

# MASTER GARDENERS' TEACHING EFFICACY AND DEMOGRAPHIC CHARACTERISTICS AS VOLUNTEER EDUCATORS FOR COOPERATIVE EXTENSION

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## Abstract

*Cooperative Extension needs a consistent corps of volunteers to deliver organizational objectives. Extension agents should develop an understanding of volunteer motivations in order to identify and retain those individuals. The theoretical framework of this study was based on self-efficacy theory. The purpose of this study was to develop an understanding of the teaching self-efficacy of Master Gardeners. The questionnaire included the instructional efficacy construct from the Teacher Sense of Efficacy Scale (TSES) and questions about participant demographics. The response rate was 74.15%. The majority of participants were mainly women, white, earned some type of higher education degree, and nearly half of the participants were 56 years old or older. Adults felt "Some Influence" in their effective teaching duty as a volunteer educator in the Master Gardener Program. Retaining quality Master Gardeners may increase the effectiveness of Cooperative Extension.*

## Introduction

Volunteers are individuals searching for information while cooperating with individuals or organizations with mutual interests (Rost, 1997). Kirsch and VanDerZanden (2002) suggested researchers develop an understanding of the characteristics of Master Gardener volunteers on a state by state basis due to the lack of a standard national program. Extension should utilize trained Master Gardeners in as many volunteer opportunities as possible for several years in order to receive a good return on their investment (Meyer & Hanchek, 1997; Swackhamer & Kiernan, 2005). An adult who is secure and self-confident with the volunteer responsibility is more likely to remain involved in the Master Gardener Program (Swackhamer & Kiernan). The National Research Agenda suggests extension faculty identify the needs and competencies of stakeholders in nonformal agricultural extension education (Osborne, n.d.).

The mission of the Tennessee Master Gardener program is to educate participants as volunteer educators of The University of Tennessee Extension and the Tennessee State Cooperative Extension Program by providing home gardeners with researched-based knowledge (Reiners, Nichnadowicz, Nitzsche, & Bachelder, 1991). In Tennessee, there are approximately 2,000 active adult Master Gardeners that serve 46 of the state's 95 counties. Once their education is finished, adults are required to donate 25 volunteer hours annually to remain certified as a Tennessee Master Gardener. Master Gardeners' volunteer time provides them experiences and opportunities to interact with others through their teaching experiences (Flagler, 1992). Master Gardener participants are typically older white women (Meyer, 2004; Rohs, Stribling, & Westerfield, 2002; Sutton, 2006). However, little research exists as to their level of education, income, and length of tenure in the program. Research is needed on Master Gardener's instructional efficacy due to a deficiency on the topic. This study attempts to alleviate a portion of this deficiency.

A need exists for volunteers throughout Cooperative Extension. Hoover and Connor (2001) indicated volunteers are significant components of each Extension program area. 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). A continuous stream of volunteers is essential to the operation of Extension objectives (Smith, 2005). Stouse and Marr (1992) suggested that 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 agent must have an understanding of what appeals to and motivates volunteers in order to effectively recruit, train, and retain these volunteers (Boyd, 2004). National statistics have revealed that, on the average, one out of three volunteers discontinue volunteering after one year of service (Corporation for National and Community Service, 2006). Boyd recommended 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 in order to better recruit, prepare, and retain these adults.

### **Theoretical Framework**

The theoretical framework of this study was based on self-efficacy theory (Bandura, 1993). Self-efficacy theory is the extent beliefs regarding the capacity to control the performance and 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 in his/her aptitude to bring about learner engagement and learning outcomes including difficult learners.

Adults confident in their abilities address complex undertakings as opportunities to be successful (Bandura, 1997). Success encourages their interest and engages individuals in endeavors. High self-efficacy adults establish lofty goals and sustain a robust obligation to those goals. Also, these individuals devote enhanced efforts in their duties and improve their efforts in the appearance of letdowns. High self-efficacy individuals consider advantages by continuing to be task oriented in times of trials, and accredit letdowns to inadequate efforts. High self-efficacy individuals are success oriented and thus promptly recuperate their feeling of efficacy after letdowns (Bandura, 1993). These individuals address perils believing they can manage them. These attributes of self-efficacy operationally contribute to individual accomplishments.

