

UNDERSTANDING THE MOTIVATIONS OF EXTENSION MASTER
GARDENER VOLUNTEERS AND THE IMPLICATIONS FOR CONSUMER
HORTICULTURE PROGRAMMING

by

SHERI T. DORN

(Under the Direction of Svoboda Pennisi)

ABSTRACT

A national study of Extension Master Gardener (EMG) volunteers was conducted in Fall 2016, using survey research to describe patterns within a national sample of EMG volunteers ($n=6856$) and their local and state program coordinators. This current, quantitative study had four objectives, including analysis of program demographics, determination of alignment of EMG program educational response themes (ERT) among state and local program coordinators and volunteers, increasing the understanding of functional motivations that underlie EMG volunteer behavior, and gaining a practical understanding of EMG volunteer involvement in volunteer service activities (VSAs). Results included demographic assessment and realization of general alignment of response themes between program management (state and local coordinators) and program participants (EMG volunteers). Exploration of functional motivations identified five motivational factors for EMG volunteers that vary across subgroups of EMG volunteers and that change over time. Slight or modest relationships were found between motives and satisfaction, overall involvement, and tenure. Additionally, volunteer involvement was assessed with three measures, including overall involvement (the total

number of activities in which EMG volunteered), higher-level involvement (the number of activities in which volunteers volunteered at the “most of the time” or “always” level), and leadership (number of VSAs for which an individual had a leadership role). EMG volunteers remain highly engaged in the program, with five volunteer service activity themes emerging in the analysis. Leadership roles, tenure, and service hours were significant predictors of overall involvement and higher-level involvement. Tenure with the EMG program has a large effect on volunteer involvement, reinforcing the importance of cultivation and retention of long-term volunteers. The present empirical study builds on a theoretical base to identify patterns in EMG volunteer service and to gain understanding of EMG volunteer motivation. The findings presented here can be practically applied by program coordinators to expand and diversify local EMG volunteer programs. Overall, the findings in this study should encourage program coordinators that the EMG program is alive and well in the US, with great potential to positively change lives and communities through consumer horticulture.

INDEX WORDS: Extension Master Gardener, volunteers, demographics, educational programming, motivations, involvement

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by

SHERI T. DORN

BS, Virginia Tech, 1994

MS, Virginia Tech, 1999

A Dissertation Submitted to the Graduate Faculty of The University of Georgia in
Partial Fulfillment of the Requirements for the Degree

DOCTOR OF PHILOSOPHY

ATHENS, GEORGIA

2019

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SHERI T. DORN

Major Professor:	Bodie Pennisi
Committee:	Dayton Wilde
	David Knaft
	Ellen Bauske
	Milton G. Newberry, III

Electronic Version Approved:

Ron Walcott
Interim Dean of the Graduate School
The University of Georgia
December 2019

DEDICATION

This is dedicated to my husband, Darrell, who has walked hand-in-hand with me on this journey ever since that long-ago day that I told him I wanted to complete this degree; and to my children, Heath and Heather, who have echoed back to me, “We think you can! We think you can!”

ACKNOWLEDGEMENTS

Just as it takes a village to raise a child, it takes a village to graduate a student. I wouldn't be able to finish this degree without my family, who have supported me in this endeavor; my advisor, Dr. Bodie Pennisi, who was willing to see me through this degree; my committee members who endured my never-ending emails; Dr. Carol Robacker who stepped in to pinch-hit; Dr. Amanda Ferster who took a chance with a distance statistics student and a new teaching format; fellow graduate students who kept smiling as they showed me how to use yet another piece of equipment; UGA's Center for Statistical Consulting, Uttam Bhattarai and Eugene Pennisi, for statistics assistance; and to my early mentor, Dr. Diane Relf, who introduced me to the world of Extension Master Gardeners and who still inspires me. I am grateful to the many state and local Extension Master Gardener Program Coordinators who supported this project. Thank you, all, for your support and encouragement and for being my "village"!

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	v
LIST OF TABLES	ix
LIST OF FIGURES	xii
CHAPTER	
1 INTRODUCTION and LITERATURE REVIEW	1
DEMOGRAPHICS	3
EDUCATIONAL RESPONSE THEMES	8
MOTIVATIONS	11
INVOLVEMENT	21
OBJECTIVES	34
2 METHODOLOGY	38
3 EXTENSION MASTER GARDENER VOLUNTEERS OF THE 21ST CENTURY: EDUCATED, PROSPEROUS, AND COMMITTED	50
ABSTRACT	51
INTRODUCTION	52
MATERIALS AND METHODS	57
RESULTS	61
DISCUSSION	65
LITERATURE CITED	71

4	ARE WE ON THE SAME PAGE? EXPLORING NATIONAL, STATE, AND LOCAL EDUCATIONAL-RESPONSE THEMES FOR EXTENSION MASTER GARDENER COORDINATORS AND VOLUNTEERS	96
	ABSTRACT.....	97
	INTRODUCTION	98
	MATERIALS AND METHODS.....	103
	RESULTS	105
	DISCUSSION.....	109
	LITERATURE CITED	116
5	WHY THEY DO WHAT THEY DO: EXAMINING MOTIVATIONS OF EXTENSION MASTER GARDENERS.....	132
	ABSTRACT.....	133
	INTRODUCTION	134
	MATERIALS AND METHODS.....	144
	RESULTS	147
	DISCUSSION.....	155
	LITERATURE CITED	164
6	WHO’S DOING WHAT? QUANTIFYING INVOLVEMENT OF EXTENSION MASTER GARDENERS IN VOLUNTEER SERVICE ACTIVITIES.....	196
	ABSTRACT.....	197
	INTRODUCTION	198
	MATERIALS AND METHODS.....	212

RESULTS	215
DISCUSSION	225
LITERATURE CITED	233
7 CONCLUSION.....	271
8 REFERENCES	284
APPENDIX A INTRODUCTION LETTER SENT ONE WEEK PRIOR TO SURVEY LAUNCH (SEPTEMBER 26, 2016)	306
APPENDIX B 2016 STATE COORDINATOR SURVEY FOR MOTIVATIONS	310
APPENDIX C 2016 LOCAL COORDINATOR SURVEY FOR MOTIVATIONS STUDY	315
APPENDIX D 2016 MASTER GARDENER EXTENSION VOLUNTEER SURVEY FOR MOTIVATIONS STUDY.....	322
APPENDIX E REMINDER MESSAGES SENT AT WEEK 2 (OCTOBER 17, 2016)	354
APPENDIX F REMINDER MESSAGES SENT AT WEEK 4 (OCTOBER 31, 2016)	358
APPENDIX G REMINDER MESSAGES SENT AT WEEK 6 (NOVEMBER 14, 2016)	362

LIST OF TABLES

	Page
Table 3.1: State, local, and volunteer response rates for the 2016 quantitative study of 21st century Extension Master Gardener (EMG) volunteers in the United States	79
Table 3.2: Demographic parameters of responders to the 2016 quantitative study of 21st century Extension Master Gardener (EMG) volunteers in the United States.	80
Table 3.3: Analysis of Means by Generation for responses to the 2016 quantitative study of 21st century Extension Master Gardener (EMG) volunteers in the United States	84
Table 3.4: Extension programmatic region response rates for the 2016 quantitative study of 21st century Extension Master Gardener (EMG) volunteers in the United States.	86
Table 3.5: Analysis of means by extension programmatic region for responses the 2016 quantitative study of 21st century Extension Master Gardener (EMG) volunteers in the United States.	88
Table 3.6: Analysis of means by host county population densities (urban, suburban, and rural) for responses to the 2016 quantitative study of 21st century Extension Master Gardener (EMG) volunteers in the United States	90
Table 4.1: Educational-response Themes (ERTs) and Their Shortened Phrases.	123

Table 4.2: One-way ANOVA of Educational-Response Themes (ERTs) by Responder Types	124
Table 4.3: One-way ANOVA of Extension Master Gardener (EMG) Educational- Response Theme (ERT) Means by Host County Population Density	126
Table 5.1: Demographic description of active and inactive Extension Master Gardener (EMG) Volunteers	174
Table 5.2: Factor Pattern Matrix (Principal Factor Analysis, Oblique Rotation, Six Factors) for Volunteer Function Inventory (VFI) Items in Extension Master Gardener (EMG) Volunteer Responses	178
Table 5.3: Comparison of Extension Master Gardener (EMG) volunteer Motivation Factor Scores by Generation	182
Table 5.4: Comparison of Extension Master Gardener (EMG) Volunteer Motivation Factor Scores by Gender	184
Table 5.5: Comparison of Extension Master Gardener (EMG) Volunteer Motivation Factor Scores by Host County Population Density.....	185
Table 5.6: Comparison of Extension Master Gardener (EMG) Volunteer Motivation Factor Scores by Volunteer Service Status	187
Table 5.7: Comparison of Extension Master Gardener (EMG) Volunteer Motivation Factor Scores by Volunteering Intensity.....	188
Table 5.8: Comparison of Extension Master Gardener (EMG) Volunteer Motivation Factor Scores by Tenure	190
Table 5.9: Pearson product-moment correlations between motivation factors and volunteerism indicators.....	193

Table 6.1: Involvement and Leadership Scores for Active Extension Master Gardener Volunteers	249
Table 6.2: Pearson product-moment correlations between involvement scores and involvement indicators.....	252
Table 6.3: Summary of Zero-inflated Poisson Regression Analysis of Involvement Indicators on Overall Involvement of Extension Master Gardener Volunteers ..	253
Table 6.4: Summary of Zero-inflated Poisson Regression Analysis of Involvement Indicators on Higher-level Involvement of Extension Master Gardener Volunteers	254
Table 6.5: Factor Pattern Matrix (Principal Factor Analysis, Oblique Rotation, Five Factors) for Volunteer Service Activities (VSAs)	255
Table 6.6: Analysis of Volunteer Service Activity (VSA) Theme Means by Generation	259
Table 6.7: Analysis of Volunteer Service Activity (VSA) Theme Means by Host County Population Density	261
Table 6.8: Analysis of Volunteer Service Activity (VSA) Theme Means by Tenure Intervals.....	263
Table 6.9: Analysis of Volunteer Service (VSA) Theme Means by Volunteering Intensity.....	266
Table 6.10: Analysis of Volunteer Service Activity (VSA) Theme Means by Gender...	268
Table 6.11: Pearson product-moment correlations between VSA themes, age, and tenure	270
Table 7.1: Summary of Research Objectives, Comparisons, and Outcomes.....	283

LIST OF FIGURES

	Page
Figure 1.1: Snyder and Omoto’s (2008) Volunteer Process Model as a Framework for Understanding Why Individuals Volunteer	36
Figure 1.2: Initial constructs for studying motivation and retention of Extension Master Gardener volunteers in the United States	37
Figure 2.1: Distribution plan for the EMG Motivations Survey.....	49
Figure 3.1: Six extension programmatic regions for Extension Master Gardener (EMG) programs in the United States	92
Figure 3.2: Protocol for the 2016 national study of Extension Master Gardener (EMG) volunteers and their coordinators utilized existing EMG program structure for survey distribution.	93
Figure 3.3: Extension Master Gardener (EMG) volunteer responses to the 2016 national study of Extension Master Gardener (EMG) volunteers represented four generations	94
Figure 3.4: Average current age and average age at initial training of volunteers responding to the 2016 national study of Extension Master Gardener (EMG) volunteers.....	95

Figure 4.1: Educational-response themes (ERTs) have developed to include both nonformal and informal methods of educating	128
Figure 4.2: The horticulture-related issue, proper plant selection, provides an example of how one or more educational-response themes (ERTs) can effectively address a single issue. Multiple volunteer service activities that are conducted simultaneously support the ERTs.	129
Figure 4.3: Programming may ultimately be supported by numerous volunteer service activities to achieve the desired goals and objectives. The emerging issue of food security provides an example of a horticulture-related issue addressed by educational-response themes (ERTs) and volunteer service activities that simultaneously support other issues, such as in Fig. 2.	130
Figure 4.S1: Extension Master Gardener (EMG) volunteers were asked to identify needs for future improvement of the EMG program. Fifteen response categories were identified from the 754 responses to the open-ended question. Percentages of responses related to each category were calculated.....	131
Figure 5.1: Clary and Snyder's (1999) Six Functions Served by Volunteering and Related Volunteer Functions Inventory (VFI) Assessment	194
Figure 5.2: Graphical representation of relationships between functional motivations to volunteer and volunteerism outcomes	195
Figure 6.1: Frequency of Extension Master Gardener Volunteer Support for 34 Volunteer Service Activities (Sorted by "never" frequency).....	245
Figure 6.2: Frequency of Leadership Roles for Individual EMG Volunteer Service Activities (sorted from greatest to least).....	247

Figure 7.1: Original research model	281
Figure 7.2: Revised Extension Master Gardener volunteer research model, incorporating Snyder and Omoto's (2008) Volunteer Process Model and Hyde et al.'s (2016) proposed model for studying episodic volunteers	282

CHAPTER 1

INTRODUCTION AND LITERATURE REVIEW

THE EXTENSION MASTER GARDENER VOLUNTEER PROGRAM

Extension Master Gardener (EMG) volunteer programs have been in existence in the United States since 1972, in Canada since 1985, and in South Korea since 2011 (Wonsuk and Durham, 2015). The Extension Master Gardener (EMG) volunteer program is one of the most widely recognized programs of Extension (Meyer, 2007). It is cited as a prominent outreach program of land-grant universities in the U.S., with direct contact to 8.6 million people in 2018 (EMG National Committee, 2019). It was designed specifically to address the demands of consumer horticulture (CH), defined as the cultivation, use, and enjoyment of plants, gardens, landscapes, and related horticultural items to the benefit of individuals, communities, and the environment (NICH, 2018). The EMG program proved to be such a vital extension of services for Washington State University that it was rapidly implemented in all 50 states (Allen et al., 2011). Currently, 49 EMG programs are recognized in the U.S. (EMG National Committee, 2016c). More than 86,000 EMG volunteers reported service hours in 2018, reaching a reported 8.6 million clients (EMG National Committee, 2019).

The EMG program was developed as a strategic tool for Extension agents in urban areas to respond to demand for consumer horticulture information (Gibby et al., 2008; Meyer, 2007; Warner, 1978). The program has proved to be quite popular and has stood the test of time since its inception, establishing in suburban and rural areas, as well.

EMG programs were originally targeted for development in metro areas, where call volume exceeded Extension staff capacity to respond, to help Extension to meet the growing demands for CH information in an increasingly urbanized environment (Boyer et al., 2002). Over the years, the EMG program has spread into less densely populated suburban and rural areas.

Recruitment, training, and management of potential and returning volunteers have changed minimally since the program's inception (Gibby et al., 2008). In the U.S., it is Extension that conducts the training and management of these volunteers, and the recommendations provided and educational programs delivered by EMG volunteers are rooted in university research. In most cases, leadership for EMG programs is provided by a local EMG coordinator, usually an Extension agent or program support staff, at the county level. Local coordinators are usually supported by a State EMG Coordinator who provides the statewide direction and leadership. National direction comes from a voluntary EMG National Committee (EMG National Committee, 2016a), comprised of state and local coordinators from across the U.S. who serve for a designated term.

In 2006, the EMG National Committee established six programmatic regions in the U.S.: Northeast (West Virginia, Pennsylvania, Delaware, New Jersey, Connecticut, New York, Massachusetts, Maryland, New Hampshire, Vermont, Maine); North Central (North Dakota, South Dakota, Nebraska, Kansas, Missouri, Iowa, Minnesota, Wisconsin, Michigan, Illinois, Ohio, Indiana); Northwest (Washington, Oregon, Idaho, Montana, Wyoming, Alaska, Hawaii); Southwest (California, Nevada, Utah, Arizona, Colorado, New Mexico); South Central (Texas, Oklahoma, Arkansas, Louisiana, Mississippi, Kentucky, Tennessee); and Southeast (Alabama, Georgia, Florida, South Carolina, North

Carolina, Virginia). The programmatic regions were created to facilitate cooperation, communication, and collaboration among EMG programs nationwide (Langellotto et al., 2015). A representative from each region is a member of the national committee (Extension Master Gardener National Committee, 2016a).

DEMOGRAPHICS

Understanding the composition of the EMG volunteer base is important for long-term growth and development of the program. Knowledge of volunteer demographics can influence recruitment and training approaches. It can suggest who will be drawn to the program and how training can be effectively delivered. It also has implications for volunteer placement, such as the ability to fill gender-specific roles and volunteer availability for service opportunities. Meyer (2007) suggests that demographic data are critical elements for determining any possible impact or effect of EMG volunteers on a national level.

State-based EMG studies show that EMG programs have historically appealed to an older demographic of 50+ years (Boyer et al., 2002; Kirsch and VanDerZanden, 2002; Relf and McDaniel, 1994; Rohs and Westerfield, 1996; Ruppert et al., 1997; Schrock et al., 2000; Strong and Harder, 2010; Takle et al., 2016; Wilson and Newman, 2011). At inception, the EMG program was targeted at non-working individuals who had the necessary time for program commitments. In the 1970s, this included individuals who were not in the workforce as well as retirees.

Early studies reported the majority of EMG volunteers in the 0-5 years of service bracket (Boyer et al., 2002; Kirsch and VanDerZanden, 2002; Relf and McDaniel, 1994; Schrock et al., 2000). With the increasing longevity of the program, volunteers may serve longer, reflecting continued long-term commitment to the program.

While numerous individual state-level studies of EMG volunteers have been done, few national studies have been attempted. Thirteen years ago, McAleer (2005) published a report of EMG programs including total current EMG volunteers, number of volunteers trained, annual volunteer hours, and contacts, as well as issues and challenges related to coordinating and managing programs. McAleer derived data from a survey sent via postal mail to 48 state coordinators, of which 42 returned the survey. No data was directly collected from local coordinators or EMG volunteers.

In 2009, an abbreviated second national EMG report was compiled from 42 states and the District of Columbia [Cooperative State Research, Education, and Extension Service (CSREES), 2009]. This report estimated the current number of volunteers and hours reported, indicating that 79% of volunteer hours were connected with metropolitan counties and 21% of volunteer hours were connected with rural counties (as defined by the Office of Management and Budget). No data were directly collected from local coordinators or EMG volunteers.

National reports monitoring similar program metrics were also compiled for 2014, 2016, and 2018, using online surveys sent to state coordinators by representatives of the EMG National Committee (EMG National Committee, 2015, 2017, 2019). Similar to previous data collection methods, responses were sought from state coordinators or, when

a state was without a state coordinator, individuals working closely with the program. No data was directly collected from local coordinators or EMG volunteers.

Generations

Generations are described as differences in behavior from one generation to the next that are attributed to differences in values and attitudes (Parry and Urwin, 2011; Rotolo and Wilson, 2004; Strauss and Howe, 1991; and Zemke et al., 2000). Each generation goes through four life stages (youth, rising adult, midlife, and elderhood) (Strauss and Howe, 1991). A generation is considered a cohort group whose length approximately matches that of a basic phase of life (about 22 years over the last 3 centuries). Generational Theory specified trends, such as the strong nurturing influence that each generation has on the second succeeding generation, and that between any two parenting generations, the one in midlife naturally exercises a greater cultural and institutional influence than the one in rising adulthood (Strauss and Howe, 1991).

Strauss and Howe (1991) established four types of generations (idealist, reactive, civic, and adaptive) that have similar characteristics, regardless of the point in history. The similarities occur because of the life stages at which members of the generation experience a spiritual awakening or a secular crisis, a great public emergency in America. For example, the Great Recession of 2007-2009 found GenX (a reactive generation) in midlife and GenZ (an adaptive generation) in youth, just as the Great Depression of 1929-1939 found the Silents (a reactive generation) in midlife and Traditionalists (an adaptive generation) in youth. This is why similarities are observed between GenZ and Traditionalist generations. Examining history by age location can show how events shape personalities of different age groups according to phase of life.

Generations have peer personalities based on common age location, common beliefs and behaviors, and perceived membership in a common generation. This peer personality influences attitudes of women and mothers toward their own sex roles and family roles as well as peripheral groups, such as immigrants, African Americans, or fundamentalists. A sense of social community within a generation is reinforced by the expectations of elders (Strauss and Howe, 1991). Strauss and Howe's approach offers a more solid understanding of generational theory because of multiple considerations, including entire life cycles (youth, rising adulthood, midlife, and elder), peer personality during each life phase, and public and private behavior.

A cohort (or generation) has common exposure to social and intellectual conditions, or events, that form the generation's consciousness. Generational experiences may affect the inclination to serve versus the need to work, as well as other factors affecting volunteerism, such as affinity for particular tasks, ability to fill specific roles, willingness or ability to work after dark, or adoption of technology (Rotolo and Wilson, 2004). Understanding each generation can make working together easier (Hall and Vetter, 2010). Generational interaction can foster creativity and innovation, however, misunderstandings between generations can cause discord (Arsenault, 2004). Putnam pointed out generational differences in community engagement patterns, such as regular church attendance, civic involvement, and social connectedness (in Hall and Vetter, 2010).

The EMG program was originally designed to appeal to the Traditionalist generation (born between 1925 and 1942) when the program was developed in the 1970s. In the current study, generational groups are defined as Traditionalists (born between

1925 and 1942), Baby Boomers (born between 1943 and 1960), Generation X (born between 1961 and 1981), and Generation Y (born between 1982 and 2000) (Parry and Urwin, 2011; Rotolo and Wilson, 2004; Strauss and Howe, 1991; and Zemke et al., 2000).

Two state studies have reported that the EMG volunteers are predominantly white, older, female, educated, and affluent – a remarkably homogeneous group (Schrock et al., 2000; Strong and Harder, 2010), but the demographics of the volunteers has not been assessed nationwide. Ensuring the diversity of EMG programs has been a persistent challenge (Eichberger et al., 2014). Typical trends in volunteering include more women than men [volunteering seen as a woman's role (Rotolo and Wilson, 2004)]; high education levels associated with volunteers (Rotolo and Wilson, 2004; U.S. Bureau of Labor Statistics, 2016); and a predominance of whites (U.S. Bureau of Labor Statistics, 2016).

Of further challenge to the current EMG program is the well documented preference of volunteers for episodic, or short-term, volunteer opportunities (Blair et al., 2003; Church et al., 2019; Corporation for National and Community Service, 2016; Graff, 2001; Macduff et al., 2009). Finding individuals to fulfill the considerable volunteer commitment consistent with the EMG volunteer experience may become increasingly difficult if potential volunteers have a preference for short-term engagements. The EMG program requires a willingness and ability to meet a significant time commitment for training and ongoing projects that span years, if not decades.

EDUCATIONAL RESPONSE THEMES

Early reports of EMG projects indicate that programmatic emphasis was on providing a response to an individual's inquiry at EMG clinics at major shopping centers, libraries, public gardening events, and county fairs (Warner, 1978). Responding to individual inquiry is a nonformal means of educating the public and, by default, became the primary educational-response theme (ERT) for EMG volunteers – in other words, how EMG volunteers responded to public request for CH information. Over time, additional ERTs were developed, including both nonformal (organized learning with or without a formal curriculum, taught by a qualified teacher or leader, that results in enrichment and increase in skills and capacities) and informal (non-organized learning without a formal curriculum, no credits earned, taught by someone with experience) methods of educating (Eaton, 2018). Multiple horticultural issues were targeted, and volunteer service activities abounded. Multiple volunteer service activities can be conducted simultaneously, supporting one or more ERTs that address one or more issues. These ERTs support Boyle's (1981) three types of educational programming, including institutional (developing basic abilities and skills), informational (dissemination of information), and developmental (problem-specific strategies). Programming may ultimately be supported by numerous volunteer service activities to achieve the desired goals and objectives (Seevers et al., 2007).

In a 1994 Virginia study (Relf and McDaniel, 1994), EMG volunteers were asked to prioritize program outreach and to choose from a list of six ERTs. Providing horticultural information to others topped the list of EMG volunteer priorities, followed by changed (improved) behavior; teaching youth about nature, the environment, and

gardening; teaching through demonstration sites; protecting the heritage of historic and public gardens; and enhancing quality of life for special populations. The same study noticed an evolution in EMG volunteer roles in the first 25 years of the program's history; early EMG volunteers were primarily "volunteers with gardening answers." This note of change was echoed by Meyer (2007), who observed that EMG volunteers now fill "a much larger role than what was envisioned when the program started in 1972."

McAleer (2005) took a snapshot of EMG service projects preferred by state coordinators in the late 1990s. This was an open response question, and replies were grouped into 10 project types that include some ERTs as well as volunteer service activities. Projects addressing the youth audience topped the list, followed by "one-on-one advice to general public." These two preferences rose to the top of a list that included established EMG activities involving demonstration gardens, environmental education, community gardens, classes, workshops, speaking engagements, and other topics. These results provided insight into historic EMG program priorities.

As early as 1992, observations indicated that EMG programs were unique with "different emphases and objectives" from county to county and state to state (Stouse and Marr, 1992). Meyer (2007) noted that "MG and extension programs are most effective when the projects meet community needs." This is consistent with effective program planning that utilizes needs assessment and priorities to guide the design and implementation of outreach efforts (Seever et al., 2007). While local needs guide EMG program outreach at the county and state level, overall EMG program impact is not currently guided by vision at the national level.

Prior to 2015, there were no national standards for EMG volunteer programs, and at this time, there is no official work plan or prioritization of educational programming (Kirsch and VanDerZanden, 2002; Langellotto et al., 2015). Individual program leaders essentially make their own choices. There are differences of opinion about the appropriateness of hands-on gardening activities as an ERT. What counts for volunteer service varies from county to county within a state as well as from state to state (Meyer, 2007; Vines et al., 2016). This causes concern for the EMG program image as lack of consistency in the volunteer experience region to region impacts the impression of the communities and individuals using the services of EMG volunteers (Allen et al., 2012).

In 2016, a national mission to distinguish and focus the efforts of EMG programs from other volunteer groups across the country was adopted by the EMG National Committee. This milestone effort established that the mission of EMG programs is to “educate people, engaging them in learning to use unbiased, research-based horticulture and gardening practices through a network of trained volunteers directed and supported by land-grant university faculty and staff” (Langellotto et al., 2015). This mission, indeed, aligns with the land grant mission of Extension. In fact, University of Minnesota’s College of Agriculture Dean sees one of the key missions of the EMG program to be extending the research and resources of the University farther than the University would otherwise be able (Allen et al., 2012). The mission of the EMG program could be strengthened by articulating a national strategic plan for outreach, but it is unknown how well such a plan would be received or if it could be effectively implemented.

MOTIVATIONS

Volunteerism is typically an ongoing, long-term behavior that is an intentional action based on rational deliberation of costs and benefits, such as an individual who waits until they retire from full-time employment to become a volunteer (Chacón et al., 2007; Hustinx et al., 2010; Widjaja, 2010). Motivations behind volunteering play a key role in becoming and remaining a volunteer as they are related to satisfaction, organizational commitment, length of service, and involvement (Chacón et al., 2017).

Studies interpret the most influential motivation for volunteering (in terms of volunteer retention) is connected to helping the environment (Asah and Blahna, 2012). EMG volunteers are recruited to assist Extension with the public dissemination of information and research generated by land grant university (LGU) scientists. EMG volunteers are trained in consumer horticulture, with an emphasis on sustainable gardening practices that protect the environment and natural resources.

Theory

Volunteering involves a wide variety of activities and can be studied across multiple disciplines, such as economics, sociology, and management, that connect different meanings and functions to volunteering. Most managers want to understand the occurrence or non-occurrence of volunteering, and predictors of volunteer behavior can be more related to empirical observations rather than to sound theory and processes (Hustinx et al., 2010).

Prior work has categorized of volunteer motives in several ways. Motives may be altruistic or egoistic; intrinsic (individual engages because it is satisfying) versus extrinsic (performed because of the resulting outcome); or altruistic (importance of concern for

others) versus material (material incentives) versus social (desire for social interactions) (Widjaja, 2010). Extrinsic motivations are thought to negatively affect retention: once the reward is achieved, there is no more motivation to volunteer (Millette and Gagné, 2008). Other motivations include affiliation (concern for relationships with others), achievement (pride in accomplishments and desire for excellence), and power (desire for control and influence). The Socioemotional Selectivity Theory postulates that social interactions become reduced in early adulthood, though emotional closeness to significant others increases despite reduction of social interactions (Carstensen, 1992). As people age, their perception of time changes from being open-ended in youth, dominated by goals of acquiring knowledge and experience, to being close-ended and limited in later years, prioritized by emotional gratification (Widjaja, 2010). Volunteer motivations are a blend of altruism (selfless concern for others) and egoism (concern for one's self) (Clary and Snyder, 1999).

Though there are several theories related to why individuals engage in volunteerism, the functional approach is preferred because it provides a theoretical basis for volunteer motivation (Clary and Snyder, 1999). Clary et al. (1998) connected an individual's reasons for volunteering to functional theory, the explanation of repetitive practices and everyday life events through the lenses of intended purposes (outcomes desired from the action) and unintended consequences (results that happen regardless of intention) (Hirokawa, 2005). Principles of functional theory reflect that all communicative acts have potential functions in a relationship, that an act can function in more than one way, that the function of an act is context-dependent, and the same function can be performed by different acts. Clary et al. (1998) established that

volunteering to do a task serves a psychological function for an individual. Acts of volunteerism could appear on the surface to be the same when the individuals performing the volunteerism are, indeed, doing so for different reasons or motivations. In order for individuals to continue volunteering, there presumably is a match between their motivations and the tasks they are completing.

Six motivational functions that are satisfied by volunteering have been established (Clary and Snyder, 1999). They include Values, Understanding, Enhancement, Career, Social, and Protective. These functions are defined in Figure 5.1. Altruistic or “others-oriented” motives, such as Values, Understanding, and Enhancement, emerge in many studies as the most important functions to individuals who volunteer (Chacón et al., 2017). Values and Social functions are considered others-oriented, regardless of demographic characteristics or volunteer setting, though Values is usually the highest-scoring motivation (Chacón et al., 2017). Understanding is usually the second-highest motivation. Career, Social, and Protective are less important functions in volunteer motivations. Social, along with Protective, is often one of the lowest-ranking motivations among different volunteer groups (Chacón et al., 2017).

VFI Tool

The most widely used tool for measuring volunteer motivation is Clary et al.’s (1998) Volunteer Functions Inventory (VFI) (Fig. 5.1) (Chacón et al., 2017). The instrument is theoretically based on functional motivations for volunteering and measures the six latent factors, or motivations, for volunteering (Fig. 1). The VFI consists of 30 questions, or items, that comprise six scales with five items each, measured with a 7-point Likert scale (1=totally disagree to 7=totally agree). This tool is well known for its

psychometric properties (measurement of psychological properties, such as attitudes, traits, achievement, or abilities) and high degree of internal consistency and reliability. Responses to the scales are consistent over time with a wide variety of volunteers and demographics (Chacón et al., 2017; Clary and Snyder, 1999).

While multiple studies utilize the VFI, a number of variations are evident, such as deviations from the original six motivational constructs (Values, Understanding, Enhancement, Career, Social, and Protective), number of scale items (5 items for each of 6 scales for a total of 30), and response scales (7-point, Likert-type). For example, Newberry and Israel (2018) used a modified VFI that included 18 items related to five constructs (career, helping the environment, learning, social, and values) to explore motivations of Florida Master Naturalists. Church et al. (2019) used a much-modified tool to explore motivations of citizen scientists, such as opportunity to learn about nature, science, and water quality; to be in nature; and to make social connections. Hyde et al. (2016) explored a functional approach focusing on motives that included socializing/enjoyment, celebrating, benefits, and financial support. Lu and Schuett (2014) use 19 items and a 5-point, Likert-type scale to examine six latent factors. Asah and Blahna (2012) used a 5-point scale with 24 items (motivations specific to conservation), resulting in six factors (environment, career and learning, community, escape and exercise, social interactions, ego defense and enhancement). Ryan et al. (2001) used a 5-point scale with 19 items similar to the VFI. Saitgalina (2018) used a 5-point Likert-type scale for 15 items and confirmed a four-factor motivation pattern.

Variations in use of the VFI may affect the results. Modifications to the VFI, such as added items or instrument adaptations, may have affected factor structure such that the

original six factors are not confirmed or different factor loadings of items may result (Chacón et al., 2017; Greenslade and White, 2005; Newberry and Israel, 2018; Takle et al., 2016). Additionally, not all items consistently have acceptable psychometric properties in all studies. Chacón et al. (2017) noted that a Protective item and an Enhancement item were eliminated in multiple studies. Studies using the VFI that support 4- and 5-factor structures often merge Values and Understanding or Protective and Enhancement. While the VFI is generally accepted as effective at measuring common motives in most volunteers, there may be different motives in specific volunteer groups that are not assessed by the VFI (Chacón et al., 2017; Clary and Snyder, 1995). Modifying the VFI for different volunteer settings and using open-ended questions about volunteer motivations may help reveal some of these additional motives (Chacón et al., 2017).

While volunteers can be motivated simultaneously by different functions to begin volunteering, their motivations can also change over time and with experience (Clary et al., 1998). Volunteerism is a dynamic process, including five phases (nominee, newcomer, emotional involvement, established volunteering, retiring) (Haski-Leventhal and Bargal, 2008). Variables that influence an individual to begin to volunteer may not necessarily engender continued service (Chacón et al., 2007). Vecina et al. (2012) noted that motivations to remain a volunteer is different for new volunteers than for veteran volunteers. In a study of “master” Extension volunteers, achievement (learning new things, contribution to community, use of leisure time, formal/informal recognition, lead to employment) was prioritized for beginning service, while affiliation (Extension good organization, meet other volunteers, family encouraged me, friend was involved, people

like me) was prioritized for continuing service (Wolford et al., 2001). Motivations that best predict long-term volunteer service include self-oriented motives, such as Understanding, Career, Protective, and Enhancement (Chacón et al., 2017). This may be explained by a statistical anomaly resulting from a large percentage of high scores on the Values scales resulting in low variability which limits predictive capacity and reduces reliability (Chacón et al., 2017). Much of existing research on motivations explores why people start volunteering, but does not assess the impact of motivations on length of volunteer tenure or on volunteer performance (Millette and Gagné, 2008). Chacón et al. (2007) recommend inclusion of a temporal aspect in studies of motivations, suggesting that this may reconcile the functional role with role identity.

Groups

Differences in motivations are noted across groups of volunteers (Clary and Snyder, 1999), such as those of differing age or area of residence. For example, younger individuals place higher importance on Career functions than do older individuals (Clary and Snyder, 1999). Chacón et al. (2017) noted that volunteers less than 40 years old have significantly higher Career scores than volunteers older than 40 years. The same study also noted Understanding scores that were higher for younger volunteers and lower for older volunteers (Chacón et al., 2017). As volunteer age increases, the importance of career-related motivations decreases (Chacón et al., 2017). In a Missouri study, younger EMG volunteers had higher career-related motivations, and overall, age was negatively correlated with career-related motives (Shrock et al., 2000). The Career motivation had the lowest mean for Missouri ($m=2.39$) and Mississippi ($m=2.20$, $SD=1.49$) EMG volunteers (Shrock et al., 2000; Wilson and Newman, 2011).

Generational differences in motivations may appear due to life stages or the generation's proximity to a life event. For example, volunteers of the Traditionalist generation were children during the Great Depression and have strong community engagement patterns (Hall and Vetter, 2010). Individuals of the Baby Boomer generation tend to have a strong value for education because of the expansion of post-secondary education during their youth and rising adult stages (Hall and Vetter, 2010). Members of GenX were children when their parents experienced job layoffs due to economic recession and corporate downsizing. This influences GenX motivation to gain experience and also influences their commitment to organizations. Individuals in the GenY generation, who were rising adults in the economic recession of 2007-2009, found it difficult to find employment and found volunteerism a way to gain career-furthering experience. Qualitative and quantitative participant responses provided insight into working with generational groups (Vetter et al., 2009).

Gender differences in motivations are debated. Some studies indicate that volunteer motivations do not differ by gender, but gender distribution in different volunteer settings could play into this (Chacón et al., 2017). "Volunteer work has traditionally been thought of as female activity, especially for mothers" though this can change with generations (Rotolo and Wilson, 2004). Shrock et al. (2000) noted that females were more likely than males to indicate a career motivation for their EMG volunteer role. Women and men are liable to place motives in similar order, however, female scores are higher on most functions than male, suggesting females are inclined to volunteer more than men (Widjaja, 2010). Strong and Harder (2011) reported motivational differences in EMG volunteers of different genders, with women reporting

higher motivational means than men, though the effect sizes were small. The social role theory of helping postulates that males and females are trained to serve differently. Men may be more involved in short-term helping behavior which may not even be considered as volunteerism (Widjaja, 2010), and therefore fewer males contribute to studies of volunteer motivation.

The population density of communities may play into an individual's motivations to volunteer. Fritz et al. (2003) reported that rural 4-H volunteers in their study were engaged with more volunteer organizations than urban volunteers, but that they had similar motivation patterns, primarily affiliation. Region and community size were noted by Reed and Selbee (2000) to merit further consideration in future research exploring the dynamics of volunteering. Asah and Blahna (2012) attribute less frequent volunteering in urban conservation activities to inadequate capitalization on volunteer motivations. Prokopy and Genskow (2016) found differences among residents living in urban and rural watersheds. EMG volunteer programs are concentrated primarily in urban counties, though they can be successful in suburban and rural counties (Dorn et al., 2018).

Motivations may impact involvement in volunteering, such as the intensity at which an individual might volunteer as well as actions taken (Ryan et al., 2001). Intensity of volunteering can be operationalized several ways, including total number of years as a volunteer (Strong and Harder, 2011); total number of hours volunteered annually (Reed and Selbee, 2000); or the number of occasions volunteered per year and the number of times volunteered with a favorite stewardship organization (Asah and Blahna, 2012). Handy et al. (2006) found motivational differences among volunteers with different participation frequencies.

Results of several studies suggest that motivational differences exist between volunteers with different levels of tenure and experience. Hyde et al. (2016) found motivations influenced retention at various tenure levels for episodic volunteers. Motivations were found to change over time and with experience in the volunteer role (Haski-Leventahl and Bargal, 2008). Lu and Schuett (2014) demonstrated relationships between volunteer motivations, involvement, and tenure. Ryan et al. (2001) found that motivations continue to be salient as tenure increases and that motivations other than those that spur initial service have long-term importance. It is not known if motivations differ among EMG volunteers with varying tenure.

Reed and Selbee (2000) found differences in patterns of volunteer service when analyzed by service status, using a national median number of hours volunteered per year to distinguish active and nonactive volunteers. Social motivations were more important for active volunteers than for inactive volunteers in an environmental stewardship group (Donald, 1997). This is of particular interest to the EMG program, as EMG volunteers are expected to meet annual service requirements to be considered an active volunteer (Langellotto et al., 2015), who are distinguished from inactive volunteers not currently engaged in the EMG program but who may return at some future point. While there are demographic differences between active (Dorn et al., 2018) and inactive EMG volunteers, it is not known if motivations differ between active and inactive volunteers. Wilson and Newman (2011) suggest speaking to those leaving the program to determine why they are leaving. Responses from inactive EMG volunteers may be a source of insight about areas where current program expectations are not generating volunteer match.

Previous EMG Studies

Functional theory and the VFI instrument have been used to measure EMG volunteer motivations in several states. Schrock et al. (2000), reported use of the VFI instrument, modified for an EMG audience, to study motivations of Missouri EMG volunteers. Wilson and Newman (2011) used a modified instrument with a 7-point Likert-type scale to study Mississippi EMG volunteers, reporting six factors (though they do not indicate whether the factor structure was confirmed statistically). Takle et al. (2016) reported use of a modified VFI to study motivations of Iowa EMG volunteers. They confirmed six factors, but items did not load on intended factors. The highest-scoring motivation for Iowa EMG volunteers was a factor labeled “Learning” ($m=5.48$) that included three understanding, one career, one social, and one enhancement items.

Opportunity to learn more about horticulture and gardening has been a leading motivation for becoming an EMG volunteer (Kirsch and VanDerZanden, 2002; Rohs and Westerfield, 1996; Ruppert et al., 1997; Schrock et al., 2000a; Schrock et al., 2000b; Strong & Harder, 2011a; Wilson & Newman, 2011). Social and career-related motivations are consistently low-ranking reasons for becoming an EMG volunteer. It is interesting to note that the motivations of EMG volunteers reported in previous studies are not consistent with Chacón et al.’s (2017) observation that Values is the leading motivation of volunteers. Understanding often supersedes Values as a top motivator for EMG volunteers, though Values is close behind (Takle et al., 2018; Wilson and Newman, 2011).

INVOLVEMENT

Volunteer Service Activities

Early accounts indicate that most EMG volunteer hours were in support of MG clinics set up at public venues, including libraries, shopping malls, county fairs, and gardening events. EMG volunteers diagnosed plant concerns and provided research-based solutions to the client. It was assumed that, given a baseline training, “most gardening questions could be answered by experienced volunteers and gardeners willing to share the load of the Extension office” (Relf and McDaniel, 1994). Activities that provided response to individual inquiry, such as staffing booths, answering phone calls, and offering diagnostic clinics, accounted for 65% of EMG volunteers participating in state EMG programs in the late 1990s and had an estimated 1,454,623 clients (McAleer, 2005). These types of volunteer roles support Extension’s educational role of responding to individual inquiry.

In the late 1980s, volunteer service activities (VSAs) began to expand to include proactive and community-oriented roles for EMG volunteers through programs to improve the environment and communities (Meyer, 1997; Relf and McDaniel, 1994; Ruppert et al., 1997). Many MGEV roles are “challenging” because they involve the transfer of technical knowledge to the public. This requires technical knowledge as well as a fair level of skill and concentration (McAleer, 2005). Stouse and Marr (1992) observed that elements of “community service and service to special populations” were an important part of volunteer roles and long-term EMG satisfaction and retention. Therefore, understanding VSAs and their attraction to various EMG volunteer subgroups

is important for continuously recruiting, training, and maintaining qualified volunteers who will assist Extension in program delivery.

In the 1990s, VSAs for EMG volunteers expanded to include nonpaid program coordinator roles. Dorn and Relf (2000) reported that EMG volunteers in Virginia were assuming nonpaid coordinator roles at the local level. Feedback from coordinators in national meetings indicates that other states also rely on EMG volunteers to serve in nonpaid coordinator roles (Bennett et al., 2019). Ryan et al. (2001) note that while volunteers may appreciate a well-run program, they may not be interested in running the program themselves.

While numerous accounts of EMG projects and activities have been published (Frye, 2014; Gibby et al., 2008; Kirsch and VanDerZanden, 2002; Knauss, 2014; Langellotto, 2015; Maddox, 2014; Mayfield and Theodori, 2006; McAleer, 2005; Meyer, 1997, 2007; Polanin, 2014; Ruppert et al., 1997; Weisenhorn, 2011; Wilson and Newman, 2011), there has been little attempt beyond the works of McAleer (2005) and Dorn et al. (2019) to quantify or characterize EMG VSAs on any scale. Understanding VSAs and who supports them is particularly useful information given a national shift in volunteerism demographics as well as increased emphasis on matching of individual volunteers to specific volunteer tasks (Blair, Cheplick, and Jones, 2003; Church et al., 2019; Corporation for National and Community Service, 2016; Graff, 2001; Rotolo and Wilson, 2004). McAleer (2005) cited independent sector data that reflected an increase in the number of individuals volunteering with a decrease in the number of hours volunteered per individual, with only 39% of volunteers preferring a regular schedule, such as the EMG experience. This is significant for the EMG volunteer program, as its

foundation has been volunteers who stay with the program long-term and ongoing community projects that span years, if not decades.

Changing demographics place greater importance on the volunteer role. Services provided by EMG volunteers could hardly be maintained with volunteers who are mainly episodic (McAleer, 2005). One needs to take into account the potential effects of the volunteer role on retention (Hyde et al., 2016).

Volunteers, such as EMG and others that support environmental programs, have many VSAs from which to choose. Some VSAs provide services directly to the client, such as answering questions and diagnosing problems (Bauske et al., 2011; Meyer, 1997; Meyer and Jarvis, 2003; O'Meara and Badertscher, 2004), while others are physical in nature, such as maintaining teaching orchards (O'Callaghan et al., 2004) and community gardens (Meyer, 2007); building and maintaining trails and demonstration gardens (Glen et al., 2014; Meyer, 1997; O'Callaghan et al., 2004; Ryan et al., 2001); clearing non-native plant species and replanting native species (Ryan et al., 2001); monitoring and identifying endangered species and their habitats, brush removal, and trash clean-up (Ryan et al., 2001; Terry et al., 2011). Other tasks are intended to promote and publicize an environmental message to the public, such as creating newsletters, hosting workshops, giving demonstrations, facilitating competitions (Hoye, 2007; Ryan et al., 2001); giving guided trail or garden tours (O'Callaghan et al., 2004), or training other volunteers (Hoye, 2007). Some activities are targeted at specific audiences, including youth (Meyer, 1997; Robbins et al., 2004) and incarcerated populations (Flagler, J.S., 1992; Traunfeld and Kafami, 1999). A few tasks may simply be administrative, providing support to the organization, such as conducting surveys in support of research objectives (Marr and

Gast, 1991), judging horticultural shows and contests (McDaniel and Relf, 1998), office work, newsletter distribution, letter writing, stuffing envelopes, marketing, or publicity (Hoye, 2007; Ryan et al., 2001; Terry et al., 2011). Other tasks may include fundraising and hospitality for public or volunteer events (Hoye, 2007). Ryan et al. (2001) reported that volunteers participated more frequently in tasks that were considered more engaging and encouraged skill-building. Projects with a long-running history showed a stronger association with volunteer tenure (Ryan et al., 2001). Environmental stewardship projects often require long-term commitment to a specific place (Ryan et al., 2001).

Role identity

Volunteer activities can become much like a career, and the individual may identify with the goals and values of the organization as if they were an employee (Grube and Piliavin, 2000). The role of the volunteer becomes more important in longer-term volunteering and leads to the desire to remain in the long term (Chacón et al., 2007). Theory surrounding role identities, the component of the self that corresponds to social roles, can increase understanding of volunteer participation and retention (Grube and Piliavin, 2000). An individual's perceived expectations and continued behavior lead to the development of a role identity that is associated with intentions to continue volunteering as well as actual continued behavior. Activity in a volunteer role has been used as a "weak surrogate measure" of role identity, connecting with volunteer overall involvement in a study of volunteers supporting AIDS (Grube and Piliavin, 2000).

Themes in VSA participation have provided useful tools for studying and understanding volunteer behavior. Ryan et al. (2001) used factor analysis to reduce 11 volunteer activities to three VSA participation themes which were then used to compare

groups of responses. They showed associations between task theme, frequency, and commitment. Miles et al. (1998) used a binary question (yes/no) to assess involvement in themed activities. Participating in additional activities other than a main role was frequently associated with higher satisfaction and not participating in additional activities was associated with lower satisfaction (Miles et al., 1998).

When attempting to quantify and characterize VSAs, it is important to understand the process of volunteering. Though many individuals decide to volunteer, a large percentage of those do not remain a volunteer for an extended period of time (Chacón et al., 2007). Volunteerism is considered a dynamic process that may ebb and flow throughout life stages (Snyder and Omoto, 2008). Additionally, whether or not an individual chooses to volunteer is influenced at the individual level as well as by characteristics of the organization for which they volunteer. To guide volunteerism research, Snyder and Omoto (2008) developed a conceptual model, the Volunteer Process Model, that identifies three stages (antecedents, experiences, and consequences) of volunteering at multiple levels, including individual, social, organization, and societal contexts (Fig. 1.1). This model brings together the multitude of factors that affect the prosocial behavior of volunteering.

To understand why individuals volunteer in the ways that they do, it is essential to understand the undergirding psychology of satisfaction, commitment, and involvement, and their interplay. Vecina et al. (2012, p. 133) present satisfaction as a three-part construct that includes motivational satisfaction, task satisfaction, and management satisfaction, and describes attitudes toward or about an activity. It spells the difference between volunteers who exit or stay after one year (Vecina et al., 2012). Similar to paid

work, tenure and frequency of involvement are consistent predictors of volunteer satisfaction (Miles et al., 1998).

Commitment

Commitment is described as what makes a person persist in the face of difficulty or challenge (Vecina et al., 2012). Commitment can predict paid employee job performance, citizenship behavior, absenteeism, intention to stay or leave, and turnover (Hoye, 2007, p.111). Commitment is a combination of behavior, intentions, motivations, and attitudes toward an organization (Hoye, 2007; Stephens et al., 2004). Commitment is thought to be lower in large organizations due to perceived impersonal nature and a greater challenge of volunteer identification with the larger organization (Stephens et al., 2004). Tenure, leadership roles, and self-performance lead to commitment (Stephens et al., 2004). Because it takes time to develop commitment, it can be affected by tenure with an organization. There are differences seen in volunteers who leave after one year or stay after seven years (Vecina et al., 2012). Participation in certain activities and an expertise index accounted for a substantial amount of variance (31%) in commitment (Ryan et al., 2001). Extensive commitment fosters role identity (Grube and Piliavin, 2000).

Commitment has been measured by volunteer tenure and frequency of involvement (Ryan et al., 2001). Frequency of participation was more related to commitment than the length of time the individual served in the volunteer capacity, and tenure was not correlated with frequency of involvement. In other words, just because an individual had been volunteering for the organization for a long time did not mean the volunteer was engaged, productive, or committed. Ryan et al. (2001) suggest that the goal of volunteer retention is not to maintain volunteers for endless years, but rather to

increase the frequency of involvement. While demographic variables were not related to tenure, frequency, or commitment, expertise and type of participation was shown to relate to ongoing volunteering.

Volunteer engagement and involvement is described by Millette and Gagné (2008) as what volunteers actually do during the time they spend volunteering. Though the terms engagement and involvement are often used interchangeably, Vecina et al. (2012) describes engagement as a “state of mind” that describes the experience of the activity, whereas involvement is an element of engagement that reflects the degree of dedication (Vecina et al., 2013). Involvement in volunteering is commonly described in terms of performance, and Hoye (2007) argues that volunteer performance is related to the degree to which volunteers are involved in their role. Furthermore, Hoye (2007) noted: “It is surprising that... (volunteer) performance...has attracted relatively little research attention.”

