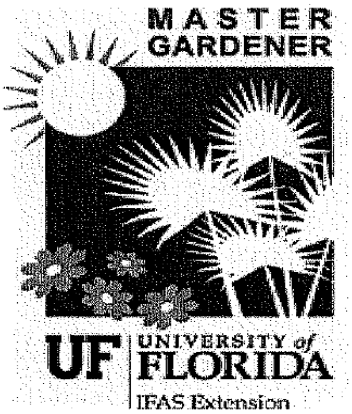
Anita Woolfolk Hoy, Ph.D.
Professor

COLLEGE OF EDUCATION
29 WEST WOODRUFF AVENUE
COLUMBUS, OHIO 43210-1177

WWW.COE.OHIO-STATE.EDU/AHOY

PHONE 614-292-3774
FAX 614-292-7900
HOY.17@OSU.EDU

APPENDIX B
SURVEY INSTRUMENTS



1. Please **circle** the number that corresponds to the extent of influence each statement had on your reasons for participating in the Master Gardener program.

5=Very Much Influence (**VMI**)
4=Much Influence (**MUI**)
3=Moderate Influence (**MOI**)
2=Little Influence (**LI**)
1=No Influence (**NI**)

Reason	VMI	MUI	MOI	LI	NI
1. To satisfy my intellectual curiosity	5	4	3	2	1
2. To comply with my employer's policy	5	4	3	2	1
3. To respond to the fact that I am surrounded by people who continue to learn	5	4	3	2	1
4. To comply with the fact that people with status and prestige attend adult education classes	5	4	3	2	1
5. To be accepted by others	5	4	3	2	1
6. To satisfy an inquiring mind	5	4	3	2	1
7. To obtain some practical benefit	5	4	3	2	1
8. To comply with the ethics of the horticulture industry	5	4	3	2	1

9. To feed my appetite for knowledge	5	4	3	2	1
10. To become more effective as a citizen	5	4	3	2	1
11. To seek knowledge for its own sake	5	4	3	2	1
12. To escape the intellectual narrowness of my occupation	5	4	3	2	1
13. To stop myself from becoming stagnant	5	4	3	2	1
14. To improve my ability to serve mankind	5	4	3	2	1
15. To gain insight into human relationships	5	4	3	2	1
16. To improve my ability to participate in community work	5	4	3	2	1
17. To take part in an activity which is customary in the circles in which I move	5	4	3	2	1
18. To fulfill a need for personal associations	5	4	3	2	1
19. To have a few hours away from responsibilities	5	4	3	2	1
20. To comply with recommendations from someone else	5	4	3	2	1
21. To keep up with others	5	4	3	2	1
22. To supplement a previous narrow education	5	4	3	2	1
23. To clarify what I want to be doing 5 years from now	5	4	3	2	1
24. To acquire knowledge that will help with other courses	5	4	3	2	1
25. To help me earn a degree, diploma or certificate	5	4	3	2	1
26. To share a common interest with someone else	5	4	3	2	1
27. To participate in group activities	5	4	3	2	1
28. To overcome the frustrations of day to day gardening	5	4	3	2	1
29. To gain relief from boredom	5	4	3	2	1
30. To improve social relationships	5	4	3	2	1
31. To fulfill my professional obligation	5	4	3	2	1

32. To provide contrast to my previous education	5	4	3	2	1
33.To give me higher status on the job	5	4	3	2	1
34. To carry out the recommendations of some authority	5	4	3	2	1
35. To get a break from the routine of home or work	5	4	3	2	1
36. To provide a contrast to the rest of my life	5	4	3	2	1
37. To secure professional advancement	5	4	3	2	1
38. To fulfill requirements of a government agency	5	4	3	2	1
39. To maintain or improve my social position	5	4	3	2	1
40. To become acquainted with congenial people	5	4	3	2	1
41.To prepare for service to the community	5	4	3	2	1

Master Gardener Beliefs: How much can you do?