Master Gardeners utilize their knowledge and skills to teach clientele (Peronto & Murphy, 2009; Rohs & Westerfield, 1996). 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 professionally improved their teaching efficacy (Knobloch, 2001). Self-efficacy was the influential variable that characterized individuals who succeeded as a secondary agricultural education teachers (Kelsey, 2007). Student teachers felt more efficacious about their teaching efficacy after their opportunity to student teach (Knobloch, 2002; Roberts, Harlin, & Ricketts, 2006; Stripling, Ricketts, Roberts, & Harlin, 2008). If preservice teachers are better educators after their teaching efficacy is improved, then Master Gardeners may remain active and be more proficient and effective in their roles as volunteer educators if they possess high self-efficacy in teaching.

### **Purpose and Objectives of the Study**

The purpose of this study was to develop an understanding of the teaching self-efficacy of Master Gardeners. The primary objectives of the study were to:

1. Describe participant demographics in the Master Gardener Program.
2. Describe Master Gardeners' efficacy in instructional strategies as volunteer educators.

## Methodology

The findings are part of a larger study conducted to develop an understanding of factors related to the enrollment and retention of Master Gardeners. It was a descriptive study using a census of participants from one county's Master Gardener Program in Tennessee. The portion of the study reported here focused on the teaching self-efficacy of Master Gardeners. Quantitative research was selected as the research design for this study. Eighty-nine adults served as volunteer educators for the local Master Gardener Program.

Survey research employs questionnaires to gather data from the population. Ary, Jacobs, Razavieh, and Sorenson (2006) explained survey research allows the researcher to condense the results of characteristics of dissimilar groups in order to assess their attitudes and opinions. The questionnaire included the instructional efficacy construct from Tschannen-Moran and Woolfolk Hoy's (2001) Teacher Sense of Efficacy Scale (TSES) and questions about participant demographics. The TSES was derived from Bandura's (1993) self-efficacy theory. On the instructional efficacy construct of the TSES, respondents were asked "How much can you do?" with a scale of: 9 = *a great deal*, 7 = *quite a bit*, 5 = *some influence*, 3 = *very little*, and 1 = *nothing*. Reliability for the instructional efficacy construct of the Teacher Sense of Efficacy Scale was calculated ex post facto at .94. National norms or anchors for the TSES do not exist.

The researchers utilized the methods outlined by Dillman, Smyth, and Christian (2009) to increase response rate from participants when instituting a mail questionnaire. The data collection instrument was printed in a booklet layout and then mailed to the sampled population. Eighty-nine participants were surveyed and 66 participants returned their completed surveys to the researchers. Thus, the response rate was 74.15%. Early and late respondents were compared and no significant differences existed, therefore the results may be generalized to the target population (Lindner, Murphy, & Briers, 2001).

Descriptive statistics were selected to analyze the study's objectives. Descriptive statistics determine attributes of different groups in order to measure their attitudes toward a specific item (Shavelson, 1996). A limitation of the study is the selection of Master Gardener adult participants in Putnam County, Tennessee. The target population may not be characteristic of other adult Master Gardeners or Master Gardener programs in other states. This limits the ability to generalize the findings of the study.

## Findings

The first objective was to describe the demographic characteristics of the local MG participants. Women accounted for 83.33% of the respondents, and all but one respondent was white. Forty-six percent of participants were 56 years of age or older. Also, 74.24% of participants had obtained at least an Associate's Degree. Participants' annual income tended to be between \$25,000 - 49,999. Over 58% of respondents had participated in the program over 2 years.