Involvement

Early work regarding volunteer commitment and involvement studied paid employees. Research with paid employees consistently shows a positive association between performance and commitment to the organization as well as satisfaction with the experience (Preston and Brown, 2004). Commitment of paid employees has been linked with positive work outcomes, such as job performance and citizenship behaviors. Meyer and Allen (1991) defined three commitment themes, including affective commitment that reflects an employee’s emotional attachment to, identification with, and involvement in the organization. Strong affective commitment is associated with an employee’s positive

choice to remain with an organization, harder work, and greater job effectiveness (Preston and Brown, 2004).

Career development theory suggests that increasing tenure enhances employee commitment and performance due to benefit accrual (Stephens et al., 2004). Positive relationships were found between tenure, affective commitment, and performance (Stephens et al., 2004). Making a direct comparison between employees and volunteers, however, is not straightforward. Volunteers are motivated by intrinsic rewards, such as self-determination and control, rather than the extrinsic rewards, such as wages and compensation, that motivate paid employees.

While not all items on research scales for paid employees can translate directly to volunteer studies (Stephens et al., 2004), there are some comparisons and approaches that can be used to study volunteer involvement. For example, self-reported measures of performance have been used in studies of paid workers (Meyer and Allen, 1991). Self-reported measures of performance can also be used to study volunteer involvement. Though seemingly not objective, a meta-analysis of commitment research found that self-rated and supervisor-related job performance were nearly the same (Stephens et al., 2004). Not all organizations routinely perform volunteer evaluations, and for those that do, such evaluations are challenging to compare (Hoye, 2007), especially across multiple organizations (Preston and Brown, 2004).

Self-reported measures

Self-reported measures are often used to evaluate volunteer behavior, many of which utilize 5-point, Likert-type scales to capture responses (Hyde et al., 2016; Ryan et al., 2001). Quantitative, objective indicators include measures of attendance, committee

service, financial contributions, and time donated to an organization. Miles et al. (1998) measured volunteer involvement in terms of participation tenure, frequency of workday participation, and frequency of participation in themed activities, such as stewardship, monitoring, education, and publicity. Preston and Brown (2004) created a scale titled “Self-Reported Involvement” that included, among others, an individual’s accounting of meeting attendance, time donated, and money contributed. These measures were significant predictors of executive perceptions of volunteer board member participation (Preston and Brown, 2004). Stephens et al. (2004) also used self-reported performance in a study of volunteer commitment and included elements such as time spent fulfilling duties, involvement in events, and attendance at meetings. The mean of the items became the dependent variable, self-reported performance (Stephens et al., 2004). Hoye (2007) used a self-reported measure of involvement that included tenure, meeting attendance, hours served, and committee involvement.

Attendance at meetings is a common performance indicator for volunteers, though “mere attendance does not constitute effective performance” (Preston and Brown, 2004). Reliance on attendance variables as the only measure of involvement assumes that just by being present, a volunteer contributes to the organization (Millette and Gagné, 2008). In reality, contributions are highly uneven. Volunteers can exert little effort and can even become burdensome to the organization (Millette and Gagné, 2008).

Individuals who volunteer do so at different levels. They may volunteer at different frequencies, such as regular weekly, monthly, or yearly times, or on an as-needed basis, such as for a specific event (Miles et al., 1998). Individuals differ in their participation tenure, such as supporting an organization for a few months, a year, or for

many years (Hyde et al., 2016; Miles et al., 1998; Ryan et al., 2001; Wilson and Newman, 2011; Wolford et al., 2001). Individuals also differ in terms of the amount and type of volunteer activities in which they engage. Previous research suggests that benefits gained from a particular volunteer activity may depend on the individual's level of involvement in that activity (Miles et al., 1998).

Extending the length of time that a volunteer serves an organization (tenure) has long been perceived as the ultimate goal for volunteer retention because it says volunteers are happy and organizations are successful (Vecina et al., 2012). Keeping trained volunteers for many years presumably reduces the demand on program coordinators to recruit, select, and train additional volunteers (Vecina et al., 2012). Satisfaction, commitment, and intention to remain have been used to explore volunteer tenure (Vecina et al., 2012). Volunteers with greater tenure were found to have higher self-reported performance (Stephens et al., 2004). Greater tenure influences affective commitment and in turn influences performance (Stephens et al., 2004). Hoye (2007) found a small positive correlation between tenure and performance ($r=.30, p<.01$) and a moderate positive correlation between age and tenure ($r=.45, p<.01$). Hyde et al. (2016) used experience intervals based on tenure to explore retention in episodic volunteers. Miles et al. (1998) found tenure to be only marginally related to satisfaction, while Ryan et al. (2001) found duration for stewardship volunteers was not correlated with frequency or commitment. Tenure did relate to participation in specific activities in volunteers who self-reported higher levels of experience or knowledge (Ryan et al., 2001). Vecina et al. (2012) reported that tenure did moderate a mediated relationship between engagement, commitment, and intention to remain a volunteer.

In the short term (less than or equal to a year), motivation and satisfaction can predict volunteer behavior and intention to continue volunteering. In the long term (beyond the first year), organizational commitment is a key predictor of behavior and intentions to volunteer (Hyde et al., 2016). New volunteers have a disadvantage that goes away over time as their tenure with the position increases, and new volunteers may not immediately take on key leadership roles (Stephens et al., 2004). Hoye (2007) suggests that volunteers with extended tenure have higher competencies because of experiences and institutional knowledge.

In most demographic studies of EMG volunteers, individuals have been asked how long they have been an EMG volunteer (tenure) (Boyer et al., 2002; Kirsch and VanderZanden, 2002; Relf and McDaniel, 1994; Schrock et al., 2000; Strong and Harder, 2011b; Wilson and Newman, 2011). Over time, the response options have included longer ranges of service. This is consistent with a base of volunteers who remain with the program over a long period of time.

Another measure of volunteer involvement is the number of hours volunteered within a specific period of time. The number of hours volunteered for the American Cancer Society was used as a dependent variable in a study of volunteer role identity, where past behavior was a highly significant predictor of role identity, which, in turn, was an important factor in predicting hours volunteered (Grube and Piliavin, 2000). Hoye (2007) reported a small positive correlation between hours spent and performance ($r=.26$, $p<.01$) and a moderate positive correlation between hours spent and number of subcommittees served ($r=.40$, $p<.01$). The number of service hours has been a dominant measure of EMG volunteer contributions and commitment.

Frequency of participation is also used to measure volunteer involvement. Terry et al. (2011) used categorical choices, such as seldom, sometimes, and often, to measure frequency of volunteer use in specific tasks, and Miles et al. (1998) used categorical choices, such as a few times a month, every week or nearly so, and more than once a week, to measure frequency of workday participation by volunteers. Satisfaction was higher for volunteers who participated more frequently (Miles et al., 1998). Ryan et al. (2001) found that participants volunteered an average of three times per year, and frequency was highly correlated with volunteer commitment ($r=0.61$).

Volunteer tasks that allow volunteers to make decisions and have frequent work opportunities may have an increased appeal to individuals (Ryan et al., 2001). More than half of respondents (56%) were individuals with project management responsibilities (akin to leadership positions), indicating the highest level of satisfaction in the study (Miles et al., 1998). These leadership roles are more encompassing than other volunteer involvement and may indicate a level of commitment that has been associated with satisfaction. Stephens et al. (2004) explored relationship between leadership roles, commitment, and performance. They assumed that those seeking leadership roles had a willingness to be more involved (more time, higher frequency of involvement). Stephens et al. (2004) used a binary question format (yes/no) to determine respondents with leadership roles. Individuals with leadership roles have higher performance scores and more affective commitment than non-leaders (Stephens et al., 2004). Volunteers who serve long-term may be more involved in organizing projects (Ryan et al., 2001).

Interestingly, multiple accounts of volunteer board member service report no or few correlations between sample demographics, such as gender, age, and education, and

predictor and outcome variables (Hyde et al., 2016; Millette and Gagné, 2008; Ryan et al., 2001). Hoyer (2007) found a small positive correlation between age and performance ($r=.27, p<.01$) (higher age associated with higher levels of perceived performance). When controlled for age of volunteer, Hoyer (2007) found that commitment and involvement accounted for 31% of the variance in perceived performance. Hierarchical regression revealed that affective commitment was the most significant predictor of volunteer performance, followed by tenure and hours of service (Hoyer, 2007). The number of subcommittees served was not a significant predictor of perceived performance (Hoyer, 2007). While limited studies of EMG volunteer involvement were found in literature, Strong and Harder (2011a) did find that age was a significant predictor of tenure in EMG volunteers.

Subgroups

There are still important reasons to study subgroups of volunteers (Strong and Harder, 2011a) by characteristics such as gender, generation, tenure, age, and host county population density. EMG volunteers can and do provide critical education and institutional messages to the public. Similar study of other environmental volunteers shows that these actions catalyze the adoption of sustainable practices otherwise limited by lack of time, low self-efficacy, and hopelessness (Moskell and Allred, 2013) as well as enhance stakeholder communications and facilitate learning (Prager and Vanclay, 2010). Program coordinators need a diverse mix of volunteers to sustain various projects, as well as recruit additional volunteers and relate to the diverse audiences served by Extension.

The influence of gender on volunteering patterns is not well known. Women, however, were reported to volunteer at a higher rate than men (US Bureau of Labor

Statistics, 2016). Demographic accounts of EMG volunteers have consistently reported a higher proportion of female EMGVs than male EMGVs (Boyer et al., 2002; Dorn et al., 2018; Kirsch and VanderZanden, 2002; Relf and McDaniel, 1994; Rohs and Westerfield, 1996; Schrock et al., 2000; Strong and Harder, 2011b; Takle et al., 2016; Wilson and Newman, 2011). Understanding which VSAs are attractive to male EMG volunteers could aid in recruitment efforts.

Putnam pointed out generational differences in community engagement patterns, such as regular church attendance, civic involvement, and social connectedness (in Hall and Vettern, 2010). Low GenY volunteerism relative to other generations could be attributed to the increased practice of service learning, or mandatory volunteerism prevalent with GenY generations and later, noted by Clary et al. to reduce volunteerism later in life (in Widjaja, 2010).

OBJECTIVES

In 2018, more than 86,000 Extension Master Gardener (EMG) volunteers in the United States reported 5.6 million hours of volunteer service in support of Extension programming and reached a direct audience in excess of 8.6 million people. These EMG volunteers are individuals who have been recruited, trained, and managed by Extension programs of land-grant universities as a means of meeting public demand for consumer horticulture. They fulfill a significant commitment in the first year and display an ongoing dedication to the program in subsequent years (Langellotto et al., 2015). EMG volunteers are an important strategy for Extension's response to consumer demand for horticulture information (Meyer, 2007).

As the EMG program begins its fifth decade, it is essential to thoroughly assess the demographic and motivational basis for continued involvement in the volunteer program and the educational programming that it delivers. The current study of EMG volunteers and coordinators has a specific set of objectives, including:

- To analyze national, regional, state, and local **program demographics**
- To determine alignment of **EMG program educational response themes (ERTs)** among state and local program management and volunteers.
- To develop an inventory of **functional motivations** that underlie EMG volunteer behavior.
- To identify the extent of **EMG volunteer involvement** in volunteer service activities (VSAs).

Pursuing each of these objectives for subgroups of EMG volunteers, such as different generations, gender, tenure, extension programmatic regions, host county population density (urban, suburban, and rural programs), service status (active or inactive), or volunteering intensity levels, allows an unprecedented snapshot of this national program poised for new direction and growth (Fig. 1.2). Comparison of this current study's results to historical program accounts can inform national leadership about the program evolution in terms of participants and volunteer service activities. This is critical information for program coordinators nationwide who seek to diversify program participation as they address federal programming priorities for horticulture with a consumer clientele.

Level of Analysis	Stages of the Volunteer Process		
	Antecedents	Experiences	Consequences
Individual	Personality, motivation, life circumstances	Satisfaction, stigma, organizational integration	Knowledge and attitude change, health
Interpersonal/Social Group	Group memberships, norms	Helping relationship, collective esteem	Composition of social network, relationship development
Agency/Organization	Recruitment strategies, training	Organizational culture, volunteer placement	Volunteer retention, work evaluation
Societal/Cultural Context	Ideology, service programs and institutions	Service provision, program development	Social capital, economic savings

Fig. 1.1. Snyder and Omoto's (2008) Volunteer Process Model as a Framework for Understanding Why Individuals Volunteer

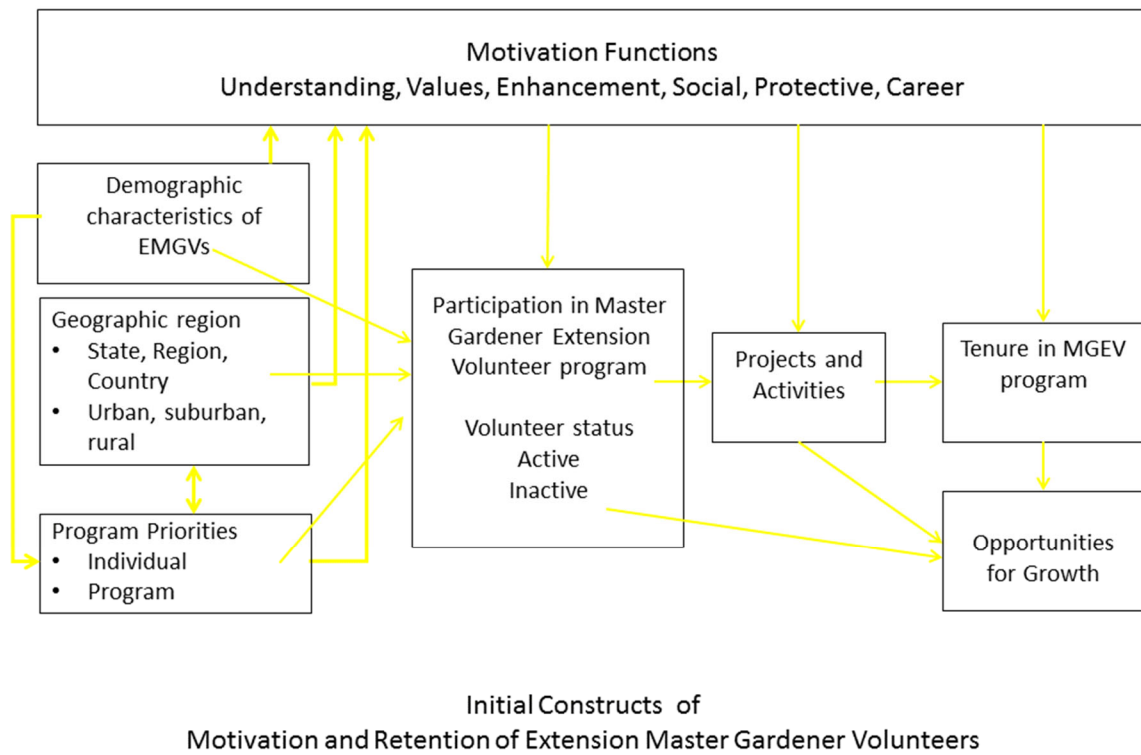


Fig. 1.2. Initial constructs for studying motivation and retention of Extension Master Gardener Volunteers in the United States

CHAPTER 2

METHODOLOGY

Survey Instrument Development

A quantitative national study of current and inactive EMG volunteers and their state and local coordinators in all 49 U.S. EMG programs was conducted in Fall 2016 (University of Georgia IRB Approval #3567). Survey protocol was based on Dillman's Tailored Design Method (TDM) for online survey research (Dillman et al., 2014) as well as published accounts of EMG volunteer survey research (Takle et al., 2016; Vines et al., 2016). Precedence for distributing a survey in both paper format and via Internet was set by Stukas et al. (2009), who noted that age was the primary difference in respondents using these two methods.

The study included three separate surveys that built upon one another and were conducted consecutively (Fig. 2.1). For state-level information about the EMG program and its state coordinator, Survey 1 (23 questions; Appendix B) was sent via email to 56 email addresses representing 47 states (as published on the eXtension website in Sept. 2016). It asked permission to share the study survey with local coordinators and EMG volunteers in the state. To reach states operating without a state coordinator and provide opportunity for all state EMG programs to participate, the survey was promoted through existing communication chains, including the 2016 EMG Coordinators' Conference in Montana; through the EMG Coordinators' listservs coordinated by eXtension; and in the Sept., Oct., and Nov. 2016 editions of the EMG Coordinators' eBlast newsletter email. In previously published survey methodology for this

audience, individuals working closely with the program (i.e., interim coordinators, designated staff) provided state EMG program data in lieu of a state coordinator when EMG programs were operating without a state coordinator (i.e., Arizona had four contacts listed on the program contact page for eXtension).

Survey 2 (21 questions; Appendix C) was sent via email to local program coordinators (precise number is unknown) by the participating state coordinators. It gained information about local coordinators and established their consent to share Survey 3 with EMG volunteers reporting directly to them.

Survey 3 (Appendix D) was sent via email to EMG volunteers by participating local coordinators. This survey contained five sections, including EMG volunteer background and experience, reasons for volunteering, benefits from volunteering as an EMG, EMG volunteer activities, and demographic information. Questions were drawn from previous studies and existing survey instruments (Clary et al., 1998; Houle et al., 2005; Relf and McDaniel, 1994; Stukas et al., 2009; Takle et al., 2016) with permission from authors (S.T. Dorn and B.J. Houle, personal communication; S.T. Dorn and P.D. Relf, personal communication; S.T. Dorn, D.S. Schrock, and C. Haynes, personal communication; S.T. Dorn, A.A. Stukas, and E.G. Clary, personal communication). The entire survey instrument included 168 questions organized in five sections.

Instrument Validation

The EMG survey instrument was tested for validity and reliability via a pilot test conducted in three counties in Georgia (urban, suburban, and rural) prior to initiating the national study. It was sent via email by the state coordinator to three local coordinators, who then emailed the survey to their active and inactive EMG volunteers. Results of the pilot test were used to

modify the survey instrument prior to launching the national survey. A panel of experts, including faculty from University of Georgia (Milton Newberry III, Bodie Pennisi) and Iowa State University (Cindy Haynes, Denny Schrock), reviewed the survey instrument for content validity.

Distribution

The Qualtrics surveys were administered between 3 Oct. and 14 Nov. 2016, through the existing framework of State and local EMG program coordinators, as identified via eXtension's official list of state EMG program coordinators (Extension Master Gardener National Committee, 2016). An introductory email from the researcher introducing and legitimizing the survey was sent to state coordinators in late September (Appendix A), asking them to introduce the survey to their local coordinators and EMG volunteers using the distribution protocol outlined above and in Figs. 2.1 and 3.2. This first introductory message about the study was followed one week later by another email containing the actual survey links. The surveys remained open for two months, with follow-up emails sent at weeks 2, 4, and 6 (Appendices E-G). Anonymous responses to the surveys were returned directly to the project investigator. In response to individuals and coordinators indicating challenges with the online format (10 to 15 per notice sent), a PDF of the survey document was distributed via email with the week 6 reminder, including instructions to print and complete locally and return by postal mail.

Participants

The survey was administered through the existing framework of state and local EMG program coordinators. The official list of state EMG program coordinators is found online and is updated regularly through EMG National Committee communications (eXtension, 2016). State coordinators were asked to complete survey 1 and distribute survey 2 to local coordinators. Local

coordinators were asked to complete survey 2 and distribute survey 3 to active and inactive Extension Master Gardeners.

The resulting nonrandom convenience sample (a non-probability sample that is easy to reach, such as a defined set of volunteers) was composed of people who received and responded to the survey links. In 2015, state coordinators reported 83,389 EMG volunteers in the United States (Extension Master Gardener National Committee, 2015). Responses to the current study were expected to meet or exceed the 1097 responses required for a desired precision rate of $\pm 3\%$ and a confidence interval of 95% for $p=0.5$ (Meier et al., 2015). Though Survey 3 was attempted more than 9000 times ($n=9093$), only complete attempts ($n=7498$) were selected for data analysis (82.5% of total attempts). Cases were excluded listwise if values were missing for the variable being compared.

Data Coding and Calculations

Responses to the surveys were cleaned, removing incomplete attempts, prior to data analysis. Additional cleaning of open-ended fields included converting state names were converted to correct abbreviations and converting any numbers entered as a range, such as years of service, to the lowest single number in the range. Once data were cleaned and uniform, calculations were made as follows:

Service Status. Responses were coded as “active” or “inactive” based on self-reported service status. Active EMG volunteers are those individuals who have completed an established state EMG training curriculum and are completing required volunteer service hours (40 h minimum in the training year and 20 h minimum in subsequent years) (Langellotto et al., 2015). Inactive EMG volunteers are those individuals who have completed required training and volunteer service, but have not reported active volunteer service in the previous one or two years.

Generation. All responses were labeled for generation cohort, calculated from birth year for the year of data collection (2016). Traditionalists included individuals born between 1925 and 1942 (age 74-91 years), Baby Boomers included individuals born between 1943 and 1960 (age 56-73 years), GenX included individuals born between 1961 and 1981 (age 35-55 years), and GenY included individuals born between 1982 and 2000 (age 16-34 years). In lieu of generation, respondent age was used as a continuous variable in regression models.

Gender. Respondents indicated gender based on two choices, male and female.

Host County Population Density. To describe the population density of the counties served by EMG programs, the 2013 Rural-Urban Continuum Codes (RUCC) presented by USDA's Economic Research Service (2013) were used. RUCC is a classification scheme that distinguishes metropolitan counties by the population size of their metro area, and nonmetropolitan counties by degree of urbanization and adjacency to a metro area. The RUCC includes three metro codes (1-3), four nonmetro codes (4-7), two rural codes (8 and 9), and two codes describing unknown areas (88 and 99). Each county in the U.S. is assigned one of the 11 codes. For the purpose of this study, the 11 RUCC codes were reduced to four categories, including urban (codes 1-3), suburban (codes 4-7), rural (codes 8-9), and unknown (codes 88 and 99).

Extension Programmatic Region. For the purpose of regional analysis, responses were coded by extension programmatic region based on the six programmatic regions in the U.S. established in 2006 by the EMG National Committee: Northeast (West Virginia, Pennsylvania, Delaware, New Jersey, Connecticut, New York, Massachusetts, Maryland, New Hampshire, Vermont, Maine); North Central (North Dakota, South Dakota, Nebraska, Kansas, Missouri, Iowa, Minnesota, Wisconsin, Michigan, Illinois, Ohio, Indiana); Northwest (Washington,

Oregon, Idaho, Montana, Wyoming, Alaska, Hawaii); Southwest (California, Nevada, Utah, Arizona, Colorado, New Mexico); South Central (Texas, Oklahoma, Arkansas, Louisiana, Mississippi, Kentucky, Tennessee); and Southeast (Alabama, Georgia, Florida, South Carolina, North Carolina, Virginia) (Fig. 1). The programmatic regions were created to facilitate cooperation, communication, and collaboration among EMG programs nationwide (Langellotto et al., 2015).

Tenure. Tenure was a self-reported number of active years of service as an Extension Master Gardener. Actual years of service was used as a continuous variable. For categorical comparisons, responses were divided into six groups based on the years of tenure as an EMG volunteer (mean=7.7 years, median = 5 years), including less than one year, two to four years, five to seven years, eight to ten years, eleven to fifteen years and more than sixteen years.

Service Hours. Respondents indicated the number of volunteer service hours that they reported to their respective programs in 2015, the last complete program cycle prior to the survey. This self-reported number was used as a measure of involvement.

Volunteering Intensity. A categorical measure of volunteer intensity was calculated based on self-reported years as an EMG volunteer and number of self-reported volunteer service hours in 2015. Low and high categories divided based on median values for active EMG volunteers, above and below 6 years of service and less than and greater than 60 service hours. Four volunteering intensity categories resulted: low years, low hours; low years, high hours; high years, low hours; and high years, high hours.

Demographics

Volunteer demographics gathered in the current study included gender, race/ethnicity, year of birth, marital status, child status, current employment status, income range, and level of

education. Several questions captured the individual's training year, number of years of active service with the program, the county in which the individual volunteered, and the number of volunteer service hours reported in 2015 (the most recent full program year). Profiles of EMG program state coordinators, local coordinators, and volunteers were described. Demographic comparisons were made between generations, extension programmatic regions, and host county population density.

Educational Response Themes

To assess program educational response themes (ERTs), Relf and McDaniel's (1994) original questions were used verbatim with permission (S.T. Dorn and P.D. Relf, personal communication). These six questions were included on the Surveys 1, 2, and 3 extended to state coordinators, local program coordinators, and EMG volunteers, respectively. All participants in the current study were asked to rate the six ERTs on a 5-point Likert scale (1 = extremely important to 5 = not at all important), means were calculated for each theme, and results for current, active EMG volunteers (meeting their state's requirements for volunteer status) were included in data analysis. While Relf and McDaniel (1994) asked respondents to rank ERTs, this study asked state and local coordinators and EMG volunteers to indicate the importance of each of the six ERTs.

Results of the current study were compared with those of previous studies exploring state coordinator program perspectives, though a meta-analysis was not conducted. For comparison purposes, ERT means were placed in numeric order according to importance, following the 5-point Likert scale (1 = extremely important to 5 = not at all important).

Volunteer Functions Inventory

To assess functional motivations, questions from Tackle et al. (2016) were used verbatim with permission (S.T. Dorn and D. Schrock, personal communication). These questions were based on Clary et al.'s (1998) Volunteer Functions Inventory, and permission to use was obtained (S.T. Dorn and E.G. Clary, personal communication). These 30 questions (five items for each of six functions) were re-worded to reflect the EMG volunteer experience and included on the Survey 3 extended to EMG volunteers. A lead-in statement asked respondents to "Please evaluate your reasons for volunteering by indicating how important each is for you with regard to your experience in the Extension Master Gardener program." While Clary et al. (1998) utilized a seven-point Likert-type scale, this study used a five-point Likert-type scale (1 = not at all important; 5 = extremely important) to record responses.

While all responses were included in confirmatory factor analysis, only responses of individuals indicating active service were included in secondary analysis based on exploratory factor analysis results. Comparisons of motivation scores were made between volunteer subgroups, including generation, gender, service status, host county population density, service status, and volunteering intensity.

EMG Involvement

Involvement in the EMG program was assessed via volunteer service activities (VSAs) and leadership roles of individuals indicating active service status. Respondents were asked to indicate involvement on a 5-point Likert scale (1 = never, 2 = sometimes, 3 = about half the time, 4 = most of the time, 5 = always) for 34 EMG volunteer service activities. For the purpose of this study, 34 VSAs were chosen from published accounts and reviewed for validity by four horticulture faculty who routinely work with EMG programs. Respondents were also asked to

indicate whether or not they had a leadership position for the 34 activities. To further explore trends in VSAs, factor analysis was used to reduce the 34 items to five VSA themes for EMG volunteer service. Themes were converted to scores that were then analyzed by gender, generation, host county population density, volunteer intensity, and service status.

Statistical Analysis and Data Interpretation

The data were analyzed using IBM SPSS (versions 23-25 for Windows; IBM Corp., Armonk, NY), SAS (version 9.4 for Windows; SAS Institute, Inc., Cary, NC), and JMP Pro (version 14 for windows; SAS Institute, Inc., Cary, NC). A number of tests were utilized to analyze data, including:

- *Cronbach's alpha* was used to verify internal consistency within scales.
- *T-tests* were used to measure significant difference between the means for items with two categories.
- *One-way, two-way, and three-way analysis of variance (ANOVA)* were used to compare means with more than two categories to determine significant difference and interactions.
- *Principal axis factoring with oblique rotation* was the extraction method used to identify latent VSA themes and motivation factors.
- *Chi-square tests* were used to compare nominal variables. When there were less than 5 expected counts per cell, a Monte Carlo test of exact fit was used.

A level of $p < .05$ was established a priori as the condition for significance. Where significant, means were separated using Tukey and Games-Howell post hoc tests. Bonferroni

adjustment was used to control for Type I error in the case of multiple comparisons. Specific methods for each section are as follows:

- *ERTs*. Results were analyzed using descriptive statistics and three-way and one-way analysis of variance (ANOVA) where appropriate. Due to unequal variances and unequal group sizes, the Brown-Forsythe statistic was used to test for significance, followed by the Games-Howell post hoc test to separate means.
- *VFI*. Results were analyzed using descriptive statistics, confirmatory and exploratory factor analysis, independent *t*-tests, one-way analysis of variance (ANOVA), and correlations where appropriate. In lieu of Cronbach's alpha, inter-item correlations were used for scales with only 2 items (Asah and Blahna, 2012). In instances of unequal variances and unequal group sizes, the Brown-Forsythe statistic was used to test for significance, followed by the Games-Howell post hoc test to separate means. Bootstrapping was used to establish confidence intervals. Effect size is represented by omega squared (ω^2) for ANOVA tests and Cohen's *d* for *t*-tests. Negative effect sizes, though impossible, are reported rather than setting ω^2 to 0 in the event of future meta-analysis (Lakens, 2015). Because of the exploratory nature of the analysis, data was analyzed by variables and not by complex interactions. Significance values were subjected to Bonferroni adjustment to allow for multiple comparisons.
- *Involvement*. Results were analyzed using descriptive statistics, factor analysis, independent *t*-tests, one-way analysis of variance (ANOVA), and zero-inflated Poisson regression where appropriate. In instances of unequal variances and unequal group sizes, the Brown-Forsythe statistic was used to test for

significance, followed by the Games-Howell post hoc test to separate means.

Bootstrapping was used to establish confidence intervals. Due to the exploratory

nature of our study, data was analyzed by variables and not by complex

interactions. Significance values were subjected to Bonferroni adjustment to allow

for multiple comparisons. Cohen's d was calculated as a measure of effect size for

t -tests, while omega squared (ω^2) was calculated as a measure of effect size for

ANOVA.

9/19/2016	9/26/2016	10/3/2016	10/17/2016	10/31/2016	11/14/2016	12/5/2016
Promotional flyer to coordinators attending the National Coordinators' Conference, Sept 2016	Legitimacy email to state coordinators	Phase I recruitment email to state coordinators	Week 2 reminder email to state coordinators	Week 4 reminder email to state coordinators	Week 6 reminder email to state coordinators	Surveys close at 5 pm ET.
	Legitimacy email to local coordinators	Phase II recruitment email to local coordinators	Week 2 reminder email to local coordinators	Week 4 reminder email to local coordinators	Week 6 reminder email to local coordinators	
	Legitimacy email to Master Gardeners	Phase III recruitment email to Master Gardeners	Week 2 reminder email to Master Gardeners	Week 4 reminder email to Master Gardeners	Week 6 reminder email to Master Gardeners	

Figure 2.1 Distribution Plan for the EMG Motivations Survey

Figure 2.1 Distribution plan for the EMG Motivations Survey

CHAPTER 3

**EXTENSION MASTER GARDENER VOLUNTEERS OF THE 21ST CENTURY:
EDUCATED, PROSPEROUS, AND COMMITTED¹**

¹ Sheri T. Dorn, Milton G. Newberry III, Ellen M. Bauske, and Svoboda V. Pennisi; *HortTechnology* 28(2):218-229, published April 2018

ABSTRACT

This current, quantitative study documented the demographic base of 21st century Extension Master Gardener (EMG) volunteers in the United States. As the EMG program approaches its fifth decade and momentum builds for national leadership, collaborative programming, and innovative impact reporting, it is important to understand the characteristics of the current volunteers and their coordinators. A national study of EMG coordinators and volunteers was conducted in Fall 2016. Response was strong, representing 71.4% of state programs and 7498 volunteers. Responding state coordinators are primarily white females, have a mean age of 51.2 years, and have served in their position an average of 7.2 years. Most state coordinators (94.1%) have a graduate degree (Master's or higher). Responding local coordinators are primarily white females, have a mean age of 51.9 years, and have served in their position 7.5 years. Some local coordinators (57.4%) have a graduate degree (Master's or higher). EMG volunteers responding were primarily female, white, educated, retired, and of economic means; have a mean age of 64.8 years; and have served an average of 7.7 years. Four generations [Traditionalist (born between 1925 and 1942), Baby Boomer (born between 1943 and 1960), GenX (born between 1961 and 1981), and GenY (born between 1982 and 2000)] were represented in survey responses. EMG volunteers were 14.5% Traditionalists, 73.2% Baby Boomers, 11.5% GenX, and 0.9% GenY. There were significant differences in the age, age at initial training, years of active service, and service hours reported in 2015 (the prior complete program cycle) among four generations of EMG volunteers. Responses from EMG volunteers and their coordinators represented all six Extension programmatic regions established by the EMG National Committee. Significant differences in age, years of service, and number of volunteer service hours reported in 2015 exist among EMG volunteer across Extension

programmatic regions. The majority of EMG volunteers responding to the survey indicated they volunteered in an urban county (80.5%), while 17.2% of respondents served in a suburban county and 2.1% were connected with rural counties. There were no significant differences in the average age, years of service, and number of volunteer service hours reported in 2015 for EMG volunteers in urban, suburban, and rural programs. Historical data and the current study share similar trends within demographics, including age, income, gender, education, and race/ethnicity, yet offer important considerations for future program growth and development.

Additional Index Words: volunteer service, demographics, management, recruitment, retention

INTRODUCTION

Extension Master Gardener (EMG) Volunteer programs have been in existence in the United States since 1972, in Canada since 1985, and in South Korea since 2011 (Wonsuk and Durham, 2015). There are active programs in 49 states (Massachusetts does not have an EMG program). Recruitment, training, and management of potential and returning volunteers have changed minimally since the program's inception (Gibby et al., 2008).

Originally, EMG programs targeted urban areas, where call volume exceeded Extension staff capacity to respond. Over the years, the EMG program has spread into less densely populated suburban and rural areas. It remains to be determined if demographic characteristics of the volunteers change with the population density of the host county.

In most cases, leadership for EMG programs is provided by a local EMG coordinator, usually an Extension agent or program support staff, at the county level. Local coordinators are usually supported by a State EMG Coordinator who provides the statewide direction and

leadership. National direction comes from a voluntary EMG National Committee (Extension Master Gardener National Committee, 2016), comprised of state and local coordinators from across the U.S. who serve for a designated term.

In 2006, the EMG National Committee established six programmatic regions in the U.S.: Northeast (West Virginia, Pennsylvania, Delaware, New Jersey, Connecticut, New York, Massachusetts, Maryland, New Hampshire, Vermont, Maine); North Central (North Dakota, South Dakota, Nebraska, Kansas, Missouri, Iowa, Minnesota, Wisconsin, Michigan, Illinois, Ohio, Indiana); Northwest (Washington, Oregon, Idaho, Montana, Wyoming, Alaska, Hawaii); Southwest (California, Nevada, Utah, Arizona, Colorado, New Mexico); South Central (Texas, Oklahoma, Arkansas, Louisiana, Mississippi, Kentucky, Tennessee); and Southeast (Alabama, Georgia, Florida, South Carolina, North Carolina, Virginia) (Fig. 1). The programmatic regions were created to facilitate cooperation, communication, and collaboration among EMG programs nationwide (Langellotto et al., 2015). Demographic similarities or differences, if any, among EMG volunteers, coordinators, and programs within extension programmatic regions are currently unknown.

Understanding the composition of the EMG volunteer base is important for long-term growth and development of the program. Knowledge of volunteer demographics can influence recruitment and training approaches. It can suggest who will be drawn to the program and how training can be effectively delivered. It also has implications for volunteer placement, such as the ability to fill gender-specific roles and volunteer availability for service opportunities. Meyer (2007) suggests that demographic data are critical elements for determining any possible impact or effect of EMG volunteers on a national level.

State-based EMG studies show that EMG programs have historically appealed to an older demographic of 50+ years (Boyer et al., 2002; Kirsch and VanDerZanden, 2002; Relf and McDaniel, 1994; Rohs and Westerfield, 1996; Ruppert et al., 1997; Schrock et al., 2000; Strong and Harder, 2010; Takle et al., 2016; Wilson and Newman, 2011). At inception, the EMG program was targeted at non-working individuals who had the necessary time for program commitments. In the 1970s, this included individuals who were not in the workforce as well as retirees.

Early studies reported the majority of EMG volunteers in the 0-5 years of service bracket (Boyer et al., 2002; Kirsch and VanDerZanden, 2002; Relf and McDaniel, 1994; Schrock et al., 2000). With the increasing longevity of the program, volunteers may serve longer, reflecting continued long-term commitment to the program.

While numerous individual state-level studies of EMG volunteers have been done, few national studies have been attempted. Thirteen years ago, McAleer (2005) published a report of EMG programs including total current EMG volunteers, number of volunteers trained, annual volunteer hours, and contacts, as well as issues and challenges related to coordinating and managing programs. McAleer derived data from a survey sent via postal mail to 48 state coordinators, of which 42 returned the survey. No data was directly collected from local coordinators or EMG volunteers.

In 2009, an abbreviated second national EMG report was compiled from 42 states and the District of Columbia [Cooperative State Research, Education, and Extension Service (CSREES), 2009]. This report estimated the current number of volunteers and hours reported, indicating that 79% of volunteer hours were connected with metropolitan counties and 21% of volunteer hours were connected with rural counties (as defined by the Office of Management and Budget). No data were directly collected from local coordinators or EMG volunteers.

National reports monitoring similar program metrics were also compiled for 2014 and 2016, using online surveys sent to state coordinators by representatives of the extension national committee (Extension Master Gardener National Committee, 2015, 2017). Similar to previous data collection methods, responses were sought from individuals working closely with the program when a state was without a state coordinator. No data was directly collected from local coordinators or EMG volunteers.

The first national study that collected information directly from local coordinators and EMG volunteers was focused on the use of social media for EMG programming purposes. Vines et al. (2016) distributed a Qualtrics (Provo, UT) survey to EMG coordinators through the eXtension listserv with encouragement to also distribute to EMG volunteers in their states. Responses were obtained from 111 state and local coordinators (respective counts not published) and 1275 EMG volunteers in 22 states (Vines et al., 2016). This study was unique in its inclusion of local coordinators and EMG volunteers. While it captured demographic data about program coordinators, state and local coordinator responses were not differentiated. Information collected from EMG volunteers focused primarily on social media use. Vines et al. (2016) reported that state coordinators provided effective survey distribution and participation.

Generational differences are an important consideration for volunteer programs. Described as differences in behavior from one generation to the next that are attributed to differences in values and attitudes (Parry and Urwin, 2011; Rotolo and Wilson, 2004; Strauss and Howe, 1991; and Zemke et al., 2000), generational experiences may affect the inclination to serve versus the need to work, as well as other factors affecting volunteerism, such as affinity for particular tasks, ability to fill specific roles, willingness or ability to work after dark, or adoption of technology (Rotolo and Wilson, 2004).

This is the first study to explore generational difference among EMG volunteers. The EMG program was originally designed to appeal to the Traditionalist generation (born between

1925 and 1942) when the program was developed in the 1970s. In the current study, generational groups are defined as Traditionalists (born between 1925 and 1942), Baby Boomers (born between 1943 and 1960), Generation X (born between 1961 and 1981), and Generation Y (born between 1982 and 2000) (Parry and Urwin, 2011; Rotolo and Wilson, 2004; Strauss and Howe, 1991; and Zemke et al., 2000). It remains to be determined if today's EMG program appeals to all generations.

Two state studies have reported that the EMG volunteers are predominantly white, older, female, educated, and affluent – a remarkably homogeneous group (Schrock et al., 2000; Strong and Harder, 2010), but the demographics of the volunteers has not been assessed nationwide. Ensuring the diversity of EMG programs has been a persistent challenge (Eichberger et al., 2014). Typical trends in volunteering include more women than men [volunteering seen as a woman's role (Rotolo and Wilson, 2004)]; high education levels associated with volunteers (Rotolo and Wilson, 2004; U.S. Department of Labor, 2016); and a predominance of whites (U.S. Bureau of Labor Statistics, 2016).

Of further challenge to the EMG program is the well documented preference of volunteers for episodic, or short-term, volunteer opportunities (Blair et al., 2003; Corporation for National and Community Service, 2016; Graff, 2001). Finding individuals to fulfill the considerable volunteer commitment consistent with the EMG volunteer experience may become increasingly difficult if potential volunteers have a preference for short-term engagements. The EMG program requires a willingness and ability to meet a significant time commitment for training and ongoing projects that span years, if not decades. Commitment to the program is reflected in the number of years an individual has been actively volunteering and meeting

program requirements (volunteer service) as well as the number of volunteer service hours reported in 2015 (the previous complete program and reporting cycle).

The current study of EMG volunteers and coordinators allows in-depth analysis of national, regional, state, and local demographics. The results will help identify trends and influences that may shape the direction of future program priorities.

MATERIALS AND METHODS

Survey Instrument and Distribution

A quantitative national study of current and inactive EMG volunteers and their state and local coordinators in all 49 U.S. EMG programs was conducted in Fall 2016 (University of Georgia IRB Approval #3567). Survey protocol was based on Dillman methods for online survey research (Dillman et al., 2014) as well as published accounts of EMG volunteer survey research (Takle et al., 2016; Vines et al., 2016). Precedence for distributing a survey in both paper format and via Internet was set by Stukas et al. (2009), who noted that age was the primary difference in respondents using these two methods.

The study included three separate surveys that built upon one another and were conducted consecutively (Fig. 2). For state-level information about the EMG program and its state coordinator, Survey 1 (23 questions) was sent via email to 56 email addresses representing 47 states (as published on the eXtension website in Sept. 2016). It asked permission to share the study survey with local coordinators and EMG volunteers in the state. To reach states operating without a state coordinator and provide opportunity for all state EMG programs to participate, the survey was promoted through existing communication chains, including the 2016 EMG Coordinators' Conference in Montana; through the EMG Coordinators' listservs coordinated by

eXtension; and in the Sept., Oct., and Nov. 2016 editions of the EMG Coordinators' eBlast newsletter email. In previously published survey methodology for this audience, individuals working closely with the program (i.e., interim coordinators, designated staff) provided state EMG program data in lieu of a state coordinator when EMG programs were operating without a state coordinator (i.e., Arizona had four contacts listed on the program contact page for eXtension).

Survey 2 (21 questions) was sent via email to local program coordinators (precise number is unknown) by the participating state coordinators. It gained information about local coordinators and established their consent to share Survey 3 with EMG volunteers reporting directly to them.

Survey 3 was sent via email to EMG volunteers by participating local coordinators. This survey contained five sections, including EMG volunteer background and experience, reasons for volunteering, benefits from volunteering as an EMG, EMG volunteer activities, and demographic information. Questions were drawn from previous studies and existing survey instruments (Clary et al., 1998; Houle et al., 2005; Relf and McDaniel, 1994; Stukas et al., 2009; Takle et al., 2016) with permission from authors (S.T. Dorn and B.J. Houle, personal communication; S.T. Dorn and P.D. Relf, personal communication; S.T. Dorn, D.S. Schrock, and C. Haynes, personal communication; S.T. Dorn, A.A. Stukas, and E.G. Clary, personal communication). The entire survey instrument included 168 questions organized in five sections.

Volunteer demographics gathered in the current study included gender, race/ethnicity, year of birth, marital status, child status, current employment status, income range, and level of education. Several questions captured the individual's training year, number of years of active

service with the program, the county in which the individual volunteered, and the number of volunteer service hours reported in 2015 (the most recent full program year).

To document EMG programs by population size of the host county, this study utilizes the 2013 Rural-Urban Continuum Codes (RUCC) presented by USDA's Economic Research Service (2013) to describe the counties in which EMG volunteers serve. RUCC is a classification scheme that distinguishes metropolitan counties by the population size of their metro area, and nonmetropolitan counties by degree of urbanization and adjacency to a metro area. The RUCC includes three metro codes (1-3), four nonmetro codes (4-7), two rural codes (8 and 9), and two codes describing unknown areas (88 and 99). Each county in the U.S. is assigned one of the 11 codes. For the purpose of this study, the 11 RUCC codes were reduced to four categories, including urban (codes 1-3), suburban (codes 4-7), rural (codes 8-9), and unknown (codes 88 and 99).

Active and inactive EMG volunteers were surveyed. Active EMG volunteers are those individuals who have completed an established state EMG training curriculum and are completing required volunteer service hours (40 h minimum in the training year and 20 h minimum in subsequent years) (Langellotto et al., 2015). Inactive EMG volunteers are those individuals who have completed required training and volunteer service, but have not reported active volunteer service in the previous one or two years.

The EMG survey instrument was tested for validity and reliability by three counties in Georgia (urban, suburban, and rural) prior to initiating the national study. It was sent via email by the state coordinator to three local coordinators, who then emailed the survey to their active and inactive EMG volunteers. Results of the pilot test were used to modify the survey instrument prior to launching the national survey.

The Qualtrics surveys were administered between 3 Oct. and 14 Nov. 2016, through the existing framework of State and local EMG program coordinators, as identified via eXtension's official list of state EMG program coordinators (Extension Master Gardener National Committee, 2016). An introductory email from the researcher introducing and legitimizing the survey was sent to state coordinators in late September, asking them to introduce the survey to their local coordinators and EMG volunteers using the distribution protocol outlined above and in Fig. 2. This first introductory message about the study was followed one week later by another email containing the actual survey links. The surveys remained open for two months, with follow-up emails sent at weeks 2, 4, and 6. Anonymous responses to the surveys were returned directly to the project investigator. In response to individuals and coordinators indicating challenges with the online format (10 to 15 per notice sent), a PDF of the survey document was distributed via email with the week 6 reminder, including instructions to print and complete locally and return by postal mail.

Statistical Analysis and Data Interpretation

The resulting nonrandom convenience sample (a non-probability sample that is easy to reach, such as a defined set of volunteers) was composed of people who received and responded to the survey links. In 2015, state coordinators reported 83,389 EMG volunteers in the United States (Extension Master Gardener National Committee, 2015). Responses to the current study were expected to meet or exceed the 1097 responses required for a desired precision rate of $\pm 3\%$ and a confidence interval of 95% for $p=0.5$ (Meier et al., 2015). IBM SPSS (version 23 for Windows; IBM Corp., Armonk, NY) was used to analyze responses through the generation of descriptive statistics and analysis of variance (ANOVA). Though state and local coordinators are described demographically herein, analysis of variance (ANOVA) is primarily focused on EMG

volunteers. Where significant, means were separated using Tukey and Games-Howell post hoc tests. Chi-square tests were used to compare nominal variables. When there were less than 5 expected counts per cell, a Monte Carlo test of exact fit was used.

RESULTS

Survey Response Rates

Survey 1 (state coordinators) received 97 online responses, including 49 incomplete responses that were discarded. For the five states represented by more than one response, the most complete response per state was analyzed ($n=35$). A state-level response was collected for 35 of 49 recognized EMG programs in the U.S. (71.4%) (Table 3.1).

Survey 2 (local coordinators) received 414 total responses, including 124 incomplete responses that were discarded. The remaining 290 online responses from local coordinators represented 29 states. An 18.9% response rate for local coordinators was estimated from the number of local programs provided by state coordinators (assuming that each local EMG program has a local coordinator) (Table 3.1).

Survey 3 (EMG volunteers) was opened or started by more than 9000 individuals; however, only responses of completed surveys were included in the analysis ($n=7498$) (Table 3.1). This represents a 9.75% response rate from the estimated number of EMG volunteers reported by responding state coordinators (Table 3.1). No paper copies of the survey were returned. The EMG volunteer survey took an average 53.3 min to complete.

Profile of Coordinators and EMG Volunteers

State coordinators responding to Survey 1 have a mean age of 51.2 years, ranging from 30 to 63 years. State coordinators are 70.6% female and primarily white (94.3%). Most state

coordinators (94.1%) have a graduate degree (MS or higher). On average, state coordinators have served in their position 7.2 years (median = 4 years) (Table 3.2).

Local coordinators responding to Survey 2 have a mean age of 51.9 years, ranging from 22 to 81 years. Local coordinators are 75.7% female. Though they are primarily white (94.3%), there are six additional racial categories reported among local coordinators. Some local coordinators (57.4%) have a graduate degree (MS or higher). On average, local coordinators have served in their position 7.5 years (median = 5.5 years) (Table 3.2).

Extension Master Gardener (EMG) volunteers responding to Survey 3 were 82% female, primarily white (93.7%), and of economic means (76.7% indicate income \$50,000 or higher, and 36.5% report over \$100,000). EMG volunteers have a mean age of 64.8 years (median = 65 years), ranging from 16 to 96 years. Most are married (77.8%) with children (76.8%). EMG volunteers have a broad range of education levels, but the majority (71.6%) have a bachelor's degree or higher. Some EMG volunteers are employed (30.7%), while most are retired (64.1%). On average, EMG volunteers have served 7.7 years (Table 3.2).

The demographics survey included responses from active and inactive EMG volunteers. Of the 7498 complete EMG responses, 91.9% met their state's criteria for active status in 2015 (the prior complete program cycle), while 8.1% did not and were considered inactive. Because of its small sample size ($n=448$), no additional analysis was performed on inactive respondents and this group is not included in Table 3.2.

Generational Differences Among EMG Volunteers

Four generations (Traditionalist, Baby Boomer, GenX, and GenY) were represented in survey responses. EMG volunteers were 14.5% Traditionalists, 73.2% Baby Boomers, 11.5% GenX, and 0.9% GenY (Fig. 3). Significant differences among EMG volunteers by generation

were observed (Table 3.3). The mean age at time of initial training for each generation was 65.7 years for Traditionalists, 58.1 years for Baby Boomers, 43.0 for GenXers, and 28.2 years for GenYers (Fig. 4).

Extension Master Gardener (EMG) volunteers in the Traditionalist generation report the longest average length of service to the EMG program (11.8 years), followed by Baby Boomers, who have served an average of 7.3 years. GenX and GenY have served fewest average years with the program (5.5 and 2.8 years, respectively). EMG volunteers in the Traditionalist generation reported an average 122.2 volunteer service hours in 2015. On average, Baby Boomers reported 111.9 volunteer service hours in 2015, while GenX and GenY EMG volunteers reported 68.1 and 44.2 h, respectively.