Directions: The questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for Master Gardeners in their educational activities. Please indicate your opinion about each of the statements below by **circling** your response. Your answers are confidential.

1=Nothing (N)
3=Very Little (VL)
5=Some Influence (SI)
7=Quite a Bit (QB)
9=A Great Deal (AD)

Items	N		VL		SI		QB		AD
42. How well can you respond to difficult questions from your clients?	1	2	3	4	5	6	7	8	9
43. How much can you gauge client comprehension of what you have taught?	1	2	3	4	5	6	7	8	9
44. To what extent can you craft good questions from your clients?	1	2	3	4	5	6	7	8	9
45. How much can you do to adjust your information to the proper level for individual clients?	1	2	3	4	5	6	7	8	9
46. How comfortable are you using evaluation strategies?	1	2	3	4	5	6	7	8	9
47. To what extent can you provide an alternative explanation or example when clients are confused?	1	2	3	4	5	6	7	8	9
48. How well can you implement alternative strategies in your teaching?	1	2	3	4	5	6	7	8	9

PERSONAL CHARACTERISTICS

This is the last portion of the survey. Please check the statement in each section that best describes you or fill in the blank of the most appropriate answer.

1. **Which gender are you:**

Male ☐
Female ☐

2. **Which of the following age category best describes you:**

18-35 years old ☐
36-45 years old ☐
46-55 years old ☐
56-65 years old ☐
66 years old or over ☐

3. **The highest degree you have earned is a(n):**

High School Diploma or Equivalent ☐
Associate's Degree ☐
Bachelor's Degree ☐
Master's Degree ☐
Doctoral Degree ☐
Professional Degree ☐

4. **Which best describes your annual income:**

24,999 or less ☐
25,000 - 49,999 ☐
50,000 – 74,999 ☐
75,000 – 99,999 ☐
100,000 or more ☐

5. Which race best describes you:

African American ☐
Asian ☐
Hispanic or Latino ☐
Native American ☐
Pacific Islander ☐
White ☐
Other ☐

6. How many years have you been a Master Gardener?

Years _____
Less than One Year ☐

Continues on Next Page →→→

7. How many years have you lived in Florida?

Years _____

9. In what Florida county do you live?

County _____

10. Were you born in Florida?

Yes ☐
No ☐

APPENDIX C
LETTERS TO PARTICIPANTS

UF UNIVERSITY of FLORIDA
IFAS

Department of Agricultural Education and Communication

305 Rolfs Hall
PO Box 110540
Gainesville, FL 32611-0540
Telephone: (352) 392-0502
Fax: (352) 392-9585

October 16th, 2009

[redacted]

Dear [redacted],

I am writing to ask for your help with an important study being conducted by the University of Florida and UF IFAS/Extension to understand adult participation in the Master Gardener program. In the next few days, you will receive a request to participate in this project by answering questions about your experiences in the Master Gardener program.

We would like to do everything we can to make it easy and enjoyable for you to participate in the study. I am writing in advance because many people like to know ahead of time that they will be asked to fill out a questionnaire. This research can be successful with the generous help of people like you. I hope that you enjoy the questionnaire and the opportunity to voice your thoughts and opinions about your participation in the Master Gardener program.

If you have any questions, please feel free to contact me at strong@ufl.edu or 352-275-4964.

Best wishes,

Robert Strong
Ph.D. Candidate
University of Florida

UF UNIVERSITY of FLORIDA
IFAS

Department of Agricultural Education and Communication

305 Rolfs Hall
PO Box 110540
Gainesville, FL 32611-0540
Telephone: (352) 392-0502
Fax: (352) 392-9585

October 19, 2009

[redacted]

Dear [redacted],

I am writing to ask for your help in understanding adult participation in the Master Gardener program. The best way we have of learning about this topic is by asking many different Master Gardeners to share their thoughts and opinions. This project is in conjunction with the University of Florida and UF IFAS/Extension. Your address is one of only a small number that have been randomly selected to help in this study.