Table 1

<i>Participant Demographics</i>		
Characteristic	<i>f</i>	%
<i>Gender</i>		
Female	55	83
Male	11	17
<i>Ethnicity</i>		
African American	0	0
Asian	0	0
Hispanic	0	0
Native American	0	0
Pacific Islander	0	0
White	65	99
Other	1	1
<i>Age</i>		
18 – 34 years old	1	2
35 – 45 years old	17	26
46 – 55 years old	18	27
56 – 65 years old	22	33
66 years or older	8	12
<i>Education</i>		
High School Diploma or Equivalent	17	26
Associate's Degree	14	21
Bachelor's Degree	19	29
Master's Degree	13	20
Doctoral Degree	1	2
Professional Degree	2	3
<i>Income</i>		
\$24,999 or less	3	5
\$25,000 to \$49,999	37	55
\$50,000 to \$74,999	19	29
\$75,000 to \$99,000	6	9
\$100,000 or more	1	2
<i>Tenure in Master Gardener</i>		
More than One Year	28	42
2 – 4 years	31	46
5 – 10 years	8	12
11 or more years	1	2

The second objective of the study reported here was to describe Master Gardeners' efficacy in instructional strategies as volunteer educators. Table 2 illustrates the descriptive statistics for the instructional efficacy construct. The highest mean occurred for the question, "How much can you do to adjust your information to the proper level for individual clients?" ( $M = 6.18$ ,  $SD = 2.05$ ). The lowest mean was associated with the question, "How much can you gauge client comprehension of what you have taught?" ( $M = 5.59$ ,  $SD = 2.00$ ).

Table 2

*Descriptive Statistics for the Instructional Efficacy Construct*

	<i>N</i>	<i>M</i>	<i>SD</i>
How much can you do to adjust your information to the proper level for individual clients?	66	6.18	2.05
To what extent can you provide an alternative explanation or example when clients are confused?	66	6.06	1.95
How well can you implement alternative strategies in your teaching?	66	5.92	2.08
How well can you respond to difficult questions from your clients?	66	5.73	1.87
How comfortable are you using evaluation strategies?	66	5.73	2.16
To what extent can you craft good questions for your clients?	66	5.64	1.93
How much can you gauge client comprehension of what you have taught?	66	5.59	2.00

*Note: Overall M = 5.84, SD = 1.72. Scale: 9 = a great deal, 7 = quite a bit, 5 = some influence, 3 = very little, and 1 = nothing.*

### Conclusions and Implications

The Master Gardener program in the county studied appealed to a very specific demographic. The majority of participants were educated white women of moderate affluence that were approaching or at retirement age. They had been involved in the program slightly over three years. The participants' characteristics in this study were similar to other studies involving Master Gardener characteristics (Meyer, 2004; Rohs, Stribling, & Westerfield, 2002; Sutton, 2006). Most participants indicated they had "Some Influence" over their instructional self-efficacy as volunteer educators in the Master Gardener Program.

The fact that participants were relatively well-off, older adults implies they were more likely to have more free time than younger adults. This population was primarily female and similar to other studies' gender findings of MG participants (Meyer, 2004; Sutton, 2006). This information could assist researchers who focus on the effect of gender on volunteerism to better understand participation. Also, the subject matter involved in the MG program may entice more women than men to participate. The population was largely white which is consistent with the population of Putnam County, Tennessee.

Master Gardeners can serve as a vital resource for Extension to fulfill its mission as the educational outreach component of the land-grant university. Retaining high quality Master Gardeners can assist Extension in increasing organizational effectiveness and reducing the cost of the program (Schrock, Meyer, Ascher, & Synder, 2000). The Corporation for National and Community Service (2006) suggested preparing volunteers correctly, and offering a realistic variety of events, may motivate adults to continue with their volunteer service. In order to accurately and efficiently recruit, educate, and retain this asset, Boyd (2004) recommended

extension agents should develop an understanding of the aspects that encourages volunteers to participate.

The respondents in this study were homogenous. Cooperative Extension should strive to identify, recruit, and train a more ethnically diverse group of adults as volunteer educators for the Master Gardener Program. However, it is unrealistic for the county program included in this study to accomplish this due to the vast majority of the local population being white. Other local demographic factors should be considered as well such as age, education, and income.