Generational differences in education, work status, race, and income were analyzed (data not shown). Significant association was found between generation and education [chi-square (df); $\chi^2(18) \geq 93.434$, $P < 0.001$], though this relationship was very weak (Cramer's $V = 0.074$). The percentage of volunteers with a bachelor's degree increased with each successive generation, though the percentage of volunteer's with a graduate degree did not follow the same pattern. No association was found between generation and race/ethnicity ($\chi^2(57) \geq 103.210$, $P = 0.076$).

Significant association was found between generation and work status ($\chi^2(15) \geq 1504.922$, $P < 0.001$), and this relationship is moderately strong (Cramer's $V = 0.296$). GenY had the highest percentage of all generations indicating full time employment (68.5%), while Traditionalists had the highest percentage of generations indicating retirement (91%). Only 7.7% of Traditionalists and 27.9% of Baby Boomers indicated full or part time employment, while 77.7% of GenXers and 87.1% of GenYers report full or part time employment.

Significant association was found between generation and income ($X^2(15) \geq 118.615$, $P < 0.001$), though this relationship is very weak (Cramer's $V = 0.094$). GenY had the highest percentage (52.8%) of individuals indicating annual income below the median household income level, while GenX had the lowest percentage (17.6%) of individuals indicating annual income below the median household income level.

Extension Programmatic Region Differences Among EMG Volunteers

Significant differences were evident with respect to extension programmatic regions. Responses were received from all six extension programmatic regions (Table 3.4). The North Central region participated at the highest rate (40.6%). The Southwest region participated at the lowest rate (5.9%). EMG volunteers did not respond proportionately to their Extension region. For example, the North Central programmatic region accounted for 22.2% of the total EMG volunteers reported in the study, yet 40.6% of EMG volunteer responses received came from this region.

Extension Master Gardener (EMG) volunteer characteristics by region were further analyzed (Table 3.5). The average age of EMG volunteers from Southwest, North Central, and Northeast regions was below the overall average (mean = 64.8 years), while the average age of EMG volunteers from Southeast, South Central, and Northwest regions was higher than the average. EMG volunteers from all regions except North Central had lower average years of service (mean = 7.7 years) than the overall mean. EMG volunteers in the Northwest region report the highest average number of volunteer service hours in 2015 (mean = 136.6 h), the last complete year prior to the current study.

Host County Population (Urban, Suburban, and Rural) Differences Among EMG Volunteers

No significant differences were detected among EMG volunteers in urban, suburban, and rural programs. The majority of EMG volunteers responding to the survey indicated they volunteered in an urban county (80.5%), while 17.2% of respondents served in a suburban county. Just 2% of EMG volunteers are connected with rural counties (Table 3.2). This pattern was consistent within EMG programmatic regions, where the majority of responses within each region were identified as volunteering in support of EMG programs in urban areas (data not shown). The mean age of urban, suburban, and rural EMG volunteers was 64.8, 65.4, and 63.8 years, respectively. The mean years of active service for urban, suburban, and rural EMG volunteers were 7.6, 7.8, and 7.6 years, respectively. The mean volunteer service hours reported in 2015 for urban, suburban, and rural EMG volunteers was 108.7, 99, and 86 h, respectively (Table 3.6).

DISCUSSION

This quantitative study provides fresh insight for program coordinators endeavoring to maintain a program that remains attractive to EMG volunteers and relevant to extension priorities. It creates a snapshot in time of the EMG volunteer program, providing a baseline to identify trends and influences that may shape the direction of future program priorities as well as potential for collaborations between extension programs and maximization of resources (Allen et al., 2011).

Given the length and complexity of the included surveys, the response rate was strong and met appropriate levels for statistical significance. A state representation rate of 71.4% (35 of 49 programs) in this current study was consistent with previous participation in national program

reports (CSREES, 2009; Extension Master Gardener National Committee, 2015, 2017) and a national survey (Vines et al., 2016). EMG volunteer response rate was estimated at 9.74%, based on the number of EMG volunteers reported by state coordinators (Table 3.1), and the number of EMG volunteer responses ($n=7498$) exceeded the amount required ($n=1097$) for the desired level of precision ($\pm 3\%$ with a 95% confidence level for $P=.5$) for a population of this size (Meier et al., 2015).

The present study suggests this protocol (issuing an online survey followed by paper copy of the same survey) could be modified with this subject group. No paper copies were returned and a high number of online responses were received. This could be attributed to increasing comfort among EMG volunteers with this survey technology, increased access to computers and Internet, or a greater awareness of the opportunity to participate in unified research and evaluation efforts.

This study presents the first plausible estimate of the number of local coordinators. While Vines et al. (2016) reported that 111 coordinators responded to their social media survey, they do not specify how many were a local or state coordinator. There is no published number of local coordinators, and this number can be highly variable due to position turnover. State coordinators participating in this study reported 1534 local EMG programs in the United States. Assuming there is a local coordinator for each of these programs, the maximum number of local coordinators is 1534. Using this estimate, the local coordinator response rate to this study is 18.9% ($n=290$).

Volunteer Service

Extension Master Gardener (EMG) volunteers remain highly committed, as indicated by the number of volunteer service hours reported in 2015 and the number of years as an active

EMG volunteer. EMG volunteers reported a median of 60 service hours in 2015, surpassing the national median of hours served by all volunteers (52 hours), as reported by the U.S. Bureau of Labor Statistics (2016). EMG volunteers have a higher average years of service (mean = 7.7 years) than local (mean = 7.5 years) or state (mean = 7.2 years) coordinators. In many cases, they have out-served their local and state coordinators. This dynamic is an important consideration to incoming coordinators who often must address changing program policies and procedures with a volunteer base that was recruited and trained with different expectations.

Generational Differences

Though vastly outnumbered by Baby Boomers, the Traditionalists reported more service hours per volunteer in 2015 than any other generation (Table 3.4). As this generation gives way to successive volunteers, coordinators may see differences in numbers of volunteer hours committed to EMG programs. Though representing only 12.4% of respondents in the current study, GenX and GenY are becoming active EMG volunteers, entering the EMG program at a significantly younger age, as reflected by age at initial training (Table 3.4). While there are logical reasons for lesser participation by younger generations (i.e., work, childbearing, elder family care, etc.), these results suggest that the EMG program model has some appeal to younger generations and efforts to attract these volunteers may be rewarded.

Given the high levels of education attained by program participants, awareness of trends and techniques in teaching and learning may be important considerations for increasing GenX and GenY participation. The significance of EMG volunteers of the younger GenX and GenY generations to work in some capacity while volunteering bears further exploration. If younger generations are willing to accommodate volunteer opportunities in their work schedules, it may benefit coordinators to carefully consider the goodness of fit between volunteer projects, roles,

and times of availability. Additionally, the income levels of potential GenX and GenY EMG volunteers could help or hinder future program involvement. When compared to other generations, GenXers are working, indicate more affluent incomes, and may be more likely to afford EMG program fees. GenYers, indicating less income, may not have the financial flexibility to afford EMG program fees. This could limit GenY involvement in local programs, especially those with higher or increased participation and training fees.

As EMG programs include younger generations, coordinators need to be prepared to work with all generations (Arsenault, 2004). There are few resources targeting the needs of younger volunteers available in the EMG Coordinators' Resource Repository (Langelloto and Dorn, 2017), and additional resources are needed. Being flexible and able to leverage differences between generations has reduced turnover in the workplace (Arsenault, 2004) and perhaps could do the same in the volunteer place. Additionally, GenY may be the key to diversification of the EMG program. As a whole, this group has more contact with other racial groups (Arsenault, 2004). In addition, it is showing a renewed interest in volunteerism as a way to diversify skills and gain additional experience.

Extension Programmatic Regions

This study reveals significant differences among EMG volunteer across extension programmatic regions, though the reasons for these differences are not readily discernible. For example, EMG volunteers in the Southeast region were slightly older than EMG volunteers in the other regions. Significant differences in years of active service and number of hours reported in 2015 also exist among extension programmatic regions. These differences could be spurious or could have real causes. While not identifiable to the authors of this study, regional and local

coordinators may recognize the differences as results of retiree transience, age of the local program, program stagnation, or proximity to and availability of volunteer service projects.

Host County Population Differences (Urban, Suburban, and Rural Programs)

Use of the RUCC to describe EMG programs provided unique insight about program distribution and access to its resources. Survey results clearly indicate that EMG programs are predominantly connected with extension programs serving urban counties, though a smaller number of programs exist in suburban and rural counties. With respect to mean age, years of volunteer service, and volunteer service hours reported in 2015, post hoc tests indicate no significant differences in EMG volunteers serving host counties with different population densities (Table 3.6).

Though the EMG program has spread to suburban and rural counties, it has not established to the same extent in these locations. Fundamental program elements may be more challenging for establishing an EMG program in a rural county, such as recruiting sufficient program participants from a smaller population base; direct and indirect costs of conducting intensive volunteer training on a smaller scale; wider geographic spread of projects, volunteers, and clients; providing adequate volunteer service opportunities without overburdening smaller volunteer groups; and competing programming responsibilities of agents/program coordinators. Finding solutions to these challenges may create a new frontier for the EMG program, capitalizing on its tremendous potential to reach far more extension clientele than other extension program areas (McAleer, 2005).

Comparison to Previous Demographic Studies

Though a meta-analysis was not attempted, the current study's data were compared to historic demographic data for perspective on EMG program development over time. Comparing

current EMG volunteer data to previously published studies shows an aging volunteer base. Relf and McDaniel (1994) provided one of the first demographic reports of EMG volunteers, including in their results three age brackets and a maximum age of 50+. More than half of respondents (55%) were older than 50 years of age. Over time, studies of EMG volunteers have reported a progressively wider age range, as reflected in number of age brackets and maximum age (i.e., less than 25 years, 25-50 years, 50+ years). For example, Schrock et al. (2000) captured five age brackets with a maximum age of 70+; more than half of respondents (60%) were older than 50 years of age. By 2001, Kirsch and VanDerZanden captured seven brackets with a maximum age of 84 years; more than half of respondents (70%) were older than 50 years of age. This trend is confirmed in the current study, with seven age brackets and a maximum age of 99. Despite participation by younger generations, nearly all of respondents (94%) in this study were older than 50 years of age.

This study suggests EMG volunteers have a higher level of income than previous studies. In seven of eight demographic EMG studies published between 1994 and 2016 (Boyer et al., 2002; Kirsch and VanDerZanden, 2002; Relf and McDaniel, 1994; Rohs and Westerfield, 1996; Schrock et al., 2000; Wilson and Newman, 2011; Takle et al., 2016), half or more respondents indicate income levels above the U.S. Census median income for the respective year of study (U.S. Census Bureau, 2017). In the current study, 76% of participants report income levels above the 2015 median income level (Posey, 2016).

The current study reflects a higher level of education among EMG volunteers than previous studies (Boyer et al., 2002; Rohs and Westerfield, 1996; Schrock et al., 2000). Over time, the percentage of respondents reporting higher education levels, such as graduate degrees and post-college training, has increased.

Lack of diversity among EMG volunteers continues to be a concern for the program. Demographic composition of EMG volunteers can create gaps between the volunteers and the communities they serve (Eichberger et al., 2014). Studies of EMG volunteers have consistently reported a higher percentage of females than males with 64% female in 1994 (Relf and McDaniel, 1994) and 82% female in the current study.

Consistent with previous studies, a majority of EMG volunteers are white. Eight race/ethnicity categories were measured, reflecting the most program diversity recorded in demographic studies of EMG volunteers. It does not reflect, however, an overall increase in percentage of non-white EMG volunteers. Lack of diversity in volunteers is not unique to the EMG program and is consistent with volunteering in general (U.S. Bureau of Labor Statistics, 2016).

This study presented opportunity to document the demographic base of 21st century EMG volunteers in the United States. As the EMG program approaches its fifth decade and momentum builds for national leadership, collaborative programming, and innovative impact reporting, it is important to understand the volunteers and their coordinators in order to face new challenges and continually advance the EMG program.

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Table 3.1. State, local, and volunteer response rates for the 2016 quantitative study of 21st century Extension Master Gardener (EMG) volunteers in the United States.

Survey	Complete responses (no.)	Responding states (no.)	Estimated response rate (%)
State coordinators (Survey 1)	35	35	71.4 (35 of 49 EMG programs in U.S.)
Local coordinators (Survey 2)	290	29	18.9 (290 of 1,534 local EMG programs in U.S. ^z)
Extension Master Gardeners (Survey 3)	7,498	39	9.75 (7,498 of 76,864 total EMG volunteers in U.S. ^y)

^zAs reported in Survey 1; assumes each local program has a local coordinator.

^yAs reported in Survey 1; State responses in this study account for fewer EMG volunteers nationally (76,864) than were reported in the 2015 EMG National Report (83,389). The difference in the two numbers comes from the differences in number of EMG volunteers reported by states responding to each study.

Table 3.2. Demographic parameters of responders to the 2016 quantitative study of 21st century Extension Master Gardener (EMG) volunteers in the United States.

Parameter	State coordinator		Local coordinator		Active EMG	
	responses		responses		volunteer responses	
	Respondents		Respondents		Respondents	
	no.	(%)	no.	(%)	no.	(%)
Age (years)	mean = 51.2 years		mean = 51.9 years		mean = 64.8 years	
<40	5	14.7	50	24.8	112	2.1
40-49	8	23.5	28	13.9	217	4.1
50-59	12	35.3	46	22.8	834	15.6
60-69	9	26.4	65	32.2	2582	48.2
70-79	0	0	11	5.4	1443	26.9
80-89	0	0	2	0.9	163	3.0
90-99	0	0	0	0	6	0.1
Generation						
Traditionalists ^z	0	0	6	3	774	14.5
Baby Boomers ^y	14	41.8	94	46.5	3920	73.2
GenX ^x	17	50.0	66	32.7	616	11.5
GenY ^w	3	8.8	36	17.8	46	0.9
Gender						
Male	10	29.4	51	24.3	985	18.0
Female	24	70.6	159	75.7	4483	82.0

Race/Ethnicity

White	34	94.3	201	94.3	5168	93.7
African American	0	0	5	2.3	51	0.9
American Indian	0	0	1	0.5	59	1.1
Asian	2	5.7	3	1.4	35	0.6
Native Hawaiian	0	0	1	0.5	9	0.2
Latino	0	0	1	0.5	35	0.6
Mixed	0	0	0	0	64	1.2
Other	0	0	1	0.5	95	1.7

Relationship status

Single	3	8.6	19	9.3	307	5.7
Married	26	74.3	167	81.5	4202	77.8
Divorced	2	5.7	7	3.4	473	8.9
Widowed	0	0	9	4.4	390	7.2
Separated	1	2.9	3	1.5	22	0.4

Have children

No	11	32.4	69	33.3	1245	23.2
Yes	23	67.6	138	66.7	4128	76.8

**Annual household
income**

<\$25,000	N/A ^v		N/A ^v		217	4.8
\$25,000 - \$49,999					842	18.5

\$50,000 - \$99,999					1826	40.2
\$100,000 - \$149,999					979	21.6
\$150,000 - \$199,999					341	7.5
>\$200,000					335	7.4

Work status

Full time outside home	33	97.1	131	62.7	802	14.7
Part time outside home	1	2.9	40	19.1	556	10.2
Full time from home	0	0	3	1.4	115	22.1
Part time from home	0	0	2	1.0	204	3.7
Do not work	0	0	N/A		274	5.0
Retired	0	0	33	15.8	3490	64.1

Highest level of education

Some high school	0	0	0	0	3	0.1
High school diploma/General Education Degree	0	0	2	1.0	205	3.8
Some college	0	0	13	6.2	706	12.9
Associate degree	0	0	15	7.2	427	7.8
Technical/professional degree	0	0	1	0.5	207	3.8
Bachelor's degree	2	5.9	58	27.8	1739	31.8

Graduate degree	32	94.1	120	57.4	2175	39.8

Host county population

density

Urban					5520	80.5

Suburban					1177	17.2

	N/A		N/A			

Rural					144	2.1

Unknown					15	0.2

Mean years of servic	7.2		7.5		7.7	

^zIndividuals in the Traditionalist generation were born in 1925-42.

^yIndividuals in the Baby Boomer generation were born in 1943-60.

^xIndividuals in the GenX generation were born in 1961-81.

^wIndividuals in the GenY generation were born in 1982 – 2000.

^vNot collected in effort to protect privacy.

Table 3.3. Analysis of Means by Generation for responses to the 2016 quantitative study of 21st century Extension Master Gardener (EMG) volunteers in the United States

Variable	no.	Mean^z	SD	df	F	<i>P</i>
Current age (years)						
Traditionalist ^y	774	77.5	3.43	3	5459	.000***
Baby Boomer ^x	3920	65.3	4.58			
GenX ^w	616	48.6	5.69			
GenY ^v	46	29.7	4.33			
Age at initial training (years)						
Traditionalist ^y	729	65.7 a	7.4	3	1377.3	.000***
Baby Boomer ^x	3744	58.1 b	7.0			
GenX ^w	575	43.0 c	6.7			
GenY ^v	40	28.2 d	3.1			
Years of active service (years)						
Traditionalist ^y	761	11.8 a	6.89	3	178.56	.000***
Baby Boomer ^x	3886	7.3 b	5.64			
GenX ^w	614	5.5 b	4.42			
GenY ^v	46	2.8 c	2.31			
Service reported in 2015 (h)						

Traditionalist ^y	556	122.2 a	175.5	3	16.184	.000***
Baby Boomer ^x	3225	111.9 ab	161.8			
GenX ^w	527	68.1 ab	79.99			
GenY ^v	43	44.2 c	27.80			

***Significant at $P \leq 0.001$

^zMean separation (in columns) by Tukey and Games-Howell post hoc tests at $P \leq 0.001$

(lowercase letters). Means followed by the same letter not significant from each other.

^yGenerational age ranges from 74 to 91 years.

^xGenerational age ranges from 56 to 73 years.

^wGenerational age ranges from 35 to 55 years.

^vGenerational age ranges from 16 to 34 years.

Table 3.4. Extension programmatic region^z response rates for the 2016 quantitative study of 21st century Extension Master Gardener (EMG) volunteers in the United States.

Region	State coordinator		Local coordinator		EMG survey		
	survey		survey		Proportion of U.S. EMGs (%)		
	Regional	States	Regional	States		Regional	States
	response (%)	responding (no.)	response (%)	responding (no.)		response (%)	responding (no.)
Northeast ^y	20	7 of 11	12.4	5 of 11	11.8	13.3	8 of 11
North							
Central ^x	28.6	10 of 12	27.6	7 of 12	22.2	40.6	10 of 12
Northwest ^w	8.6	3 of 7	13.1	4 of 7	10.5	9.8	3 of 7
Southwest ^v	5.7	2 of 6	3.1	3 of 6	3.4	5.9	4 of 6
South							
Central ^u	20	7 of 7	13.8	5 of 7	23.3	12.4	7 of 7
Southeast ^t	17.1	6 of 6	30	5 of 6	28.7	18	6 of 6

^zExtension programmatic regions were established by EMG National Committee.

^yNortheast region includes West Virginia, Pennsylvania, Delaware, New Jersey, Connecticut, New York, Massachusetts, Maryland, New Hampshire, Vermont, and Maine.

^xNorth Central region includes North Dakota, South Dakota, Nebraska, Kansas, Missouri, Iowa, Minnesota, Wisconsin, Michigan, Illinois, Ohio, and Indiana.

^wNorthwest region includes Washington, Oregon, Idaho, Montana, Wyoming, Alaska, and Hawaii.

^vSouthwest region includes California, Nevada, Utah, Arizona, Colorado, and New Mexico.

^uSouth Central region includes Texas, Oklahoma, Arkansas, Louisiana, Mississippi, Kentucky, and Tennessee.

^tSoutheast region includes Alabama, Georgia, Florida, South Carolina, North Carolina, and Virginia.

Table 3.5. Analysis of means by extension programmatic region^z for responses the 2016 quantitative study of 21st century Extension Master Gardener (EMG) volunteers in the United States.

Variable	no.	Mean^y	SD	df	F	P
Current age (years)						
Northeast ^x	716	64.3a	9.6	5	11.237	.000*
North Central ^w	2125	64.2a	9.2			
Northwest ^v	543	65.2a	9.4			
Southwest ^u	313	64.3a	9.1			
South Central ^t	668	65.2a	9.2			
Southeast ^s	919	66.8b	8.4			
Years of active service (years)						
Northeast ^x	886	7.9bc	6.060	5	9.027	.000*
North Central ^w	2688	8.1c	6.030			
Northwest ^v	661	7.4abc	6.078			
Southwest ^u	388	7.0ab	6.156			
South Central ^t	850	6.9a	5.320			
Southeast ^s	1216	7.3ab	5.880			
Service reported in 2015 (h)						
Northeast ^x	650	96.4ab	111.341	5	18.927	.000*

North Central ^w	1946	84.2a	142.581
Northwest ^v	475	136.6d	210.642
Southwest ^u	305	110.2bc	148.914
South Central ^t	601	131.3cd	170.815
Southeast ^s	814	129.5cd	163.885

*Significant at $P \leq 0.05$.

^zExtension programmatic regions were established by EMG National Committee.

^yMean separation (in columns) by Tukey and Games-Howell post hoc tests at $P \leq 0.001$ (lowercase letters). Means followed by the same letter not significant from each other.

^xNortheast region includes West Virginia, Pennsylvania, Delaware, New Jersey, Connecticut, New York, Massachusetts, Maryland, New Hampshire, Vermont, and Maine.

^wNorth Central region includes North Dakota, South Dakota, Nebraska, Kansas, Missouri, Iowa, Minnesota, Wisconsin, Michigan, Illinois, Ohio, and Indiana.

^vNorthwest region includes Washington, Oregon, Idaho, Montana, Wyoming, Alaska, and Hawaii.

^uSouthwest region includes California, Nevada, Utah, Arizona, Colorado, and New Mexico.

^tSouth Central region includes Texas, Oklahoma, Arkansas, Louisiana, Mississippi, Kentucky, and Tennessee.

^sSoutheast region includes Alabama, Georgia, Florida, South Carolina, North Carolina, and Virginia.

Table 3.6. Analysis of means by host county population densities (urban, suburban, and rural) for responses to the 2016 quantitative study of 21st century Extension Master Gardener (EMG) volunteers in the United States.

	no.	Mean	SD	df	F	<i>P</i>
Current age (years)						
Urban	4319	64.8a	9.3	3	1.951	.119NS
Suburban	924	65.4a	8.9			
Rural	106	63.8a	9.5			
Unknown	8	61.6a	15.2			
Total	5357	64.8	9.2			
Years of active service (years)						
Urban	5471	7.6a	5.9	3	.647	.585 NS
Suburban	1157	7.8a	5.7			
Rural	141	7.6a	5.7			
Unknown	11	9.1a	9.0			
Total	6780	7.6	5.9			
Service reported in 2015 (h)						
Urban	3962	108.7a	158.2	3	1.561	.197 NS
Suburban	794	99.0a	153.8			
Rural	93	86.0a	101.1			
Unknown	10	72.5a	45.9			
Total	4859	106.6	156.5			

Urban

*Nonsignificant at $P \leq 0.05$.

^xMean separation (in columns) by Tukey and Games-Howell post hoc tests at $P \leq 0.05$ (lowercase letters). Means followed by the same letter not significant from each other.

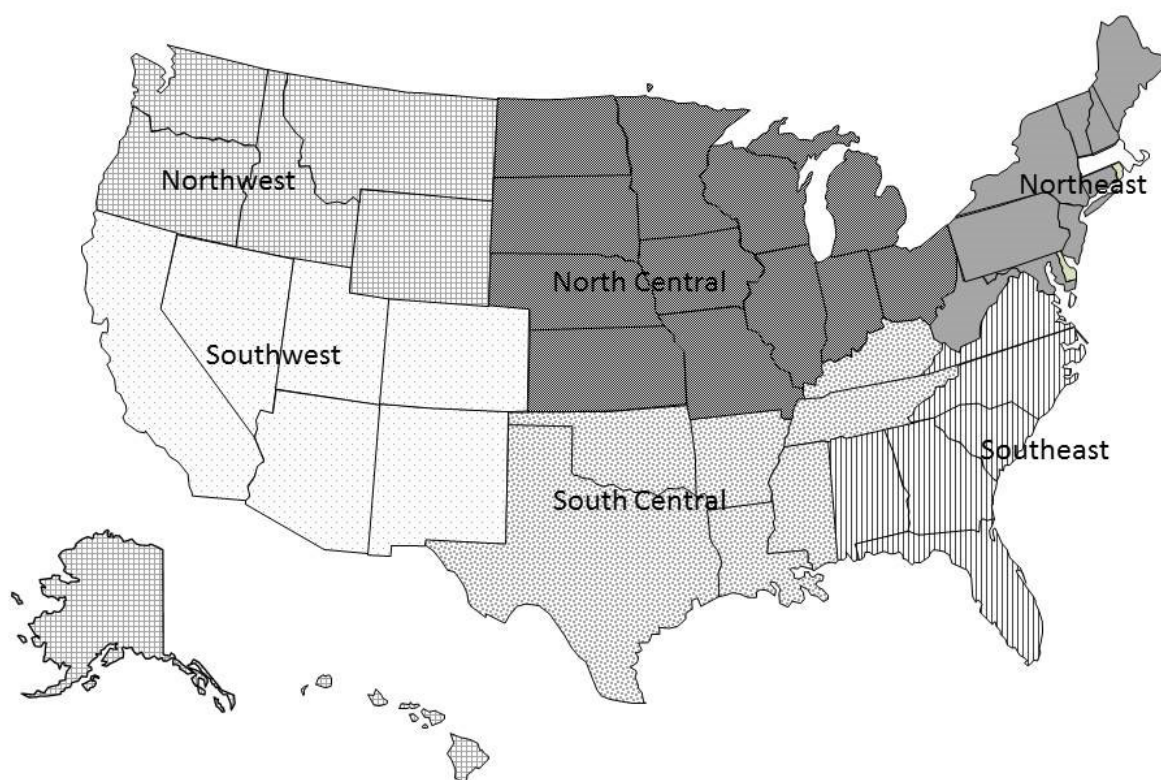


Fig. 3.1. There are six extension programmatic regions for Extension Master Gardener (EMG) programs in the United States. These regions were designated in 2006 by the EMG National Committee to facilitate cooperation, communication, and collaboration among EMG programs nationwide. EMG programs exist in all states except Massachusetts, where leadership for Master Gardeners is not provided by extension.

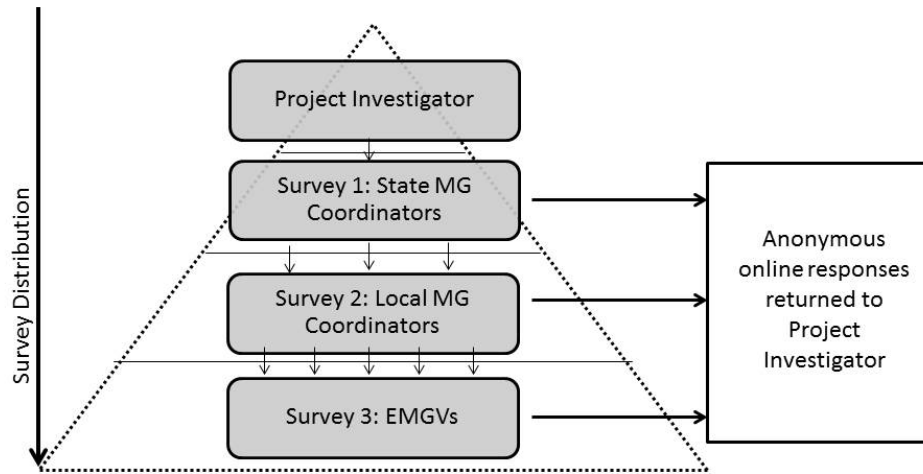


Fig. 3.2. Protocol for the 2016 national study of Extension Master Gardener (EMG) volunteers and their coordinators utilized existing EMG program structure for survey distribution. Surveys 1, 2, and 3, and subsequent reminders were distributed via an existing hierarchy of state and local coordinators and EMG volunteers. Use of an online survey tool allowed for anonymous responses to be returned to the Project Investigator.

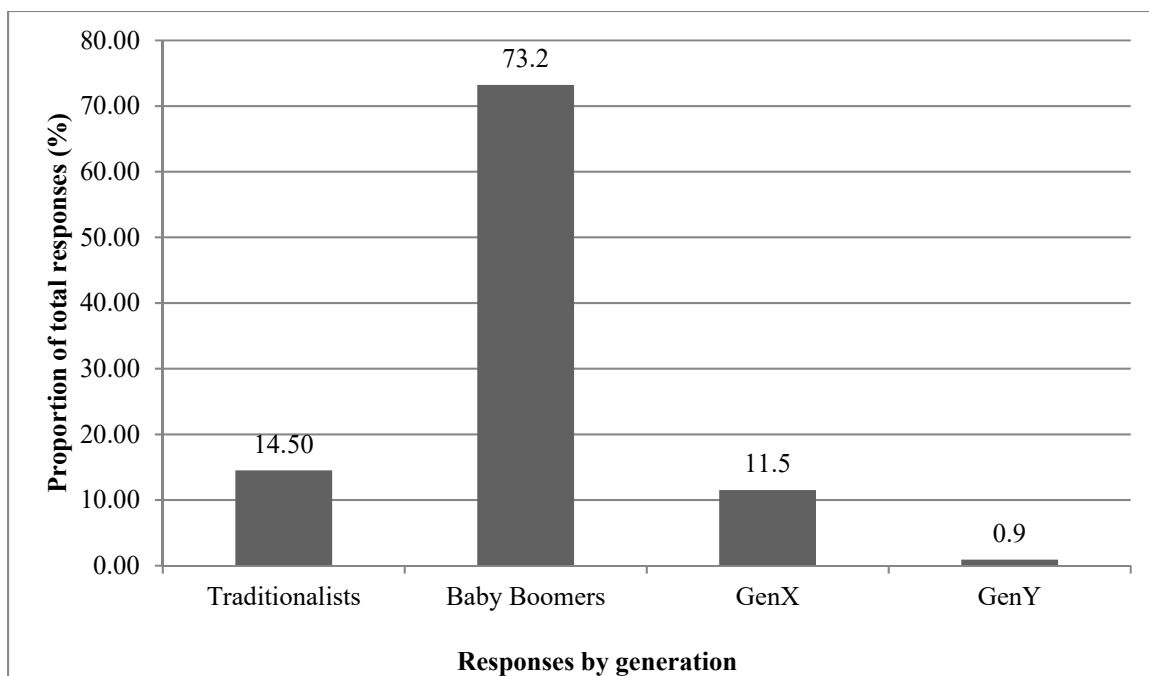


Fig. 3.3. Extension Master Gardener (EMG) volunteer responses to the 2016 national study of Extension Master Gardener (EMG) volunteers represented four generations [Traditionalist (born 1925-42), Baby Boomer (born 1943-60), GenX (born 1961-81), and GenY (born 1982-2000)]. Responses from EMG volunteers in the Baby Boomer generation outnumbered responses from all other generation categories combined.

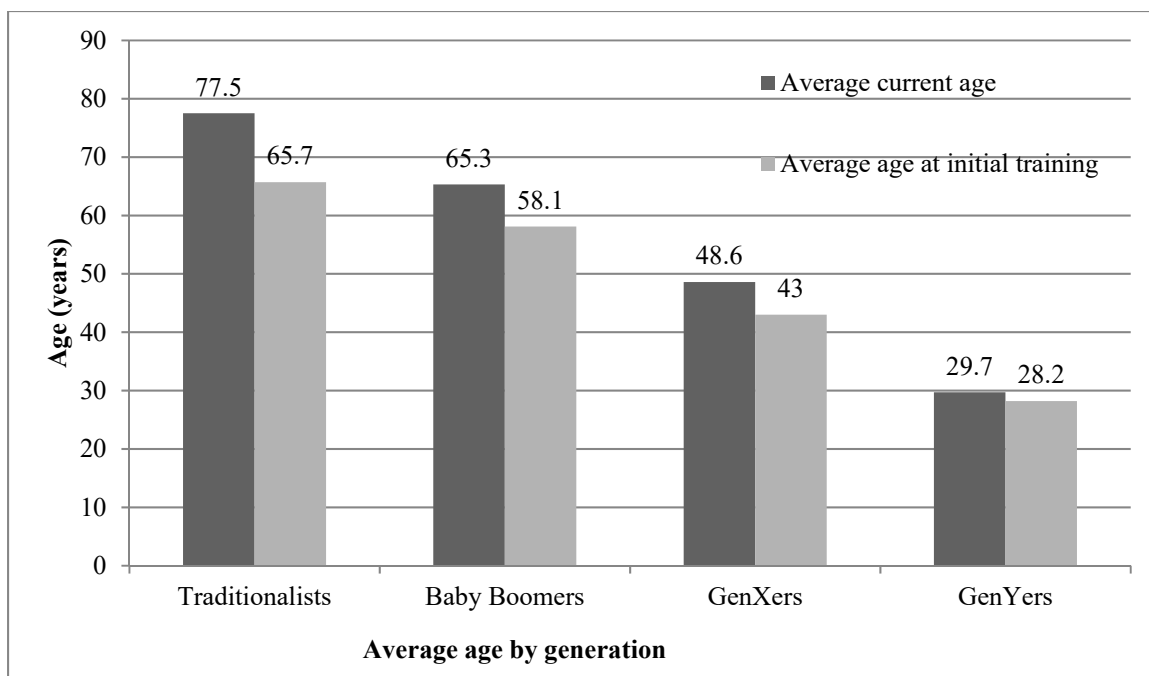


Fig. 3.4. Average current age and average age at initial training of volunteers responding to the 2016 national study of Extension Master Gardener (EMG) volunteers differed for each of the four generations represented in survey responses [Traditionalist (ranging from 74 to 91 years), Baby Boomer (ranging from 56 to 73 years), GenX (ranging from 35 to 55 years), and GenY (ranging from 16 to 34 years)].

CHAPTER 4

**ARE WE ON THE SAME PAGE? EXPLORING NATIONAL, STATE, AND
LOCAL EDUCATIONAL-RESPONSE THEMES FOR EXTENSION MASTER
GARDENER COORDINATORS AND VOLUNTEERS²**

² Sheri Dorn, Milton G. Newberry III, Ellen M. Bauske, and Svoboda V. Pennisi; *HortScience* 54(3):568-575, published March 2019

ABSTRACT

Extension provides outreach to the general public and works to disseminate the latest information and research generated by land grant university (LGU) scientists. The Extension Master Gardener (EMG) volunteer program is one of the most widely recognized programs of extension, created to educate people about research-based consumer horticulture and gardening practices through a network of trained volunteers. Ideally, EMG program initiatives should address local issues and needs and align with the priorities of extension's federal stakeholder, United States Department of Agriculture National Institute for Food and Agriculture (USDA NIFA). Prior to 2015, there were no national standards for EMG volunteer programs, and at this time, there is no official work plan or prioritization of educational programming. A quantitative national study of EMG state and local coordinators and volunteers was conducted in Fall 2016 to assess the importance of six educational-response themes (i.e., the strategy for EMG volunteer outreach) for program management (state and local coordinators) and program participants (EMG volunteers). The study compared theme importance between program management and participants, and in turn, allowed a comparison to previously published historical data. Response to individual inquiry is consistently the most important educational-response theme for EMG programs, regardless of responder position within the program (management or volunteer). Results revealed that state and local coordinators (program management) score educational-response themes similarly. EMG volunteers score the importance of educational-response themes similarly to each other, as well, though some differences are apparent between urban, suburban, and rural programs. Though there are slight differences in importance of response themes between program management and EMG volunteers, it appears that the EMG volunteer program has an effective organizational structure with an upper and middle management generally aligned

at every level. It is plausible that the variability in importance of response themes could be attributed to nuances in local issues and needs. Historical comparison indicates that the importance of educational-response themes has changed over time, suggesting that themes cycle and change. While the EMG program does not have a national plan for programming, this assessment of EMG volunteer program educational-response themes provides perspective on program direction and a useful starting point for discussion. It is a timely conversation, as EMG programs are increasingly expected to be more accountable and show community impact, and these assessments serve as an important baseline for a national program poised for growth and development.

Additional Index Words: consumer horticulture, outreach, survey, strategic planning, nonformal and informal teaching methodology

INTRODUCTION

The Extension Master Gardener (EMG) volunteer program is one of the most widely recognized programs of extension (Meyer, 2007). It was designed specifically to address the demands of consumer horticulture (CH), defined as the cultivation, use, and enjoyment of plants, gardens, landscapes, and related horticultural items to the benefit of individuals, communities, and the environment (NICH, 2018). In the U.S., it is extension that conducts the training and management of these volunteers, and the recommendations provided and educational programs delivered by EMG volunteers are rooted in university research.

The EMG program proved to be such a vital extension of services for Washington State University that it was rapidly implemented in all 50 states (Allen et al., 2012). Currently, 49 EMG programs are recognized in the U.S. (Extension Master Gardener National Committee,

2016c). More than 90,000 EMG volunteers reported service hours in 2016, reaching a reported 5.8 million clientele (Extension Master Gardener National Committee, 2017).

Extension Master Gardener (EMG) programs were originally targeted for development in metro areas to help extension to meet the growing demands for CH information in an increasingly urbanized environment (Boyer et al., 2002). Since their inception, EMG volunteer programs have spread out into suburban and rural areas. Dorn et al. (2018) reported that 80.5% of EMG supported urban EMG programs, while 17.2% supported suburban programs, and 2.1% supported rural EMG programs.

Early reports of EMG projects indicate that programmatic emphasis was on providing a response to an individual's inquiry at EMG clinics at major shopping centers, libraries, public gardening events, and county fairs (Warner, 1978). Responding to individual inquiry is a nonformal means of educating the public and, by default, became the primary educational-response theme (ERT) for EMG volunteers – in other words, how EMG volunteers responded to public request for CH information. Over time, additional ERTs were developed, including both nonformal (organized learning with or without a formal curriculum, taught by a qualified teacher or leader, that results in enrichment and increase in skills and capacities) and informal (non-organized learning without a formal curriculum, no credits earned, taught by someone with experience) methods of educating (Eaton, 2018). Multiple horticultural issues were targeted, and volunteer service activities abounded (Fig 4.1). Multiple volunteer service activities can be conducted simultaneously, supporting one or more ERTs that address one or more issues, as shown in Figs. 2 and 3. These ERTs support Boyle's (1981) three types of educational programming, including institutional (developing basic abilities and skills), informational (dissemination of information), and developmental (problem-specific strategies). Programming

may ultimately be supported by numerous volunteer service activities to achieve the desired goals and objectives (Seevers et al., 2007).

In a 1994 Virginia study (Relf and McDaniel, 1994), EMG volunteers were asked to prioritize program outreach and to choose from a list of six ERTs. Providing horticultural information to others topped the list of EMG volunteer priorities, followed by changed (improved) behavior; teaching youth about nature, the environment, and gardening; teaching through demonstration sites; protecting the heritage of historic and public gardens; and enhancing quality of life for special populations. The same study noticed an evolution in EMG volunteer roles in the first 25 years of the program's history; early EMG volunteers were primarily "volunteers with gardening answers." This note of change was echoed by Meyer (2007), who observed that EMG volunteers now fill "a much larger role than what was envisioned when the program started in 1972."

McAleer (2005) took a snapshot of EMG service projects preferred by state coordinators in the late 1990s. This was an open response question, and replies were grouped into 10 project types that include some ERTs as well as volunteer service activities. Projects addressing the youth audience topped the list, followed by "one-on-one advice to general public." These two preferences rose to the top of a list that included established EMG activities involving demonstration gardens, environmental education, community gardens, classes, workshops, speaking engagements, and other topics. These results provided insight into historic EMG program priorities.

As early as 1992, observations indicated that EMG programs were unique with "different emphases and objectives" from county to county and state to state (Stouse and Marr, 1992). Meyer (2007) noted that "MG and extension programs are most effective when the projects meet

community needs.” This is consistent with effective program planning that utilizes needs assessment and priorities to guide the design and implementation of outreach efforts (Seevers et al., 2007). While local needs guide EMG program outreach at the county and state level, overall EMG program impact is not currently guided by vision at the national level.

Prior to 2015, there were no national standards for EMG volunteer programs, and at this time, there is no official work plan or prioritization of educational programming (Kirsch and VanDerZanden, 2002; Langellotto et al., 2015). Individual program leaders essentially make their own choices. There are differences of opinion about the appropriateness of hands-on gardening activities as an ERT. What counts for volunteer service varies from county to county within a state as well as from state to state (Meyer, 2007; Vines et al., 2016). This causes concern for the EMG program image as lack of consistency in the volunteer experience region to region impacts the impression of the communities and individuals using the services of EMG volunteers (Allen et al., 2012).

In 2016, a national mission to distinguish and focus the efforts of EMG programs from other volunteer groups across the country was adopted by the EMG National Committee (EMGNC), a group providing voluntary national leadership to facilitate cooperation, communication, and collaboration among EMG programs nationwide (Extension Master Gardener National Committee, 2016b; Langellotto et al., 2015). This milestone effort established that the mission of EMG programs is to “educate people, engaging them in learning to use unbiased, research-based horticulture and gardening practices through a network of trained volunteers directed and supported by land-grant university faculty and staff” (Langellotto et al., 2015). This mission, indeed, aligns with the land grant mission of extension. In fact, University of Minnesota’s College of Agriculture Dean sees one of the key missions of the EMG program to

be extending the research and resources of the University farther than the University would otherwise be able (Allen et al., 2012). The mission of the EMG program could be strengthened by articulating a national strategic plan for outreach, but it is unknown how well such a plan would be received or if it could be effectively implemented.

In the spirit of enhancing cooperation, communication, and collaboration, the EMGNC established six extension programmatic regions in the U.S. The regions include Northeast (West Virginia, Pennsylvania, Delaware, New Jersey, Connecticut, New York, Massachusetts, Maryland, New Hampshire, Vermont, Maine; Rhode Island); North Central (North Dakota, South Dakota, Nebraska, Kansas, Missouri, Iowa, Minnesota, Wisconsin, Michigan, Illinois, Ohio, Indiana); Northwest (Washington, Oregon, Idaho, Montana, Wyoming, Alaska, Hawaii); Southwest (California, Nevada, Utah, Arizona, Colorado, New Mexico); South Central (Texas, Oklahoma, Arkansas, Louisiana, Mississippi, Kentucky, Tennessee); and Southeast (Alabama, Georgia, Florida, South Carolina, North Carolina, Virginia). A representative from each region is a member of the national committee (Extension Master Gardener National Committee, 2016a). Dorn et al. (2018) found significant differences in volunteer demographics on a regional basis, including volunteer age, years of active service, and service reported in 2015. Similarities and differences in regional EMG ERTs, if any, are unknown.

Dorn et al. (2018) noted demographic differences among EMG volunteers in different generations. EMG coordinators and volunteers represent four generations, including Traditionalist (born between 1925 and 1942), Baby Boomer (born between 1943 and 1960), GenX (born between 1961 and 1981), and GenY (born between 1982 and 2000). These cohorts (or generations) have common exposure to social and intellectual conditions, or events, that form the generation's consciousness (Parry and Urwin, 2011; Rotolo and Wilson, 2004; Strauss and

Howe, 1991; and Zemke et al., 2000). It is unknown if there are generational differences in importance of ERTs.

The objective of this current paper was to determine if state and local program management and volunteers are on the same page with regard to the importance of EMG program ERTs. The effects of region, generation of the respondent, and host county population density on importance of ERTs were also explored. We will discuss how these results compare to historical program accounts as well as the implications of these results for addressing federal programming priorities for horticulture.

MATERIALS AND METHODS

A quantitative national study of current and inactive EMG volunteers and their state and local coordinators in all 49 U.S. EMG programs was conducted in Fall 2016 (University of Georgia IRB Approval #3567). Survey protocol was based on Dillman methods for online survey research (Dillman et al., 2014) as well as published accounts of EMG volunteer survey research (Takle et al., 2016; Vines et al., 2016). The study included three separate surveys to state coordinators, local coordinators, and EMG volunteers, which built upon one another and were conducted consecutively. Survey methodology has been described in detail elsewhere (Dorn et al., 2018).

All responses were labeled for generation cohort, calculated from birth year. Traditionalists included individuals born between 1925 and 1942 (age 74-91 years), Baby Boomers included individuals born between 1943 and 1960 (age 56-73 years), GenX included individuals born between 1961 and 1981 (age 35-55 years), and GenY included individuals born

between 1982 and 2000 (age 16-34 years). Responses were also coded by extension programmatic region for the purpose of regional analysis.

To describe the population density of the counties served by EMG programs, the 2013 Rural-Urban Continuum Codes (RUCC) presented by USDA's Economic Research Service (2013) were used. RUCC is a classification scheme that distinguishes metropolitan counties by the population size of their metro area, and nonmetropolitan counties by degree of urbanization and adjacency to a metro area. The RUCC includes three metro codes (1-3), four nonmetro codes (4-7), two rural codes (8 and 9), and two codes describing unknown areas (88 and 99). Each county in the U.S. is assigned one of the 11 codes. For the purpose of this study, the 11 RUCC codes were reduced to four categories, including urban (codes 1-3), suburban (codes 4-7), rural (codes 8-9), and unknown (codes 88 and 99).

To assess program ERTs, Relf and McDaniel's (1994) original questions were used verbatim with permission (S.T. Dorn and P.D. Relf, personal communication). These six questions were included on the Surveys 1, 2, and 3 extended to state coordinators, local program coordinators, and EMG volunteers, respectively. For sake of space and clarity, short phrases will be used to refer to the six ERTs (Table 4.1). All participants in the current study were asked to rate the six ERTs on a 5-point Likert scale (1 = extremely important to 5 = not at all important), means were calculated for each theme, and results for current, active EMG volunteers (meeting their state's requirements for volunteer status) were included in data analysis. While Relf and McDaniel (1994) asked respondents to rank ERTs, this study asked state and local coordinators and EMG volunteers to indicate the importance of each of the six ERTs.

Results of the current study were compared with those of previous studies exploring state coordinator program perspectives, though a meta-analysis was not conducted. For comparison

purposes, ERT means were placed in numeric order according to importance, following the 5-point Likert scale (1 = extremely important to 5 = not at all important).

Data from the survey was collected using Qualtrics (Qualtrics, Provo, UT) and analyzed using IBM SPSS (version 23 for Windows; IBM Corp., Armonk, NY). Results were analyzed using descriptive statistics and three-way and one-way analysis of variance (ANOVA) where appropriate. Due to unequal variances and unequal group sizes, the Brown-Forsythe statistic was used to test for significance, followed by the Games-Howell post hoc test to separate means.

RESULTS

Study response rates were strong and are reported elsewhere (Dorn et al., 2018). Four generational cohorts were represented in survey responses to program ERT questions. A majority of state and local coordinators represent GenX and GenY cohorts, while the majority of EMG volunteers represent Baby Boomer and Traditionalist generations. Regional participation was variable, though all six extension programmatic regions were represented. The weakest participation was in the southwest region, while strongest participation came from the north central region. Reliability as calculated ex post facto for the entire study was .827 using Cronbach's alpha. Reliability was also consistently high across survey response types (.714 among state coordinator responses; .742 among local coordinator responses; and .832 among EMG responses).

Three-way ANOVA revealed no significant interaction between the effects of generation, region, and responder types (state coordinator, local coordinator, or EMG volunteer) on importance of ERTs (Table 4.S1). Overall, the generation of the survey participant did not appear to affect importance of ERTs. No significant differences were detected among the six

extension programmatic regions, as participants scored each ERT similarly within the regions. Differences in ERT importance, however, appeared at the responder level.

ERT Means by Responder

Means for ERTs ranged from $m=1.3$ to $m=3.1$ (Table 4.2). ERT means for local coordinator responses were consistently in between state coordinators and EMG volunteers. When EMG volunteer responses were compared by generation and extension programmatic region, nonsignificant differences were observed. Differences between responder types (state coordinator, local coordinator, and EMG volunteer) were significant for behavior change [$F(2, 130.312)=4.339, p=.015$], demonstration [$F(2, 124.045)=11.891, p<.001$], heritage [$F(2, 155.279)=51.756, p<.001$], and quality of life [$F(2, 111.192)=15.047, p<.001$] ERTs (Table 4.2).

Comparing State and Local Coordinator ERT Means

State and local coordinators scored ERTs similarly (Table 4.2). Comparison of means revealed no significant difference in means for five of six ERTs (individual inquiry, behavior change, youth, demonstration, and quality of life). While heritage had the highest mean (least importance) for both local and state coordinators, the local coordinator mean was significantly different from and less than the respective mean for state coordinator responses ($m=2.5$, $SD=1.20$ and $m=3.1$, $SD=1.03$, respectively) (Table 4.2). Analysis by generation and extension program region revealed no significant differences in ERT scores by program management. In practical terms, state and local coordinator importance of ERTs is aligned.

Comparing Program Management and EMG Volunteer ERT Means

Comparison of ERT importance for program management (state and local coordinators) and EMG volunteers revealed no significant difference for three of six ERTs (individual inquiry,

behavior change, and youth) (Table 4.2). ERT means for program management and EMG volunteers, however, are significantly different for demonstration, heritage, and quality of life. EMG volunteers place a higher importance on the demonstration ERT ($m=1.7$, $SD=.891$) than state ($m=2.0$, $SD=.891$) or local ($m=2.0$, $SD=.891$) coordinators. EMG volunteers place a higher importance on the heritage ERT ($m=1.9$, $SD=1.03$) than local coordinators ($m=2.5$, $SD=1.20$), and scores indicate the heritage ERT is more important to local coordinators than state coordinators ($m=3.1$, $SD=1.03$). EMG volunteers place a higher importance on the quality of life ERT ($m=2.0$, $SD=1.05$) than state ($m=2.4$, $SD=1.05$) and local ($m=2.3$, $SD=.997$) coordinators.