The questions should take about 15 minutes to complete. Your responses are voluntary and will be kept confidential. If you have questions about this survey of Master Gardeners, please contact Robert Strong, the study director, by telephone at 352-275-4964 or by email at strong@ufl.edu. This study has been reviewed and approved by the University of Florida Institutional Review Board (Protocol # 2009-U-733). If you have any questions about your rights as a participant in this study, you may contact them by telephone at 352-392-0433.

By taking a few minutes to share your thoughts and opinions about the Master Gardener program, you will be helping us out a great deal. I hope you enjoy completing the questionnaire and look forward to receiving your responses.

Many thanks,

Robert Strong
Ph.D. Candidate
University of Florida

October 26, 2009

Last week a questionnaire was mailed to you because you were randomly selected to help in a study about reasons adults participate in the University of Florida Master Gardener Program.

If you have already completed and returned the questionnaire, please accept my sincere thanks. If not, please do so right away. I am especially grateful for your help with this important study.

If you did not receive a questionnaire, or if it was misplaced, please contact me at strong@ufl.edu or 352-275-4964 and I will get another one in the mail for you today.

Sincerely,

Robert Strong, Ph.D. Candidate

UF UNIVERSITY of FLORIDA
IFAS

Department of Agricultural Education and Communication

305 Rolfs Hall
PO Box 110540
Gainesville, FL 32611-0540
Telephone: (352) 392-0502
Fax: (352) 392-9585

November 9, 2009

[redacted]

Dear [redacted],

In late October, I sent a letter to your address that asked you to complete a questionnaire about your participation in the Master Gardener program. To the best of our knowledge, it has not yet been returned. This project is in conjunction with the University of Florida IFAS/Extension.

I am writing again because of the importance that your questionnaire has for helping us to get accurate results. It is only by hearing from nearly everyone in the sample that we can be sure that the results truly represent Florida Master Gardeners. Therefore, we hope you will fill out the questionnaire soon.

As I mentioned before, the questions should take about 15 minutes to complete. Your responses are voluntary and will be kept confidential. If you have questions about this survey of Master Gardeners, please contact me (Robert Strong), the study director, by telephone at 352-275-4964 or by email at strong@ufl.edu. This study has been reviewed and approved by the University of Florida Institutional Review Board (Protocol # 2009-U-733). If you have any questions about your rights as a participant in this study, you may contact them by telephone at 352-392-0433.

By taking a few minutes to share your thoughts and opinions about the Master Gardener program, you will be helping us out a great deal. I hope you enjoy completing the questionnaire and look forward to receiving your responses.

Many thanks,

Robert Strong
Ph.D. Candidate
University of Florida

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BIOGRAPHICAL SKETCH

Robert Lee Strong Jr. was born on November 16, 1973 in Lebanon, Tennessee. An only child, he grew up mostly in Lebanon, graduating from Lebanon High School in 1992. He earned his B.S. in animal science from Middle Tennessee State University and his M.S. in extension education from the University of Tennessee in 1996 and 2001, respectively.

Upon graduating in August 1996 with his B.S. in animal science, Robert began working for the University of Tennessee Agricultural Extension Service as an extension agent for Fentress County, Tennessee in November 1996. After working in that position for three years, Robert transferred to Putnam County, Tennessee where he was an extension agent serving the 4-H program in 2000. Robert remained in Putnam County for three years and then moved to Orlando, Florida.

He served as the 4-H Program Leader for Orange County (Orlando), Florida from 2003–2007. After a very successful stint in Orange County where Robert was responsible for mentoring less seasoned extension agents, he decided to enroll in courses designed to earn a doctoral degree in Extension Education at the University of Florida. His primary motive was to learn how to better prepare future extension agents in program planning and evaluation, time management, and working with local constituents.

After much deliberation about "jumping" into a Ph.D. full-time, he decided to apply for an assistantship in the Department of Agricultural Education and Communication. Robert left Extension, an organization he served for over ten years, to become a full-time Ph.D. student in the fall of 2007. He graduated in May 2010, with a Ph.D. in agricultural education and communication from the University of Florida.