Self-efficacy plays a role s in an individual's motivation to participate in activities. Bandura (1993) defined adults with high self-efficacy as performance oriented and recover self-efficacy quickly after disappointments. Participants in this study had a moderate level of instructional efficacy. Therefore, opportunities exist for Master Gardeners' instructional efficacy to be enhanced or decreased. This would address Bandura's recommendation to improve participants' cognitive and affective efficacy. Tschannen-Moran and Woolfolk Hoy (2001) suggested individuals are motivated to be successful in their experiences when instructional efficacy is high, and individuals become frustrated and seek other opportunities when instructional efficacy is low. An objective of the local Master Gardener Coordinator should be to enhance this group of Master Gardeners' current level of instructional efficacy. An adult who has efficacy with his/her volunteer duties is more likely to continue his/her participation in the Master Gardener Program (Swackhamer & Kiernan, 2005). The average tenure for adults in the program was slightly over three years. The group might have more efficacy in instructional strategies if they had been Master Gardeners longer. Conversely, instructional efficacy could be lower if their experience was less than three years.

Teacher self-efficacy is an educator's belief in his/her capability to manufacture student engagement and student outcomes (Tschannen-Moran & Woolfolk Hoy, 2001). Bandura (1997) suggested success give confidence to high self-efficacy adults in creating advanced objectives and the ability to sustain a vigorous commitment to objectives. The linkage between these two studies is the features of individuals with high teaching self-efficacy seek challenging objectives and are committed to achieving those objectives. Bandura refers to this as motivational efficacy. Adults with low motivational efficacy may terminate their participation in the endeavor (Bandura).

Instructional efficacy 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 MG Program. Participants in this study possessed average instructional efficacy and thus it is unlikely they would have a robust obligation to the goals of the program (Tschannen-Moran & Woolfolk Hoy, 2001). Relf and McDaniel (1994) suggested the objectives of MG are to allow adult volunteers to support Cooperative Extension in teaching research-based horticultural information to local citizens. Cooperative Extension should be concerned if Master Gardeners have average or low self-efficacy due to the probability of less effective instruction to clientele and the likelihood those Master Gardeners will discontinue their participation.

## Recommendations

Very little research has been conducted on the teaching efficacy of volunteer leaders. This study attempted to alleviate a portion of the deficiency. More comprehensive research on Master Gardener participation is needed. A larger study of Master Gardener participants would help determine if specific demographic characteristics dictate which individuals possess more instructional efficacy than others. According to Schrock (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 the Master Gardener Program.

This study identified areas extension faculty can work to enhance teaching competencies of stakeholders in nonformal agricultural extension education (Osborne, n.d.). In order to increase participants' teaching efficacy, local Master Gardener Coordinators should provide more time training their Master Gardeners how to educate their clientele. A professional development program targeted to Master Gardeners in the area of instructional teaching and learning strategies may lead to enhanced teaching efficacy of participants. Master Gardeners that have a high sense of teaching efficacy could serve as mentors for adults just beginning their involvement in the program or to assist those with low teaching efficacy. This approach may assist Cooperative Extension in retaining effective Master Gardener volunteer educators.

Preservice agriculture teachers viewed themselves as having the highest efficacy in instructional practices after their student teaching experience (Roberts et al., 2006; Stripling et al., 2008). Master Gardener Coordinators could provide initial teaching experiences for Master Gardeners in order to enhance their instructional efficacy prior to teaching clientele solely on their own. These initial teaching experiences could be monitored by their mentor, someone else determined to have high teaching efficacy, or the Master Gardener Coordinator. Opportunities for adults to teach clientele while beginning their Master Gardener involvement could improve their teaching efficacy over the long-term. Also, these experiences could identify which adults already feel efficacious in their teaching and thus assist the Master Gardener Coordinator in assessing new Master Gardener participants' instructional efficacy.

Opportunities to "practice teaching" may be a method to enhanced instructional efficacy. Knoblach (2002) reported teachers may have felt efficacious in their teaching and their student teaching experiences confirmed their beliefs. Research is needed to identify opportunities in Master Gardener programs that are implemented in order to enhance participants' instructional efficacy. Future research should determine the advantages of those field experiences.

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