ERTs by Host County Population Densities

Importance of ERTs to EMG volunteers was analyzed by host county population densities to determine if ERTs were different among urban, suburban, and rural EMG programs (Table 4.3). EMG responses from urban programs ($m=1.4$, $SD=.700$) scored individual inquiry as more important than EMG volunteers in suburban ($m=1.6$, $SD=.771$) or rural ($m=1.7$, $SD=.881$) programs. EMG responses from urban programs ($m=1.6$, $SD=.827$) scored behavior change as more important than EMG volunteers in suburban programs ($m=1.7$, $SD=.865$) and rural ($m=1.9$, $SD=.999$) programs. EMG responses from urban programs ($m=1.7$, $SD=.883$) scored demonstration as more important than EMG volunteers in suburban ($m=1.9$, $SD=.921$) and rural ($m=1.9$, $SD=.936$) programs. ANOVA revealed significant differences in the individual inquiry [$F(2, 335.343)=21.799$, $p<.001$], behavior change [$F(2, 322.409)=15.338$, $p<.001$], and demonstration [$F(2, 390.005)=14.037$, $p<.001$] ERTs, but no difference was observed for youth, heritage, and quality of life ERTs.

Historical Comparison

When compared with previous studies, results of the current study suggest that the state coordinators have changed their ERT priorities over time. State coordinators surveyed in the late 1990s order “focus on youth” as their most important educational response (McAleer, 2005). Nearly 20 years later, youth is third in ERT importance to state coordinators in the present study. This flips the order of the previously third-place ERT, one-on-one advice, which is similar to the current most important ERT (response to individual inquiry). Similarly, the fourth ERT (gardening with educational focus/demonstration gardens) and sixth ERT (non-educational projects/heritage) have switched order over time. Ordering of environmental education/behavior change (second) and horticultural therapy/quality of life emphasis (fifth) has not changed over time for state coordinators.

When compared with previous studies, the present study suggests there is little change in ERT importance for EMG volunteers. The most important ERT in the 1990s was individual inquiry (Relf and McDaniel, 1994), which remains consistent with the top ERT of EMG volunteers in the current study. Similarly, the importance of demonstration, heritage, and quality of life remain in the same order today as they did more than 20 years ago. ERTs one, four, five, and six remain in the same order 22 years later. ERTs two and three have switched order. However, there is a slight difference in order of importance for behavior changes and youth. Present-day EMG volunteers indicate in this study that teaching youth to respect nature and the environment through gardening is of more importance than behavior change of individuals with emphasis on environmentally sound practices.

Comparisons to current data suggest that concurrence between volunteer management and program participants is improving. In historic accounts, program management (state and

local coordinators) and program participants (EMG volunteers) have shared only one similarly ordered ERT, behavior change as the second most important ERT. There is great similarity (four similarly ordered ERTs) between the 1994 Virginia EMG order of ERTs and present-day state coordinator ERT order. Regardless, individual inquiry, behavior change, and youth have remained the top three ERTs over time, while demonstration, heritage, and quality of life initiatives have remained the bottom three.

DISCUSSION

Response to individual inquiry is consistently of highest importance for EMG programs, regardless of position within the program (management or volunteer). It is interesting to note, however, that there is a wider spread in ERT means for state coordinators ($m=1.3-3.1$) than for local coordinators ($m=1.4-2.3$) or EMG volunteers ($m=1.5-2.0$) (Table 4.2). This narrow range of means for EMG volunteers suggests that they see all ERTs as equally important, whereas state coordinators, seeing a bigger picture, indicate differences in ERT importance. Local coordinator ERT means are clearly in the middle. This offers a point of caution to local coordinators who allow EMG volunteers to determine program direction and scope. While program coordinators at the local and state level depend on volunteers to be aware of local issues and needs in order to expand extension outreach and encourage volunteer engagement in program planning (DiNardo, 2007; Edmonds et al., 2017; Savanick and Blair, 2005; Sellmer et al., 2003; Strong and Harder, 2011), volunteer-championed efforts may be short-lived due to turnover, may outlive usefulness to extension due to popularity among volunteers, or may be too broad and varied to achieve measurable and significant impact. EMG volunteer and local coordinator contributions to EMG program focus is recognized and valued by state coordinators as well as the EMGNC, though

state coordinators tend to be conceptually ahead of local coordinators and EMG volunteers in addressing programmatic direction (S.T. Dorn and N.R. Bumgarner, personal communication).

Coordinators looking to attract younger volunteers to the EMG program could consider ERTs of interest to EMGS of different generations (Table 4.S2). While analysis of ERTs by generation of coordinators and EMG volunteers did not reveal significant differences among cohorts, generational considerations should not be ignored. Particular attention should be paid to interests of GenX and GenY that represent future volunteer cohorts.

Slight differences in ERT scores may be reflective of nuances in local issues and needs. For example, consider demonstration and heritage. These ERTs were consistently scored lower in importance and with most variability. Projects supporting these ERTs are perhaps more subject to local influence (i.e., critical local stakeholders make requests of extension services and a local coordinator deems the project important for visibility or relationship reasons). For this reason, they may be of higher importance at the local level (EMG volunteers and local coordinator) than at the state level (state coordinator). At the same time, differences in these ERTs may also reflect differences in program policies from state to state regarding *suitable* volunteer service projects and programming. For example, hands-on gardening is approved for volunteer service in some areas and discouraged in others. Local and regional differences should be expected with EMG programs and are cited repeatedly in literature (McAleer, 2005; Meyer, 2007; and Stouse and Marr, 1992).

Local-level influence is also seen in comparisons of ERTs by host county population density. When examining at urban, suburban, and rural programs, the means of three ERTs were significantly different. Responding to individual inquiry is an important ERT for urban areas where demand for information is higher per capita. In fact, in urban areas, it is very common to

see a volunteer service requirement for office time/help desks/phone line/etc. (Meyer, 2007).

ERTs that can be volunteer service-intensive, such as demonstration or heritage, may be slightly less important to suburban and rural EMG programs, which tend to be smaller in scope (Meyer, 2007) with fewer volunteers.

Similarly, state-level ERTs may also influence program ERTs. For example, Texas is the originator of the Junior Master Gardener curriculum for youth. If a state EMG program has invested in the development of specific programming, such as youth horticulture, there may well be state-level mandates, strategic collaborations, or even external funding that may drive that program and elevate the importance of the ERT.

Discussion of ERTs on regional and national levels provides opportunity to identify program gaps and directions for program expansion. An example of this is the issue of food security (Fig 4.3). When asked if there are other EMG program ERTs in addition to the six included in this study, state and local coordinators attending a July 2017 meeting at the International Master Gardener Conference could not identify other ERTs, but instead identified food security as an “emerging issue” (Dorn and Schrock, 2017). “Low-income projects” appeared on McAleer’s 2005 list, selected more times than gardening with an educational focus (comparable to demonstration) and non-educational projects (comparable to heritage). When EMG volunteers responded to an open-ended question about future improvements for their respective state EMG program, 16 of 81 ERT-related comments indicated the importance of addressing food security through gardening (Fig 4.S1). The results of current efforts to address food security needs with EMG volunteer leadership at the county and state level are currently being evaluated (Khadiagala et al., 2018). Areas of emphasis change with time, as do ERTs. It is

essential that long-term programmatic focus needed to be “flexible enough” to account for changing county- and state-level needs (McAleer, 2005).

The original intention of the EMG program was simply to answer gardening questions from the noncommercial public, and that remains the most important ERT for program management and volunteers. EMG programs and their volunteer service projects were developed to meet the growing demands for consumer horticultural information in an increasingly urbanized environment. The initial role of response to individual inquiry remains a huge need and top priority for extension and EMG programs. Extension’s ability to meet public needs for CH relies heavily on volunteer staff, also known as EMG volunteers (McAleer, 2005; Meyer, 2007; Bewick, 2017). Now, EMG volunteers are meeting criteria for paraprofessional extension educators (Chlipalski et al., 2018), participating in significant and continuous training [on average, 40 hours initially (EMG National Committee, 2016b) and 7.75 hours or more annually (EMG National Committee, 2017)] that addresses content, organizational rules, and terminology relevant to CH. EMG volunteers are capable of performing tasks once done exclusively by extension educators and agents (Meyer, 2007).

The results clearly demonstrate that ERTs can be transmitted from level to level within the program. This is useful for supporting a national strategic plan. While the EMG program does not currently have a national set of initiatives or a strategic plan, this assessment of EMG volunteer program ERTs provides perspective on program direction and is a useful starting point for discussion. It does appear that these ERTs are relevant (no individual ERT received a mean score higher than 3.1, with 5 indicating least important). While the ERTs explored in this study may not be the exclusive ERTs on which EMG programs should be focused, they have been

documented to have remained viable and important through time and do provide a place to begin a conversation about a national strategic plan.

In fact, the results suggest that the EMG volunteer program has an effective organizational structure with an upper and middle management. Program ERTs appear to be generally aligned at every level, including the program participant level (EMG volunteers). This is remarkable, given that 35 state coordinators, an estimated 1,534 local coordinators (Dorn et al., 2018), and more than 90,000 volunteers nationally (Extension Master Gardener National Committee, 2017), operate without a strategic plan or paid national leadership. While the reason for this high level of alignment is not readily apparent, it may be a result of the rapid establishment of EMG programs within states, closely modeled from state to state. Additionally, EMG volunteers have a higher average tenure with the MGEV program than state and local coordinators (Dorn et al., 2018), offering a source of institutional knowledge and long-term maintenance of outreach efforts. In vernacular, if program management and volunteers are not on the exact same page, it is fair to say they are at least in the same chapter.

In addition to capturing a historical perspective on EMG programming, these results suggest the possibility of aligning EMG program ERTs with Horticulture Program Area priorities of the United States Department of Agriculture National Institute for Food and Agriculture (USDA NIFA). USDA NIFA's horticulture initiatives speak directly to CH, including environmentally sensitive management of landscape plantings and gardens and horticultural impacts on human health and well-being, such as social, mental, and physical horticultural therapy (USDA NIFA, 2017). Ideally, EMG volunteer program ERTs should meet local issues and needs (Meyer, 2007) and align with the priorities of extension's federal stakeholder, USDA NIFA. Some ERTs align more easily than others. It is easy to accept the

alignment of teaching environmentally sensitive gardening methods through traditional methods of written communication and presentation. It is harder to move NIFA strategies forward through demonstration and heritage ERTs, though examples demonstrate that they can be used effectively to teach timely topics, such as growing food for personal use (Edmonds et al., 2017). Additionally, the quality of life ERT allows the EMG program to address the needs of special populations specifically mentioned by NIFA's therapeutic horticulture initiatives. It only makes sense that ERTs for EMG outreach should align with local issues and needs within a state extension framework set to respond to the initiatives of its federal stakeholder, USDA NIFA.

Further study and understanding is merited to ensure that programmatic emphasis considered critical by NIFA is not left unaddressed by EMG educational programming. Differences in ERT importance may be a reflection of differences among states between educational priority and educational methods. Additionally, opportunities could be identified for state and local coordinators as well as EMG volunteers to contribute to NIFA's priority assessment and planning processes for the horticulture program area.

When focus does not align internally or externally, the risk of mission drift threatens the local EMG program. When there is no or limited extension leadership and funding, volunteers will operate programs on their own terms and understandings. These results show a small difference in numerical ordering of ERTs between EMG volunteers and state and local coordinators, and a slight dissonance between program management and volunteers appears in negative EMG volunteer comments about program rules and bureaucracy that were responses to an open-ended question about future directions for the EMG program (50 of 707 comments, or 7.1% of responses, Fig 4.S1). While seemingly not a high percentage at this time, proactive

efforts will ensure that program ERTs are consistent and properly aligned at every level so that high fidelity of program mission is preserved.

When focus does align internally and externally, many benefits abound. There is increasing emphasis on collaboration, both within state, regional, and national circles. Pooling of resources, such as online EMG trainings offered through eXtension (Jeanette and Meyer, 2002; Vines et al., 2016), has already created an example of the potential to extend and maximize resources when states and specialists collaborate. Knowing program management and participants are on the same page or working toward shared goals, whether at the state level, regionally, or nationally, is essential to increasing collaborations. Future success of the EMG program depends on an aligned focus (Meyer, 2007).

Understanding differences among program ERTs is a positive step for tapping the tremendous capacity of EMG programs. An early estimate indicated that nearly 17 million people have contact with an EMG volunteer annually (Meyer, 2007). The most recent national EMG summary suggests that EMG volunteers had more than 5.8 million in-person contacts and had a media reach of 8.1 million in 2016 (Extension Master Gardener National Committee, 2017). EMG volunteers have been able to reach far more people than extension educators or specialists (Meyer, 2007), and EMG volunteers are the “foot soldiers for CH” (S.T. Dorn and L. Khadiagala, personal communication). In his July 11, 2017 welcoming address at the International Master Gardener Conference in Portland, Oregon, Dr. Tom Bewick, USDA NIFA’s Horticulture Program Leader, stated that “(Extension Master Gardeners) are critical to making USDA, in the words of Abraham Lincoln, the ‘People’s Department’” (Bewick, 2017). Indeed, extension’s ability to meet public needs for CH relies heavily on volunteer staff (McAleer, 2005; Meyer, 2007), and the EMG volunteer program has the potential to provide “the largest direct

contact service within the Cooperative Extension Service” (McAleer, 2005). CH programming generates as many or more contacts for extension than other production-focused program areas (Bradley et al., 2017).

Continued assessment of critical horticultural issues helps to keep the EMG program aligned with community and organizational needs, and ERTs offer a strategy for effective public education by EMG volunteers. Educational projects and outreach need to be valued by and relevant to extension, EMG volunteers, and communities alike. As coordinators and volunteers work together, following USDA NIFA’s lead, the EMG program teaches consumers about environmentally sensitive management of landscape plantings and gardens so that the positive impacts of horticulture on human health and well-being are accepted and practiced by society at large. To fully tap the capacity of the EMG volunteer program, there is a need for a national programming plan that includes aligned focus and sound evaluation of program impacts. Results indicate that there may be sufficient internal alignment to support a national-level strategic plan, complete with identified horticultural issues, ERTs, and volunteer service activities aligned from the grassroots to the federal level.

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Table 4.1. Educational-response Themes (ERTs) and Their Shortened Phrases

Educational-response Theme (ERT)	Shortened Phrase
Providing horticultural information in response to individual inquiry to help people take care of the environment and their landscape investments and gain the benefits of plants around them (i.e., plant clinics, Help Desks, telephone lines, etc.)	Individual inquiry
Presenting programs to change the behavior of individuals with emphasis on environmentally sound practices (adult and community education programs working cooperatively with other agencies)	Behavior change
Protecting the future by teaching youth to respect nature and the environment through gardening	Youth
Establishing and maintaining demonstration gardens or sites to show people how to garden successfully while protecting the environment	Demonstration
Protecting our heritage through hands-on work and maintenance of historic and public gardens	Heritage
Enhancing the quality of life for elderly, disabled, and other special populations through horticultural therapy programs	Quality of life

Table 4.2. One-way ANOVA of Educational-Response Themes (ERTs) by Responder Types

ERT by Responder Type	No.	Mean^z (SD)	df	F^y	P
Individual Inquiry					
State Coordinators	35	1.3 (.684) a	2	1.304	.275
Local Coordinators	290	1.4 (.697) a			
EMGs	6125	1.5 (.724) a			
Behavior Change					
State Coordinators	35	1.4 (.698) a	2	4.339	.015*
Local Coordinators	289	1.5 (.711) a			
EMGs	6021	1.6 (.841) a			
Youth					
State Coordinators	35	1.6 (.690) a	2	1.999	.139
Local Coordinators	288	1.6 (.780) a			
EMGs	6007	1.5 (.798) a			
Demonstration					
State Coordinators	35	2.0 (.891) a	2	11.891	<.001**
Local Coordinators	288	2.0 (.891) a			
EMGs	5988	1.7 (.891) b			

Heritage

State Coordinators	35	3.1 (1.03) a	2	51.756	<.001**
Local Coordinators	282	2.5 (1.20) b			
EMGs	5920	1.9 (1.03) c			

Quality of Life

State Coordinators	34	2.4 (1.05) a	2	15.047	<.001**
Local Coordinators	283	2.3 (.997) a			
EMGs	5787	2.0 (1.05) b			

* Significant at $p<.05$; ** Significant at $p<.001$

^zMeans separated by Games-Howell post hoc test. Means followed by the same letter not significant from each other.

^yBrown-Forsythe F ratio used to allow for unequal variances and group sizes.

Table 4.3. One-way ANOVA of Extension Master Gardener (EMG) Educational-Response Theme (ERT) Means by Host County Population Density

ERT	Host County Population^z	N	Mean (SD)^y	df	F^x	p
Individual inquiry	Urban	4614	1.4 (.700) a	2	21.799	<.001**
	Suburban	965	1.6 (.771) b			
	Rural	113	1.7 (.881) b			
Behavior change	Urban	4552	1.6 (.827) a	2	15.338	<.001**
	Suburban	939	1.7 (.865) b			
	Rural	108	1.9 (.999) b			
Youth	Urban	4530	1.5 (.792) a	2	2.999	.051
	Suburban	944	1.6 (.817) a			
	Rural	108	1.6 (.849) a			
Demonstration	Urban	4515	1.7 (.883) a	2	14.037	<.001**
	Suburban	942	1.9 (.921) b			
	Rural	107	1.9 (.936) b			
Heritage	Urban	4472	1.9 (1.03) a	2	.530	.589

	Suburban	926	2.0 (1.00) a			
	Rural	109	1.9 (1.05) a			
Quality of life	Urban	4381	2.0 (1.05) a	2	1.172	.311
	Suburban	901	2.1 (1.03) a			
	Rural	107	2.1 (1.06) a			

* Significant at $p < .05$; ** Significant at $p < .001$

^zEMG host county population density is based on the 11 USDA's Economic Research Service 2013 Rural-Urban Continuum Codes and were reduced to four categories, including urban (codes 1-3), suburban (codes 4-7), rural (codes 8-9), and unknown (codes 88 and 99).

^yMeans separated by Games-Howell post hoc test. Means followed by the same letter not significant from each other.

^xBrown-Forsythe F ratio used to allow for unequal variances and group sizes

Issues	Educational Response Themes	Volunteer Service Activities
• Food security • Yardwaste management • Water quality • Health • Community and social engagement • Pollinator health • Native plant awareness • Ecological balance • Pesticide safety • Septic system education	• Response to individual inquiry • Behavior change • Protecting the future (youth) • Demonstrating environmentally sound gardening methods • Protecting heritage through historic garden sites • Enhancing quality of life through horticulture programming	• Demonstration garden • Garden tour • Adult workshop • Plant clinics • Newspaper columns • Youth workshop • Youth garden club • Lawn/garden show • Educational exhibits • Plant sales • Radio shows • Answer extension phone calls • Support university research/demonstration plots • Youth garden projects • Judge horticulture contests and fairs • Community solid waste reduction project • Horticulture therapy project • Oral presentations • Home visits/consultations

Figure 4.1. Educational-response themes (ERTs) have developed to include both nonformal and informal methods of educating. They provide a framework for addressing horticultural issues, such as these suggested, via numerous volunteer service activities.

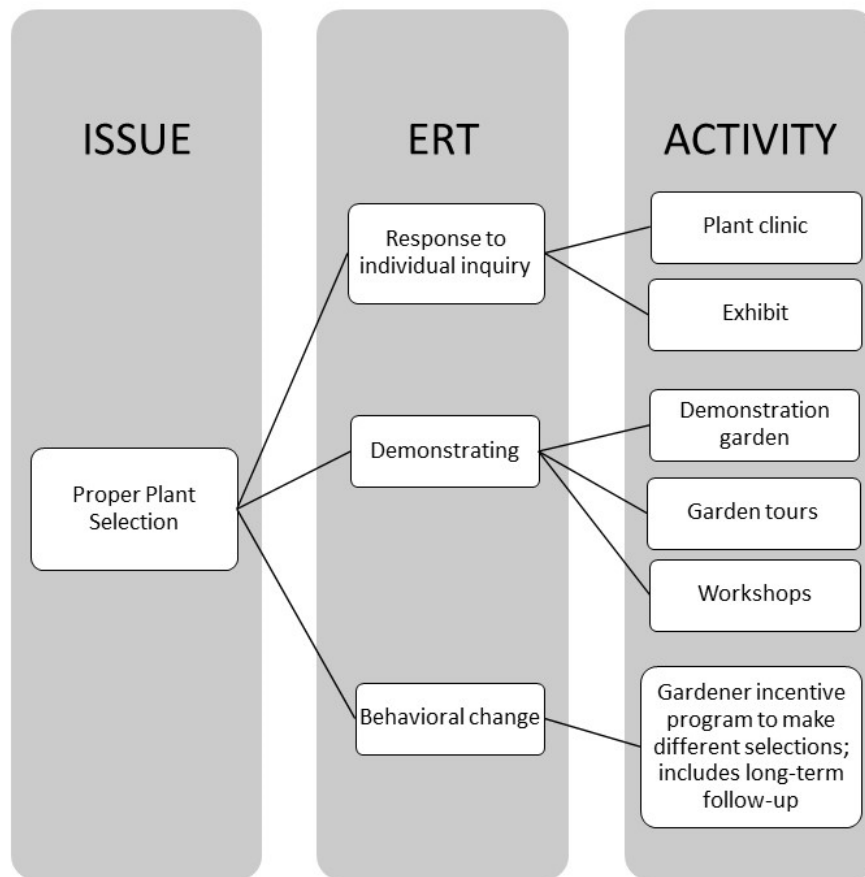


Figure 4.2. The horticulture-related issue, proper plant selection, provides an example of how one or more educational-response themes (ERTs) can effectively address a single issue. Multiple volunteer service activities that are conducted simultaneously support the ERTs.

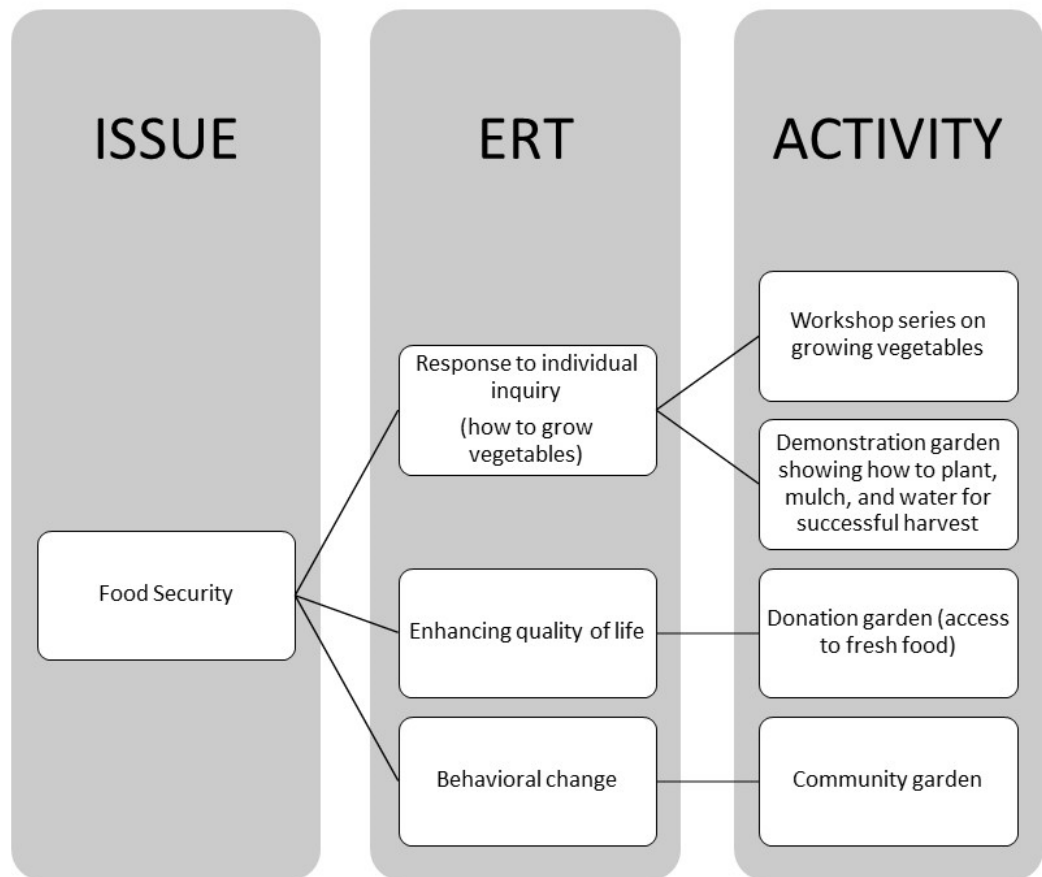


Figure 4.3. Programming may ultimately be supported by numerous volunteer service activities to achieve the desired goals and objectives. The emerging issue of food security provides an example of a horticulture-related issue addressed by educational-response themes (ERTs) and volunteer service activities that simultaneously support other issues, such as in Fig 4.2.

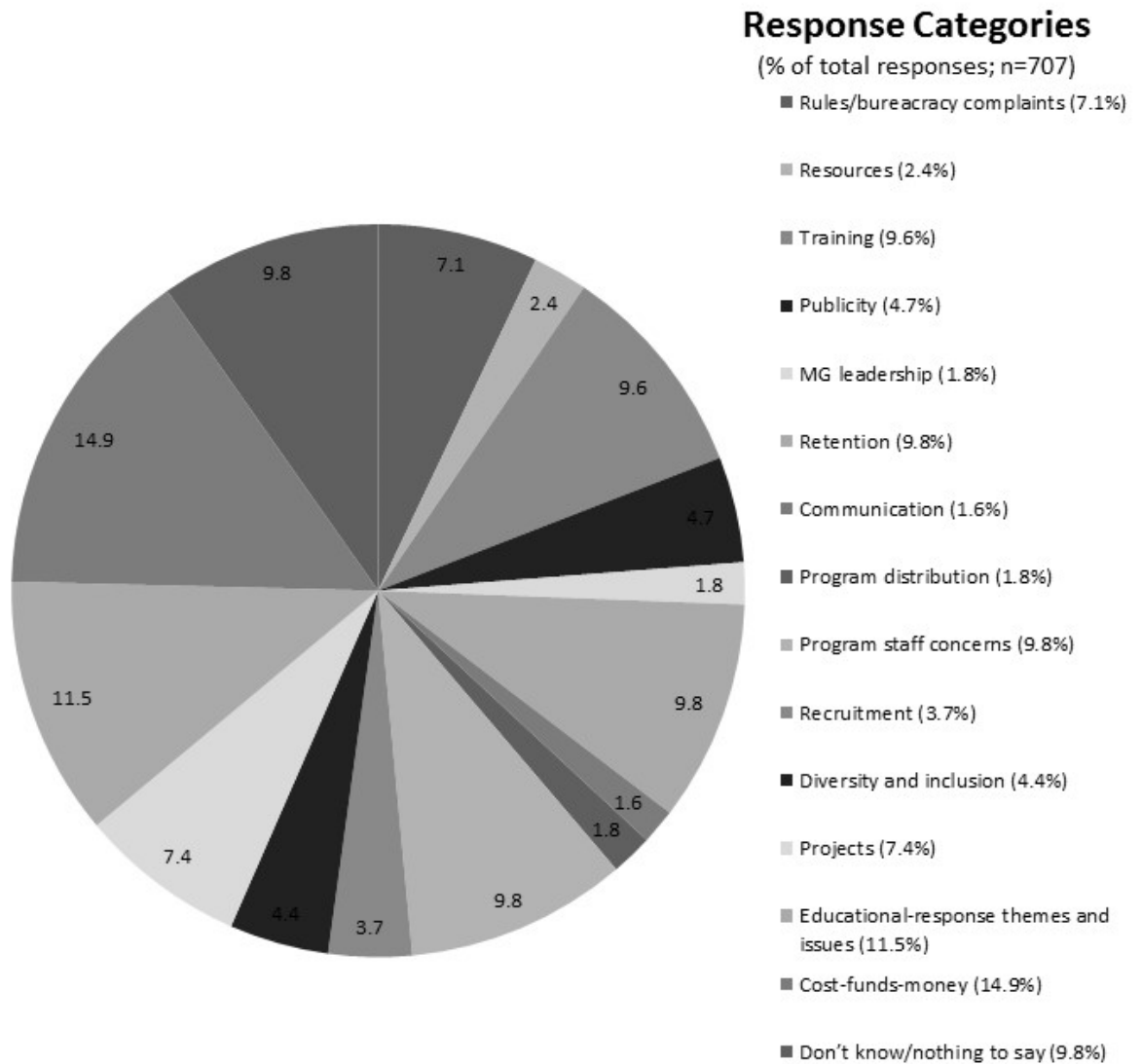


Figure 4.S1. Extension Master Gardener (EMG) volunteers were asked to identify needs for future improvement of the EMG program. Fifteen response categories were identified from the 754 responses to the open-ended question. Percentages of responses related to each category were calculated.

CHAPTER 5

**WHY THEY DO WHAT THEY DO: EXAMINING MOTIVATIONS OF
EXTENSION MASTER GARDENERS³**

³ Dorn, S.T., Pennisi, S.V., and Newberry III, M.G. To be submitted for publication in *Journal of Environmental Management*.

ABSTRACT

Motivations are critical to becoming and remaining a volunteer as they are related to satisfaction, organizational commitment, length of service, and involvement. The functional approach provides a theoretical basis for volunteer motivation. In this approach, an individual's reasons for volunteering are connected to the explanation of repetitive practices and events of everyday life through intended purposes (outcomes desired from the action) and unintended consequences (results that happen regardless of intention). The most widely used tool for measuring volunteer motivation is the Volunteer Functions Inventory (VFI). The instrument measures six latent factors, or motivations, for volunteering. It is postulated that understanding the motivations behind such steadfastness in volunteerism would enable program coordinators to recruit and select wisely as well as manage local programs in such a way as to retain volunteers for the long term. While the results of previous studies of EMG motivations have been somewhat consistent with broader volunteerism studies of adults with similar demographics, it is not clear if the VFI model is a fit for EMG volunteers or how many functional motivations apply to EMG volunteers. Furthermore, it is unknown if motivations are different for subgroups of the overall population, whether or not motivations of EMG volunteers change over time, or if motivation functions share a relationship with satisfaction, tenure, or involvement. These are important questions to answer as program coordinators nationwide seek to diversify program participation. This national study allows a broader look at motivations for a larger cross-section of EMG volunteers as well as subgroups within the EMG volunteer base. Exploratory factor analysis identified five motivational factors for EMG volunteers. Consistent with other studies of functional theory, motivations vary across some groups of EMG volunteers. Differences in motivations as tenure increases suggest that volunteer motivations may change over time.

Significant and slight or modest relationships were found between motives and satisfaction, overall involvement, and tenure. This EMG volunteer motivation study establishes the motivations of EMG volunteers for coming to the program and provides information about motivations at different stages in volunteer tenure. Understanding the motivations of current EMG volunteers provides program coordinators with essential insight for engaging veteran and future volunteers.

Acknowledgements

We appreciate the many EMG coordinators and EMG volunteers who have assisted with the study and thank Denny Schrock and Cynthia Haynes, Iowa State University, for their contributions. Additional appreciation is expressed to Alfred Eugene Pennisi, Georgia Department of Health, and Dr. Uttam Bhattarai, University of Georgia, for statistical assistance.

INTRODUCTION

Volunteerism is typically an ongoing, long-term behavior that is an intentional action based on rational deliberation of costs and benefits, such as an individual who waits until they retire from full-time employment to become a volunteer (Chacon et al., 2007; Hustinx et al., 2010; Widjaja, 2010). Motivations behind volunteering play a key role in becoming and remaining a volunteer as they are related to satisfaction, organizational commitment, length of service, and involvement (Chacón et al., 2017).

Studies interpret the most influential motivation for volunteering (in terms of volunteer retention) is connected to helping the environment (Asah and Blahna, 2012). EMG volunteers are recruited to assist Extension with the public dissemination of information and research

generated by land grant university (LGU) scientists. EMG volunteers are trained in consumer horticulture, with an emphasis on sustainable gardening practices that protect the environment and natural resources.

Theory

Volunteering involves a wide variety of activities and can be studied across multiple disciplines, such as economics, sociology, and management, that connect different meanings and functions to volunteering. Most managers want to understand the occurrence or non-occurrence of volunteering, and predictors of volunteer behavior can be more related to empirical observations rather than to sound theory and processes (Hustinx et al., 2010).

Prior work categorized volunteer motives in several ways. Motives may be altruistic or egoistic; intrinsic (individual engages because it is satisfying) versus extrinsic (performed because of benefits that result); or altruistic (importance of concern for others) versus material (material incentives) versus social (desire for social interactions) (Widjaja, 2010). Extrinsic motivations are thought to negatively affect retention: once the reward is achieved, there is no more motivation to volunteer (Millette and Gagné, 2008). Other motivations include affiliation (concern for relationships with others), achievement (pride in accomplishments and desire for excellence), and power (desire for control and influence). The Socioemotional Selectivity Theory postulates that social interactions become reduced in early adulthood, though emotional closeness to significant others increases despite reduction of social interactions (Carstensen, 1992). As people age, their perception of time changes from being open-ended in youth, dominated by goals of acquiring knowledge and experience, to being close-ended and limited in later years, prioritized by emotional gratification (Widjaja, 2010). Volunteer motivations are a

blend of altruism (selfless concern for others) and egoism (concern for one's self) (Clary and Snyder, 1999).

Though there are several theories related to why individuals engage in volunteerism, the functional approach is preferred because it provides a theoretical basis for volunteer motivation (Clary and Snyder, 1999). Clary et al. (1998) connected an individual's reasons for volunteering to functional theory, the explanation of repetitive practices and everyday life events through the lenses of intended purposes (outcomes desired from the action) and unintended consequences (results that happen regardless of intention) (Hirokawa, 2005). Principles of functional theory reflect that all communicative acts have potential functions in a relationship, that an act can function in more than one way, that the function of an act is context-dependent, and the same function can be performed by different acts. Clary et al. (1998) established that volunteering to do a task serves a psychological function for an individual. Acts of volunteerism could appear on the surface to be the same when the individuals performing the volunteerism are, indeed, doing so for different reasons or motivations. In order for individuals to continue volunteering, there presumably is a match between their motivations and the tasks they are completing.

Six motivational functions that are satisfied by volunteering have been established (Clary and Snyder, 1999). They include Values, Understanding, Enhancement, Career, Social, and Protective. These functions are defined in Figure 5.1. Altruistic or "others-oriented" motives, such as Values, Understanding, and Enhancement, emerge in many studies as the most important functions to individuals who volunteer (Chacón et al., 2017). Values and Social functions are considered others-oriented, regardless of demographic characteristics or volunteer setting (i.e., in person, online), though Values is usually the highest-scoring motivation (Chacón et al., 2017). Understanding is usually the second-highest motivation. Career, Social, and Protective are less

important functions in volunteer motivations. Social, along with Protective, is often one of the lowest-ranking motivations among different volunteer groups (Chacón et al., 2017).

VFI Tool

The most widely used tool for measuring volunteer motivation is Clary et al.'s (1998) Volunteer Functions Inventory (VFI) (Fig 5.1) (Chacón et al., 2017). The instrument is theoretically based on functional motivations for volunteering and measures the six latent factors, or motivations, for volunteering (Fig 5.1). The VFI consists of 30 questions, or items, that comprise six scales with five items each, measured with a 7-point Likert scale (1=totally disagree to 7=totally agree). This tool is well known for its psychometric properties (measurement of psychological properties, such as attitudes, traits, achievement, or abilities) and high degree of internal consistency and reliability. Responses to the scales are consistent over time with a wide variety of volunteers and demographics (Chacón et al., 2017; Clary and Snyder, 1999).

While multiple studies utilize the VFI, a number of variations are evident, such as deviations from the original six motivational constructs (Values, Understanding, Enhancement, Career, Social, and Protective), number of scale items (5 items for each of 6 scales for a total of 30), and response scales (7-point, Likert-type). For example, Newberry and Israel (2018) used a modified VFI that included 18 items related to five constructs (career, helping the environment, learning, social, and values) to explore motivations of Florida Master Naturalists. Church et al. (2019) used a much-modified tool to explore motivations of citizen scientists, such as opportunity to learn about nature, science, and water quality; to be in nature; and to make social connections. Hyde et al. (2016) explored a functional approach focusing on motives that included socializing/enjoyment, celebrating, benefits, and financial support. Lu and Schuett

(2014) use 19 items and a 5-point, Likert-type scale to examine six latent factors. Asah and Blahna (2012) used a 5-point scale with 24 items (motivations specific to conservation), resulting in six factors (environment, career and learning, community, escape and exercise, social interactions, ego defense and enhancement). Ryan et al. (2001) used a 5-point scale with 19 items similar to the VFI. Saitgalina (2018) used a 5-point Likert-type scale for 15 items and confirmed a four-factor motivation pattern.

Variations in use of the VFI may affect the results. Modifications to the VFI, such as added items or instrument adaptations, may affect factor structure such that the original six factors are not confirmed or different factor loadings of items may result (Chacón et al., 2017; Greenslade and White, 2005; Newberry and Israel, 2018; Takle et al., 2016). Additionally, not all items consistently have acceptable psychometric properties in all studies. Chacón et al. (2017) noted that a Protective item and an Enhancement item were eliminated in multiple studies. Studies using the VFI that support 4- and 5-factor structures often merge Values and Understanding or Protective and Enhancement. While the VFI is generally accepted as effective at measuring common motives in most volunteers, there may be different motives in specific volunteer groups that are not assessed by the VFI (Chacón et al., 2017; Clary and Snyder, 1995). Modifying the VFI for different volunteer settings and using open-ended questions about volunteer motivations may help reveal some of these additional motives (Chacón et al., 2017).

While volunteers can be motivated simultaneously by different functions to begin volunteering, their motivations can also change over time and with experience (Clary et al., 1998). Volunteerism is a dynamic process, including five phases (nominee, newcomer, emotional involvement, established volunteering, and retiring) (Haski-Leventhal and Bargal, 2008). Variables that influence an individual to begin to volunteer may not necessarily engender

continued service (Chacón et al., 2007). Vecina et al. (2012) noted that motivations to remain a volunteer is different for new volunteers than for veteran volunteers. In a study of “master” Extension volunteers, achievement (learning new things, contribution to community, use of leisure time, formal/informal recognition, lead to employment) was prioritized for beginning service, while affiliation (Extension good organization, meet other volunteers, family encouraged me, friend was involved, people like me) was prioritized for continuing service (Wolford et al., 2001). Motivations that best predict long-term volunteer service include self-oriented motives, such as Understanding, Career, Protective, and Enhancement (Chacón et al., 2017). This may be explained by a statistical anomaly resulting from a large percentage of high scores on the Values scales resulting in low variability which limits predictive capacity and reduces reliability (Chacón et al., 2017). Much of existing research on motivations explores why people start volunteering, but does not assess the impact of motivations on length of volunteer tenure or on volunteer performance (Millette and Gagné, 2008). Chacón et al. (2007) recommend inclusion of a temporal aspect in studies of motivations, suggesting that this may reconcile the functional role with role identity.

Groups

Differences in motivations are noted across groups of volunteers (Clary and Snyder, 1999), such as those of differing age or area of residence. For example, younger individuals place higher importance on Career functions than do older individuals (Clary & Snyder, 1999). Chacón et al. (2017) noted that volunteers less than 40 years old have significantly higher Career scores than volunteers older than 40 years. The same study also noted Understanding scores were higher for younger volunteers and lower for older volunteers (Chacón et al., 2017). As volunteer age increases, the importance of career-related motivations decreases (Chacón et al., 2017). In a

Missouri study, younger EMG volunteers had higher career-related motivations, and overall, age was negatively correlated with career-related motives (Shrock et al., 2000). The Career motivation had the lowest mean for Missouri ($m=2.39$) and Mississippi ($m=2.20$, $SD=1.49$) EMG volunteers (Shrock et al., 2000; Wilson and Newman, 2011).

Volunteer groups vary by generation. Generational behavior varies from one generation to the next and is attributed to differences in values and attitudes (Parry and Urwin, 2011; Rotolo and Wilson, 2004; Strauss and Howe, 1991; and Zemke et al., 2000). A cohort (or generation) has common exposure to social and intellectual conditions, or events, that form the generation's consciousness. Generational interaction can foster creativity and innovation, however, misunderstandings between generations can cause discord (Arsenault, 2004; Hall and Vetter, 2010). Qualitative and quantitative participant responses provided insight into working with generational groups (Vetter et al., 2009). Dorn et al. (2018) reported differences in tenure, volunteer service hours, and initial training age between generations of EMG volunteers.

Gender differences in motivations are debated. Some studies indicate that volunteer motivations do not differ by gender, but gender distribution in different volunteer settings could play into this (Chacón et al., 2017). "Volunteer work has traditionally been thought of as female activity, especially for mothers" though this can change with generations (Rotolo and Wilson, 2004). Shrock et al. (2000) noted that females were more likely than males to indicate a career motivation for their EMG volunteer role. Women and men are liable to place motives in similar order, however, female scores were higher on most functions than males, suggesting that females may be inclined to volunteer more than men (Widjaja, 2010). Strong and Harder (2011) reported motivational differences in EMG volunteers of different genders, with women reporting higher motivational means than men, though the effect sizes were small. The social role theory of

helping postulates that males and females are trained to serve differently. Men may be more involved in short-term helping behavior which may not even be considered volunteerism (Widjaja, 2010), and therefore fewer males contribute to studies of volunteer motivation.

The population density of communities may play into an individual's motivations to volunteer. Fritz et al. (2003) reported that rural 4-H volunteers in their study were engaged with more volunteer organizations than urban volunteers, but that they had similar motivation patterns, primarily affiliation. Region and community size were noted by Reed and Selbee (2000) to merit further consideration in future research exploring the dynamics of volunteering. Asah and Blahah (2012) attribute less frequent volunteering in urban conservation activities to inadequate capitalization on volunteer motivations. Prokopy and Genskow (2016) found differences among residents living in urban and rural watersheds. EMG volunteer programs are concentrated primarily in urban counties, though they can be successful in suburban and rural counties (Dorn et al., 2018).

Motivations may impact involvement in volunteering, such as the intensity at which an individual might volunteer as well as actions taken (Ryan et al., 2001). Intensity of volunteering can be operationalized several ways, including total number of years as a volunteer (Strong and Harder, 2011); total number of hours volunteered annually (Reed and Selbee, 2000); or the number of occasions volunteered per year and the number of times volunteered with a favorite stewardship organization (Asah and Blahna, 2012). Handy et al. (2006) found motivational differences among volunteers with different participation frequencies.

Results of several studies suggest that motivational differences exist between volunteers with different levels of tenure and experience. Hyde et al. (2016) found motivations influenced retention at various tenure levels for episodic volunteers. Motivations were found to change over

time and with experience in the volunteer role (Haski-Leventahl and Bargal, 2008). Lu and Schuett (2014) demonstrated relationships between volunteer motivations, involvement, and tenure. Ryan et al. (2001) found that motivations continue to be salient as tenure increases and that motivations other than those that spur initial service have long-term importance. It is not known if motivations differ among EMG volunteers with varying tenure.

Reed and Selbee (2000) found differences in patterns of volunteer service when analyzed by service status, using a national median number of hours volunteered per year to distinguish active and nonactive volunteers. Social motivations were more important for active volunteers than for inactive volunteers in an environmental stewardship group (Donald, 1997). This is of particular interest to the EMG program, as EMG volunteers are expected to meet annual service requirements to be considered active volunteers (Langellotto et al., 2015), who are distinguished from inactive volunteers not currently engaged in the EMG program but who may return at some future point. While there are demographic differences between active (Dorn et al., 2018) and inactive EMG volunteers (Table 5.1), it is not known if motivations differ between active and inactive volunteers. Wilson and Newman (2011) suggest speaking to those leaving the program to determine why they are leaving. Responses from inactive EMG volunteers may be a source of insight about areas where current program expectations are not generating volunteer match.

Previous EMG Studies

Functional theory and the VFI instrument have been used to measure EMG volunteer motivations in several states. Schrock et al. (2000), reported use of the VFI instrument, modified for an EMG audience, to study motivations of Missouri EMG volunteers. Wilson and Newman (2011) used a modified instrument with a 7-point Likert-type scale to study Mississippi EMG volunteers, reporting six factors (though they do not indicate whether the factor structure was

confirmed statistically). Takle et al. (2016) reported use of a modified VFI to study motivations of Iowa EMG volunteers. They confirmed six factors, but items did not load on intended factors. The highest-scoring motivation for Iowa EMG volunteers was a factor labeled “Learning” ($m=5.48$) that included three understanding, one career, one social, and one enhancement items.

Opportunity to learn more about horticulture and gardening has been a leading motivation for becoming an EMG volunteer (Kirsch and VanDerZanden, 2002; Rohs and Westerfield, 1996; Ruppert et al., 1997; Schrock et al., 2000a; Schrock et al., 2000b; Strong & Harder, 2011a; Wilson & Newman, 2011). Social and career-related motivations are consistently low-ranking reasons for becoming an EMG volunteer. It is interesting to note that the motivations of EMG volunteers reported in previous studies are not consistent with Chacón et al.’s (2017) observation that Values is the leading motivation of volunteers. Understanding often supersedes Values as a top motivator for EMG volunteers, though Values is close behind (Takle et al., 2018; Wilson and Newman, 2011).

In 2018, more than 86,000 Extension Master Gardener (EMG) volunteers in the United States reported 5.6 million hours of volunteer service in support of Extension programming and reached a direct audience in excess of 8.6 million people. These EMG volunteers are individuals who have been recruited, trained, and managed by Extension programs of land-grant universities as a means of meeting public demand for consumer horticulture. They fulfill a significant commitment in the first year and display an ongoing dedication to the program in subsequent years (Langellotto et al., 2015). EMG volunteers are an important strategy for Extension’s response to consumer demand for horticulture information (Meyer, 2007).

Identifying the motivations behind such steadfastness in volunteerism would enable program coordinators to recruit and select wisely as well as manage local programs in such a

way as to retain volunteers for the long term. While the results of previous studies of EMG motivations have been somewhat consistent with broader volunteerism studies of adults with similar demographics (Clary & Snyder, 1999), it is not clear if the VFI model is a fit for EMG volunteers or how many functional motivations apply to EMG volunteers. Furthermore, it is unknown if motivations are different for subgroups of the overall population. It is also unknown if motivations of EMG volunteers change over time or if motivation functions share a relationship with satisfaction, tenure, or involvement. These are important questions to answer as program coordinators nationwide seek to diversify program participation. A national study allows a broader look at motivations for a larger cross-section of EMG volunteers as well as subgroups within the EMG volunteer base. It also presents opportunities to investigate EMG volunteer motivations over time.

MATERIALS AND METHODS

A quantitative national study of current and inactive EMG volunteers and their state and local coordinators in all 49 U.S. EMG programs was conducted in Fall 2016 (University of Georgia IRB Approval #3567). Survey protocol was based on Dillman methods for online survey research (Dillman et al., 2014) as well as published accounts of EMG volunteer survey research (Tackle et al., 2016; Vines et al., 2016). The study included three separate surveys to state coordinators, local coordinators, and EMG volunteers, which built upon one another and were conducted consecutively. Survey methodology has been described in detail elsewhere (Dorn et al., 2018).

To assess functional motivations, questions from Tackle et al. (2016) were used verbatim with permission (S.T. Dorn and D. Schrock, personal communication). These questions were

based on Clary et al.'s (1998) Volunteer Functions Inventory, and permission to use was obtained (S.T. Dorn and E.G. Clary, personal communication). These 30 questions (five items for each of six functions) were re-worded to reflect the EMG volunteer experience and included as part of a larger survey extended to EMG volunteers (Dorn et al., 2018). A lead-in statement asked respondents to "Please evaluate your reasons for volunteering by indicating how important each is for you with regard to your experience in the Extension Master Gardener program." Similar to Asah and Blahna (2012), Lu and Schuett (2014), Ryan et al. (2001), and Saitgalina (2018), the current study utilized a five-point Likert-type scale (1 = not at all important; 5 = extremely important) to record responses.

Responses were coded for service status as active, having met an individual's state requirements for active EMG status in 2015, or inactive, not having met an individual's state requirements for active EMG status in 2015. While all responses were included in confirmatory factor analysis, only responses of individuals indicating active service were included in secondary analysis based on exploratory factor analysis results.

All responses were labeled for generation cohort, calculated from birth year. Traditionalists included individuals born between 1925 and 1942 (age 74-91 years), Baby Boomers included individuals born between 1943 and 1960 (age 56-73 years), GenX included individuals born between 1961 and 1981 (age 35-55 years), and GenY included individuals born between 1982 and 2000 (age 16-34 years).

To describe the population density of the counties served by EMG programs, the 2013 Rural-Urban Continuum Codes (RUCC) presented by USDA's Economic Research Service (2013) were used. RUCC is a classification scheme that distinguishes metropolitan counties by the population size of their metro area, and nonmetropolitan counties by degree of urbanization

and adjacency to a metro area. The RUCC includes three metro codes (1-3), four nonmetro codes (4-7), two rural codes (8 and 9), and two codes describing unknown areas (88 and 99). Each county in the U.S. is assigned one of the 11 codes. For the purpose of this study, the 11 RUCC codes were reduced to four categories, including urban (codes 1-3), suburban (codes 4-7), rural (codes 8-9), and unknown (codes 88 and 99).

A categorical measure of volunteer intensity was calculated based on self-reported years as an EMG volunteer and number of self-reported volunteer service hours in 2015. Low and high categories divided based on median values for active EMG volunteers, above and below 6 years of service and less than and greater than 60 service hours. Four volunteering intensity categories resulted, including low year, low hours; low years, high hours; high years, low hours; and high years, high hours.

Volunteerism outcomes included tenure, satisfaction, and overall involvement. Tenure was defined as the self-reported years of service as an EMG volunteer. For categorical comparisons, responses were divided into six groups based on the years of experience as an EMG volunteer (mean=7.7 years, median = 5 years), including less than one year, two to four years, five to seven years, eight to ten years, eleven to fifteen years and more than sixteen years (Newberry, unpublished). Individual satisfaction with the EMG program experience was measured with one item “How satisfied are you with your experience as an Extension Master Gardener Volunteer?”, using a 7-point, Likert-type scale (1 = extremely dissatisfied, 7 = extremely satisfied). Overall involvement was a count of the number of volunteer service activities (range from 0 to 34) for which the individual indicated some or more involvement.

Data from the survey was collected using Qualtrics (Qualtrics, Provo, UT). To confirm model fit, confirmatory factor analysis (CFA) was conducted with SAS (version 9.4 for

Windows; SAS Institute, Inc., Cary, NC). To conduct exploratory factor analysis (EFA) and further analyze active EMG volunteer responses, IBM SPSS (version 24 for Windows; IBM Corp., Armonk, NY) was used.

Results were analyzed using descriptive statistics, factor analysis, independent *t*-tests, one-way analysis of variance (ANOVA), and correlation where appropriate. In lieu of Cronbach's alpha, inter-item correlations were used for scales with only 2 items (Asah and Blahna, 2012). In instances of unequal variances and unequal group sizes, the Brown-Forsythe statistic was used to test for significance, followed by the Games-Howell post hoc test to separate means. Bootstrapping was used to establish confidence intervals. Effect size is represented by omega squared (ω^2) for ANOVA tests and Cohen's *d* for *t*-tests. Negative effect sizes, though impossible, are reported rather than setting ω^2 to 0 in the event of future meta-analysis (Lakens, 2015). Because of the exploratory nature of the analysis, data was analyzed by variables and not by complex interactions. Significance values were subjected to Bonferroni adjustment to allow for multiple comparisons.

RESULTS

To confirm the fit of the VFI six-factor model with the EMG volunteer sample ($n=5416$), confirmatory factor analysis was conducted. The fit indices for the hypothesized model were $\chi^2(435) = 71880.3165$, $p < .0001$, Root Mean Square Error of Approximation (RMSEA) = 0.0860, Adjusted Goodness of Fit (AGFI) = .7972, Normed Fit Index (NFI) = .7752, and Comparative Fit Index (CFI) = .7793. The significant χ^2 value and corresponding unacceptable fit indices (RMSEA $> .10$, all NNFI $< .90$, CFI $< .90$) indicated poor model fit (Hooper et al., 2008; Long and Perkins, 2003).

To explore latent motivation variables in the EMG volunteer sample, exploratory factor analysis was conducted. The objective was to distill the 30 VFI items into a set of meaningful motivations. Principal axis factor analysis was used to explain the maximum amount of common variance in a correlation matrix using the fewest number of constructs, and because of correlation between factors, oblique rotation (direct oblimin) was used to maximally load items on only one factor (Field, 2013). A principal axis factor analysis was conducted on the 30 items with oblique rotation (direct oblimin). The Kaiser-Meyer-Olkin (KMO) measure verified the sampling adequacy for the analysis, $KMO = .902$ (“marvelous” according to Hutcheson and Sofroiu, 1999), however, only 20 of 30 KMO values for individual items were greater than the acceptable limit of .5 (Field, 2013). Additionally, the correlation matrix determinant was less than the necessary value of 0.00001, indicating a problem of multicollinearity among items. The ten items with KMO values below .5 were then excluded from analysis, and the factor analysis was repeated. The KMO for the revised items again verified sampling adequacy, $KMO = .872$, and Bartlett’s Test of Sphericity was significant, indicating factor analysis was appropriate. The correlation determinant was .004, greater than the minimum and indicating no multicollinearity. KMO values for all individual items exceeded the .5 level. Reliability for scales with three or more items was calculated via Cronbach’s alpha, and two-item scale reliability was calculated with Spearman-Brown coefficient (Eisinga et al., 2013). Cronbach’s alpha for all items together (20) was .861.

An initial analysis was run to obtain Eigenvalues for each factor in the data. Five factors had Eigenvalues greater than Kaiser’s criterion of 1.0 and in combination explained 58.8% of the variance. The scree plot confirmed the retention of five factors, three of which were similar to Clary et al.’s (1998) factor structure. One item, “Doing EMG volunteer work relieves me of

some of the guilt over being more fortunate than others” (Protective), dropped out because its factor loading was less than .30. Table 5.2 shows the factor loadings after rotation.

Factor 1 included six items. Among the items were one Enhancement (“Volunteering as an EMG is a way to make new friends”), two Protective (“By volunteering as an EMG, I feel less lonely” and “No matter how bad I've been feeling, volunteering as an EMG helps me to forget about it”), and three Understanding (“Through the EMG program, I can explore my own strengths,” “I can learn how to deal with a variety of people as an EMGV,” and “Volunteering as an EMG allows me to gain a new perspective on things”). Factor 1 was therefore labeled as Personal, to reflect the mix of items related to personal enhancement, protection, and understanding of people, with an Eigenvalue of 5.488 and explaining 28.9% of the variance. Cronbach’s alpha for Factor 1 was .798 (Table 5.2).

Factor 2 included two items from the Understanding factor. These two items, “I can learn more about horticulture and home gardening,” and “Volunteering as an EMG lets me learn horticulture through direct, hands-on experience,” specifically reflected learning about horticulture. Two of three other Understanding items, “Through the EMG program, I can explore my own strengths” and “I can learn how to deal with a variety of people as an EMGV,” loaded onto Factor 1. Factor 2 was therefore labeled as Learning, with an Eigenvalue of 2.037 and explaining 10.7% of the variance. The Spearman-Brown Coefficient for Factor 2 was .778 (Table 5.2).

Factor 3 included two Career items. Three of the original Career items were excluded due to multicollinearity, including “Through the EMG program, I can make new contacts that might help my business career,” “Master Gardener volunteer experience will look good on my resume,” and “Volunteering as an EMG will help me to succeed in my chosen profession.”

Factor 3 was labeled as Career, with an Eigenvalue of 1.373 and explaining 7.2% of the variance. The Spearman-Brown Coefficient for Factor 3 was .478 (Table 5.2).

Factor 4 included four items from the Values factor. One of the original Values items, “I feel compassion toward people in need,” was excluded because of multicollinearity. Factor 4 was labeled as Values, with an Eigenvalue of 1.210 and explaining 6.4% of the variance. Cronbach’s alpha for Factor 4 was .681 (Table 5.2).

Factor 5 included four items from the Social factor and one Enhancement item (“Volunteering as an EMG makes me feel important”). One of the original Social items, “Others with whom I am close place a high value on community service,” was excluded because of multicollinearity. Factor 5 was labeled as Social, with an Eigenvalue of 1.062 and explaining 5.6% of the variance. Cronbach’s alpha for Factor 5 was .707 (Table 5.2).

Three original volunteer functions were retained (Career, Values, and Social), but each had fewer items than the original factor. Twelve of the retained 20 scale items loaded on the intended factor. One item was excluded because its factor loading was less than .30. Seven items loaded with unintended factors, resulting in the naming of another factor outside of the original VFI.

Together, the results of the exploratory factor analysis satisfy the second research objective. Five factors were retained and named. The motivation factors, in order from greatest to least mean (importance), were learning ($m=4.3$, $SD=0.75$), values ($m=3.5$, $SD=0.79$), personal ($m=2.7$, $SD=0.83$), social ($m=2.1$, $SD=0.78$), and career ($m=1.3$, $SD=0.6$) (Table 5.2).

Third, to determine motivations for subgroups of the EMG volunteer sample, composite scale scores were created based on the factor analysis results. Comparisons of motivation functions were made between generations of EMG volunteers, gender, experience with the

program, service status, and host county population density (urban, suburban, and rural). Means were compared using independent *t*-tests and ANOVA, and correlations were used to describe relationships between variables.

Generation. There was a significant difference between generation and career, $F(3, 5195) = 62.134, p < .001, \omega^2 = .065$; learning, $F(3, 5258) = 3.864, p = .009, \omega^2 = .00$; and social functions, $F(3, 5078) = 9.109, p < .001, \omega^2 = .004$ (Table 5.3). *Post hoc* tests revealed that career motivations (max=5) were highest for GenY ($m=2.3, SD=1.1$) and lowest for Traditionalists ($m=1.2, SD=0.5$) and Baby Boomers ($m=1.2, SD=0.6$) with GenX in the middle ($m=2.7, SD=0.9$). Learning motivations were highest for GenY ($m=4.5, SD=0.7$), tied between GenX ($m=4.3, SD=0.8$) and Baby Boomers ($m=4.3, SD=0.7$) and least for Traditionalists ($m=4.2, SD=0.7$). Social motivations of GenX ($m=2.0, SD=0.8$) were significantly lower than Traditionalists ($m=2.2, SD=0.8$), Baby Boomers ($m=2.1, SD=0.8$), or GenYs ($m=2.2, SD=0.8$). There was a nonsignificant difference between generation and personal, $F(3, 5072) = 0.394, p = .758, \omega^2 = .001$, and values, $F(3, 5106) = 2.931, p = .032, \omega^2 = .001$.

Gender. There was a significant difference between gender and three factor scores, including learning, personal, and values (Table 5.4). On average, male EMG volunteers had a lower learning motivation ($m=4.2, SD=0.8$) than female EMG volunteers ($m=4.3, SD=0.7$). This difference, -0.146 , BCa 95% CI $[-0.198, -0.094]$, was significant $t(5364) = -5.522, p < .001$, representing a negligible effect, $d = 0.133$. Male EMG volunteers had a lower personal motivation ($m=2.5, SD=0.8$) than female EMG volunteers ($m=2.8, SD=0.8$). This difference, -0.245 , BCa 95% CI $[-0.303, -0.186]$, was significant $t(5172) = -8.181, p < .001$, representing a small effect, $d = 0.375$. Male EMG volunteers had a lower values motivation ($m=3.3, SD=0.8$) than

female EMG volunteers ($m=3.5$, $SD=0.8$). This difference, $-.197$, BCa 95% CI $[-.252, -.142]$, was significant $t(5209) = -6.981$, $p<.001$, representing a small effect, $d = 0.25$.

There was a non-significant effect of gender on two factor scores, career and social. There was negligible difference between male and female EMG volunteers in career motivations ($m=1.3$, $SD=0.6$) and social motivations ($m=2.1$, $SD=0.8$). The career difference, $-.017$, BCa 95% CI $[-.061, -.028]$, was not significant $t(5301) = -0.740$, $p=0.459$, representing no effect, $d = 0$. The social difference, $-.021$, BCa 95% CI $[-.032, -.074]$, was not significant $t(5560) = 0.762$, $p=0.446$, representing no effect, $d = 0$.

Host county population density. There was a significant effect of host county population density (urban, suburban, and rural) on the social factor, $F(2, 5488) = 7.742$, $p=.001$, $\omega^2 = .018$ (Table 5.5). Individuals in rural EMG programs ($m=2.4$, $SD=1.0$) had a higher score than those in suburban ($m=2.2$, $SD=0.8$) and urban ($m=2.1$, $SD=0.8$) programs. Host county population density did not appear to affect the remaining four factor scores, including personal, $F(2, 5481) = .240$, $p=.786$, $\omega^2 = .000$; career, $F(2, 5631) = 0.123$, $p=.885$, $\omega^2 = .000$; learning, $F(2, 5690) = 3.913$, $p=.020$, $\omega^2 = .001$; and values, $F(2, 5517) = 2.282$, $p=.104$, $\omega^2 = .000$.

Service Status. There was a significant effect of service status on three factor scores, including personal, career, and social (Table 5.6). On average, inactive EMG volunteers had a lower personal motivation ($m=2.5$, $SD=0.8$) than active EMG volunteers ($m=2.7$, $SD=0.8$). This difference, $-.193$, BCa 95% CI $[-.282, -.104]$, was significant $t(5563) = -4.272$, $p<.001$, representing a small-sized effect, $d = 0.25$. Inactive EMG volunteers had a higher career motivation ($m=1.4$, $SD=0.8$) than active EMG volunteers ($m=1.3$, $SD=0.6$). This difference, $.160$, BCa 95% CI $[.092, .228]$, was significant $t(5563) = 3.655$, $p<.001$, representing a negligible effect, $d = 0.141$. Inactive EMG volunteers had a lower social motivation ($m=2.0$,

$SD=0.7$) than active EMG volunteers ($m=2.1$, $SD=0.8$). This difference, $-.156$, BCa 95% CI $[-.238, -.073]$, was significant $t(5563) = -3.695$, $p < .001$, representing a negligible effect, $d = 0.133$.

Service status did not appear to affect learning and values factor scores. Inactive EMG volunteers had a lower learning motivation ($m=4.2$, $SD=0.8$) than active EMG volunteers ($m=4.3$, $SD=0.7$). This difference, $-.092$, BCa 95% CI $[-.172, -.011]$, was not significant $t(5563) = -2.068$, $p = .039$, $d = 0.133$. Inactive EMG volunteers had a lower values motivation ($m=3.4$, $SD=0.8$) than active EMG volunteers ($m=3.5$, $SD=0.8$). This difference, $-.051$, BCa 95% CI $[-.136, .033]$, was not significant $t(5563) = -1.192$, $p = .233$, representing a negligible effect, $d = 0.125$.

Volunteering Intensity. All five factor scores were significantly different for volunteer intensity, including personal, $F(3, 5488) = 18.512$, $p < .001$, $\omega^2 = .009$; learning, $F(3, 5698) = 9.026$, $p < .001$, $\omega^2 = .004$; career, $F(3, 5639) = 5643$, $p < .001$, $\omega^2 = .011$; values, $F(3, 5525) = 13.042$, $p < .001$, $\omega^2 = .007$; and social, $F(3, 5496) = 13.451$, $p < .001$, $\omega^2 = .007$ (Table 5.7).

Personal motivations were less important for volunteers with low years and low hours ($m=2.7$, $SD=0.8$) and high years and low hours ($m=2.6$, $SD=0.8$) than individuals with low years and high hours ($m=2.8$, $SD=0.8$) and high years and high hours ($m=2.8$, $SD=0.9$). Learning motivations were less important for volunteers with high years and low hours ($m=4.2$, $SD=0.8$) than individuals with low years and low hours ($m=4.3$, $SD=0.7$), low years and high hours ($m=4.4$, $SD=0.7$). Individuals with high years and high hours ($m=4.3$, $SD=0.7$) were similar to both groups. Career motivations were most important for volunteers with low years and low hours ($m=1.4$, $SD=0.8$), while the importance of career function was similar for volunteers with high years and low hours ($m=1.3$, $SD=0.6$), low years and high hours ($m=1.2$, $SD=0.6$), and high years and high hours ($m=1.2$, $SD=0.6$). Values motivations were less important for volunteers

with low years and low hours ($m=3.4$, $SD=0.8$) and high years and low hours ($m=3.4$, $SD=0.8$) than for individuals with low years and high hours ($m=3.5$, $SD=0.8$) and high years and high hours ($m=3.6$, $SD=0.8$). Social motivations were less important for volunteers with low years and low hours ($m=2.0$, $SD=0.7$) and most important for individuals with high years and high hours ($m=2.2$, $SD=0.8$). The social motivation for Individuals with low years and high hours ($m=2.1$, $SD=0.8$) was similar to those with low years and low hours, while individuals with high years and low hours ($m=2.1$, $SD=0.8$) were similar to those with high years and high hours.

Finally, to explore the fourth research objective, motives were analyzed by tenure (years of service). There was a significant difference between tenure and three factor scores, including learning, $F(1, 5610) = 5.480$, $p < .001$, $\omega^2 = .003$; career, $F(1, 5548) = 8.218$, $p < .001$, $\omega^2 = .006$; and social $F(1, 5410) = 6.460$, $p < .001$, $\omega^2 = .004$ (Table 5.). Learning motivations were highest for volunteers with the least tenure ($m=4.4$, $SD=0.7$), similar for volunteers between two and ten years of tenure, and lowest for volunteers with tenure in excess of 11 years ($m=4.2$, $SD=0.8$). Career motivations were highest for volunteers with less than one year of tenure ($m=1.4$, $SD=0.8$), and decreased as years of tenure increased. Social motivations were highest for volunteers with eight or more years of tenure ($m=2.2$, $SD=0.8$) and lowest for volunteers for less than one year of tenure ($m=2.0$, $SD=0.7$). Two nonsignificant differences were observed between tenure and the personal factor, $F(1, 5402) = 0.688$, $p = .633$, $\omega^2 = .000$, and values, $F(5, 5440) = 1.154$, $p = .330$, $\omega^2 = .000$.

Correlations were used to describe relationships between motives and volunteering outcomes, including satisfaction, tenure, and overall involvement (Table 5.9). There were significant and strong correlations between motives, such as Personal and Values, $r = .514$, $p < .001$, and Social, $r = .559$, $p < .001$. There were significant and moderate correlations between

Personal and Learning, $r = .392, p < .001$; Values and Learning, $r = .380, p < .001$; and Social and Values, $r = .375, p < .001$. The smallest inter-motive correlation was between Career and Learning, $r = .069, p < .001$.

While the Learning, Personal, Values, and Social motives shared a significant and slight correlation with satisfaction ($r = .073, .060, .070, .041$; $p < .001$, respectively), the Career motive shared a nonsignificant and slight negative correlation with satisfaction ($r = -.016, p = .241$) (Table 5.9). Overall involvement had significant and small positive correlations with Values, $r = .227, p < .001$; Social, $r = .180, p < .001$; and Personal motives, $r = .172, p < .001$. Tenure had a significant and slight negative correlation with two motives, Learning, $r = -.072, p < .001$, and Career, $r = -.063, p < .001$; a significant and slight correlation with Social, $r = .057, p < .001$; and a significant and small correlation with overall involvement, $r = .146, p < .001$. The slight positive correlations between tenure and two motives, Personal and Values, were not significant.

DISCUSSION

The first objective of this study was to determine whether or not Clary et al.'s (1998) VFI model was a good fit for the sample. Although the CFA did not confirm a good fit, the EFA did result in a moderately clean structure that identified five motivational factors for EMG volunteers. Overall reliability as well as subscale reliabilities were good. The overall Cronbach's alpha was consistent with previous VFI studies of volunteers (Chacón et al., 2017). This supports that theoretical motivations are apparent and distinct in this sample of EMG volunteers.

The model was adjusted. Ten of the original VFI items dropped out of the analysis due to multicollinearity, and an additional item was excluded due to insufficient factor score. The

dropped or excluded items, including three Career, three Enhancement, two Protective, one Social, and one Value, came from five of the six scales. No Understanding items dropped out or were excluded. This is consistent with Chacón et al.'s (2017) observation that some scale items do not have consistent psychometric properties. Item reduction was necessary to improve scale reliability in relation to the study's sample. This structure was retained, as it provided the best psychometric properties. Using rating scales with more points, such as increasing the response scale from five-point to seven-point, may increase variability and sensitivity (Long and Perkins, 2003; Reise et al., 2000).

The latent motivations in this study are similar to results of Clary et al.'s (1998) earlier studies and previous studies of EMG volunteers in Mississippi (Wilson and Newman, 2011), Missouri (Schrock et al., 2000), and Iowa (Takle et al., 2016). Learning (comparable to Understanding), Values, Understanding, and Personal (similar to Enhancement) were the most important functions for EMG volunteers. The most important motivation factor for EMG volunteers in this study (Learning), however, is not consistent with Values, the most important motivation frequently cited for other volunteer groups (Chacón et al., 2017). This is of particular concern given the pattern of enhancement motivations being negatively correlated with commitment and retention (McDougle et al., 2011; Ryan et al., 2001). Social and Career motivations are least important for this sample of EMG volunteers, and the Protective items drop out of the VFI for EMG volunteers.

Because the five motivation factors explain only 58.8% of the variance, results of this study suggest the possibility that there are other motives for EMG volunteers that the VFI does not measure. Ryan et al. (2001) explored a "reflection" motivation that draws on the fascination and restoration benefits of being in nature that may come with volunteer opportunities in natural

settings. Pillemer et al. (2010) observed that nature is a “social magnet” and that outdoor volunteer settings draw people together and foster a sense of community. Hands-on experience with horticulture and home gardening were extremely important to EMG volunteers, as indicated by the highest factor mean, Learning (Table 5.2). Ryan et al. (2001) proposed that many volunteer activities are social events and that there is a connection between attachment to the volunteer site and social reasons for volunteering. Thus, volunteer service activities that are outdoors, such as a garden or restoration site, may satisfy a need for social engagement of older volunteers (Pillemer et al., 2010) while also providing restoration benefits (Ryan et al., 2001). Future exploration of volunteer service activities may shed light on this possible motivation. To enhance understanding of individual motivations, Chacón et al. (2017) suggesting complementing the VFI with an open-ended question about reasons for volunteering.

Motivations for Subgroups

A second objective of this study was to explore motivations of subgroups within the EMG volunteer sample. Consistent with other studies of functional theory, motivations vary across some groups of EMG volunteers. Though there were significant differences among individual factor scores for generations, the relative importance of motivational factors was scored similarly by generational cohorts. Male EMG volunteers are less motivated by Personal, Learning, or Values functions than female EMG volunteers. This could be reflection of the different gender distribution of EMG volunteers noted by Chacon et al. (2017), as more than 80 percent of respondents in the current study were female (Dorn et al., 2018). These results did not confirm Schrock et al.'s (2000) observation that females were more likely than males to have a Career motivation. Interestingly, there was no difference in Social motivations for males and females. EMG volunteers connected with rural EMG programs indicate a higher importance for

the Social function than volunteers in urban or suburban programs. This makes sense that individuals living in less populated areas would be motivated to volunteer because of a desire to meet and form relationships with other people. Though there were significant differences among individual factor scores at different tenure intervals, the relative importance of motivational factors was scored similarly by each tenure group.

Motivations were different for volunteers of various volunteering intensities. Individuals volunteering at a lesser intensity, as reflected in low hours and low years of service, indicated a higher Career motivation than volunteers at other levels of intensity. Values and Personal motivations were more important for volunteers serving high number of hours in 2015 (whether few or many years of service) than for volunteers serving fewer number of hours in 2015. The higher Learning motivation indicated by individuals with few years of service but high levels of service hours suggests an eagerness to learn in newer volunteers.

Motivations for EMG volunteers also varied with differing service status. EMG volunteers who indicated inactive status had lower Personal, Learning, Values, and Social motivations than EMG volunteers with active status. Inactive respondents, however, indicated a higher Career motivation than active respondents that is most likely related to a higher percentage of inactive volunteers who are still employed (Table 5.1) and is consistent with the frequent comments in an open-ended question (data not shown) about the need for more volunteer opportunities outside of regular business hours.

Motivations of Subgroups

The third objective of the study was confirmed with several examples. The Career function, for example, is most important for GenY participants who are still of working age, and least important for older generations, such as Baby Boomers and Traditionalists, that have a

higher percentage of individuals who are retired (Table 5.1). On the other hand, Social motivations are greatest for Traditionalists and GenY participants, and less important for Baby Boomers and GenXers, whose Social motivations may be met through ongoing family responsibilities, such as children and grandchildren, and socialization in the workplace for those still employed (Widjaja, 2010). There is a slight increase in Values motivation between volunteers of low and high years. The importance of the Learning function is highest for EMG volunteers with least tenure and declines as EMG volunteer tenure increases.

Results of comparisons by tenure as an EMG suggests that motivations may change over time. The Career function is more important to volunteers with less than one year of tenure, but decreases as EMG volunteer tenure increases. Social motivations are most important to EMG volunteers in this study with eight or more years of tenure, while they are least important to EMG volunteers with few years of tenure. This is consistent with the significant positive improvement of social activity and self-esteem after participating in the EMG program, as reported by Texas Master Gardeners (Boyer et al., 2002).

These changes in motivations with respect to tenure are particularly insightful for coordinators with large numbers of legacy volunteers (individuals who remain with the program for many years with varying levels of involvement), as what drew EMG volunteers to the program may not necessarily be what keeps them in the program. It is important to understand the motivations of EMG volunteers and whether or not the motivations are influential in increasing volunteer intensity. For example, if Learning was the motivator for becoming an EMG volunteer, the volunteer may reduce his/her level of involvement or leave the program altogether once the Learning motivation is satisfied (Asah and Blahna, 2012).

Relationship Between Motives and Volunteering Indicators

In support of the fourth objective, relationships were found between motives and satisfaction, overall involvement, and tenure. Though these relationships were modest at best, motives had stronger relationships with overall involvement than with satisfaction or tenure. This is interesting, given Ryan et al.'s (2001) finding that motivation factors were not significant predictors of frequency or duration of volunteering. The significant and slight negative relationship between Learning and tenure raises the question of whether EMG volunteers attracted by Learning motives will return fewer hours to the program, as noted by McDougale et al. (2011) and Ryan et al. (2001). The significant and small positive correlation between Social motivations and overall involvement suggest that Social motivations may also be important for retention of EMG volunteers.

Haski-Leventhal and Bargal (2008) found that relationships to other volunteers have key roles in volunteering stages. Ryan et al. (2001) reported that individuals motivated by social factors were more likely to volunteer at a higher frequency than individuals motivated by other factors and that individuals motivated by learning and enhancement volunteered at a lower frequency, and Grube and Piliavin (2000) noted that both of their social network variables had significant and positive effects on the number of hours volunteered. Similarly, Greenslade and White (2005) reported that the Social function was a significant predictor of above-average volunteer service, while Hyde et al. (2016) found Social motives were predictors of volunteer retention. Lu and Schuett (2014) found social networking to be the strongest motivation predictor of centrality (the extent to which social networks revolve around the organization and the degree to which lifestyles are meaningfully influenced by volunteer role) and that centrality was the strongest predictor of tenure. Saitgalina (2018) found that there are different types of satisfaction

with the volunteer experience, but only societal satisfaction (giving back, socializing, working together with others) had a strong and positive effect on intention to continue volunteering.

McDougle et al. (2011) reported that young adults who were motivated by Social factors were more likely to invest more time with their volunteer organization, whereas volunteers motivated by Understanding factors were less likely to invest large amounts of time with their volunteer organization. As stated by Church et al. (2019), factors that are more Social in nature are less likely to initially motivate an individual to volunteer, but they are likely to influence retention and volunteering frequency.

Some motivational factors, like Learning, may seem more important because of higher scores, but motivations are not hierarchical (Ryan et al., 2001). Therefore, motivations of lower importance, like Social ones, may be overlooked when, in fact, they could have substantial implications for cultivating long-term, committed volunteers. This presents EMG program coordinators with several possible strategies for recruitment, involvement, and retention of volunteers. Ryan et al. (2001) suggested that fostering social needs of legacy volunteers who are no longer motivated by learning could increase their involvement in the program. Both Asah and Blahna (2012) and McDougle et al. (2011) suggested using recruitment messages that promote social ties rather than learning experiences, and McDougle et al. (2011) encourage program coordinators to integrate social elements into the planning and implementation of projects (). Phillips and Phillips (2010) go so far as to suggest that failure to motivate volunteers is simply reflective of a lack of program coordinator effort, as creating opportunities for volunteers to build relationships is meaningful for the volunteer and easy for the coordinator to implement.

Studies of volunteers utilizing the VFI repeatedly admonish program coordinators to use the tool for recruitment purposes, supporting a good match between potential participants and

program outcomes (Clary and Snyder, 1995; Schrock et al., 2000; Wilson and Newman, 2011). Despite these admonitions, however, the authors found no reports in the literature of anyone using the VFI as a selection tool for EMG volunteers. At first glance, utilization of the VFI to identify reasons individuals begin volunteering does not seem particularly insightful in the long-term. Though research on volunteer motivation has predominantly focused on why people start volunteering (Millette and Gagné, 2008), the relationships between motives and volunteering indicators in this study suggest that there is merit in studying motivations over the entire volunteer cycle (Haski-Leventhal and Bargal, 2008), as well as in studying the relationships between motivations, volunteer involvement, and volunteer service activities. Given Strong and Harder's (2011) apt statement that "it has not been established that Master Gardeners with longer tenure rank higher in terms of volunteer value than Master Gardeners with shorter tenure," it may also be helpful in future study of EMG volunteers to explore the relationship between motivation factors and intent to continue volunteering in order to fully understand what engenders the engagement and persistence of knowledgeable and committed volunteers.

Clary et al. (1995) studied recruitment messages and motivations; when messages matched motivations, individuals were more likely to volunteer. Widjaja (2010) noted that "promotional campaigns to recruit volunteers would be more successful if their messages matched potential volunteers' motivational functions." It may be ideal to conduct the VFI during the recruitment and selection stage, such as part of the EMG program application. Since it takes time and resources to conduct, coordinators could consider instead a more general approach of tailoring recruitment messages that emphasize Values, Understanding, and Enhancement functions, as well as Social elements of the experience. Coordinators may also consider conducting the VFI periodically to monitor changing motivations of veteran volunteers (Widjaja,

2010). This offers a viable alternative to Wilson and Newman's (2011) suggestion for program coordinators to "...be aware of who is the average person that becomes a MG and target those groups," an approach that may fill the training classroom, but not necessarily support diverse program participation.

Ultimately, the decisions to become and remain an active EMG volunteer are affected by multiple elements, such as functional motivations. Given that adults ages 20-24 volunteer in support of environmental organizations at nearly double the rate of environmental volunteers in the general population (McDougle et al., 2011), it may behoove EMG program coordinators to pitch EMG volunteer roles as helping the environment, tapping the Values motivations of younger volunteers, while at the same time, following Takle et al.'s (2016) recommendation to relate activities and experiences of EMG volunteers to community needs to meet altruistic motivations. Since satisfaction and intention to volunteer increase when volunteer roles are matched with motives (Widjaja, 2010), it may be important to satisfy motivations of EMG volunteers through situations or roles that satisfy those motivations in order for the individual to continue volunteering (i.e., retention).

Conclusion

This EMG volunteer motivation study, as well as previous studies, has established the motivations of EMG volunteers for coming to the program. This study provides additional information about motivations at different stages in their volunteer tenure. Understanding the motivations of current EMG volunteers provides program coordinators with essential insight for engaging future volunteers. The VFI offers a tool for EMG program coordinators to use with volunteer recruitment and retention efforts to assess motivations of potential and long-term EMG volunteers. Knowledge of individual motivations allows volunteer coordinators to better match

volunteer recruitment language and program opportunities. This study sets the stage for much future work, including determining whether and how motivation functions actually translate into actual volunteer behaviors.

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Table 5.1. Demographic description of active and inactive Extension Master Gardener (EMG) Volunteers

Parameter	Active EMG Volunteer Responses ^Z		Inactive EMG Volunteer Responses	
	Respondents		Respondents	
	n	(%)	n	%
Age (years)	<i>m</i> = 64.8 years (<i>SD</i> =9.2)		<i>m</i> =62.1 (<i>SD</i> =10.8)	
<40	112	2.1%	14	3.7%
40-49	217	4.1%	32	8.5%
50-59	834	15.6%	71	18.8%
60-69	2582	48.2%	176	46.7%
70-79	1443	26.9%	69	18.3%
80-89	163	3.0%	14	3.7%
90-99	6	0.1%	1	0.3%
Generation^Y				
Traditionalists (born 1925-1942)	774	14.5%	39	10.4%
Baby Boomers (born 1943 – 1960)	3920	73.2%	260	69.1%
GenX (born 1961-1981)	616	11.5%	68	18.1%
GenY (born 1982-2000)	46	0.9%	46	0.9%
Gender				
Male	985	18.0%	63	16.2%

Female	4483	82.0%	326	83.8%

Race/Ethnicity

White	5168	93.7%	348	93.0%

African American	51	0.9%	3	0.8%

American Indian	59	1.1%	1	0.27%

Asian	35	0.6%	5	1.3%

Native Hawaiian	9	0.2%	0	0%

Latino	35	0.6%	4	1.0%

Mixed	64	1.2%	3	0.8%

Other	95	1.7%	10	2.7%

Relationship Status

Single	307	5.7%	26	6.8%

Married	4202	77.8%	283	73.9%

Divorced	473	8.9%	42	11.0%

Widowed	390	7.2%	32	8.4%

Separated	22	0.4%	0	0%

Have children

No	1245	23.2%	111	28.9%

Yes	4128	76.8%	273	71.1%

Annual Household Income

<\$25,000	217	4.8%	21	6.5%

\$25,000 - \$49,999	842	18.5%	72	22.2%

\$50,000 - \$99,999	1826	40.2%	120	36.9%
\$100,000 - \$149,999	979	21.6%	63	19.4%
\$150,000 - \$199,999	341	7.5%	22	6.8%
>\$200,000	335	7.4%	27	8.3%

Work Status

Full time outside home	802	14.7%	89	22.9%
Part time outside home	556	10.2%	46	11.9%
Full time from home	115	22.1%	14	3.6%
Part time from home	204	3.7%	16	4.1%
Do not work	274	5.0%	20	5.2%
Retired	3490	64.1%	203	52.3%

Highest Level of Education

Some High School	3	0.1%	0	0%
High School diploma/GED	205	3.8%	14	3.6%
Some college	706	12.9%	39	13.6%
Associate degree	427	7.8%	31	21.6%
Technical/professional degree	207	3.8%	14	25.2%
Bachelor's degree	1739	31.8%	152	39.1%
Graduate degree	2175	39.8%	139	35.7%

Host County Population^X

Urban	5520	80.5%	453	75.1%
Suburban	1177	17.2%	128	21.2%

Rural	144	2.1%	19	3.2%
Unknown	15	0.2%	3	0.5%
Tenure^w	<i>m</i> =7.7 (<i>SD</i> =6.0)		<i>m</i> = 5.2 (<i>SD</i> =5.2)	
<1 year of service	503	7.3%	209	36.2%
2 to 4 years	2138	31.2%	123	21.3%
5 to 7 years	1308	19.1%	104	18.0%
8 to 10 years	1012	14.8%	56	9.7%
11 to 15 years	993	14.5%	57	9.9%
>16 years	786	11.5%	28	4.9%

^zPreviously published in Dorn et al. (2018)

^yTraditionalist (age 74-91 years), Baby Boomer (age 56-73 years), GenX (age 35-55 years), GenY (age 16-34 years).

^xBased on the 11 Rural-Urban Continuum Codes for each county in the U.S. For the purpose of this study, the 11 RUCC codes were reduced to four categories, including urban (codes 1-3), suburban (codes 4-7), rural (codes 8-9), and unknown (codes 88 and 99).

^wNewberry (unpublished)

Table 5.2. Factor Pattern Matrix (Principal Factor Analysis, Oblique Rotation, Six Factors) for Volunteer Function Inventory (VFI) Items in Extension Master Gardener (EMG) Volunteer Responses

	Factor ^z				
	1	2	3	4	5
29. Through the EMG program, I can explore my own strengths. (Understanding)	0.710				
28. Volunteering as an EMG is a way to make new friends. (Enhancement)	0.636				
24. I can learn how to deal with a variety of people as an EMGV. (Understanding)	0.573				
7. No matter how bad I've been feeling, volunteering as an EMG helps me to forget about it. (Protective)	0.486				
9. By volunteering as an EMG, I feel less lonely. (Protective)	0.485				

14. Volunteering as an EMG	0.437	
allows me to gain a new perspective on things.		
(Understanding)		
12. I can learn more about	-0.828	
horticulture and home gardening.		
(Understanding)		
18. Volunteering as an EMG lets	-0.776	
me learn horticulture through direct, hands-on experience.		
(Understanding)		
1. Volunteering as an Extension	0.709	
Master Gardener (EMG) can help me get my foot in the door at a place where I would like to work. (Career)		
15. The EMG program allows	0.693	
me to explore different career options. (Career)		
19. I feel it is important to help others. (Values)		0.632

3. I am concerned about those less fortunate than myself. (Values)	0.560
8. I am genuinely concerned about the home gardeners I am serving. (Values)	0.506
21. As an EMG, I can do something for a horticultural cause that is important to me. (Values)	0.415
2. My friends volunteer as EMGs. (Social)	0.665
4. People I am close to want me to volunteer as an EMG. (Social)	0.655
6. People I know share an interest in community service. (Social)	0.408
22. Volunteering is an important activity to the people that I know best. (Social)	0.383

5. Volunteering as an EMG 0.301 0.314

makes me feel important.

(Enhancement)

<i>n</i>	5492	5702	5643	5529	5500
<i>Mean (SD)</i>	2.7 (0.8)	4.3 (0.7)	1.3 (0.6)	3.5 (0.8)	2.1 (0.8)
Eigenvalues	5.488	2.037	1.373	1.210	1.062
% of variance	28.9%	10.7%	7.2%	6.4%	5.6%
Cronbach's alpha (α)	.798	.778 ^Y	.478 ^Y	.681	.707

Note: Only factor loadings greater than $\pm.30$ are shown. n = 5083.

^ZPersonal, Learning, Career, Values, Social

^YSpearman-Brown Coefficient used to calculate reliability for two-item scales.

Table 5.3. Comparison of Extension Master Gardener (EMG) volunteer Motivation

Factor Scores by Generation^Z

Function	Generation	<i>n</i>	<i>Mean (SD)^Y</i>	<i>df</i>	<i>F^X</i>	<i>P</i>
Personal						
	Traditionalist	714	2.7 (0.8)	3	0.394	0.758 ^{NS}
	Baby Boomer	3718	2.7 (0.8)			
	GenX	601	2.7 (0.9)			
	GenY	43	2.8 (0.8)			
	Total	5076	2.7 (0.8)			
Learning						
	Traditionalist	753	4.2 (0.7) a	3	3.864	0.009*
	Baby Boomer	3852	4.3 (0.7) ab			
	GenX	613	4.3 (0.8) ab			
	GenY	44	4.5 (0.7) b			
	Total	5262	4.3 (0.7)			
Career						
	Traditionalist	734	1.2 (0.5) a	3	62.134 ^X	0.000**
	Baby Boomer	3816	1.2 (0.6) a			
	GenX	607	1.6 (0.9) b			
	GenY	42	2.3 (1.1) c			
	Total	5199	1.3 (0.6)			

Values

Traditionalist	722	3.4 (0.8)	3	2.931	0.032 ^{NS}
Baby Boomer	3740	3.5 (0.8)			
GenX	604	3.5 (0.8)			
GenY	44	3.7 (0.7)			
Total	5110	3.5 (0.8)			

Social

Traditionalist	710	2.2 (0.8) a	3	9.109	0.000**
Baby Boomer	3729	2.1 (0.8) b			
GenX	600	2.0 (0.8) c			
GenY	43	2.2 (0.8) a			
Total	5082	2.1 (0.8)			

^ZTraditionalist (age 74-91 years), Baby Boomer (age 56-73 years), GenX (age 35-55 years), GenY (age 16-34 years).

^YMeans separated by Tukey post hoc test. Means followed by the same letter not significant from each other.

^XBrown-Forsythe ratio used to allow for unequal variances and group sizes.

* Significant at $p < .0125$, ** Significant at $p < .001$, ^{NS} Non-significant

Table 5.4. Comparison of Extension Master Gardener (EMG) Volunteer Motivation

Factor Scores by Gender

Function	Gender	<i>n</i>	<i>Mean (SD)</i>	<i>df</i>	<i>t</i>^X	<i>P</i>
Personal						
	Male	933	2.5 (0.8)	5172	-8.181 ^X	0.000**
	Female	4241	2.8 (0.8)			
Learning						
	Male	962	4.2 (0.8)	5364	-5.522	0.000**
	Female	4404	4.3 (0.7)			
Career						
	Male	950	1.3 (0.6)	5364	-0.740	0.459 ^{NS}
	Female	4353	1.3 (0.6)			
Values						
	Male	942	3.3 (0.8)	5209	-6.981	0.000**
	Female	4269	3.5 (0.8)			
Social						
	Male	932	2.2 (0.8)	5180	0.718	0.473 ^{NS}
	Female	4250	2.1 (0.8)			

^XUnequal variance

* Significant at $p < .0125$, ** Significant at $p < .001$, ^{NS} Non-significant

Table 5.5. Comparison of Extension Master Gardener (EMG) Volunteer Motivation

Factor Scores by Host County Population Density^Z

Function	Host County Population Density	<i>n</i>	<i>Mean</i> (<i>SD</i>)^Y	<i>df</i>	<i>F</i>^X	<i>P</i>
Personal						
	Urban	4436	2.7 (0.8)	2	0.240	0.786 ^{NS}
	Suburban	939	2.7 (0.8)			
	Rural	109	2.7 (0.9)			
	Total	5484	2.7 (0.8)			
Learning						
	Urban	4604	4.3 (0.7)	2	3.913	0.020 ^{NS}
	Suburban	976	4.2 (0.8)			
	Rural	113	4.3 (0.7)			
	Total	5693	4.3 (0.7)			
Career						
	Urban	4553	1.3 (0.6)	2	0.123	0.885 ^{NS}
	Suburban	967	1.3 (0.6)			
	Rural	114	1.3 (0.6)			
	Total	5634	1.3 (0.6)			
Values						
	Urban	4459	3.5 (0.8)	2	2.282 ^X	0.104 ^{NS}

Suburban	951	3.4 (0.8)
Rural	110	3.5 (0.9)
Total	5520	3.5 (0.8)

Social

Urban	4441	2.1 (0.8) a	2	7.742 ^x	0.001*
Suburban	942	2.2 (0.8) a			
Rural	108	2.4 (1.0) b			
Total	5491	2.1 (0.8)			

^zBased on the 11 Rural-Urban Continuum Codes for each county in the U.S. For the purpose of this study, the 11 RUCC codes were reduced to four categories, including urban (codes 1-3), suburban (codes 4-7), rural (codes 8-9), and unknown (codes 88 and 99).

^yMeans separated by Tukey post hoc test. Means followed by the same letter not significant from each other.

^xBrown-Forsythe ratio used to allow for unequal variances and group sizes.

* Significant at $p < .0125$, ** Significant at $p < .001$, ^{NS} Non-significant

Table 5.6. Comparison of Extension Master Gardener (EMG) Volunteer Motivation Factor Scores by Volunteer Service Status^Z

Function	Service Status	<i>n</i>	Mean (SD)	<i>df</i>	<i>t</i> ^X	<i>P</i>
Personal						
	Inactive	362	2.5 (0.8)	5563	-4.272	0.000**
	Active	5203	2.7 (0.8)			
Learning						
	Inactive	362	4.2 (0.8)	5563	-2.068	0.039 ^{NS}
	Active	5203	4.3 (0.7)			
Career						
	Inactive	362	1.4 (0.8)	5563	3.655 ^X	0.000**
	Active	5203	1.3 (0.6)			
Values						
	Inactive	362	3.4 (0.8)	5563	-1.192	0.233 ^{NS}
	Active	5203	3.5 (0.8)			
Social						
	Inactive	362	2.0 (0.7)	5563	-3.695	0.000**
	Active	5203	2.1 (0.8)			

^ZSelf-reported that individual met their state's requirements to be an active EMG volunteer in 2015

^XUnequal variances and group sizes

* Significant at $p < .0125$; ** Significant at $p < .001$, ^{NS} Non-significant

Table 5.7. Comparison of Extension Master Gardener (EMG) Volunteer Motivation

Factor Scores by Volunteering Intensity^Z

Function	Volunteering Intensity	<i>n</i>	<i>Mean (SD)^Y</i>	<i>df</i>	<i>F^X</i>	<i>P</i>
Personal						
	low years, low hours	1299	2.7 (0.8) a	3	18.512	0.000**
	high years, low hours	1027	2.6 (0.8) a			
	low years, high hours	1630	2.8 (0.8) b			
	high years, high hours	1536	2.8 (0.9) b			
	Total	5492	2.7 (0.8)			
Learning						
	low years, low hours	1339	4.3 (0.7) b	3	9.026 ^x	0.000**
	high years, low hours	1069	4.2 (0.8) a			
	low years, high hours	1699	4.4 (0.7) b			
	high years, high hours	1595	4.3 (0.7) ab			
	Total	5702	4.3 (0.7)			
Career						
	low years, low hours	1334	1.4 (0.8) b	3	22.233 ^x	0.000**
	high years, low hours	1061	1.3 (0.6) a			
	low years, high hours	1674	1.2 (0.6) a			
	high years, high hours	1574	1.2 (0.6) a			
	Total	5643	1.3 (0.6)			

Values

low years, low hours	1311	3.4 (0.8) a	3	13.042 ^X	0.000**
high years, low hours	1041	3.4 (0.8) a			
low years, high hours	1639	3.5 (0.8) b			
high years, high hours	1538	3.6 (0.8) b			
Total	5529	3.5 (0.8)			

Social

low years, low hours	1299	2.0 (0.7) a	3	13.451	0.000**
high years, low hours	1034	2.1 (0.8) bc			
low years, high hours	1636	2.1 (0.8) ab			
high years, high hours	1531	2.2 (0.8) c			
Total	5500	2.1 (0.8)			

^ZVolunteer Intensity score calculated based on self-reported years as an EMG volunteer and number of self-reported volunteer service hours in 2015. Low and high categories divided based on median values for active EMG volunteers, 6 years of service and 60 service hours.

^YMeans separated by Tukey post hoc test. Means followed by the same letter not significant from each other.

^XBrown-Forsythe ratio used to allow for unequal variances and group sizes.

* Significant at $p < .0125$, ** Significant at $p < .001$, ^{NS} Non-significant

Table 5.8. Comparison of Extension Master Gardener (EMG) Volunteer Motivation

Factor Scores by Tenure^Z

Function	Tenure	<i>n</i>	<i>Mean (SD)^Y</i>	<i>df</i>	<i>F^X</i>	<i>P</i>
Personal						
	<1 year	401	2.7 (0.8)	5	0.688	0.633 ^{NS}
	2 to 4 years	1712	2.7 (0.8)			
	5 to 7 years	1058	2.7 (0.9)			
	8 to 10 years	805	2.8 (0.8)			
	11 to 15 years	789	2.7 (0.9)			
	>16 years	636	2.7 (0.9)			
	Total	5401	2.7 (0.8)			
Learning						
	<1 year	415	4.4 (0.7) c	5	5.480 ^X	0.000**
	2 to 4 years	1775	4.3 (0.7) bc			
	5 to 7 years	1099	4.3 (0.8) abc			
	8 to 10 years	825	4.3 (0.7) abc			
	11 to 15 years	831	4.2 (0.8) ab			
	>16 years	663	4.2 (0.8) a			
	Total	5608	4.3 (0.7)			
Career						
	<1 year	407	1.4 (0.8) a	5	8.218 ^X	0.000**

2 to 4 years	1768	1.3 (0.7) b
5 to 7 years	1083	1.3 (0.6) b
8 to 10 years	819	1.2 (0.6) b
11 to 15 years	812	1.2 (0.6) b
>16 years	657	1.2 (0.5) b
Total	5546	1.3 (0.6)

Values

<1 year	405	3.5 (0.8)	5	1.154 ^X	0.330 ^{NS}
2 to 4 years	1730	3.5 (0.8)			
5 to 7 years	1063	3.5 (0.8)			
8 to 10 years	807	3.5 (0.8)			
11 to 15 years	799	3.5 (0.8)			
>16 years	634	3.5 (0.8)			
Total	5438	3.5 (0.8)			

Social

<1 year	397	2.0 (0.7) a	5	6.460	0.000**
2 to 4 years	1721	2.1 (0.8) ab			
5 to 7 years	1062	2.1 (0.8) b			
8 to 10 years	800	2.2 (0.8) b			
11 to 15 years	790	2.2 (0.8) b			
>16 years	638	2.2 (0.8) b			
Total	5408	2.1 (0.8) b			

^zBased on Newberry (unpublished)

^yMeans separated by Tukey post hoc test. Means followed by the same letter not significant from each other.

^xBrown-Forsythe ratio used to allow for unequal variances and group sizes.

* Significant at $p < .0125$, ** Significant at $p < .001$, NS Non-significant

Table 5.9. Pearson product-moment correlations between motivation factors and volunteerism indicators

	1	2	3	4	5	6	7	8
1. Learning	1							
	<i>n</i> =5702							
2. Personal	.392**	1						
	<i>n</i> =5468	<i>n</i> =5492						
3. Career	.069**	.252**	1					
	<i>n</i> =5581	<i>n</i> =5440	<i>n</i> =5643					
4. Values	.380**	.514**	.143**	1				
	<i>n</i> =5503	<i>n</i> =5381	<i>n</i> =5470	<i>n</i> =5529				
5. Social	.189**	.559**	.224**	.375**	1			
	<i>n</i> =5473	<i>n</i> =5360	<i>n</i> =5447	<i>n</i> =5387	<i>n</i> =5500			
6.	.073**	.060**	-0.016	.070**	.041**	1		
Satisfaction	<i>n</i> =5683	<i>n</i> =5474	<i>n</i> =5625	<i>n</i> =5510	<i>n</i> =5481	<i>n</i> =6019		
7. Overall	.052**	.172**	.037**	.227**	.180**	.047**	1	
Involvement	<i>n</i> =5702	<i>n</i> =5492	<i>n</i> =5643	<i>n</i> =5529	<i>n</i> =5500	<i>n</i> =6019	<i>n</i> =6856	
8. Tenure	-.072**	0.002	-.063**	0.015	.057**	-0.009	.146**	1
	<i>n</i> =5650	<i>n</i> =5442	<i>n</i> =5588	<i>n</i> =5479	<i>n</i> =5450	<i>n</i> =5960	<i>n</i> =6780	<i>n</i> =6780

** . Correlation is significant at the 0.01 level (2-tailed).

Function	Conceptual Definition	Sample VFI Item
Values	The individual volunteers in order to express or act on important values like humanitarianism.	I feel it is important to help others.
Understanding	The volunteer is seeking to learn more about the world or exercise skills that are often unused.	Volunteering lets me learn through direct, hands-on experience.
Enhancement	One can grow and develop psychologically through volunteer activities.	Volunteering makes me feel better about myself.
Career	The volunteer has the goal of gaining career-related experience through volunteering.	Volunteering can help me to get my foot in the door at a place where I would like to work.
Social	Volunteering allows an individual to strengthen his or her social relationships.	People I know share an interest in community service.
Protective	The individual uses volunteering to reduce negative feelings, such as guilt, or to address personal problems.	Volunteering is a good escape from my own troubles.

Figure 5.1. Clary and Snyder's (1999) Six Functions Served by Volunteering and Related Volunteer Functions Inventory (VFI) Assessment

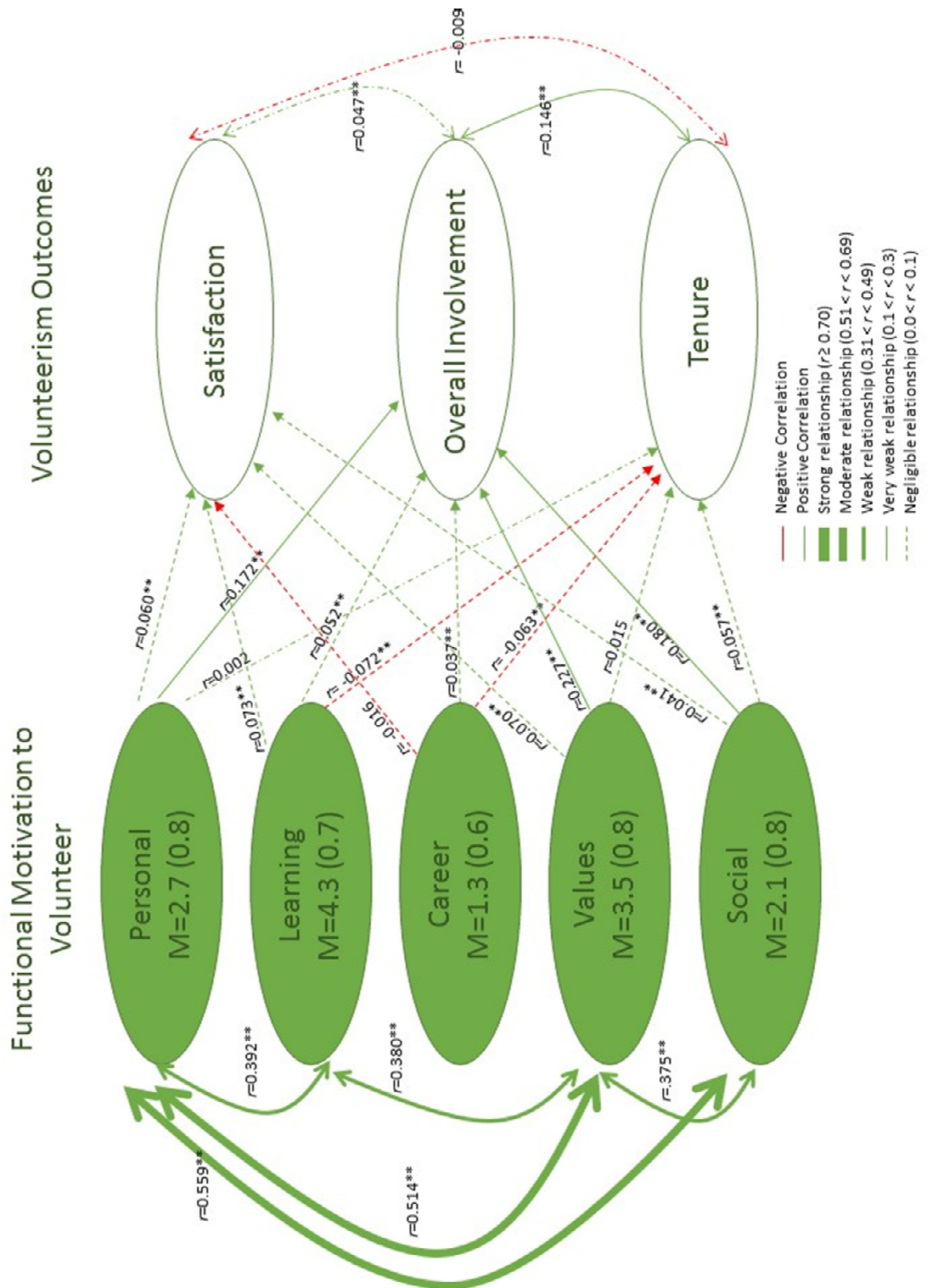


Fig 5.2. Graphical representation of relationships between functional motivations to volunteer and volunteerism outcomes

CHAPTER 6

WHO'S DOING WHAT? QUANTIFYING INVOLVEMENT OF EXTENSION MASTER GARDENERS IN VOLUNTEER SERVICE ACTIVITIES⁴

⁴ Dorn, S.T., Pennisi, S.V., and Newberry, III, M.G. To be submitted for publication in *Society and Natural Resources*.

ABSTRACT

A national study of Extension Master Gardener (EMG) volunteers was conducted in Fall 2016 to quantify their involvement in volunteer service activities (VSAs). Survey research was used to describe patterns of a national sample of EMG volunteers ($n=6856$) in overall involvement (the total number of activities in which EMG volunteered), higher-level involvement (the number of activities in which volunteers volunteered at the “most of the time” or “always” level), and leadership (number of VSAs for which an individual had a leadership role). EMG volunteers remain highly engaged in the program, with five volunteer service activity themes emerging in the analysis. Leadership roles, tenure, and service hours were significant predictors of overall involvement and higher-level involvement. Tenure with the EMG program has a large effect on volunteer involvement, reinforcing the importance of cultivation and retention of long-term volunteers. The data in the current study suggest that tenure (experience) as an EMG volunteer matters, but tenure alone does not account for levels of engagement in the program. In conclusion, our study has established that leadership roles, tenure, and volunteer service hours are predictive of overall and higher-level involvement within the context of EMG volunteer service activities. Tenure is a proven driver of volunteer participation in the VSAs that assist Extension in meeting its educational mission.

Additional Index Words: engagement, performance, commitment

Special thanks. This project is part of ongoing research in support of a doctoral degree program. Great appreciation is expressed to the many EMG coordinators and EMGVs who have assisted with the study. Thank you to Denny Schrock and Cynthia Haynes for their contributions.

Additional appreciation is expressed to Dr. Uttam Bhattarai, University of Georgia, for statistical assistance.

INTRODUCTION

The Extension Master Gardener (EMG) volunteer program was created for the purpose of meeting a public demand for consumer horticulture information. It is cited as a prominent outreach program of land-grant universities in the U.S., with direct contact to 8.6 million people in 2018 (EMG National Committee, 2019). The EMG program was developed as a strategic tool for Extension agents in urban areas to respond to demand for consumer horticulture information (Gibby et al., 2008; Meyer, 2007; Warner, 1978). The program has proved to be quite popular and has stood the test of time since its inception in 1973, establishing in suburban and rural areas, as well.

Early accounts indicate that most EMG volunteer hours were in support of MG clinics set up at public venues, including libraries, shopping malls, county fairs, and gardening events. EMG volunteers diagnosed plant concerns and provided research-based solutions to the client. It was assumed that, given a baseline training, “most gardening questions could be answered by experienced volunteers and gardeners willing to share the load of the Extension office” (Relf and McDaniel, 1994). Activities that provided response to individual inquiry, such as staffing booths, answering phone calls, and offering diagnostic clinics, accounted for 65% of EMG volunteers participating in state EMG programs in the late 1990s and had an estimated 1,454,623 clients (McAleer, 2005). These types of volunteer roles support Extension’s educational role of responding to individual inquiry.

In the late 1980s, volunteer service activities (VSAs) began to expand to include proactive and community-oriented roles for EMG volunteers through programs to improve the environment and communities (Meyer, 1997; Relf and McDaniel, 1994; Ruppert et al., 1997). Many MGEV roles are “challenging” because they involve the transfer of technical knowledge to the public. This requires technical knowledge as well as a fair level of skill and concentration (McAleer, 2005). Stouse and Marr (1992) observed that elements of “community service and service to special populations” were an important part of volunteer roles and long-term EMG satisfaction and retention. Therefore, understanding VSAs and their attraction to various EMG volunteer subgroups is important for continuously recruiting, training, and maintaining qualified volunteers who will assist Extension in program delivery.

In the 1990s, VSAs for EMG volunteers expanded to include nonpaid program coordinator roles. Dorn and Relf (2000) reported that EMG volunteers in Virginia were assuming nonpaid coordinator roles at the local level. Feedback from coordinators in national meetings indicates that other states also rely on EMG volunteers to serve in nonpaid coordinator roles (Bumgarner, 2019). Ryan et al. (2001) note that while volunteers may appreciate a well-run program, they may not be interested in running the program themselves.

Dorn et al. (2019) established consistency among educational response themes (ERTs) at the local and state level. Multiple horticultural issues are addressed via six predominant ERTs, which are in turn supported with many volunteer service activities (VSAs). These VSAs may support more than one ERT and/or issue. Currently, we lack understanding of how, and even if, EMG volunteer behavior aligns with the ERTs.

While numerous accounts of EMG projects and activities have been published (Frye, 2014; Gibby et al., 2008; Kirsch and VanDerZanden, 2002; Knauss, 2014; Langellotto, 2015;

Maddox, 2014; Mayfield and Theodori, 2006; McAleer, 2005; Meyer, 1997, 2007; Polanin, 2014; Ruppert et al., 1997; Weisenhorn, 2011; Wilson and Newman, 2011), there has been little attempt beyond the works of McAleer (2005) and Dorn et al. (2019) to quantify or characterize EMG VSAs on any scale. Understanding VSAs and who supports them is particularly useful information given a national shift in volunteerism demographics as well as increased emphasis on matching of individual volunteers to specific volunteer tasks (Blair, Cheplick, and Jones, 2003; Church et al., 2019; Corporation for National and Community Service, 2016; Graff, 2001; Rotolo and Wilson, 2004). McAleer (2005) cited independent sector data that reflected an increase in the number of individuals volunteering with a decrease in the number of hours volunteered per individual, with only 39% of volunteers preferring a regular schedule, such as the EMG experience. This is significant for the EMG volunteer program, as its foundation has been volunteers who stay with the program long-term and ongoing community projects that span years, if not decades.

Changing demographics place greater importance on the volunteer role. Services provided by EMG volunteers could hardly be maintained with volunteers who are mainly episodic (McAleer, 2005). One needs to take into account the potential effects of the volunteer role on retention (Hyde et al., 2016).

Volunteers, such as EMG and others that support environmental programs, have many VSAs from which to choose. Some VSAs provide services directly to the client, such as answering questions and diagnosing problems (Bauske et al., 2011; Meyer, 1997; Meyer and Jarvis, 2003; O'Meara and Badertscher, 2004), while others are physical in nature, such as maintaining teaching orchards (O'Callaghan et al., 2004) and community gardens (Meyer, 2007); building and maintaining trails and demonstration gardens (Glen et al., 2014; Meyer, 1997;

O'Callaghan et al., 2004; Ryan et al., 2001); clearing non-native plant species and replanting native species (Ryan et al., 2001); monitoring and identifying endangered species and their habitats, brush removal, and trash clean-up (Ryan et al., 2001; Terry et al., 2011). Other tasks are intended to promote and publicize an environmental message to the public, such as creating newsletters, hosting workshops, giving demonstrations, facilitating competitions (Hoye, 2007; Ryan et al., 2001); giving guided trail or garden tours (O'Callaghan et al., 2004), or training other volunteers (Hoye, 2007). Some activities are targeted at specific audiences, including youth (Meyer, 1997; Robbins et al., 2004) and incarcerated populations (Flagler, J.S., 1992; Traunfeld and Kafami, 1999). A few tasks may simply be administrative, providing support to the organization, such as conducting surveys in support of research objectives (Marr and Gast, 1991), judging horticultural shows and contests (McDaniel and Relf, 1998), office work, newsletter distribution, letter writing, stuffing envelopes, marketing, or publicity (Hoye, 2007; Ryan et al., 2001; Terry et al., 2011). Other tasks may include fundraising and hospitality for public or volunteer events (Hoye, 2007). Ryan et al. (2001) reported that volunteers participated more frequently in tasks that were considered more engaging and encouraged skill-building. Projects with a long-running history showed a stronger association with volunteer tenure (Ryan et al., 2001). Environmental stewardship projects often require long-term commitment to a specific place (Ryan et al., 2001).

Volunteer activities can become much like a career, and the individual may identify with the goals and values of the organization as if they were an employee (Grube and Piliavin, 2000). The role of the volunteer becomes more important in longer-term volunteering and leads to the desire to remain in the long term (Chacón et al., 2007). Theory surrounding role identities, the component of the self that corresponds to social roles, can increase understanding of volunteer

participation and retention (Grube and Piliavin, 2000). An individual's perceived expectations and continued behavior lead to the development of a role identity that is associated with intentions to continue volunteering as well as actual continued behavior. Activity in a volunteer role has been used as a "weak surrogate measure" of role identity, connecting with volunteer overall involvement in a study of volunteers supporting AIDS (Grube and Piliavin, 2000).

Themes in VSA participation have provided useful tools for studying and understanding volunteer behavior. Ryan et al. (2001) used factor analysis to reduce 11 volunteer activities to three VSA participation themes which were then used to compare groups of responses. They showed associations between task theme, frequency, and commitment. Miles et al. (1998) used a binary question (yes/no) to assess involvement in themed activities. Participating in additional activities other than a main role was frequently associated with higher satisfaction and not participating in additional activities was associated with lower satisfaction (Miles et al., 1998).

When attempting to quantify and characterize VSAs, it is important to understand the undergirding psychology of satisfaction, commitment, and involvement, and their interplay. Vecina et al. (2012, p. 133) present satisfaction as a three-part construct that includes motivational satisfaction, task satisfaction, and management satisfaction, and describes attitudes toward or about an activity. It spells the difference between volunteers who exit or stay at after none year (Vecina et al., 2012). Similar to paid work, tenure and frequency of involvement are consistent predictors of volunteer satisfaction (Miles et al., 1998).

Commitment is described as what makes a person persist in the face of difficulty or challenge (Vecina et al., 2012). Commitment can predict paid employee job performance, citizenship behavior, absenteeism, intention to stay or leave, and turnover (Hoye, 2007, p. 111). Commitment is a combination of behavior, intentions, motivations, and attitudes toward an

organization (Hoye, 2007; Stephens et al., 2004). Commitment is thought to be lower in large organizations due to perceived impersonal nature and a greater challenge of volunteer identification with the larger organization (Stephens et al., 2004). Tenure, leadership roles, and self-performance lead to commitment (Stephens et al., 2004). Because it takes time to develop commitment, it can be affected by tenure with an organization. There are differences seen in volunteers who leave after one year or stay after seven years (Vecina et al., 2012). Participation in certain activities and an expertise index accounted for a substantial amount of variance (31%) in commitment (Ryan et al., 2001). Extensive commitment fosters role identity (Grube and Piliavin, 2000).

Commitment has been measured by volunteer tenure and frequency of involvement (Ryan et al., 2001). Frequency of participation was more related to commitment than the length of time the individual served in the volunteer capacity, and tenure was not correlated with frequency of involvement. In other words, just because an individual had been volunteering for the organization for a long time did not mean the volunteer was engaged, productive, or committed. Ryan et al. (2001) suggest that the goal of volunteer retention is not to maintain volunteers for endless years, but rather to increase the frequency of involvement. While demographic variables were not related to tenure, frequency, or commitment, expertise and type of participation was shown to relate to ongoing volunteering.

Volunteer engagement and involvement is described by Millette and Gagné (2008) as what volunteers actually do during the time they spend volunteering. Though the terms engagement and involvement are often used interchangeably, Vecina et al. (2012) describes engagement as a “state of mind” that describes the experience of the activity, whereas involvement is an element of engagement that reflects degree of dedication (Vecina et al., 2013).

Involvement in volunteering is commonly described in terms of performance, and Hoye (2007) argues that volunteer performance is related to the degree to which volunteers are involved in their role. Furthermore, Hoye (2007) noted: “It is surprising that... (volunteer) performance... has attracted relatively little research attention.”

Early work regarding volunteer commitment and involvement studied paid employees. Research with paid employees consistently shows a positive association between performance and commitment to the organization as well as satisfaction with the experience (Preston and Brown, 2004). Commitment of paid employees has been linked with positive work outcomes, such as job performance and citizenship behaviors. Meyer and Allen (1991) defined three commitment themes, including affective commitment that reflects an employee’s emotional attachment to, identification with, and involvement in the organization. Strong affective commitment is associated with an employee’s positive choice to remain with an organization, harder work, and greater job effectiveness (Preston and Brown, 2004).

Career development theory suggests that increasing tenure enhances employee commitment and performance due to benefit accrual (Stephens et al., 2004). Positive relationships were found between tenure, affective commitment, and performance (Stephens et al., 2004). Making a direct comparison between employees and volunteers, however, is not straightforward. Volunteers are motivated by intrinsic rewards, such as self-determination and control, rather than the extrinsic rewards, such as wages and compensation, that motivate paid employees.

While not all items on research scales for paid employees can translate directly to volunteer studies (Stephens et al., 2004), there are some comparisons and approaches that can be used to study volunteer involvement. For example, self-reported measures of performance have

been used in studies of paid workers (Meyer and Allen, 1991). Self-reported measures of performance can also be used to study volunteer involvement. Though seemingly not objective, a meta-analysis of commitment research found that self-rated and supervisor-related job performance were nearly the same (Stephens et al., 2004). Not all organizations routinely perform volunteer evaluations, and for those that do, such evaluations are challenging to compare (Hoye, 2007), especially across multiple organizations (Preston and Brown, 2004).

Self-reported measures are often used to evaluate volunteer behavior, many of which utilize 5-point, Likert-type scales to capture responses (Hyde et al., 2016; Ryan et al., 2001). Quantitative, objective indicators include measures of attendance, committee service, financial contributions, and time donated to an organization. Miles et al. (1998) measured volunteer involvement in terms of participation tenure, frequency of workday participation, and frequency of participation in themed activities, such as stewardship, monitoring, education, and publicity. Preston and Brown (2004) created a scale titled “Self-Reported Involvement” that included, among others, an individual’s accounting of meeting attendance, time donated, and money contributed. These measures were significant predictors of executive perceptions of volunteer board member participation (Preston and Brown, 2004). Stephens et al. (2004) also used self-reported performance in a study of volunteer commitment and included elements such as time spent fulfilling duties, involvement in events, and attendance at meetings. The mean of the items became the dependent variable, self-reported performance (Stephens et al., 2004). Hoye (2007) used a self-reported measure of involvement that included tenure, meeting attendance, hours served, and committee involvement.

Attendance at meetings is a common performance indicator for volunteers, though “mere attendance does not constitute effective performance” (Preston and Brown, 2004, p. 227).

Reliance on attendance variables as the only measure of involvement assumes that just by being present, a volunteer contributes to the organization (Millette and Gagné, 2008). In reality, contributions are highly uneven. Volunteers can exert little effort and can even become burdensome to the organization (Millette and Gagné, 2008).

Individuals who volunteer do so at different levels. They may volunteer at different frequencies, such as regular weekly, monthly, or yearly times, or on an as-needed basis, such as for a specific event (Miles et al., 1998). Individuals differ in their participation tenure, such as supporting an organization for a few months, a year, or for many years (Hyde et al., 2016; Miles et al., 1998; Ryan et al., 2001; Wilson and Newman, 2011; Wolford et al., 2001). Individuals also differ in terms of the amount and type of volunteer activities in which they engage. Previous research suggests that benefits gained from a particular volunteer activity may depend on the individual's level of involvement in that activity (Miles et al., 1998).

Extending the length of time that a volunteer serves an organization (tenure) has long been perceived as the ultimate goal for volunteer retention because it says volunteers are happy and organizations are successful (Vecina et al., 2012). Keeping trained volunteers for many years presumably reduces the demand on program coordinators to recruit, select, and train additional volunteers (Vecina et al., 2012). Satisfaction, commitment, and intention to remain have been used to explore volunteer tenure (Vecina et al., 2012). Volunteers with greater tenure were found to have higher self-reported performance (Stephens et al., 2004). Greater tenure influences affective commitment and in turn influences performance (Stephens et al., 2004). Hoye (2007) found a small positive correlation between tenure and performance ($r=.30, p<.01$) and a moderate positive correlation between age and tenure ($r=.45, p<.01$). Hyde et al. (2016) used experience intervals based on tenure to explore retention in episodic volunteers. Miles et al.

(1998) found tenure to be only marginally related to satisfaction, while Ryan et al. (2001) found duration for stewardship volunteers was not correlated with frequency or commitment. Tenure did relate to participation in specific activities in volunteers who self-reported higher levels of experience or knowledge (Ryan et al., 2001). Vecina et al. (2012) reported that tenure did moderate a mediated relationship between engagement, commitment, and intention to remain a volunteer.

In the short term (less than or equal to a year), motivation and satisfaction can predict volunteer behavior and intention to continue volunteering. In the long term (beyond the first year), organizational commitment is a key predictor of behavior and intentions to volunteer (Hyde et al., 2016). New volunteers have a disadvantage that goes away over time as their tenure with the position increases, and new volunteers may not immediately take on key leadership roles (Stephens et al., 2004). Hoye (2007) suggests that volunteers with extended tenure have higher competencies because of experiences and institutional knowledge.

In most demographic studies of EMG volunteers, individuals have been asked how long they have been an EMG volunteer (tenure) (Boyer et al., 2002; Kirsch and VanDerZanden, 2002; Relf and McDaniel, 1994; Schrock et al., 2000; Strong and Harder, 2011b; Wilson and Newman, 2011). Over time, the response options have included longer ranges of service. This is consistent with a base of volunteers who remain with the program over a long period of time. In the present study, tenure ranged from 0 to 44 years, with a mean of 7.65 years ($SD= 6.0$) for active EMG volunteers (Dorn et al., 2018). EMG volunteers are known to stay with the program and have considerable experience, but it is not known whether increased tenure creates a more valuable volunteer (Strong and Harder, 2011a) or is linked to specific differences in VSA participation.

Another measure of volunteer involvement is the number of hours volunteered within a specific period of time. The number of hours volunteered for the American Cancer Society was used as a dependent variable in a study of volunteer role identity, where past behavior was a highly significant predictor of role identity, which, in turn, was an important factor in predicting hours volunteered (Grube and Piliavin, 2000). Hoye (2007) reported a small positive correlation between hours spent and performance ($r=.26, p<.01$) and a moderate positive correlation between hours spent and number of subcommittees served ($r=.40, p<.01$). The number of service hours has been a dominant measure of EMG volunteer contributions and commitment, with the average of 106.7 hours ($SD= 156.5$) in a national sample of active EMG volunteers (Dorn et al., 2018).

Frequency of participation is also used to measure volunteer involvement. Terry et al. (2011) used categorical choices, such as seldom, sometimes, and often, to measure frequency of volunteer use in specific tasks, and Miles et al. (1998) used categorical choices, such as a few times a month, every week or nearly so, and more than once a week, to measure frequency of workday participation by volunteers. Satisfaction was higher for volunteers who participated more frequently (Miles et al., 1998). Ryan et al. (2001) found that participants volunteered an average of three times per year, and frequency was highly correlated with volunteer commitment ($r=0.61$).

Volunteer tasks that allow volunteers to make decisions and have frequent work opportunities may have an increased appeal to individuals (Ryan et al., 2001). More than half of respondents (56%) were individuals with project management responsibilities (akin to leadership positions), indicating the highest level of satisfaction in the study (Miles et al., 1998). These leadership roles are more encompassing than other volunteer involvement and may indicate a

level of commitment that has been associated with satisfaction. Stephens et al. (2004) explored relationship between leadership roles, commitment, and performance. They assumed that those seeking leadership roles had a willingness to be more involved (more time, higher frequency of involvement). Stephens et al. (2004) used a binary question format (yes/no) to determine respondents with leadership roles. Individuals with leadership roles have higher performance scores and more affective commitment than non-leaders (Stephens et al., 2004). Volunteers who serve long-term may be more involved in organizing projects (Ryan et al., 2001).

Interestingly, multiple accounts of volunteer board member service report no or few correlations between sample demographics, such as gender, age, and education, and predictor and outcome variables (Hyde et al., 2016; Millette and Gagné, 2008; Ryan et al., 2001). Hoyer (2007) found a small positive correlation between age and performance ($r=.27, p<.01$) (higher age associated with higher levels of perceived performance). When controlled for age of volunteer, Hoyer (2007) found that commitment and involvement accounted for 31% of the variance in perceived performance. Hierarchical regression revealed that affective commitment was the most significant predictor of volunteer performance, followed by tenure and hours of service (Hoyer, 2007). The number of subcommittees served was not a significant predictor of perceived performance (Hoyer, 2007). While limited studies of EMG volunteer involvement were found in literature, Strong and Harder (2011a) did find that age was a significant predictor of tenure in EMG volunteers.

There are still important reasons to study subgroups of volunteers (Strong and Harder, 2011a) by characteristics such as gender, generation, tenure, age, and host county population density. EMG volunteers can and do provide critical education and institutional messages to the public. Similar study of other environmental volunteers shows that these actions catalyze the

adoption of sustainable practices otherwise limited by lack of time, low self-efficacy, and hopelessness (Moskell and Allred, 2013) as well as enhance stakeholder communications and facilitate learning (Prager and Vanclay, 2010). Program coordinators need a diverse mix of volunteers to sustain various projects, as well as recruit additional volunteers and relate to the diverse audiences served by Extension.

The influence of gender on volunteering patterns is not well known. Women, however, were reported to volunteer at a higher rate than men (US Department of Labor, 2016).

Demographic accounts of EMG volunteers have consistently reported a higher proportion of female EMGVs than male EMGVs (Boyer et al., 2002; Dorn et al., 2018; Kirsch and VanderZanden, 2002; Relf and McDaniel, 1994; Rohs and Westerfield, 1996; Schrock et al., 2000; Strong and Harder, 2011b; Takle et al., 2016; Wilson and Newman, 2011). Understanding which VSAs are attractive to male EMG volunteers could aid in recruitment efforts.

Generations are described as differences in behavior from one generation to the next that are attributed to differences in values and attitudes (Parry and Urwin, 2011; Rotolo and Wilson, 2004; Strauss and Howe, 1991; and Zemke et al., 2000). A cohort (or generation) has common exposure to social and intellectual conditions, or events, that form the generation's consciousness. Understanding each generation can make working together easier (Hall and Vetter, 2010). Generational interaction can foster creativity and innovation, however, misunderstandings between generations can cause discord (Arsenault, 2004). Putnam pointed out generational differences in community engagement patterns, such as regular church attendance, civic involvement, and social connectedness (in Hall and Vetter, 2010). Low GenY volunteerism relative to other generations could be attributed to the increased practice of service learning, or mandatory volunteerism, prevalent with GenY generations and later, noted by Clary

et al. to reduce volunteerism later in life (in Widjaja, 2010; Millette and Gagné, 2008).

Understanding generational preferences for VSAs can assist program coordinators in offering VSAs that appeal to diverse age groups.

EMG programs were originally targeted for development in urban areas, where call volume exceeded Extension staff capacity to respond. Over the years, the EMG program has spread out into suburban and rural areas. To document EMG programs by population size of the host county, the current study utilizes the 2013 Rural-Urban Continuum Codes (RUCC) presented by USDA's Economic Research Service (2013). RUCC is a classification scheme that distinguishes metropolitan counties by the population size of their metro area, and nonmetropolitan counties by degree of urbanization and adjacency to a metro area. The RUCC includes three metro codes (1- 3) and six nonmetro codes (4-9, 88, and 99). Each county in the U.S. is assigned one of the 11 codes. By examining EMG volunteers through the lens of host program population density (RUCC), similarities and differences between urban, suburban, and rural EMG programs can be established.

This study offers an opportunity to apply theoretical elements of social science to the practical understanding of EMG volunteer involvement. It is theoretically important because volunteer involvement is a relevant variable for explaining satisfaction and organizational commitment (Vecina et al., 2012). It is practically important because a lack of EMG involvement knowledge may critically hinder the development of effective program coordination strategies. In an effort to gain in-depth understanding of the EMG involvement, this current study sought to quantify individual involvement in VSAs among EMG volunteers, to determine relationships between performance indicators and involvement, and to group VSAs according to themes so that we can also detect patterns in EMG volunteer support of VSA themes.

MATERIALS AND METHODS

A quantitative national study of current and inactive EMG volunteers and their state and local coordinators in all 49 U.S. EMG programs was conducted in Fall 2016 (University of Georgia IRB Approval #3567). Survey protocol was based on Dillman methods for online survey research (Dillman et al., 2014) as well as published accounts of EMG volunteer survey research (Takle et al., 2016; Vines et al., 2016). The study included three separate surveys to state coordinators, local coordinators, and EMG volunteers, which built upon one another and were conducted consecutively. Survey methodology has been described in detail elsewhere (Dorn et al., 2018).

Responses were coded for service status as active, having met an individual's state requirements for active EMG status in 2015, or inactive, not having met an individual's state requirements for active EMG status in 2015. Only responses of individuals indicating active service were analyzed.

All responses were labeled for generation cohort, calculated from birth year. Traditionalists included individuals born between 1925 and 1942 (age 74-91 years), Baby Boomers included individuals born between 1943 and 1960 (age 56-73 years), GenX included individuals born between 1961 and 1981 (age 35-55 years), and GenY included individuals born between 1982 and 2000 (age 16-34 years). In lieu of generation, respondent age was used as a continuous variable in regression models.

To describe the population density of the counties served by EMG programs, the 2013 Rural-Urban Continuum Codes (RUCC) presented by USDA's Economic Research Service (2013) were used. For the purpose of this study, the 11 RUCC codes were reduced to four

categories, including urban (codes 1-3), suburban (codes 4-7), rural (codes 8-9), and unknown (codes 88 and 99).

To analyze relationships between tenure and involvement, the self-reported years of service was used. For categorical comparisons, responses were divided into six tenure groups following Newberry's (unpublished) ranges, including less than one year, two to four years, five to seven years, eight to ten years, eleven to fifteen years and more than sixteen years.

Respondents were asked to indicate the number of volunteer service hours that they reported to their respective programs in 2015, the last complete program cycle prior to the survey. This self-reported number was used as a measure of involvement.

A categorical measure of volunteer intensity was calculated based on self-reported years as an EMG volunteer and number of self-reported volunteer service hours in 2015. Low and high categories divided based on median values for active EMG volunteers, above and below 6 years of service and less than and greater than 60 service hours. Four volunteering intensity categories resulted: low years, low hours; low years, high hours; high years, low hours; and high years, high hours.

Involvement in the EMG program was assessed via volunteer service activities (VSAs) and leadership roles. Respondents were asked to indicate involvement on a 5-point Likert scale (1 = never, 2 = sometimes, 3 = about half the time, 4 = most of the time, 5 = always) for 34 EMG volunteer service activities. For the purpose of this study, 34 VSAs were chosen from published accounts and reviewed for validity by four horticulture faculty who routinely work with EMG programs. Respondents were also asked to indicate whether or not they had a leadership position for the 34 activities. To further explore trends in VSAs, factor analysis was used to reduce the 34

items to five VSA themes for EMG volunteer service. Themes were converted to scores that were then analyzed.

Data from the survey was collected using Qualtrics (Qualtrics, Provo, UT) and analyzed using IBM SPSS (version 24 for Windows; IBM Corp., Armonk, NY) and JMP Pro (version 14 for windows; SAS Institute, Inc., Cary, NC). Results were analyzed using descriptive statistics, factor analysis, independent *t*-tests, and one-way analysis of variance (ANOVA). In instances of unequal variances and unequal group sizes, the Brown-Forsythe statistic was used to test for significance, followed by the Games-Howell post hoc test to separate means. Bootstrapping was used to establish confidence intervals. Due to the exploratory nature of our study, data was analyzed by variables and not by complex interactions. Significance values were subjected to Bonferroni adjustment to allow for multiple comparisons. Cohen's *d* was calculated as a measure of effect size for *t*-tests, while omega squared (ω^2) was calculated as a measure of effect size for ANOVA.

For modeling purposes, zero-inflated Poisson (ZIP) regression was used. Poisson regression (Pr) is a generalized regression used when dependent variables (in this case, overall and higher-level involvement) are counts. ZIP regression allows for frequent zero-value observations. There are two outcomes, the first is the expected Poisson count for the *i*th individual (λ), and then the determination of whether there are more zeroes than a Poisson regression would predict (π).

RESULTS

Level of Involvement and Leadership

To measure the degree of individual involvement in the VSAs, two scores were assessed. First, an overall involvement score was created for each active EMG volunteer by counting the number of VSAs (Fig. 6.1 and further explanation below) for which the individual indicated some or more involvement. Scores ranged from 0 to 34 with a mean of 11.3 ($SD=6.9$) activities per individual (Table 6.1). A small percentage (12.3%) reported no involvement in any of the 34 VSAs. A second score quantified higher-level involvement by counting the number of activities for which EMG volunteers reported involvement at the “most of the time” or “always” level. Scores ranged from 0 to 34, with an overall sample average of 3.4 activities ($SD=4.0$) per EMG (Table 6.1). More than a quarter of respondents (26.1%) reported no involvement in any activity at the “most of the time” or “always” level.

To quantify frequency of leadership roles, a leadership score was created based on a count of the number of activities for which an individual held a self-reported leadership role (Fig. 6.2 and further explanation below). Leadership scores ranged from 0 to 34, with an overall sample average of 2.8 activities ($SD=4.1$) per EMG volunteer. Nearly half of respondents (40.6%) reported no leadership positions.

Some VSAs were supported more than others. Twelve VSAs had higher EMG involvement (half or more respondents indicated at least some involvement or more), such as answering questions one-on-one, participating in garden planting and maintenance, fundraising, and various presentation methods (Fig 6.1). There were 22 VSAs with low EMG volunteer involvement (more than half of respondents indicating never involved), such as gardening

projects at correctional facilities, supervising youth garden clubs, radio/TV programs, writing newspaper columns, and horticultural therapy projects.

Similarly, EMG volunteers reported high frequency of leadership roles for a small proportion of VSAs. VSAs with most frequently reported leadership roles include advisory board/committee; answering questions one-on-one; participating in garden planting and maintenance; conducting educational meetings and workshops for adults; fundraising; helping at parks, arboreta, and botanical gardens; coordinating and working at community gardens; helping at university/Extension gardens and research; and gardening presentations for the public (Fig. 6.2). Twenty-six VSAs had fewer leadership roles, with less than half of respondents indicating such a role.

To understand which volunteer subgroups are involved with which VSAs, further analysis of involvement and leadership scores was conducted. Five comparisons were explored to determine differences in VSA involvement and leadership between demographic variables and involvement indicators, such as generation, tenure, gender, volunteering intensity, and host county population density (Table 6.1).

Generation. Though effect size was minimal, there were significant differences in higher-level involvement, $F(3, 5352)=13.181, p<0.001, \omega^2=.006$, and leadership scores, $F(3, 5355)=46.488, p<0.001, \omega^2=.017$, when analyzed by generation (Table 6.1). Respondents in GenY had the lowest higher-level involvement ($m=3.0, SD=4.1$) and leadership scores ($m=1.3, SD=1.9$), while Traditionalists had the highest higher-level involvement ($m=4.6, SD=4.1$) and leadership scores ($m=4.4, SD=4.7$). There were no significant differences between generations in overall involvement scores, $F(3, 5352)=6.408, p<0.01, \omega^2=.003$.

Tenure. When analyzed by tenure intervals, there were significant differences in overall involvement, $F(5, 6734)=31.280, p<0.001, \omega^2=.022$; higher-level involvement scores $F(5, 6734)=16.259, p<.001, \omega^2=.354$; and leadership scores, $F(5, 6734)=35.688, p<0.001, \omega^2=.026$ (Table 6.1). Respondents with less than one year of tenure had the lowest involvement ($m=9.2, SD=5.9$), higher-level involvement ($m=2.4, SD=3.4$), and leadership scores ($m=1.6, SD=3.4$), while respondents with the most years of tenure (>16 years) had the highest involvement ($m=12.9, SD=6.9$), higher-level involvement ($m=4.2, SD=4.6$), and leadership scores ($m=2.8, SD=4.1$). Tenure had a large effect size on higher-level involvement.

Host County Population Density. Though the effect size was minimal, there were significant differences in leadership scores, $F(2, 6838)=26.298, p<0.001, \omega^2=.008$, when analyzed by host county population density (Table 6.1). Respondents supporting suburban ($m=3.6, SD=4.7$) and rural ($m=3.7, SD=4.4$) EMG programs indicate more leadership positions than respondents in urban EMG programs ($m=2.6, SD=3.9$). There were no significant differences between EMG volunteers in rural, suburban, and urban programs in terms of overall involvement, $F(2, 6852)=5.362, p=0.005, \omega^2=.001$, or higher-level involvement scores $F(2, 6838)=6.327, p=.002, \omega^2=.001$.

Volunteering Intensity. There were significant differences in overall involvement, $F(3, 6852)=34.530, p<0.001, \omega^2=.013$; higher-level involvement, $F(3, 6852)=43.119, p<0.001, \omega^2=.016$; and leadership scores, $F(3, 6852)=78.657, p<0.001, \omega^2=.031$, when analyzed by volunteering intensity (Table 6.1). Respondents with low years, high hours had the lowest overall involvement score ($m=10.7, SD=7.3$), while respondents with high years, low hours had the highest overall involvement score ($m=12.1, SD=5.5$). Higher-level involvement scores were lowest for respondents with low years, low hours ($m=2.6, SD=3.1$), and highest for respondents

with high years, high hours ($m=4.1$, $SD=4.4$). Leadership scores were lowest for respondents with low years, low hours ($m=1.8$, $SD=3.1$), and highest for respondents with high years, high hours ($m=3.8$, $SD=4.6$).

Gender. There were significant differences in overall involvement, $t(5466)=4.269$, $p<.001$, $d=.15$, higher-level involvement, $t(5466)=4.386$, $p<.001$, $d=.17$, and leadership scores, $t(5466)=4.390$, $p<.001$, $d=.16$, when analyzed by gender (Table 6.1). Effect sizes were modest. Overall involvement and higher-level scores were higher for males ($m=13.6$, $SD=6.4$; $m=4.5$, $SD=4.5$, respectively) than females ($m=12.7$, $SD=5.6$; $m=3.8$, $SD=3.9$, respectively). Leadership scores were also higher for males ($m=3.8$, $SD=4.6$) than females ($m=3.1$, $SD=4.1$).

Correlations were used to describe relationships between age, tenure, and involvement scores (Table 6.2). There was a large and significant positive correlation between leadership and overall and higher-level involvement ($r=.565$, $p<.001$ and $r=.542$, $p<.001$, respectively). There was a modest significant and positive correlation between tenure and overall involvement ($r=.146$, $p<.001$), higher-level involvement ($r=.105$, $p<.001$), and leadership ($r=.146$, $p<.001$). There was a significant and modest positive correlation between service hours and overall involvement ($r=.250$, $p<.001$), higher-level involvement ($r=.270$, $p<.001$), and leadership ($r=.281$, $p<.001$). There was a significant and slight positive correlation between service hours and tenure ($r=.049$, $p<.001$). There was a modest significant positive correlation between age and tenure ($r=.296$, $p<.001$); a significant small positive correlation between age, leadership, and higher-level involvement ($r=.161$, $p<.001$; $r=.104$, $p<.001$, respectively); and a significant and slight positive correlation between age and overall involvement service hours ($r=.079$, $p<.001$).

To determine impact of involvement indicators (leadership, tenure, service hours, and age) on involvement scores (the second research objective), ZIP regression was employed. The

first regression model assessed overall involvement (Table 6.3), with results indicating that independent variables have a significant and large positive relationship with overall involvement (generalized $R^2 = .49$). Three involvement indicators were significant in predicting overall involvement, while age (a demographic variable) was not significant. As leadership score increased one unit, the $\log_e$ of overall involvement increased .042 ($p < .0001$); as tenure increased one unit, the $\log_e$ of overall involvement increased .007 ($p < .0001$); and as service hours increased one unit, the $\log_e$ of overall involvement increased .0002 ($p < .0001$).

A second ZIP regression model was run to look at higher-level involvement (Table 6.4), and the results indicate that two of three involvement indicators have a significant relationship with higher-level involvement (generalized $R^2 = 0.47$), while tenure and age, a demographic variable, were not significant. As leadership score increased one unit, the $\log_e$ of higher-level involvement increased .070 ($p < .0001$) and as service hours increased one unit, the $\log_e$ of higher-level involvement increased .0003 ($p < .0001$).

Volunteer Service Activities

Exploratory factor analysis was conducted in order to achieve the third research objective, namely grouping VSAs into themes. The objective was to distill the 34 activities into a set of meaningful VSAs. Principal axis factor analysis was used to explain the maximum amount of common variance in a correlation matrix using the fewest number of constructs, and because of correlation between factors, oblique rotation (direct oblimin) was used to maximally load items on only one factor (Field, 2013). The Kaiser-Meyer-Olkin (KMO) measure verified the sampling adequacy for the analysis, $KMO = .971$ (“marvelous” according to Hutcheson and Sofroiu, 1999, as cited in Field, 2013, p.685), however, eight of the 34 KMO values for individual items were less than the acceptable limit of .5 (Field, 2013). Additionally, the

correlation matrix determinant was less than the necessary value of 0.00001, indicative of multicollinearity among items. Following Field (2013), the eight items with KMO values below .5 were excluded and the factor analysis was repeated to determine their effect on the analysis. The exclusion of these items lowered the overall KMO to .969, reduced the number of factors from five to four, and reduced the meaningfulness of the factors. The decision was made to leave all five factors, each having Eigenvalues greater than Kaiser's criterion of 1.0, and, in combination, accounting for 55% of the variance. The scree plot confirmed the retention of five factors. Twelve of the 34 items dropped out of the pattern matrix due to factor loadings less than .3 (only one of which also had a KMO less than .5). Reliability for scales with three or more items was calculated via Cronbach's alpha. Cronbach's alpha for all items together (22) was .926, and all subscales had alpha levels above .770. Table 6.5 shows the factor loadings after rotation.

Factor 1 included five items that primarily involved writing activities. Among the items were "write a local EMG newsletter," "write about horticultural topics for Internet," "contribute horticulture articles for a column in local paper," "write/compile Extension publications", and "participate in radio and/or TV programs." Factor 1 was therefore labeled as Media, to reflect the communication of horticulture information through various forms of media, with an Eigenvalue of 13.709 and explaining 40.3% of the variance. Cronbach's alpha for Factor 1 was .824 (Table 6.5).

Factor 2 included four items that primarily involved a youth audience. Among the items were assist 4-Hers with garden projects, conduct educational meetings and/or workshops for youth, conduct youth/school programs, and supervise youth garden club. Factor 2 was therefore

labeled Youth to reflect activities targeted at a youth audience, with an Eigenvalue of 1.451 and explaining 4.3% of the variance. Cronbach's alpha for Factor 2 was .831 (Table 6.5).

Factor 3 included five items that reflected active gardening tasks. Among the items were participate in garden planting and maintenance; fundraising/plant sales; help at University/Extension gardens and demonstration plots; help at public parks, arboreta, botanical gardens, and historic sites; and coordinate and/or work at a community garden. Factor 3 was therefore labeled as Hands-on to reflect active gardening, with an Eigenvalue of 1.297 and explaining 3.8% of the variance. Cronbach's alpha for Factor 3 was .800 (Table 6.5).

Factor 4 included four items that reflected diagnostic response to individual inquiries. Among the items were answer clientele questions one-on-one, answer horticulture-related phone calls during scheduled hours at an Extension office, provide clerical support at Extension office, and staff plant clinics. Factor 4 was therefore labeled as Diagnostic to reflect the problem-solving responses to individual inquiries, with an Eigenvalue of 1.176 and explaining 3.5% of the variance. Cronbach's alpha for Factor 4 was .780 (Table 6.5).

Factor 5 included four items that described speaking roles. Among the items were conduct educational meetings and/or workshops for adults, organize and/or staff displays or booths a lawn and garden shows, create and/or staff educational exhibits, and prepare and share to the public presentations on gardening topics. Factor 5 was therefore labeled as Presentations to reflect the preparation and delivery of informational presentations, with an Eigenvalue of 1.057 and explaining 3.1% of the variance. Cronbach's alpha for Factor 5 was .846 (Table 6.5).

Factor means (Table 6.5) were ordered from greater frequency of participation (highest mean) to least frequency of participation (lowest mean). Hands-on ($m=2.17$, $SD=1.2$) had the

highest mean (most frequent involvement), followed by presentations ($m=1.67$, $SD=1.1$), diagnostic ($m=1.66$, $SD=1.0$), youth ($m=1.25$, $SD=0.84$), and media ($m=1.04$, $SD=0.65$).

Volunteer Service Activity Theme Scores

Composite scale scores were created based on the factor analysis results in order to make comparisons of involvement in volunteer service activities between generations of EMG volunteers, gender, program tenure, host county population density (urban, suburban, and rural), and volunteering intensity. Means were compared using independent t -tests and one-way ANOVA.

Generation. When analyzed by generation, there were significant differences in three of the five VSA means, Youth, $F(3, 5352)=5.657$, $p=.001$, $\omega^2=.002$; Hands-on, $F(3, 5352)=9.101$, $p<.001$, $\omega^2=.004$; and Diagnostic, $F(3, 5352)=12.305$, $p<.001$, $\omega^2=.005$ (Table 6.6). GenY reported a higher frequency of supporting Youth VSAs ($m=1.7$, $SD=0.7$) than other generations. Traditionalists had a higher frequency of being involved in Hands-on VSAs ($m=2.6$, $SD=1.0$) than GenY EMG volunteers ($m=2.2$, $SD=0.8$). Baby Boomers ($m=2.5$, $SD=0.9$) and GenXers ($m=2.3$, $SD=0.9$) were similar to each other. Traditionalists also had a higher frequency of being involved in Diagnostic VSAs ($m=2.0$, $SD=0.9$) than GenY EMG volunteers ($m=1.7$, $SD=0.7$). Baby Boomers ($m=1.9$, $SD=0.9$) and GenXers ($m=1.8$, $SD=0.8$) were similar to each other. There were no significant differences between Media VSAs, $F(3, 5352)=1.684$, $p=.168$, $\omega^2=.000$, and Presentations, $F(3, 5352)=3.655$, $p=.012$, $\omega^2=.001$.

Host County Population Density. When analyzed by host county population density, there were significant differences in two of the five VSA means, Youth $F(2, 6838)=12.589$, $p<.001$, $\omega^2=.004$, and Diagnostic, $F(2, 6838)=12.478$, $p<.001$, $\omega^2=.002$ (Table 6.7). EMG volunteers in urban programs reported less involvement ($m=11.2$, $SD=0.8$) in Youth VSAs than

their counterparts in rural programs ($m=1.5$, $SD=1.1$). EMG volunteers in urban programs reported more involvement ($m=1.7$, $SD=1.0$) in Diagnostic VSAs than their counterparts in rural programs ($m=1.5$, $SD=0.9$). There were no significant differences between Media VSAs, $F(2, 6838)=3.982$, $p=.019$, $\omega^2=.001$; Hands-on, $F(2, 6838)=1.133$, $p=.322$, $\omega^2=.000$; and Presentations, $F(2, 6838)=6.036$, $p=.003$, $\omega^2=.001$.

Tenure. When analyzed by tenure intervals, there were significant differences in three of the five VSA theme means, Media, $F(5, 6734)=16.499$, $p<.001$, $\omega^2=.011$; Diagnostic, $F(5, 6734)=8.818$, $p<.001$, $\omega^2=.005$; and Presentations, $F(5, 6734)=24.023$, $p<.001$, $\omega^2=.014$ (Table 6.8). Respondents with less than one year of tenure (least experience) reported the least involvement in Media VSAs ($m=0.9$, $SD=0.6$), Diagnostic VSAs ($m=1.5$, $SD=0.9$), and presentation VSAs ($m=1.4$, $SD=0.9$), while respondents with more than 16 years of tenure (greatest experience) reported the greatest involvement in Media VSAs ($m=1.2$, $SD=0.8$), Diagnostic VSAs ($m=1.8$, $SD=1.0$), and presentation VSAs ($m=1.9$, $SD=1.2$). There was no significant difference in reported involvement in Youth $F(5, 6734)=1.748$, $p=.12$, $\omega^2=.000$, or Hands-on, $F(5, 6734)=2.241$, $p=.048$, $\omega^2=.000$, VSA theme means when analyzed by tenure intervals.

Volunteering Intensity. There were significant differences in all five VSA theme means when analyzed by volunteering intensity, Media, $F(3, 6852)=21.585$, $p<.001$, $\omega^2=.007$; Youth, $F(3, 6852)=15.900$, $p<.001$, $\omega^2=.005$; Hands-on, $F(3, 6852)=10.762$, $p<.001$, $\omega^2=.003$; Diagnostic, $F(3, 6852)=15.236$, $p<.001$, $\omega^2=.005$; and Presentations, $F(3, 6852)=25.448$, $p<.001$, $\omega^2=.009$ (Table 6.9). Respondents with low years, high hours indicated less frequent involvement in Media VSAs ($m=1.0$, $SD=0.7$) than respondents with low years, low hours ($m=1.1$, $SD=0.4$); high years, low hours ($m=1.1$, $SD=0.5$); and high years, high hours ($m=1.1$,

$SD=0.8$). Respondents with low years, high hours ($m=1.2$, $SD=0.9$) and high years, high hours ($m=1.2$, $SD=0.9$) reported less involvement in Youth VSAs than did respondents with low years, low hours ($m=1.3$, $SD=0.7$) and high years, low hours ($m=1.3$, $SD=0.7$). Respondents with low years, high hours ($m=2.1$, $SD=1.4$) reported less involvement in Hands-on VSAs than respondents with high years, low hours ($m=2.3$, $SD=0.9$). Respondents with low years, low hours ($m=1.6$, $SD=0.7$); low years, high hours ($m=1.6$, $SD=1.1$); and high years, high hours ($m=1.7$, $SD=1.2$) reported less involvement in Diagnostic VSAs than did respondents with high years, low hours ($m=1.8$, $SD=0.8$). Respondents with low years, low hours ($m=1.6$, $SD=0.8$) and low years, high hours ($m=1.6$, $SD=1.2$) reported less involvement in presentation VSAs than did respondents with high years, low hours ($m=1.8$, $SD=0.8$) and high years, high hours ($m=1.8$, $SD=1.3$).

Gender. When analyzed by gender, there were significant differences in two of five VSA theme means, Diagnostic, $t(5466)=5.576$, $p<.001$, $d=.117$, and Presentations, $t(5466)=5.576$, $p<.001$, $d=.105$ (Table 6.10). Males reported a slightly higher involvement ($m=2.0$, $SD=0.9$) than females ($m=1.9$, $SD=0.8$) in Diagnostic VSAs. Males reported a slightly higher involvement ($m=2.0$, $SD=1.0$) than females ($m=1.9$, $SD=0.9$) in presentation VSAs. There was no difference between males and females for Media, $t(5466)=1.494$, $p=.135$, $d=.000$; Youth, $t(5466)=0.161$, $p=.872$, $d=.000$; and Hands-on, $t(5466)=-0.027$, $p=.979$, $d=.000$.

Correlations were used to describe relationships between age, tenure, and VSA themes (Table 6.11). Involvement in one VSA theme was highly correlated with participation in other themes. There was a significant and slight correlation between age and involvement in youth VSAs, $r = -.051$, $p < .001$; hands-on VSAs, $r = .086$, $p < .001$; diagnostic VSAs, $r = .094$, $p < .001$; and presentation VSAs, $r = -.061$, $p < .001$. There was a non-significant negligible

correlation between age and involvement in media VSAs, $r = -.023, p = .077$. There was a significant and positive small correlation between tenure and involvement in media VSAs, $r = .119, p < .001$, and presentation VSAs, $r = .144, p < .001$. There was a significant negligible correlation between tenure and involvement in youth VSAs, $r = .119, p < .001$; diagnostic VSAs, $r = .100, p < .001$; and hands-on VSAs, $r = .043, p < .001$.

DISCUSSION

It is clear that EMG volunteers remain highly engaged in the program. More than 85% of respondents are involved some of the time or more in the 34 VSAs evaluated, and, on average, individual EMG volunteers in this sample support multiple projects simultaneously. Logically, EMG volunteers are involved in numerous VSAs, but are involved in a smaller number at a higher level, have leadership roles for fewer VSAs.

Involvement scores may actually be higher than reported due to the selection of VSAs offered in the survey. Some EMG volunteers may support projects not included in the list, as was evident from open-ended responses to this question (data not shown). Interestingly, VSAs not included but referenced in the open-ended text confirm the higher-level functions of EMG volunteers, such as organizational management and preparation of other volunteers. These open-ended VSAs included activities related to their volunteer organizations, such as attending meetings, filling an officer role, publicity, grant writing, other types of fundraising activities (such as cookbook sales), financial tasks, and website management. Other VSAs indicated in the open response included mentoring and training of other EMG volunteers, such as coordinating

monthly speakers, organizing regional and state conferences, and planning field trips and garden tours. A third category of responses included other educational projects for the public, such as pantry gardens and gleaning, Boy Scout and Girl Scout projects (as opposed to youth projects or 4-H projects in the provided list), “handicap garden,” and projects addressing specific topics, such as native plants, pollinators, invasive species, and nutrient management practices. There were a few activities indicating EMG volunteer involvement beyond the county level, such as supporting the EMG program at the state level and fielding questions from the national Extension website, eXtension.org. Inclusion of meeting attendance in the list of VSAs may have improved the measure of involvement, though Hoye (2007) did not find meeting attendance to be a significant predictor of involvement.

Projects with high EMG volunteer leadership include advisory boards/committees, answering questions one-on-one, planting and maintenance activities, adult workshops, and fundraising. Projects with low frequency of leadership roles include youth projects, plant clinics, writing activities, and community events. Open-ended responses to leadership VSAs were similar to those listed for involvement, including organizational roles, publicity, and web page and social media maintenance. Not all EMG volunteers serve in leadership roles, as 40.6% indicated no leadership positions. This may be a result of lack of tenure or could be due to the VSAs listed in the survey. It is likely that leadership for some of the VSAs listed is provided by Extension or another stakeholder and that some VSAs do not necessarily have a leadership role for EMG volunteers (i.e., leadership for 4-H/youth gardening activities may be provided by 4-H staff). Additionally, the wording of some VSAs on the survey may have implied a leadership role (i.e., “coordinate” and “organize” versus “assist” or “participate”).

Leadership roles, tenure, and service hours were significant predictors of overall involvement of EMG volunteers, accounting for 49.4% of the variance, while leadership role and service hours were significant predictors of higher-level involvement, accounting for 46.8% of the variance. Tenure had a large effect on higher-level involvement, $\omega^2 = .354$. Age was not a significant predictor of either overall or higher-level involvement, while tenure matters to a point. This suggests that the classic recognition of long-term tenure may be misguided, as these may be individuals who meet but do not exceed program criteria for active status.

Following theory and similar published studies, involvement indicators are an important consideration for volunteer retention. Increased participation has resulted in increased satisfaction and higher levels of life satisfaction and life functioning (Miles et al., 1998). Leadership roles that are highly involved were associated with higher levels of satisfaction (Miles et al., 1998), as well as commitment and involvement (Stephens et al., 2004). Volunteers who participate less and are not involved in leadership roles experience less satisfaction. Further reinforced by Preston and Brown's (2004) findings of positive relationship between affective commitment and performance, EMG program coordinators should encourage volunteers to participate frequently, such as by attending meetings and participating in committees and project teams. Grube and Piliavin (2000) go so far as to suggest the exertion of social pressure on new volunteers and engaging them quickly in desired behaviors in order to support development of role identity and continued behavior. Hoye (2007) also recommends higher levels of organizational engagement as a means of increasing affective commitment. Providing opportunities to build relationships with program coordinators and other volunteers is also important.

Creation of volunteer tasks has been shown to be important for volunteer motivation, satisfaction, and engagement (Millette and Gagné, 2008). The use of detailed volunteer job descriptions offers ways to communicate clear expectations of volunteers, connecting their roles to the mission of the organization, and using role identity to draw in individuals. As the task becomes more interesting, volunteer participation could increase, leading to potential retention and satisfaction. For example, less monotonous jobs can be created by combining tasks, including opportunity to learn new skills, and increasing social contacts experienced in task completion (Millette and Gagné, 2008). Interesting VSAs, with well-defined role descriptions, may be the critical bridge crossing the chasm between long-term volunteers of yesteryear and today's episodic volunteers, ensuring future qualification of EMG volunteers to support Extension programming (Macduff et al., 2009).

While Stephens et al. (2004) recommend providing leadership opportunities for volunteers to increase commitment and performance, not everyone can or should take on leadership roles. Alternatively, individuals can increase involvement in other ways, such as attending meetings or taking on additional roles, such as publicity or clerical support (Miles et al., 1998). Ryan et al. (2001) suggest that volunteer retention is not about extending the volunteer's tenure, but rather about increasing the frequency with which EMG volunteers participate.

Though volunteer age was not a significant predictor of involvement, it is still an important consideration for program coordinators. Traditionalists continue to be involved in civic life, though engagement decreases with each generation (Rotolo and Wilson, 2004). Differences in EMG involvement and leadership scores in our study bear this out. As Traditionalists leave EMG programs, coordinators can anticipate volunteers at the individual level to be involved with

fewer projects and activities and have fewer leadership positions. This may necessitate a need for an increased number of volunteers to accomplish former levels of impact. With the gradual exit of the Traditionalist EMG generation, the volunteers for whom the program was created, incoming volunteers are not as involved, do not carry as many leadership roles, nor do they stay with the EMG program as long as their predecessors. They may not even support classic VSAs, such as plant clinics and help lines. Echoing Rotolo and Wilson (2004), the authors “urge researchers to explore the conditions that engender future generations to fill adequately any volunteering void” so that the capacity of the EMG program benefits Extension educational programming for decades to come.

Coordinators of EMG program who are seeking to diversify their volunteer base will be encouraged to note that there is very little difference in VSA involvement frequency for males and females. Since diagnostic and presentation-type VSAs had slightly higher involvement scores for males, coordinators may find it useful to suggest these types of activities to males interested in the EMG volunteer program.

Results of this study suggest that there is very little difference in the self-reported involvement in VSAs for EMG volunteers supporting urban, suburban, and rural programs. In other words, urban volunteers are generally involved with VSAs to the same degree as suburban and rural volunteers. Though involvement scores were statistically different, the difference was negligible from a practical standpoint. This is helpful from a state-level coordination perspective, as training and project support can be similar for all program types.

The results of the factor analysis made contextual sense, and creation of VSA themes enabled a closer look at patterns among respondents. While there was no significant difference

between generations or for volunteers in rural or urban programs in involvement in Media VSAs, tenure seems to play a role. As tenure increases, involvement scores increase.

A similar pattern is seen in Diagnostic and Presentation-related VSAs. There is a general increase in involvement as EMG tenure increases. Diagnostic VSAs seem to be a common involvement choice for volunteers who have been with the program for many years but who serve fewer hours. This may be similar to the long-running clean-up activities noted by Ryan et al. (2001) to be favored by long-tenured volunteers. This underscores the importance of retaining well-trained and knowledgeable EMG volunteers, as these types of VSAs are often difficult for program coordinators to fill due to anxiety that the EMG volunteer is not knowledgeable enough to fill these. Following this logic, program coordinators may want to increase volunteer involvement in desired projects, such as diagnostic services, so that volunteer-perceived benefits, such as learning more or gaining skills, are augmented.

Youth-related VSAs were the second-to-last in terms of involvement. Younger volunteers, as well as those with less tenure, tend to support youth-related VSAs more than older EMG volunteers or those with longer tenure. EMG volunteers in rural programs indicate more frequent involvement in Youth-related VSAs as compared to EMG volunteers in urban counties. This is consistent with a high prevalence and value for 4-H programs in rural counties (Fritz et al., 2003).

Hands-on projects that provide visible evidence of volunteer contributions were important to all volunteers, independent of tenure or involvement. Coordinators should take time to document the progress and visual changes occurring in a specific project (i.e., through pictures, presentations, digital diaries, blogs, etc.) and use compiled information in their recruitment effort as well as celebrations of EMG achievement. A frequent complaint among

EMG volunteers is the lack of younger volunteers to support the hands-on, physical tasks associated with VSAs. It is interesting to note, however, that Traditionalists, the older generation of volunteers, reported a higher frequency of involvement in these types of projects than did the three other younger generations. In our study, involvement in Hands-on VSAs was not related to tenure with the EMG program nor population density of the host program. Involvement in Hands-on VSAs appeared higher for volunteers who reported fewer hours.

Volunteers may support Hands-on VSAs more frequently because of the associated benefits, such as restoration that comes from working with plants and increased contact with nature. Volunteers experience multiple important satisfactions from restoration activities that have goals and actions similar to gardening (Miles et al., 1998). Hands-on projects also offer the opportunity to see tangible, immediate results of their work and may offer a setting that allows participants a chance to “reflect on larger life issues” (Ryan et al., 2001). In fact, work days at hands-on project sites, such as public gardens, arboreta, and demonstration gardens, may provide opportunity for volunteers to reflect on their work as they proceed at their own pace (Ryan et al., 2001). Hands-on projects typically require a long-term commitment from a volunteer and to a specific place.

VSAs have important implications for consumer horticulture programming. Tasks impact appreciation of and advocacy for local natural areas (Ryan et al., 2001). Similar to restoration efforts, gardening activities participated in and led by EMG volunteers may play a vital role in providing nearby nature within communities, reconnecting people to their local natural areas, and connecting with their communities (Ryan et al., 2001). EMG volunteers should never be considered by Extension or the community as free labor. Rather, they are highly prepared and committed individuals who will continue to volunteer if their needs are met (Ryan et al., 2001).

Volunteers experiencing the transformation of a particular landscape may be especially useful to the organizations involved (Ryan et al., 2001).

The data in the current study suggest that tenure (experience) as an EMG volunteer matters, but tenure alone does not account for levels of engagement in the program. Negligible and small correlations between EMG volunteer age and tenure with involvement and leadership scores suggest that there are other important factors contributing to EMG involvement and retention. The data do not delve into the underlying reasons why some EMG volunteers support one project and not others, suggesting that analysis of volunteer perceptions of volunteer roles merits further investigation. Future research should explore the connection between volunteer tasks and the motivations of volunteers (Grube and Piliavin, 2000; Macduff et al., 2009). Additionally, a logical next step in studying EMG volunteer involvement would be to investigate commitment attitudes and role identity.

In conclusion, our study has established that leadership roles, tenure, and volunteer service hours are predictive of overall and higher-level involvement within the context of EMG volunteer service activities. Tenure is a proven driver of volunteer participation in the VSAs that assist Extension in meeting its educational mission. These findings have extended our understanding of the behavior of EMG volunteers and how program coordinators might improve the retention of EMG volunteers and ultimately the service to EMG programs.

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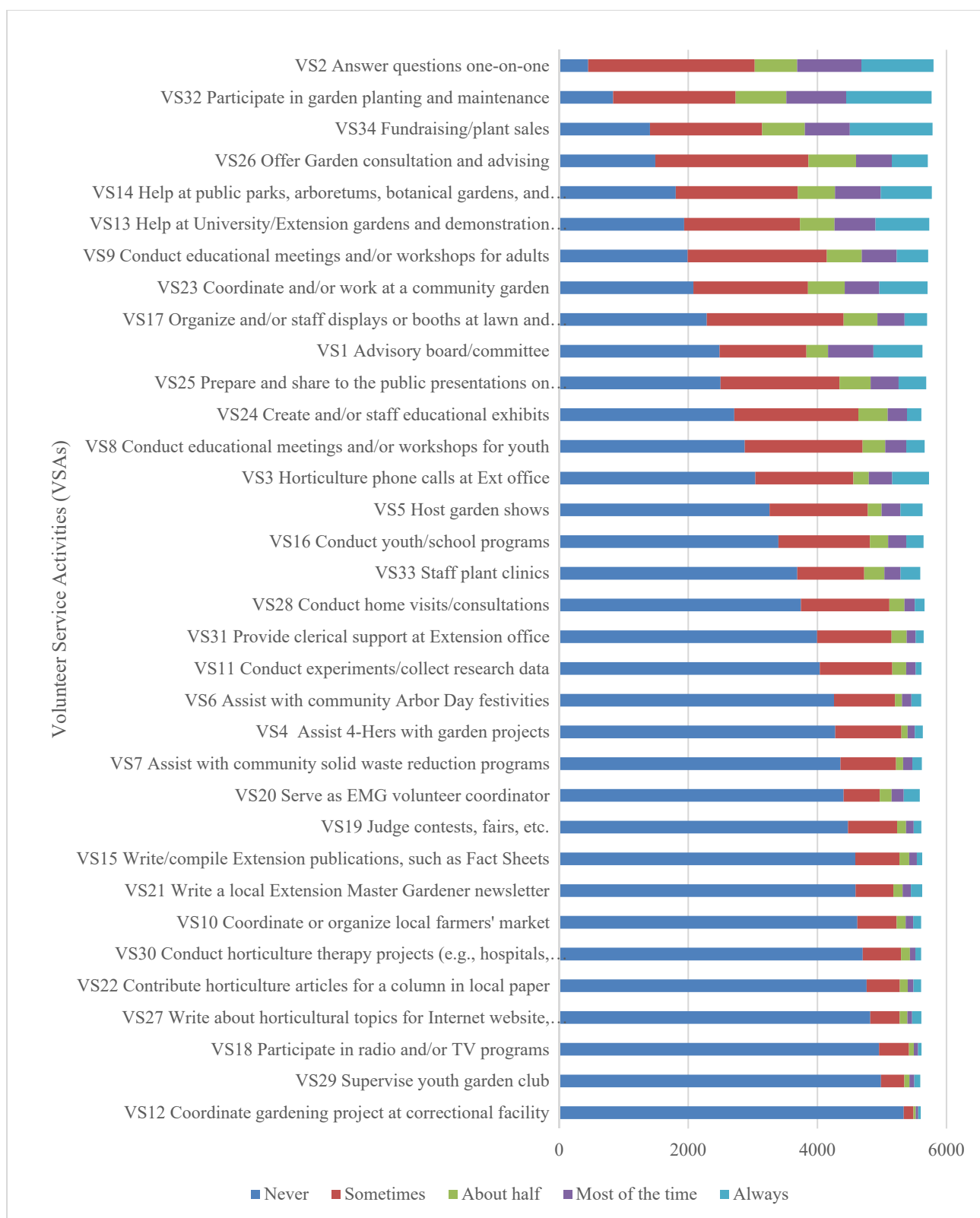


Figure 6.1. Frequency of Extension Master Gardener Volunteer Support for 34 Volunteer Service Activities (Sorted by "never" frequency)

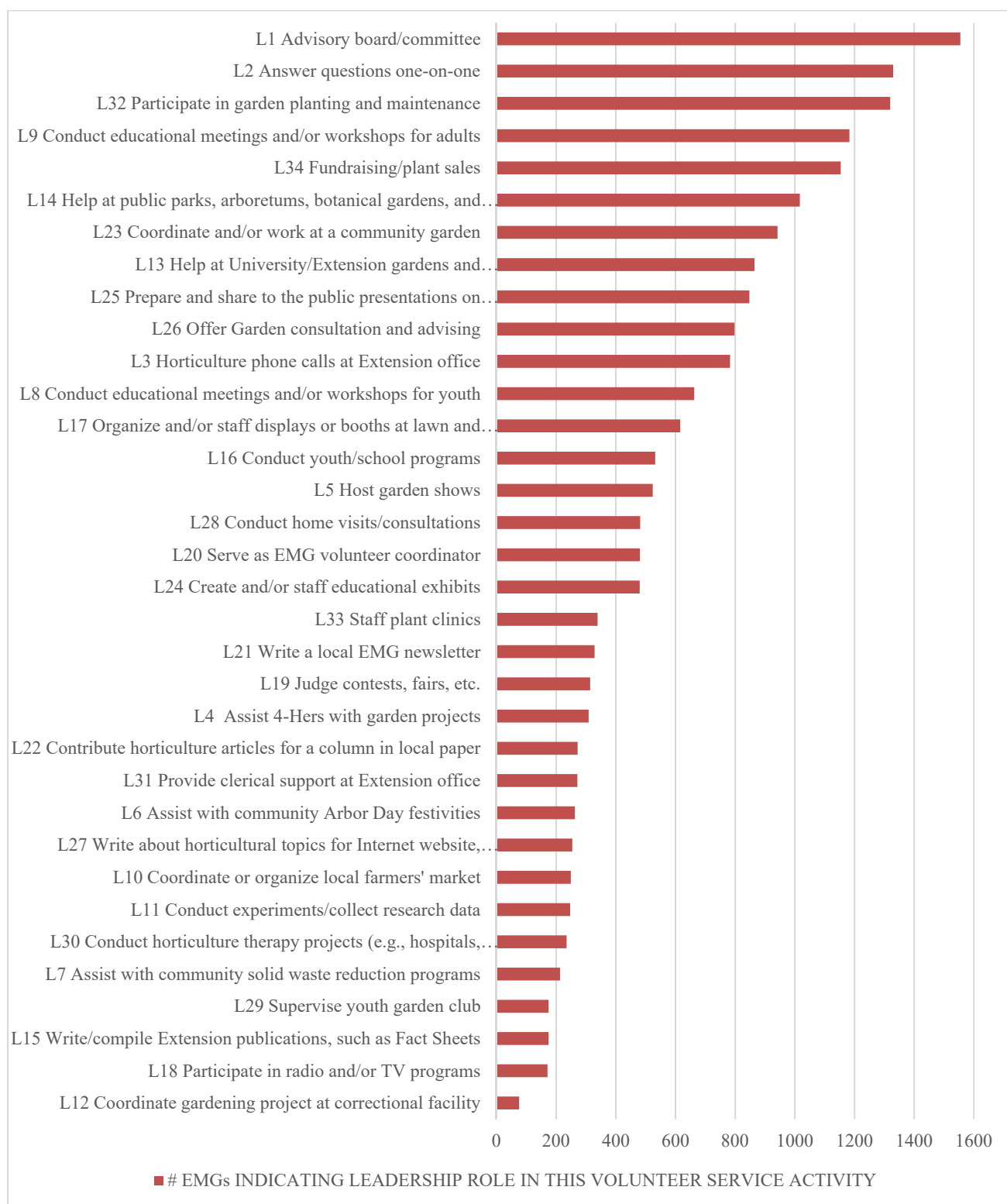


Figure 6.2. Frequency of Leadership Roles for Individual EMG Volunteer Service Activities (sorted from greatest to least)

Table 6.1. Involvement and Leadership Scores^Z for Active Extension Master Gardener Volunteers

		Overall Involvement	Higher-level Involvement	Leadership
	N	M (SD)^Y	M (SD)^Y	M (SD)^Y
Total Sample Mean	6856	11.3 (6.9)	3.4 (4.0)	2.8 (4.1)
Generations^W				
Traditionalist	774	13.6 (5.9) a	4.6 (4.1) a^X	4.4 (4.7) a
Baby Boomer	3920	12.8 (5.7) b	3.9 (4.0) ab	3.2 (4.2) ab
GenX	616	12.4 (5.7) b	3.3 (3.9) ab	2.3 (3.4) bc
GenY	46	12.0 (5.3) b	3.0 (4.1) b	1.3 (1.9) d
Total	5356	12.9 (5.8)	3.9 (4.0)	3.3 (4.2)
Tenure^V				
< 1 year	503	9.2 (5.9) a^X	2.4 (3.4) a^X	1.6 (3.4) a^X
2 to 4 years	2138	10.4 (6.5) b	3.2 (3.9) b	2.2 (3.5) a
5 to 7 years	1308	11.7 (6.7) c	3.4 (3.9) bc	3.0 (4.2) b
8 to 10 years	1012	11.5 (7.0) c	3.5 (3.7) bc	3.0 (4.0) b
11 to 15 years	993	12.2 (7.1) cd	3.9 (4.1) cd	3.6 (4.4) bc
>16 years	786	12.9 (6.9) d	4.2 (4.6) d	3.9 (5.0) c
Total	6740	11.3 (6.9)	3.5 (4.0)	2.8 (4.1)

Host County Population Density^U

Urban	5520	11.1 (6.8) ^X	3.4 (3.9) ^X	2.6 (3.9) a^X
Suburban	1177	11.8 (6.9)	3.8 (4.4)	3.6 (4.7) b
Rural	144	12.0 (7.7)	3.9 (4.0)	3.7 (4.4) b
Total	6856	11.3 (6.9)	3.5 (4.0)	2.8 (4.1)

Volunteering Intensity^T

low years, low hours	1421	10.3 (5.1) a^X	2.6 (3.1) a^X	1.8 (3.1) a^X
high years, low hours	1137	12.1 (5.5) b	3.2 (3.3) b	2.7 (4.0) b
low years, high hours	2226	10.7 (7.3) a	3.5 (4.2) b	2.7 (4.0) b
high years, high hours	2072	12.1 (7.9) b	4.1 (4.4) c	3.8 (4.6) c
Total	6856	11.3 (6.9)	3.4 (4.0)	2.8 (4.1)

Gender^S

Male	984	13.6 (6.4)a^X	4.5 (4.5)a^X	3.8 (4.6)a^X
Female	4474	12.7 (5.6) b	3.8 (3.9) b	3.1 (4.1) b

^ZOverall involvement=count of all VSAs with involvement frequency greater than 1 (never); higher-level involvement=count of all VSAs with involvement frequency equal to 4 (most of the time) or 5 (always); leadership=count of all VSAs for which individual has a leadership role

^YMeans separated by Tukey post hoc test. Means followed by the same letter not significant from each other.

^XUnequal variances and group sizes

Bold type indicates significant at $p < .001$

^WTraditionalist (age 74-91 years), Baby Boomer (age 56-73 years), GenX (age 35-55 years), GenY (age 16-34 years).

^VTenure intervals based on Newberry (in press)

^UBased on the 11 Rural-Urban Continuum Codes for each county in the U.S. For the purpose of this study, the 11 RUCC codes were reduced to four categories, including urban (codes 1-3), suburban (codes 4-7), rural (codes 8-9), and unknown (codes 88 and 99).

^TVolunteer Intensity score calculated based on self-reported years as an EMG volunteer and number of self-reported volunteer service hours in 2015. Low and high categories divided based on median values for active EMG volunteers, 6 years of service and 60 service hours.

^SMale or female

Table 6.2. Pearson product-moment correlations between involvement scores and involvement indicators

	Overall Involvement	Higher-level Involvement	Leadership Score	Tenure	Service Hours	Age
Overall	1					
Involvement	<i>n</i> =6856					
Higher-level	.595**	1				
Involvement	<i>n</i> =6856	<i>n</i> =6856				
Leadership	.565**	.542**	1			
Score	<i>n</i> =6856	<i>n</i> =6856	<i>n</i> =6856			
Tenure	.146**	.105**	.165**	1		
	<i>n</i> =6780	<i>n</i> =6780	<i>n</i> =6780	<i>n</i> =6780		
Service Hours	.250**	.270**	.281**	.049**	1	
	<i>n</i> =4859	<i>n</i> =4859	<i>n</i> =4859	<i>n</i> =4818	<i>n</i> =4859	
Age	.079**	.104**	.161**	.296**	.108**	1
	<i>n</i> =5357	<i>n</i> =5357	<i>n</i> =5357	<i>n</i> =5308	<i>n</i> =4352	<i>n</i> =5357

** . Correlation is significant at the 0.01 level (2-tailed).

Table 6.3. Summary of Zero-inflated Poisson Regression Analysis of Involvement Indicators on Overall Involvement of Extension Master Gardener Volunteers

Variable	Overall Involvement Score			
	<i>n</i>	<i>B</i>	<i>SE β</i>	<i>P</i>
Intercept	4316	2.390	0.031	<.0001**
Leadership Score	4316	0.042	0.000	<.0001**
Age	4316	-0.001	0.000	0.0066
Tenure	4316	0.008	0.000	<.0001**
Service Hours	4316	0.000	2.1853e-5	<.0001**
ZI Poisson Distribution Parameters				
Zero inflation		0.002	0.000	0.0029*

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

Table 6.4. Summary of Zero-inflated Poisson Regression Analysis of Involvement Indicators on Higher-level Involvement of Extension Master Gardener Volunteers

Variable	Higher-level Involvement Score			
	<i>n</i>	β	<i>SE</i> β	<i>P</i>
Intercept	4316	0.991	0.061	<.0001**
Leadership Score	4316	0.070	0.001	<.0001**
Age	4316	0.002	0.001	0.1776
Tenure	4316	0.002	0.001	0.2584
Service Hours	4316	0.000	3.1461e-5	.0015*
ZI Poisson Distribution Parameters				
Zero inflation		0.136	0.006	<.0001*

Note. **p* < .05; ***p* < .01

Table 6.5. Factor Pattern Matrix (Principal Factor Analysis, Oblique Rotation, Five Factors) for Volunteer Service Activities (VSAs)^Z

	Factor				
	Media	Youth	Hands-on	Diag-nostics	Presen-tations
VS21 Write a local EMG newsletter	0.736				
VS27 Write about horticultural topics for Internet website, Extension blog, or other social media (e.g., Facebook or Twitter)	0.730				
VS22 Contribute horticulture articles for a column in local paper	0.679				
VS15 Write/compile Extension publications, such as Fact Sheets	0.628				
VS18 Participate in radio and/or TV programs	0.423				
VS1 Serve on advisory board/committee					
VS12 Coordinate gardening project at correctional facility					

VS11 Conduct experiments/collect research data	
VS20 Serve as EMG volunteer coordinator	
VS10 Coordinate or organize local farmers' market	
VS30 Conduct horticulture therapy projects (e.g., hospitals, retirement homes, assisted living, etc.)	
VS28 Conduct home visits/consultations	
VS8 Conduct educational meetings and/or workshops for youth	-0.847
VS16 Conduct youth/school programs	-0.841
VS29 Supervise youth garden club	-0.639
VS4 Assist 4-Hers with garden projects	-0.471
VS19 Judge contests, fairs, etc.	
VS6 Assist with community Arbor Day festivities	
VS32 Participate in garden planting and maintenance	0.912

VS23 Coordinate and/or work at a community garden	0.622
VS14 Help at public parks, arboretums, botanical gardens, and historic sites	0.563
VS13 Help at University/Extension gardens and demonstration plots	0.557
VS34 Fundraising/plant sales	0.448
VS7 Assist with community solid waste reduction programs	
VS3 Answer horticulture-related phone calls during scheduled hours at an Extension office	0.829
VS2 Answer clientele questions one- on-one	0.632
VS33 Staff plant clinics	0.519
VS31 Provide clerical support at Extension office	0.449
VS26 Offer Garden consultation and advising	
VS25 Prepare and share to the public presentations on gardening topics	-0.590

VS9 Conduct educational meetings and/or workshops for adults	-0.562
VS24 Create and/or staff educational exhibits	-0.362
VS17 Organize and/or staff displays or booths at lawn and garden shows	-0.308
VS5 Host garden shows	

Eigenvalues	13.709	1.451	1.297	1.176	1.057
% variance explained	40.321	4.268	3.815	3.460	3.109
<i>Mean (SD)</i>	1.0 (0.6)	1.2 (0.8)	2.2 (1.2)	1.7 (1.0)	1.7 (1.1)
Cronbach's alpha	.824	.831	.800	.780	.846

^aVSAs without values indicate unacceptable factor loadings less than 0.3

Table 6.6. Analysis of Volunteer Service Activity (VSA) Theme Means by Generation^Z

VSA Theme	Generation	<i>n</i>	<i>M(SD)</i>^Y	<i>df</i>	<i>F</i>	<i>p</i>
Media						
	Traditionalist	774	1.2 (0.6)	3	1.684	0.168 ^{NS}
	Baby Boomer	3920	1.2 (0.6)			
	GenX	616	1.2 (0.5)			
	GenY	46	1.2 (0.5)			
	Total	5356	1.2 (0.6)			
Youth						
	Traditionalist	774	1.4 (0.8) a	3	5.657	0.001*
	Baby Boomer	3920	1.4 (0.7) a			
	GenX	616	1.5 (0.8) a			
	GenY	46	1.7 (0.7) b			
	Total	5356	1.4 (0.8)			
Hands-on						
	Traditionalist	774	2.6 (1.0) a	3	9.101 ^x	0.000**
	Baby Boomer	3920	2.5 (0.9) ab			
	GenX	616	2.3 (0.9) ab			
	GenY	46	2.2 (0.8) b			

Total	5356	2.5 (0.9)

Diagnostic

Traditionalist	774	2.0 (0.9) a	3	12.305 ^x	0.000**
Baby Boomer	3920	1.9 (0.9) ab			
GenX	616	1.8 (0.8) ab			
GenY	46	1.7 (0.7) b			
Total	5356	1.9 (0.9)			

Presentations

Traditionalist	774	2.0 (1.0)	3	12.305 ^x	0.012 ^{NS}
Baby Boomer	3920	1.9 (0.9)			
GenX	616	1.8 (0.9)			
GenY	46	1.8 (0.8)			
Total	5356	1.9 (0.9)			

^zTraditionalist (age 74-91 years), Baby Boomer (age 56-73 years), GenX (age 35-55 years), GenY (age 16-34 years).

^yMeans separated by Tukey post hoc test. Means followed by the same letter not significant from each other.

^xBrown-Forsythe ratio used to allow for unequal variances and group sizes.

* Significant at $p < .0125$; ** Significant at $p < .001$, ^{NS} Non-significant

Table 6.7. Analysis of Volunteer Service Activity (VSA) Theme Means by Host County

Population Density^Z

VSA Theme	Population Density	<i>n</i>	<i>M (SD)^Y</i>	<i>df</i>	<i>F</i>	<i>p</i>
Media						
	Urban	5520	1.0 (0.6)	2	3.982 ^x	0.019 ^{NS}
	Suburban	1177	1.1 (0.7)			
	Rural	144	1.1 (0.7)			
	Total	6841	1.0 (0.7)			
Youth						
	Urban	5520	1.2 (0.8) a	2	12.589 ^x	0.000 ^{**}
	Suburban	1177	1.4 (0.9) ab			
	Rural	144	1.5 (1.1) b			
	Total	6841	1.2 (0.8)			
Hands-on						
	Urban	5520	2.2 (1.2)	2	1.133	0.322 ^{NS}
	Suburban	1177	2.2 (1.2)			
	Rural	144	2.2 (1.3)			
	Total	6841	2.2 (1.2)			

Diagnostic

Urban	5520	1.7 (1.0) b	2	12.478 ^x	0.000**
Suburban	1177	1.6 (0.9) ab			
Rural	144	1.5 (0.9) a			
Total	6841	1.7 (1.0)			

Presentations

Urban	5520	1.6 (1.1)	2	6.036 ^x	0.003 ^{NS}
Suburban	1177	1.8 (1.1)			
Rural	144	1.6 (1.1)			
Total	6841	1.7 (1.1)			

^zBased on the 11 Rural-Urban Continuum Codes for each county in the U.S. For the purpose of this study, the 11 RUCC codes were reduced to four categories, including urban (codes 1-3), suburban (codes 4-7), rural (codes 8-9), and unknown (codes 88 and 99).

^yMeans separated by Tukey post hoc test. Means followed by the same letter not significant from each other.

^xBrown-Forsythe ratio used to allow for unequal variances and group sizes.

* Significant at $p < .01$; ** Significant at $p < .001$, ^{NS} Non-significant

Table 6.8. Analysis of Volunteer Service Activity (VSA) Theme Means by Tenure Intervals^Z

VSA Theme	Tenure Interval	<i>n</i>	<i>M (SD)</i> ^Y	<i>df</i>	<i>F</i>	<i>p</i>
Media						
	< 1 year	502	0.9 (0.6) a	5	16.499 ^x	0.000**
	2 to 4 years	2134	1.0 (0.6) ab			
	5 to 7 years	1307	1.1 (0.6) b			
	8 to 10 years	1011	1.0 (0.7) b			
	11 to 15 years	992	1.1 (0.6) b			
	> 16 years	783	1.2 (0.8) c			
	Total	6729	1.0 (0.7)			
Youth						
	< 1 year	502	1.2 (0.8)	5	1.748	0.12 ^{NS}
	2 to 4 years	2134	1.2 (0.8)			
	5 to 7 years	1307	1.3 (0.8)			
	8 to 10 years	1011	1.2 (0.8)			
	11 to 15 years	992	1.3 (0.9)			
	> 16 years	783	1.3 (0.9)			
	Total	6729	1.3 (0.8)			

Hands-on

< 1 year	502	2.0 (1.1)	5	2.241 ^x	0.048 ^{NS}
2 to 4 years	2134	2.2 (1.2)			
5 to 7 years	1307	2.2 (1.2)			
8 to 10 years	1011	2.2 (1.2)			
11 to 15 years	992	2.2 (1.2)			
> 16 years	783	2.2 (1.2)			
Total	6729	2.2 (1.2)			

Diagnostic

< 1 year	502	1.5 (0.9) a	5	8.818 ^x	0.000 ^{**}
2 to 4 years	2134	1.6 (1.0) ab			
5 to 7 years	1307	1.7 (1.0) bc			
8 to 10 years	1011	1.6 (1.0) ab			
11 to 15 years	992	1.8 (1.1) bc			
> 16 years	783	1.8 (1.0) c			
Total	6729	1.7 (1.0)			

Presentations

< 1 year	502	1.4 (0.9) a	5	24.023 ^x	0.000 ^{**}
2 to 4 years	2134	1.6 (1.0) b			

5 to 7 years	1307	1.7 (1.1) bc
8 to 10 years	1011	1.7 (1.1) bc
11 to 15 years	992	1.8 (1.1) cd
> 16 years	783	1.9 (1.2) d
Total	6729	1.7 (1.1)

^zAs used by Newberry (unpublished)

^yMeans separated by Tukey post hoc test. Means followed by the same letter not significant from each other.

^xBrown-Forsythe ratio used to allow for unequal variances and group sizes.

* Significant at $p < .0125$; ** Significant at $p < .001$, ^{NS} Non-significant

Table 6.9. Analysis of Volunteer Service (VSA) Theme Means by Volunteering Intensity^Z

VSA Theme	Intensity	<i>n</i>	<i>M (SD)</i>^Y	<i>df</i>	<i>F</i>	<i>p</i>
Media						
	low years, low hours	1421	1.1 (0.4) b	3	21.585 ^x	0.000**
	high years, low hours	1137	1.1 (0.5) b			
	low years, high hours	2226	1.0 (0.7) a			
	high years, high hours	2072	1.1 (0.8) b			
	Total	6856	1.0 (0.6)			
Youth						
	low years, low hours	1421	1.3 (0.7) b	3	15.900 ^x	0.000**
	high years, low hours	1137	1.3 (0.7) b			
	low years, high hours	2226	1.2 (0.9) a			
	high years, high hours	2072	1.2 (0.9) a			
	Total	6856	1.2 (0.8)			
Hands-on						
	low years, low hours	1421	2.3 (0.9) bc	3	10.762 ^x	0.000**
	high years, low hours	1137	2.3 (0.9) c			
	low years, high hours	2226	2.1 (1.4) a			
	high years, high hours	2072	2.1 (1.4) ab			

Total	6856	2.2 (1.2)

Diagnostic

low years, low hours	1421	1.6 (0.7) a	3	15.236 ^x	0.000**
high years, low hours	1137	1.8 (0.8) b			
low years, high hours	2226	1.6 (1.1) a			
high years, high hours	2072	1.7 (1.2) a			
Total	6856	1.7 (1.0)			

Presentations

low years, low hours	1421	1.6 (0.8) a	3	25.448 ^x	0.000**
high years, low hours	1137	1.8 (0.8) b			
low years, high hours	2226	1.6 (1.2) a			
high years, high hours	2072	1.8 (1.3) b			
Total	6856	1.7 (1.1)			

^zVolunteer Intensity score calculated based on self-reported years as an EMG volunteer and number of self-reported volunteer service hours in 2015. Low and high categories divided based on median values for active EMG volunteers, 6 years of service and 60

^yMeans separated by Tukey post hoc test. Means followed by the same letter not significant from each other.

^xBrown-Forsythe ratio used to allow for unequal variances and group sizes.

* Significant at $p < .0125$; ** Significant at $p < .001$, ^{NS} Non-significant

Table 6.10. Analysis of Volunteer Service Activity (VSA) Theme Means by Gender^Z

VSA Theme	Gender	<i>n</i>	<i>M (SD)</i>	<i>df</i>	<i>F</i>	<i>p</i>
Media						
	Male	985	1.2 (0.6)	5466	1.494 ^x	0.135 ^{NS}
	Female	4483	1.2 (0.5)			
Youth						
	Male	985	1.4 (0.8)	5466	0.161	0.872 ^{NS}
	Female	4483	1.4 (0.8)			
Hands-on						
	Male	985	2.5 (1.0)	5466	-0.027	0.979 ^{NS}
	Female	4483	2.5 (0.9)			
Diagnostic						
	Male	985	2.0 (0.9)	5466	5.576 ^x	0.000 ^{**}
	Female	4483	1.9 (0.8)			
Presentations						
	Male	985	2.0 (1.0)	5466	3.580 ^x	0.000 ^{**}
	Female	4483	1.9 (0.9)			

^zMale or Female

^xUnequal variance

* Significant at $p < .0125$; ** Significant at $p < .001$, ^{NS} Non-significant

Table 6.11. Pearson product-moment correlations between VSA themes, age, and tenure

	Media	Youth	Hands-on	Diagnostic	Presentations	Age	Tenure
Media	1 <i>n</i> =7517						
Youth	.592** <i>n</i> =7517	1 <i>n</i> =7517					
Hands-on	.593** <i>n</i> =7517	.577** <i>n</i> =7517	1 <i>n</i> =7517				
Diagnostic	.613** <i>n</i> =7517	.523** <i>n</i> =7517	.564** <i>n</i> =7517	1 <i>n</i> =7517			
Presentations	.700** <i>n</i> =7517	.634** <i>n</i> =7517	.645** <i>n</i> =7517	.644** <i>n</i> =7517	1 <i>n</i> =7517		
Age	-0.023 <i>n</i> =5755	-.051** <i>n</i> =5755	.086** <i>n</i> =5755	.094** <i>n</i> =5755	.061** <i>n</i> =5755	1 <i>n</i> =5755	
Tenure	.119** <i>n</i> =7383	.047** <i>n</i> =7383	.043** <i>n</i> =7383	.100** <i>n</i> =7383	.144** <i>n</i> =7383	.302** <i>n</i> =5686	1 <i>n</i> =7383

**. Correlation is significant at the 0.01 level (2-tailed).

CHAPTER 7

CONCLUSION

This quantitative study of EMG volunteers in the United States created a snapshot of the early twenty-first century EMG volunteer program. Numerous separate studies of the individuals who serve as EMG volunteers have been published at the state level, yet only one survey of EMG volunteers conducted nationally was found in literature (Vines et al., 2016). The current study is unique in several ways, as laid out in the original research model (Fig. 1). First, it offers comparison of program stakeholders at multiple levels (local, state, regional, and national). Second, it allows new comparisons, such as among generations; among volunteers supporting rural, suburban and urban programs; by tenure with the program; and others. Third, it offers an initial study of EMG volunteers within Extension's organizational context, an aspect often overlooked in the big picture of volunteerism research (Hidalgo and Moreno, 2009). Fourth, it explores social science concepts new to the EMG program and its volunteers, placing this volunteer group firmly in the natural and social science arenas.

As the EMG program approaches its fifth decade and momentum builds for national leadership, collaborative programming, and innovative impact reporting, it is important to assess this volunteer base from a social data aspect. To borrow the words of Prokopy and Genskow (2016), "combined with other data about program implementation activities, this information

allows resource managers to check assumptions, refine approaches, and evaluate their efforts.”

The four main research objectives of the current study were to:

- Analyze national, regional, state, and local program demographics.
- Determine alignment of EMG program educational response themes (ERT) among state and local program coordinators and volunteers.
- Develop an inventory of the functional motivations that underlie EMG volunteer behavior.
- Identify the extent of EMG volunteer involvement in volunteer service activities (VSAs).

Though there are multiple significant results throughout the study (Table 1), there are several overarching ideas worth noting:

- The study results reveal that the homogeneity among EMG volunteers reported in previous studies still persists today and on a much broader national basis than previously reported. Though some slight changes are noted, historical data and the current study share similar distributions within demographics, including age, income, gender, marital status, child status, education, race/ethnicity, employment status, and years of active service. EMG volunteers are mostly 60 years or older, white, well educated, and of economic means. Pandya (2012) suggests that lack of socioeconomic and ethnic diversity is common in other science-based initiatives and attributes difficulty in attracting a diverse participant base to the difficult balance between need to work and engagement in informal activities, such as volunteering. Increasing the diversity of EMG volunteers is a recognized need and

priority at the national program level, as reflected by the strategic plan for the EMG National Committee (Bennett et al., 2019).

- A fair level of agreement about educational-response themes (ERTs) has been established between program management and participants. A respectable catalog of VSAs has been created, and VSA themes share similarities between ERTs and EMG volunteer service. This degree of alignment positions program coordinators to work collectively toward a national educational agenda and evaluation metrics for consumer horticulture.
- While this study explored motivations for volunteering at the individual level in the Volunteer Process Model (Snyder and Omoto, 2008), there is still much that is not understood about EMG motivations to volunteer. It is well-known that learning about plants and gardening remains the draw for individuals entering the EMG volunteer program, yet it is not well understood how those motives are satisfied, how VSAs relate to motives, or what motivates an EMG volunteer to remain with the program long-term.
- Despite a notable increase in education level of EMG volunteers, a leading predictor of volunteerism, EMG volunteer involvement appears to be decreasing. Macduff et al. (2009) discuss at length the current trends in volunteerism, including reduced length of time with an organization (paralleling changes in the workplace) and increasing frequency of episodic volunteerism. With an increase in work status and a lower percentage of retired EMG volunteers, interested individuals may not be able to participate in the future at the level of commitment required by the current program design. Program coordinators will need to make

organizational and engagement changes in order to continue benefiting from critical volunteer support (Macduff et al., 2009).

- Experience/tenure as an EMG volunteer appears to matter in terms of volunteer performance and coordinators strive for long-term volunteer retention, though it is still unclear whether longevity, performance, or a mixture of both characterizes the ultimate EMG volunteer.

With these basic explorations in place, new questions arise. *How does lack of participant diversity reduce our ability to program effectively and change consumer horticulture behaviors of the public? Do the VSAs offer a good match with the motivations of the individuals attracted to the EMG program? What new volunteer roles are needed? How many volunteers do we need to meet programming demand? Are we keeping volunteers too long? Are long-term volunteers considered contributors or bystanders? How does program management affect volunteer experience and ultimately retention?*

To answer these questions, a refined research model is needed (Fig. 7.2). Snyder and Omoto's (2008) Volunteer Process Model and Hyde et al.'s (2016) proposed model for studying episodic volunteers offer suitable frameworks for exploring aspects of motives, volunteer performance, and retention. To fully understand what prompts an individual to become and remain a contributing EMG volunteer, other explorations might include experiences (satisfaction, social support, and organizational integration) and consequences (knowledge and attitude change, personal health) at the individual level, as well as antecedents, experiences, and consequences at the agency/organization level of analysis. Additionally, being able to identify critical changes in elements of volunteering (including volunteer service activities, emotions, relationships, motivation, commitment, attitudes, and perceptions) through the five phases of

volunteering, including nominee (or applicant), new volunteer, established volunteer, renewed volunteer, and retiring volunteer (Haski-Leventhal and Bargal, 2008), would provide program coordinators an invaluable framework for making effective program management decisions. A new research model would include:

- *Expansion of motive exploration.* This would potentially include the restoration and connection with nature, similar to that studied by Ryan et al. (2001), as well as values for environmental stewardship. EMG volunteers are most frequently engaged in hands-on gardening activities and learning about horticulture through hands-on activities is the leading motivator to become an EMG volunteer. It is unknown whether EMG volunteers perceive teaching the public about sustainable landscape management and its related environmental topics (such as protection of water quality, less yardwaste in landfills, safe and judicious pesticide use, and plant selection) as environmental stewardship or helping the environment. Because younger generations of volunteers are perceived to have a higher awareness of and concern for environmental concerns (McDougle et al., 2011), it merits exploration of desire to improve the environment as a potential EMG volunteer motive. Utilization of marketing materials that present gardening as environmental stewardship may attract a new audience to the EMG program.
- *Exploration of psychological sense of community.* Preserving the environment is a form of “procommunity” action, connection with community can and does facilitate social action, and connections to other people and the larger community are embedded in volunteerism (Snyder, 2009). Exploration of psychological sense of community, the sense of connection the EMG volunteer feels to the community

in which they live, and social norms, the perceived support or pressure to volunteer received from an individual's network (Hyde et al., 2016), may simultaneously inform recruitment processes and increase diversity while also supporting retention. Measures of enduring involvement, including centrality (the degree to which the individual's other life activities revolve around the volunteer experience), attraction (importance of the organization and pleasure derived from group membership), and self-expression (the symbolic value conveyed to others through participation), may also reveal role identity that has been linked in other volunteer samples to performance metrics, such as tenure, involvement, and retention (Grube and Piliavin, 2000; Lu and Schuett, 2014).

- *Examination of EMG volunteers within Extension's organizational context.*

Organizational variables, such as local program and project organization, are anticipated to affect EMG volunteer experiences and thus impact sense of commitment as well as tenure (Hidalgo and Moreno, 2009; Ryan et al., 2001).

Much-needed clarity for program coordinators can result from additional study of EMG volunteer commitment to Extension, along with possible drivers of performance, such as motivation, individual competencies (Ryan et al., 2001), organizational support mechanisms, group processes, and role ambiguity/conflict (Hidalgo and Moreno, 2009; Millette and Gagné, 2008), with the utilization of vetted scales, such as Cameron and Quinn's tools for assessing organizational culture (in McDuff et al., 2009) and Hyde's (2016) six-item volunteer satisfaction scale and eight-item intention to remain scale.

- *Connecting motivation and volunteer tasks.* Investigating VSAs more fully with attitude and benefit scales may increase understanding of potential modifications for future volunteers. Connection needs to be made between VSAs, motives, and involvement, such as through a task preference study similar to Houle et al. (2005), so that coordinators are equipped to develop VSAs that honor Extension mission while matching volunteer motivations (Macduff et al., 2009). A potential reason for low volunteer involvement may be a functional mismatch between recruitment messages and the planning and management of volunteer events (Asah and Blahna, 2012). By combining knowledge of target motivation functions for various demographics with an understanding of which motivations are associated with EMG volunteer activities, program coordinators can begin to explore whether volunteer service activities satisfy those motivations. This information could potentially improve recruitment and retention of EMG volunteers.

By using a framework, such as the Volunteer Process Model (Snyder and Omoto, 2008), the elements of the new research model can be studied in terms of their impact on intention to volunteer and actual EMG tenure. These predictive models have the potential to transform future engagement of EMG volunteers in Extension programming.

Limitations

Investigators acknowledge that the current study did not utilize random sampling and the results are not generalizable to all EMG volunteers. There was, however, sufficient response level to ensure a high level of precision ($p=0.05$). As well, the homogenous nature of responses found in this study is consistent among with previously published randomized studies (Schrock

et al., 2000a, Strong and Harder, 2010). Though geographic location may have affected response rate, such as lack of Internet access or high speed Internet for EMGVs in rural areas (Smyth et al., 2010), or a gap in state or local coordinator positions may have prevented the distribution of the survey links, there was an adequate level of response overall and all Extension programmatic regions were represented. Consideration has been given to the positive nature of the results. Typical of nonrandom, self-selected responses, EMG volunteers responding to this lengthy survey most likely represent very motivated individuals.

Like previous studies of EMG volunteers, this study reports cross-sectional observational data. While researchers and practitioners could strive for more random sampling in future endeavors, there may not be enough diversity within the EMG population to gain the insight necessary for modifications that could bring true change and diversity to the EMG program. Direct conversation with individuals who express interest in the EMG program but do not become trainees offers one way of gaining anecdotal guidance for adjusting recruitment efforts. An alternative approach, such as experimental study with non-EMG volunteer audiences representing the stratifications desired in the program, may better inform the process. For example, applying the theory of planned behavior (Ajzen, 1991), the effect of recruitment messages, motives, and VSAs on intent to volunteer for prospective GenY and GenZ volunteers could provide insight for attracting younger volunteers. The same strategy could also be used to investigate preferences of ethnic groups to improve recruitment and retention efforts and ultimately, program diversity. Experimental study would allow critical insight into preferences of future volunteers.

Conclusion

Pillemer et al. (2010) admonish that volunteerism and civic engagement are vital and necessary parts of the solution to today's urgent environmental issues. In addition to the positive environmental impacts that result from volunteering, Ryan et al. (2001) conclude that volunteer stewardship programs have a critical role in building a powerful constituency of knowledgeable advocates for the environment through appreciation of and attachment to local areas and nearby nature and by teaching the next generation about the environment. Pandya (p. 316, 2012) maintains that the key to reaching participation reflective of US demographics in volunteer activities, such as the EMG volunteer program, is found in "place-based, culturally relevant, and community driven initiatives," much like EMG VSAs themselves.

The importance of understanding motivational foundations of volunteerism transcends the role of the EMG volunteer. Interpreting motivations to change behavior can help develop a program that motivates others (Prokopy, 2011), such as the 8.6 million individuals who seek advice and solutions from EMG volunteers (EMG National Committee, 2019). The understanding of motivations also applies to other forms of social actions, such as civic and political participation, and may, quite simply, aid in getting the greater public involved in Extension programming (Snyder, 2009).

Macduff et al. (p. 418, 2009) state it well: "Volunteer coordinators need information and skills to better engage and respond to the varieties of ways in which individuals wish to and are able to serve." The present empirical study builds on a theoretical base to identify patterns in EMG volunteer service and to gain understanding of EMG volunteer motivation. The findings presented here can be practically applied by program coordinators to expand and diversify local EMG volunteer programs. Overall, the findings in this study should encourage program

coordinators that the EMG program is alive and well in the US, with great potential to positively change lives and communities through consumer horticulture.

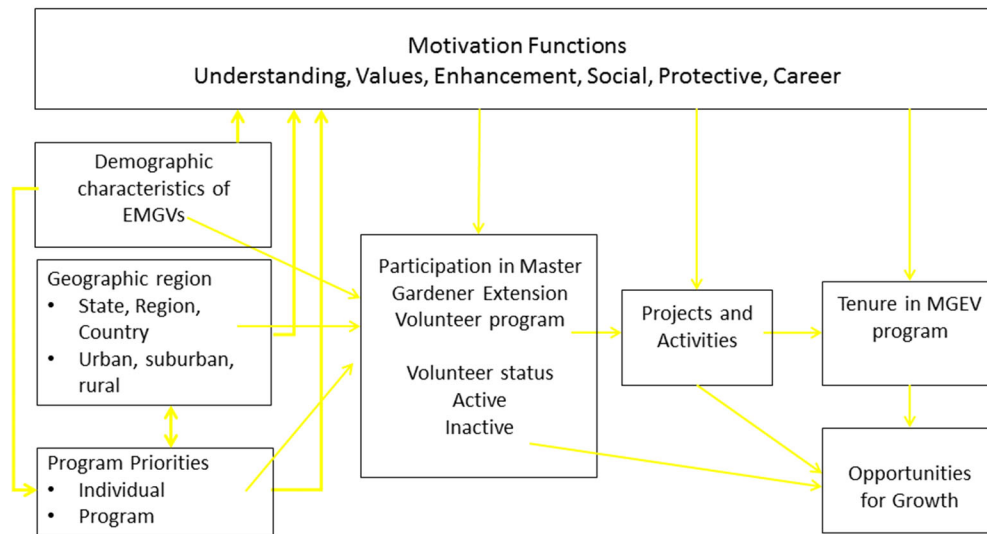


Figure 7.1. Original research model

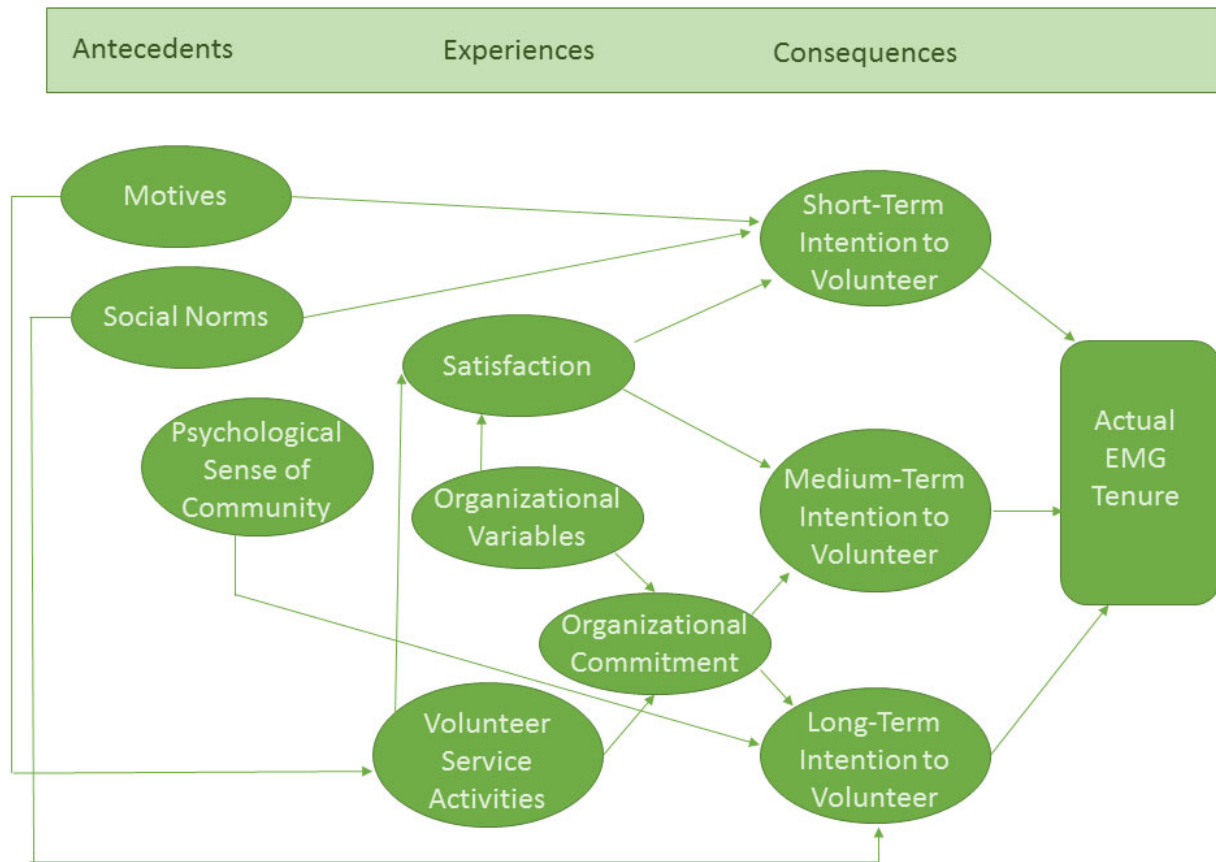


Figure 7.2. Revised Extension Master Gardener volunteer research model, incorporating Snyder and Omoto’s (2008) Volunteer Process Model and Hyde et al.’s (2016) proposed model for studying episodic volunteers.

Table 7.1. Summary of Research Objectives, Comparisons, and Outcomes

	Gender	Generation	Extension	Programmatic Region	Host County	Population Density	Responder Type	Service Status	Volunteering Intensity	Tenure
Demo-graphics	X	*	*		NS		D	X	X	X
Educational										
Response	X	NS	NS		*	*		X	X	X
Themes										
Motiva--tions	*	*	X		*	X		*	*	*
Involvement	*	*	X		*	X		X	*	*

X=not compared

D=descriptive statistics only

NS=non-significant results

*=Statistically significant results noted

CHAPTER 8

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Appendix A

INTRODUCTION LETTER SENT ONE WEEK PRIOR TO SURVEY LAUNCH

(SEPTEMBER 26, 2016)

Dear State Master Gardener Coordinator,

Last week, at the National Extension Master Gardener Coordinators' Conference in Montana, we introduced a national study of Extension Master Gardeners (EMGs). The University of Georgia and Iowa State University are working together on a research study entitled, "A National Study of Motivations of Extension Master Gardeners" (IRB-approved Study 00003567). The results of this study have the potential to benefit all of us, and we need your help to make it happen!

We need state coordinators to send the email message (below) to local EMG program coordinators. Let them know that the study is legitimate and important, and to be looking for the actual survey link next week. Then, we need local coordinators to send a message to local EMG volunteers (also included below). We want EMGs to know that the study is real and legitimate and that we need their input.

In return for helping us launch this survey, you will receive results specific to your state and counties that participate. You will learn information about your EMG volunteers that will help you coordinate and develop your EMG program. Additionally, the study has the potential of identifying additional tools to select individuals who are good matches for your EMG volunteer program.

Next week, about this time, we will send to you the survey link to forward to your local coordinators and for them to forward on to their local EMGs. Be on the lookout for it!

Thank you, in advance, for your support and assistance!

Sincerely,

Sheri

Sheri Dorn

Coordinator, Georgia Master Gardener Extension Volunteer Program

University of Georgia

Griffin Campus, Horticulture Department

1109 Experiment Street, Cowart Building

Griffin GA 30223-1731

Email: sdorn@uga.edu

(Please forward the message below on to your local EMG program coordinators with a note of encouragement for them to redirect the message to their local EMG volunteers)

Dear Local Extension Master Gardener Coordinator,

Our state has been asked to contribute to a national study of Extension Master Gardener volunteers that is being conducted by University of Georgia and Iowa State University. As the state coordinator for [enter your state], I plan to participate. This is a legitimate study and one in which I encourage you to participate.

Below, you will find a note to you from the people conducting the survey as well as note to forward on to your Master Gardener volunteers. This helps introduce the survey and explain it so that Master Gardeners will feel comfortable in participating. Please follow the explanations to send on to current and inactive Master Gardeners in your local programs.

Thank you for supporting this project!

[insert your signature line]

PS: Consider offering Master Gardeners volunteer service credit for the time spent completing the survey.

Dear Local Master Gardener Coordinator,

Last week, at the National Extension Master Gardener Coordinators' Conference in Montana, we introduced a national study of Extension Master Gardeners (EMGs). The University of Georgia and Iowa State University are working together on a research study entitled, "A National Study of Motivations of Extension Master Gardeners" (IRB-approved Study 00003567). The results of this study have the potential to benefit all of us, and we need your help to make it happen!

The survey uses Qualtrics survey software to present the questions and collect responses. You can respond to the survey using a tablet or computer. Accessing the survey link is not harmful to your computer. To participate, simply click on the link that will be provided. It will take you directly to an online survey where you simply click your responses or type in short answers. Completion of this online Motivations survey should take about 30 minutes.

We need local EMG coordinators to send the email message (below) to local EMG volunteers. Let them know that the study is legitimate and important, and to be looking for the actual survey link next week. We want EMGs to know that the study is real and legitimate and that we need their input.

In return for helping us launch this survey, you will receive results specific to your state and counties that participate. You will learn information about your EMG volunteers that will help you coordinate and develop your EMG program. Additionally, the study has the potential of identifying additional tools to select individuals who are good matches for your EMG volunteer program.

Next week, about this time, we will send to you the survey link to forward to your EMGs. Be on the lookout for it!

Thank you, in advance, for your support and assistance!

Sincerely,

Sheri

Sheri Dorn

Coordinator, Georgia Master Gardener Extension Volunteer Program
University of Georgia
Griffin Campus, Horticulture Department
1109 Experiment Street, Cowart Building
Griffin GA 30223-1731
Email: sdorn@uga.edu
Tel. 770-412-4766

(Please forward the message below on to your local EMGs with a note of encouragement for them to participate in the study)

Dear Extension Master Gardener volunteer,

Our state has been asked to contribute to a national study of Extension Master Gardener volunteers that is being conducted by University of Georgia and Iowa State University. Our state coordinator and I are planning to participate, and we encourage you to, as well. This is a legitimate study, and you may record an hour of volunteer service time after you have participated in the survey. There is more information and directions included in the message below.

Thank you for supporting this important project!

[insert your signature line]

Dear Extension Master Gardener,

Last week, at the National Extension Master Gardener Coordinators' Conference in Montana, we introduced a national study of Extension Master Gardeners (EMGs). The

University of Georgia and Iowa State University are working together on a research study entitled, "A National Study of Motivations of Extension Master Gardeners" (IRB-approved Study 00003567). The results of this study have the potential to benefit all of us, and we need your help to make it happen!

The survey uses Qualtrics survey software to present the questions and collect responses. You can respond to the survey using a smart phone, tablet, or computer. To participate, simply click on the link that will be provided. Accessing the survey link is not harmful to your computer. The link will take you directly to an online survey where you simply click your responses or type in short answers. Completion of this online Motivations survey should take about 30 minutes.

Your local EMG coordinators will send you an email message next week with a Qualtrics survey link. The study is legitimate and important, so be looking for the actual survey link next week. We need your input on things, such as the length of time you have been an EMG volunteer, the types of projects and activities that you do, what benefits you have received from being an EMG volunteer, and future directions for the EMG program.

In return for helping to launch this survey, each state and county that participates will receive data from the study. State and local coordinators will learn information about EMG volunteers and the volunteer activities that they do.

Next week, about this time, we will send to you the survey link. Be on the lookout for it!
Thank you, in advance, for your participation!

Sincerely,

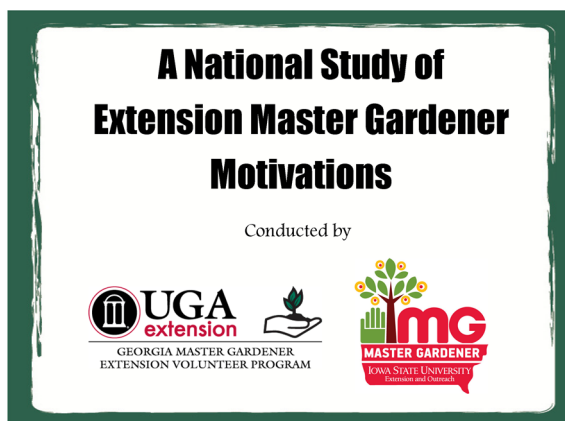
Sheri

Sheri Dorn
Extension Horticulturist, Consumer Ornamentals
Coordinator, Georgia Master Gardener Extension Volunteer Program
University of Georgia
Griffin Campus, Horticulture Department
1109 Experiment Street, Cowart Building
Griffin GA 30223-1731
Email: sdorn@uga.edu
Tel. 770-228-7243
FAX 770-412-4764

<http://www.caes.uga.edu/departments/hort/extension/mastergardener/>

Appendix B

2016 STATE COORDINATOR SURVEY FOR MOTIVATIONS STUDY



Dear State Master Gardener Coordinator:

I am the State Coordinator of the Georgia Master Gardener Extension Volunteer Program at The University of Georgia, working in partnership with other faculty at The University of Georgia and Iowa State University. Together, we invite you to participate in a research study entitled “A National Study of Motivations of Extension Master Gardener Volunteers,” referred to as the Motivations study (IRB-approved Study 00003567). This quantitative study of Extension Master Gardeners (EMGs) in the United States creates a snapshot in time and space of the EMG volunteer program. Monitoring trends on regional and national levels creates potential for collaborations between Extension programs and maximization of resources. Comparison of results to those in previous studies can help identify changing needs and trends in EMG programs.

The Motivations study survey instrument is an online Qualtrics survey intended for completion by individuals meeting current and inactive Extension Master Gardener status requirements as defined here:

Current, active EMGV – an individual who has completed the certification process to be an Extension Master Gardener Volunteer and who is currently (this year or reporting period) meeting their state’s requirements for active status by volunteering in support of Extension-approved projects. (Excludes individuals who have trained in 2016.)

Inactive EMGV -- an individual who has completed the certification process to be an Extension Master Gardener Volunteer and in the last year has not met their state's requirements for active status by volunteering in support of Extension-approved projects

As a state coordinator, you are asked to participate in three ways. First, I ask you to complete this simple online survey about your state EMG program. While this survey is not anonymous, the information provided will remain confidential and be used in summary form to approximate a response rate at the close of the Motivations study (i.e., 50% of the counties with EMG programs in your state responded). Second, I ask you to distribute the Motivations survey materials (following) to EMGs in your state. It is preferred that you send the information directly to current and inactive Extension Master Gardeners (such as through your statewide recordkeeping system). If you cannot send directly, please distribute to Master Gardeners via local EMG coordinators in your state. Please encourage the local coordinators to send the materials to local EMGs right away. Third, please distribute survey reminders to EMGs and/or local coordinators at weeks two, four, and six of the study (I will send these to you). There is no need for you to complete the Motivations study.

Even though responses from you, your local coordinators, and the Master Gardeners in your state are important to the study, this is an optional survey. To opt out, simply email me that your state will not participate and that you do not wish to receive additional reminders about the project.

Extension Master Gardener (EMG) responses to the Motivations survey will remain confidential. Information gleaned will be maintained by the State Program Office of the Georgia Master Gardener Extension Volunteer Program. The results of the research study may be published, but EMG names or any individual identifying information will not be used. In fact, the published results will be presented in summary form only.

In return for participating in the survey process, state coordinators will receive the data for their state, complete with information specific to each participating county to the extent that EMGs participate in the study. The findings from this project may provide information on management of Extension volunteer programs. There are no known risks or discomforts associated with this research.

If you have any questions about this research project, please feel free to call me at 770-412-4766 or send an e-mail to sdorn@uga.edu. Questions or concerns about your rights as a research participant should be directed to The Chairperson, University of Georgia Institutional Review Board; telephone (706) 542-3199; email address irb@uga.edu.

By completing and submitting the state coordinator questionnaire and distributing the Motivations survey to EMGs in your state, you are agreeing to participate in the above described research project.

Thank you for your consideration! Please keep this letter for your records.

Sheri Dorn
Coordinator, Georgia Master Gardener Extension Volunteer Program
University of Georgia, Griffin Campus, Horticulture Department
1109 Experiment Street, Cowart Building
Griffin GA 30223-1731

Email: sdorn@uga.edu; Tel. 770-412-4766

Of which state are you the State Coordinator for the Extension Master Gardener Volunteer Program?

Alabama (1)	Montana (26)
Alaska (2)	Nebraska (27)
Arizona (3)	Nevada (28)
Arkansas (4)	New Hampshire (29)
California (5)	New Jersey (30)
Colorado (6)	New Mexico (31)
Connecticut (7)	New York (32)
Delaware (8)	North Carolina (33)
Florida (9)	North Dakota (34)
Georgia (10)	Ohio (35)
Hawaii (11)	Oklahoma (36)
Idaho (12)	Oregon (37)
Illinois (13)	Pennsylvania (38)
Indiana (14)	Rhode Island (39)
Iowa (15)	South Carolina (40)
Kansas (16)	South Dakota (41)
Kentucky (17)	Tennessee (42)
Louisiana (18)	Texas (43)
Maine (19)	Utah (44)
Maryland (20)	Vermont (45)
Massachusetts (21)	Virginia (46)
Michigan (22)	Washington (47)
Minnesota (23)	West Virginia (48)
Mississippi (24)	Wisconsin (49)
Missouri (25)	Wyoming (50)

How long has your state had an Extension Master Gardener Volunteer Program?

- less than 10 years (1)
- 10-20 years (2)
- 21-30 years (3)
- 21-40 years (4)
- 40+ years (5)

Approximately how many current, active Extension Master Gardeners are in your state?

How many counties/parishes/townships/independent cities in your state have Extension Master Gardener Volunteer Programs? _____

In your opinion, how important are the following activities for your state's Extension Master Gardener program?

	Not at all important (1)	Slightly important (2)	Moderately important (3)	Very important (4)	Extremely important (5)	I do not know. (6)
Providing horticultural information in response to individual inquiry to help people take care of the environment and their landscape investments and gain the benefits of plants around them (i.e., plant clinics, Help Desks, telephone lines, etc.) (1)						
Presenting programs to change the behavior of individuals with emphasis on environmentally sound practices (adult and community education programs working						

cooperatively with
other agencies) (2)

Protecting the future
by teaching youth to
respect nature and the
environment through
gardening (3)

Establishing and
maintaining
demonstration
gardens or sites to
show people how to
garden successfully
while protecting the
environment (4)

Protecting our
heritage through
hands-on work and
maintenance of
historic and public
gardens (5)

Enhancing the quality
of life for elderly,
disabled, and other
special populations
through horticultural
therapy programs (6)

Has a study of EMG motivations (i.e., why Master Gardeners volunteer) ever been conducted in your state?

- No (1)
- I do not know. (2)
- Yes (3)

If a study of EMG motivations has been conducted in your state, when was it conducted?

- within the last year (1)
- 2-5 years ago (2)
- 6-10 years ago (3)
- more than 10 years ago (4)
- I don't recall, but I know a study was conducted. (5)

I will send the Motivations survey...

- directly to Extension Master Gardener Volunteers (1)
- to local Master Gardener Coordinators to distribute to Extension Master Gardener Volunteers (2)
- other (3) _____

How many Extension Master Gardeners, both current and inactive, do you estimate will receive the Motivations survey materials in your state? _____

Did you forward to local coordinators and Master Gardeners the introductory email sent last week?

- No (1)
- Yes (2)

If you sent the introductory email last week, approximately how many bounces or returned emails did you receive back? _____

How long have you been the state Master Gardener coordinator? _____

How would you describe your state coordinator position? Check all that apply.

- paid -- I receive a paycheck (1)
- nonpaid -- I volunteer as the state coordinator (2)
- full time (40+ hours per week) (3)
- part time (less than 40 hours per week) (4)
- other (5) _____

What percentage your job (full-time equivalent basis) is designated to coordinating the statewide Extension Master Gardener program? _____

How would you rate your job satisfaction as the state Master Gardener Coordinator?

- Extremely dissatisfied (1)
- Moderately dissatisfied (2)
- Slightly dissatisfied (3)
- Neither satisfied nor dissatisfied (4)
- Slightly satisfied (5)
- Moderately satisfied (6)
- Extremely satisfied (7)

In what year were you born? _____

With which gender do you identify?

- Male (1)
- Female (2)

Please indicate the race/ethnicity with which you identify (check all that apply):

- White (1)
- Black or African American (2)
- American Indian, Native American, or Alaska Native (3)
- Asian (4)
- Native Hawaiian or Pacific Islander (5)
- Latino (6)
- Mixed (7)
- Other (8)

What is your relationship status?

- single, never married (1)
- married (2)
- divorced (3)
- widowed (4)
- separated (5)

Do you have children?

- No (1)
- Yes (2)

What is your current work status?

- work outside the home full time (1)
- work outside the home part time (2)
- work from home full time (3)
- work from home part time (4)
- do not work outside the home (5)
- retired (6)

What is the highest level of education/schooling you have attained?

- Some high school (1)
- High School diploma or GED (2)
- Some college or university (3)
- Associate's Degree (4)
- Technical program/Professional degree (5)
- Bachelor's Degree (6)
- Graduate Degree (7)

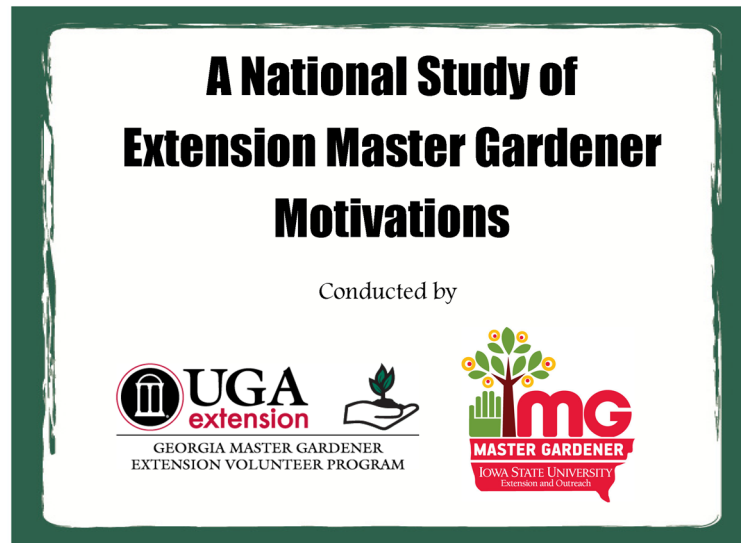
By completing and submitting the state coordinator Motivations questionnaire and distributing the survey to EMGs in your state, you are agreeing to participate in the above described research project. Name (1) _____

Thank you for contributing to this important study! The Motivations survey will close December 5, 2016. Results will be tabulated and shared with state coordinators in 2017.

Sheri Dorn
Coordinator, Georgia Master Gardener Extension Volunteer Program
University of Georgia
Griffin Campus, Horticulture Department
1109 Experiment Street, Cowart Building
Griffin GA 30223-1731
Email: sdorn@uga.edu
Tel. 770-412-4766

Appendix C

2016 LOCAL COORDINATOR SURVEY FOR MOTIVATIONS STUDY



Dear Local Master Gardener Coordinator:

I am the State Coordinator of the Georgia Master Gardener Extension Volunteer Program at The University of Georgia, working in partnership with other faculty at The University of Georgia and Iowa State University. Together, we invite you to participate in a research study entitled “A National Study of Motivations of Extension Master Gardener Volunteers,” referred to as the Motivations study (IRB-approved Study 00003567). This quantitative study of Extension Master Gardeners (EMGs) in the United States creates a snapshot in time and space of the EMG volunteer program. Monitoring trends on regional and national levels creates potential for collaborations between Extension programs and maximization of resources. Comparison of results to those in previous studies can help identify changing needs and trends in EMG programs.

The Motivations study survey instrument is an online Qualtrics survey intended for completion by individuals meeting current and inactive Extension Master Gardener status requirements as defined here:

- Current, active EMGV – an individual who has completed the certification process to be an Extension Master Gardener Volunteer and who is currently (this year or reporting period) meeting their state’s requirements for active status by volunteering in support of Extension-approved projects. (Excludes individuals who have trained in 2016.)
- Inactive EMGV -- an individual who has completed the certification process to be an Extension Master Gardener Volunteer and in the last year has not met their

state's requirements for active status by volunteering in support of Extension-approved projects

As a local coordinator, you are asked to participate in three ways. First, I ask you to complete this simple online survey about your state EMG program. While this survey is not anonymous, the results will remain confidential and be used in summary form, largely to approximate a response rate at the close of the Motivations study (i.e., 50% of the counties with EMG programs in your state responded). Second, I ask you to distribute the Motivations survey materials (following) to EMGs in your local program. It is preferred that you send the information directly to current and inactive Extension Master Gardeners through your statewide recordkeeping system or email distributions lists. Please send the materials to local EMGs right away. Third, please distribute survey reminders to EMGs at weeks two, four, and six of the study (I will send these to you). There is no need for you to complete the Motivations study unless you are a current or inactive Extension Master Gardener.

Even though responses from you and the Master Gardeners in your state are important to the study, this is an optional survey. To opt out, simply delete this message and do not respond to the survey link. If you receive additional reminders about the project and you do not wish to participate, simply delete them.

Extension Master Gardener (EMG) responses to the Motivations survey will remain confidential. Information gleaned will be maintained by the State Program Office of the Georgia Master Gardener Extension Volunteer Program. The results of the research study may be published, but EMG names or any individual identifying information will not be used. In fact, the published results will be presented in summary form only.

In return for participating in the survey process, state coordinators will receive the data for their state, complete with information specific to each participating county to the extent that EMGs participate in the study. The findings from this project may provide information on management of Extension volunteer programs. There are no known risks or discomforts associated with this research.

If you have any questions about this research project, please feel free to call me at 770-412-4766 or send an e-mail to sdorn@uga.edu. Questions or concerns about your rights as a research participant should be directed to The Chairperson, University of Georgia Institutional Review Board; telephone (706) 542-3199; email address irb@uga.edu.

By completing and submitting the state coordinator questionnaire and distributing the survey to EMGs in your state, you are agreeing to participate in the above described research project.

Thank you for your consideration! Please keep this letter for your records.

Sincerely,
Sheri Dorn
Coordinator, Georgia Master Gardener Extension Volunteer Program
University of Georgia
Griffin Campus, Horticulture Department
1109 Experiment Street, Cowart Building
Griffin GA 30223-1731

Email: sdorn@uga.edu
Tel. 770-412-4766

In which state are you a local Extension Master Gardener program coordinator?

Alabama (1)	Rhode Island (39)
Alaska (2)	South Carolina (40)
Arizona (3)	South Dakota (41)
Arkansas (4)	Tennessee (42)
California (5)	Texas (43)
Colorado (6)	Utah (44)
Connecticut (7)	Vermont (45)
Delaware (8)	Virginia (46)
Florida (9)	Washington (47)
Georgia (10)	West Virginia (48)
Hawaii (11)	Wisconsin (49)
Idaho (12)	Wyoming (50)
Illinois (13)	
Indiana (14)	
Iowa (15)	
Kansas (16)	
Kentucky (17)	
Louisiana (18)	
Maine (19)	
Maryland (20)	
Massachusetts (21)	
Michigan (22)	
Minnesota (23)	
Mississippi (24)	
Missouri (25)	
Montana (26)	
Nebraska (27)	
Nevada (28)	
New Hampshire (29)	
New Jersey (30)	
New Mexico (31)	
New York (32)	
North Carolina (33)	
North Dakota (34)	
Ohio (35)	
Oklahoma (36)	
Oregon (37)	
Pennsylvania (38)	

In your opinion, how important are the following activities for your state's Extension Master Gardener program?

	Not at all important (1)	Slightly important (2)	Moderately important (3)	Very important (4)	Extremely important (5)	I do not know. (6)
Providing horticultural information in response to individual inquiry to help people take care of the environment and their landscape investments and gain the benefits of plants around them (i.e., plant clinics, Help Desks, telephone lines, etc.) (1)						
Presenting programs to change the behavior of individuals with emphasis on environmentally sound practices (adult and community education programs working cooperatively with other agencies) (2)						
Protecting the future by teaching youth to respect nature and the environment through gardening (3)						
Establishing and maintaining demonstration gardens or sites to show people how to garden successfully while protecting the environment (4)						
Protecting our heritage through hands-on work and maintenance of historic and public gardens (5)						
Enhancing the quality of life for elderly, disabled, and other special populations through horticultural therapy programs (6)						

For which county(ies)/parish/township/independent city do you have responsibility?

How long has there been an Extension Master Gardener Volunteer Program in your county/parish/township/independent city?

- less than 10 years (1)
- 10-20 years (2)
- 21-30 years (3)
- 21-40 years (4)
- 40+ years (5)

Approximately how many Extension Master Gardeners are in your county/parish/township/independent city? _____

I will send the Motivations survey...

- directly to Extension Master Gardener Volunteers (1)
- other (2) _____

How many Extension Master Gardeners, both current and inactive, do you estimate will receive the Motivations survey materials in your state? _____

Did you forward to local coordinators and Master Gardeners the introductory email sent last week?

- No (1)
- Yes (2)

If you sent the introductory email last week, approximately how many bounces or returned emails did you receive back? _____

How long have you been a local Master Gardener coordinator? _____

How would you describe your local coordinator position? Check all that apply.

- paid -- I receive a paycheck (1)
- nonpaid -- I volunteer as the local coordinator (2)
- full time (40+ hours per week) (3)
- part time (less than 40 hours per week) (4)
- other (5) _____

What percentage of your job (full-time equivalent basis) is designated to coordinating the local Extension Master Gardener program? _____

How would you rate your job satisfaction as the local Master Gardener Coordinator?

- Extremely dissatisfied (1)
- Moderately dissatisfied (2)
- Slightly dissatisfied (3)
- Neither satisfied nor dissatisfied (4)

- Slightly satisfied (5)
- Moderately satisfied (6)
- Extremely satisfied (7)

In what year were you born? _____

With which gender do you identify?

- Male (1)
- Female (2)

Please indicate the race/ethnicity with which you identify (check all that apply):

- White (1)
- Black or African American (2)
- American Indian, Native American, or Alaska Native (3)
- Asian (4)
- Native Hawaiian or Pacific Islander (5)
- Latino (6)
- Mixed (7)
- Other (8)

What is your relationship status?

- single, never married (1)
- married (2)
- divorced (3)
- widowed (4)
- separated (5)

Do you have children?

- No (1)
- Yes (2)

What is your current work status?

- work outside the home full time (1)
- work outside the home part time (2)
- work from home full time (3)
- work from home part time (4)
- do not work outside the home (5)
- retired (6)

What is the highest level of education/schooling you have attained?

- Some high school (1)
- High School diploma or GED (2)
- Some college or university (3)
- Associate's Degree (4)
- Technical program/Professional degree (5)
- Bachelor's Degree (6)

- Graduate Degree (7)

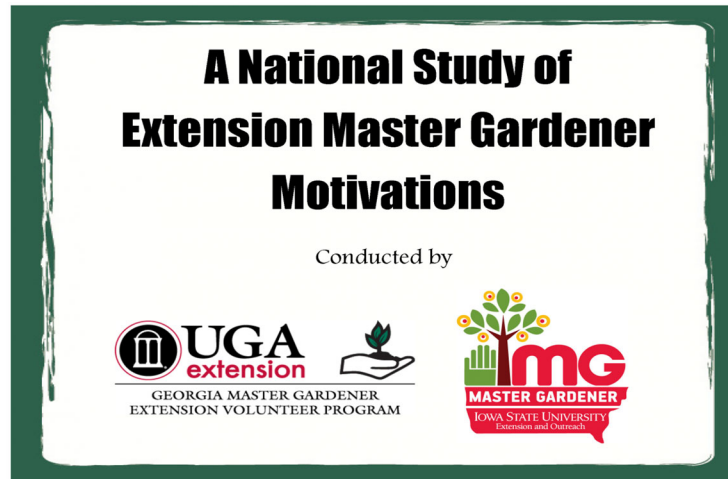
By completing and submitting the local Master Gardener coordinator Motivations questionnaire and distributing the survey to EMGs in your state, you are agreeing to participate in the above described research project. Name (1) _____

Thank you for contributing to this important study! The Motivations survey will close December 5, 2016. Results will be tabulated and shared with state coordinators in 2017.

Sheri Dorn
Coordinator, Georgia Master Gardener Extension Volunteer Program
University of Georgia, Griffin Campus, Horticulture Department
1109 Experiment Street, Cowart Building
Griffin GA 30223-1731
Email: sdorn@uga.edu
Tel. 770-412-4766

Appendix D

2016 MASTER GARDENER EXTENSION VOLUNTEER SURVEY FOR MOTIVATIONS STUDY



Dear Master Gardener:

I am the State Coordinator of the Georgia Master Gardener Extension Volunteer Program at The University of Georgia, working in partnership with other faculty at The University of Georgia and Iowa State University. Together, we invite you to participate in a research study entitled “A National Study of Motivations of Extension Master Gardener Volunteers,” referred to as the Motivations study (IRB-approved Study 00003567). This quantitative study of Extension Master Gardeners (EMGs) in the United States creates a snapshot in time and space of the EMG volunteer program. Monitoring trends on regional and national levels creates potential for collaborations between Extension programs and maximization of resources. Comparison of results to those in previous studies can help identify changing needs and trends in EMG programs.

The Motivations study survey instrument is an online Qualtrics survey intended for completion by individuals meeting current and inactive EMG status requirements.

- Current, active EMGV – an individual who has completed the certification process to be an Extension Master Gardener Volunteer and who is currently (this year or reporting period) meeting their state’s requirements for active status by volunteering in support of Extension-approved projects. (Excludes individuals who have trained in 2016.)
- Inactive EMGV -- an individual who has completed the certification process to be an Extension Master Gardener Volunteer and in the last year has not met their state’s requirements for active status by volunteering in support of Extension-approved projects

Completion of this online Motivations survey should take about 30 minutes. The survey uses Qualtrics survey software to present the questions and collect responses. You can respond to the survey using a tablet or computer. Accessing the survey link is not harmful to your computer. To participate, simply click on the arrow

(below). It will take you directly to an online survey where you simply click your responses or type in short answers.

Involvement in the study is voluntary, and you may choose not to participate or to stop at any time without penalty or loss of benefits to which you are otherwise entitled. Even though your responses are important to the study, this is an optional survey. To opt out, simply delete this message and do not respond to the survey link. If you receive additional reminders about the project and you do not wish to participate, simply delete them. If you decide to stop or withdraw from the study, the information/data collected from or about you up to the point of your withdrawal will be kept as part of the study and may continue to be analyzed. The survey will be open for two months (October – December 2016), and the survey will close on December 5, 2016.

While there is a limit to the anonymity that can be guaranteed due to technology of Internet communications itself, standard procedures will be employed. In addition, the only identifiable information being collected will be the IP address of the computer you use to fill out the survey and all IP addresses will be stripped from this data. Information gleaned will be maintained by the State Program Office of the Georgia Master Gardener Extension Volunteer Program. The results of the research study may be published, but your name or any individual identifying information will not be used. In fact, the published results will be presented in summary form only. The findings from this project may provide information on management of Extension volunteer programs.

There are no known risks or discomforts associated with this research. If you have any questions about this research project, please feel free to call me at 770-412-4766 or send an e-mail to sdorn@uga.edu. Questions or concerns about your rights as a research participant should be directed to The Chairperson, University of Georgia Institutional Review Board; telephone (706) 542-3199; email address irb@uga.edu. By completing and submitting the Motivations survey, you are agreeing to participate in the above described research project.

Thank you for your consideration! Please keep this letter for your records.

Sincerely,



Sheri Dorn
Coordinator, Georgia Master Gardener Extension Volunteer Program
University of Georgia Griffin Campus, Horticulture Department
1109 Experiment Street, Cowart Building
Griffin GA 30223-1731
Email: sdorn@uga.edu
Tel. 770-412-4766

PART A. First, please tell me about your Extension Master Gardener Volunteer (EMGV) background and experience.

What year did you take the Extension Master Gardener (EMG) core course training?	
In which state are you currently volunteering as an Extension Master Gardener Volunteer (EMGV)?	
In which county(ies) of your state do you volunteer as an Extension Master Gardener Volunteer (EMGV)?	
What is the zip code where you live?	
Since becoming a certified EMGV, how many years have you been active in the Extension Master Gardener (EMG) program? (enter the number of years of active service)	
In 2015, did you meet your state's requirements to be an active EMGV?	no yes
IF NOT ACTIVE IN 2015, please check the primary reason you are no longer volunteering as an EMG. Personal (e.g., health, family, etc.) The program did not meet my expectations I did not learn enough about horticulture I do not have the time to volunteer The volunteer opportunities did not meet my expectations The cost of the program became too high Privacy issues/background check Ineffective coordination at the local level other _____	
IF NOT ACTIVE IN 2015, what, if anything, could we have done differently (at the state or county level) to have kept you in the program?	
I plan to continue as an active Extension Master Gardener Volunteer next year.	no yes
IF YOU DO NOT PLAN TO BE ACTIVE NEXT YEAR: Please check the primary reason you do not plan to be an active EMGV next year. • Personal (e.g., health, family, etc.) • The program did not meet my expectations • I did not learn enough about horticulture • I do not have the time to volunteer • The volunteer opportunities did not meet my expectations • The cost of the program became too high	

• Privacy issues/background check • Ineffective coordination at the local level • other _____	
In 2015, how many hours of volunteer service did you commit to the Extension Master Gardener Program?	
How satisfied are you with your experience as an Extension Master Gardener Volunteer?	• Extremely dissatisfied (1) • Moderately dissatisfied • Slightly dissatisfied • Neither satisfied nor dissatisfied • Slightly satisfied • Moderately satisfied • Extremely satisfied
Would you recommend the Extension Master Gardener Volunteer experience to others?	• No • Maybe • Yes
Please tell me about your local program (where you volunteer).	
How would you classify the local Extension Master Gardener program where you volunteer?	• urban (densely developed areas; population more than 50,000; residential, commercial, and other non-residential urban land uses) • suburban (residential areas outlying a larger city or community, population between 2500 and 50,000) • rural (open and spread out areas of population less than 2500 where people live and work)
Based on your experience, how would you rate your local Extension Master Gardener Volunteer program?	• Terrible • Poor • Average • Good • Excellent

Thinking of your current local Master Gardener program coordinator, please answer the following questions. My coordinator is...

	Never	Rarely	Sometimes	Often
welcoming/friendly				
organized				
available				
knowledgeable/informed				
responsive				
supportive/encouraging				

What improvements would you suggest at the local program level?

Please indicate your involvement as an EMGV (if any) in the following volunteer and/or community service opportunities.

	Never	Sometimes	About half the time	Most of the time	Always
Serve on advisory board/committee (1)					
Answer clientele questions one-on-one (2)					
Answer horticulture-related phone calls during scheduled hours at an Extension office (3)					
Assist 4-Hers with garden projects (4)					
Host garden shows (5)					
Assist with community Arbor Day festivities (6)					
Assist with community solid waste reduction programs (7)					
Conduct educational meetings and/or workshops for youth (8)					
Conduct educational meetings and/or workshops for adults (9)					
Coordinate or organize local farmers' market (10)					
Conduct experiments/collect research data (11)					
Coordinate gardening project at correctional facility (12)					
Help at University/Extension gardens and demonstration plots (13)					

	Never	Sometimes	About half the time	Most of the time	Always
Help at public parks, arboretums, botanical gardens, and historic sites (14) Write/compile Extension publications, such as Fact Sheets (15) Conduct youth/school programs (16) Organize and/or staff displays or booths at lawn and garden shows (17) Participate in radio and/or TV programs (18) Judge contests, fairs, etc. (19) Serve as a Extension Master Gardener volunteer coordinator (20) Write a local Extension Master Gardener newsletter (21) Contribute horticulture articles for a column in local paper (22) Coordinate and/or work at a community garden (23) Create and/or staff educational exhibits (24) Prepare and share to the public presentations on gardening topics (25) Offer Garden consultation and advising (26) Write about horticultural topics for Internet website, Extension blog, or other social media (e.g., Facebook or Twitter) (27) Conduct home visits/consultations (28) Supervise youth garden club (29) Conduct horticulture therapy projects (e.g., hospitals, retirement homes, assisted living, etc.) (30) Provide clerical support at Extension office (31) Participate in garden planting and maintenance (32) Staff plant clinics (33) Fundraising/plant sales (34) Other (35)					

Please indicate those projects for which you have a leadership role as an EMGV (if any):

	I have a leadership position with this project.
Serve on advisory board/committee (1)	

	I have a leadership position with this project.
Answer clientele questions one-on-one (2) Answer horticulture-related phone calls during scheduled hours at an Extension office (3) Assist 4-Hers with garden projects (4) Host garden shows (5) Assist with community Arbor Day festivities (6) Assist with community solid waste reduction programs (7) Conduct educational meetings and/or workshops for youth (8) Conduct educational meetings and/or workshops for adults (9) Coordinate or organize local farmers' market (10) Conduct experiments/collect research data (11) Coordinate gardening project at correctional facility (12) Help at University/Extension gardens and demonstration plots (13) Help at public parks, arboretums, botanical gardens, and historic sites (14) Write/compile Extension publications, such as Fact Sheets (15) Conduct youth/school programs (16) Organize and/or staff displays or booths at lawn and garden shows (17) Participate in radio and/or TV programs (18) Judge contests, fairs, etc. (19) Serve as a Extension Master Gardener volunteer coordinator (20) Write a local Extension Master Gardener newsletter (21) Contribute horticulture articles for a column in local paper (22) Coordinate and/or work at a community garden (23) Create and/or staff educational exhibits (24) Prepare and share to the public presentations on gardening topics (25) Offer Garden consultation and advising (26) Write about horticultural topics for Internet website, Extension blog, or other social media (e.g., Facebook or Twitter) (27) Conduct home visits/consultations (28) Supervise youth garden club (29) Conduct horticulture therapy projects (e.g., hospitals, retirement homes, assisted living, etc.) (30) Provide clerical support at Extension office (31) Participate in garden planting and maintenance (32) Staff plant clinics (33) Fundraising/plant sales (34)	

	I have a leadership position with this project.
Other (35)	

What do you think is the single most important thing you have accomplished as an Extension Master Gardener Volunteer?

In your opinion, how important are each of the following Extension Master Gardener activities to your community?

	Never	Sometimes	About half the time	Most of the time	Always
Serve on advisory board/committee (1)					
Answer clientele questions one-on-one (2)					
Answer horticulture-related phone calls during scheduled hours at an Extension office (3)					
Assist 4-Hers with garden projects (4)					
Host garden shows (5)					
Assist with community Arbor Day festivities (6)					
Assist with community solid waste reduction programs (7)					
Conduct educational meetings and/or workshops for youth (8)					
Conduct educational meetings and/or workshops for adults (9)					
Coordinate or organize local farmers' market (10)					
Conduct experiments/collect research data (11)					
Coordinate gardening project at correctional facility (12)					
Help at University/Extension gardens and demonstration plots (13)					
Help at public parks, arboretums, botanical gardens, and historic sites (14)					
Write/compile Extension publications, such as Fact Sheets (15)					
Conduct youth/school programs (16)					

	Never	Sometimes	About half the time	Most of the time	Always
Organize and/or staff displays or booths at lawn and garden shows (17)					
Participate in radio and/or TV programs (18)					
Judge contests, fairs, etc. (19)					
Serve as a Extension Master Gardener volunteer coordinator (20)					
Write a local Extension Master Gardener newsletter (21)					
Contribute horticulture articles for a column in local paper (22)					
Coordinate and/or work at a community garden (23)					
Create and/or staff educational exhibits (24)					
Prepare and share to the public presentations on gardening topics (25)					
Offer Garden consultation and advising (26)					
Write about horticultural topics for Internet website, Extension blog, or other social media (e.g., Facebook or Twitter) (27)					
Conduct home visits/consultations (28)					
Supervise youth garden club (29)					
Conduct horticulture therapy projects (e.g., hospitals, retirement homes, assisted living, etc.) (30)					
Provide clerical support at Extension office (31)					
Participate in garden planting and maintenance (32)					
Staff plant clinics (33)					
Fundraising/plant sales (34)					
Other (35)					

What do you think is the single most important contribution that the Extension Master Gardener program has made in your community?

Please tell me about the Extension Master Gardener program in your state.

In your opinion, how important are the following activities for your state's Extension Master Gardener program?

	Not at all important	Slightly important	Moderately important	Very important	Extremely important	I do not know.
Providing horticultural information in response to individual inquiry to help people take care of the environment and their landscape investments and gain the benefits of plants around them (i.e., plant clinics, Help Desks, telephone lines, etc.) (1) Presenting programs to change the behavior of individuals with emphasis on environmentally sound practices (adult and community education programs working cooperatively with other agencies) (2) Protecting the future by teaching youth to respect nature and the environment through gardening (3) Establishing and maintaining demonstration gardens or sites to show people how to garden successfully while protecting the environment (4) Protecting our heritage through hands-on work and maintenance of historic and public gardens (5) Enhancing the quality of life for elderly, disabled, and other special populations through horticultural therapy programs (6)						

In your opinion, what is needed for the future direction of the Extension Master Gardener program in your state? Number your responses in the order that you feel is the priority.

- _____ No changes necessary. It is right on target just the way it is.
- _____ Needs a shift in programming priorities to remain relevant and meet local educational needs
- _____ Shift in recruitment strategies to diversify the EMG volunteer base

- _____ Changes in training strategies used to prepare volunteers for service
- _____ Different service opportunities that better match what volunteers are looking for
- _____ Other

PART B. Next, please tell me why you volunteer as an Extension Master Gardener Volunteer.

Please evaluate your reasons for volunteering by indicating how important each is for you with regard to your experience in the Extension Master Gardener program. Select only one choice for each question asked.

	Not at all important	Slightly important	Moderately important	Very important	Extremely important
Volunteering as an Extension Master Gardener (EMG) can help me get my foot in the door at a place where I would like to work. (1)					
My friends volunteer as EMGs. (2)					
I am concerned about those less fortunate than myself. (3)					
People I am close to want me to volunteer as an EMG. (4)					
Volunteering as an EMG makes me feel important. (5)					
People I know share an interest in community service. (6)					
No matter how bad I've been feeling, volunteering as an EMG helps me to forget about it. (7)					
I am genuinely concerned about the home gardeners I am serving. (8)					
By volunteering as an EMG, I feel less lonely. (9)					
Through the EMG program, I can make new contacts that might help my business career. (10)					
Doing EMG volunteer work relieves me of some of the guilt over being more fortunate than others. (11)					
I can learn more about horticulture and home gardening. (12)					
Volunteering as an EMG increases my self esteem. (13)					
Volunteering as an EMG allows me to gain a new perspective on things. (14)					
The EMG program allows me to explore different career options. (15)					

Please evaluate your reasons for volunteering by indicating how important each is for you with regard to your experience in the Extension Master Gardener program. Select only one choice for each question asked.

	Not at all important	Slightly important	Moderately important	Very important	Extremely important
I feel compassion toward people in need. (1)					
Others with whom I am close place a high value on community service. (2)					
Volunteering as an EMG lets me learn horticulture through direct, hands-on experience. (3)					
I feel it is important to help others. (4)					
Volunteering as an EMG helps me to work through my own personal problems. (5)					
As an EMG, I can do something for a horticultural cause that is important to me. (6)					
Volunteering is an important activity to the people that I know best. (7)					
Volunteering as an EMG is a good escape from my own troubles. (8)					
I can learn how to deal with a variety of people as an EMGV. (9)					
Volunteering as an EMG makes me feel needed. (10)					
Volunteering as an EMG helps me feel better about myself. (11)					
Master Gardener volunteer experience will look good on my resume. (12)					
Volunteering as an EMG is a way to make new friends. (13)					
Through the EMG program, I can explore my own strengths. (14)					
Volunteering as an EMG will help me to succeed in my chosen profession. (16) (15)					

PART C. Now, please tell me what benefits you have received from volunteering as an Extension Master Gardener Volunteer.

When volunteering as an Extension Master Gardener, ...

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I am meeting my humanitarian obligations through my EMG volunteer service. (1) I am meeting social obligations through my work. (2) By volunteering for Extension, I have been able to work through some of my own personal problems. (3) In volunteering as an EMG, I made new con-tacts that might help my business or career. (4) I have learned how to deal with a greater variety of people because of volunteering as an EMG. (5) Through volunteering as an EMG, I am doing something for horticulture and the environment. (6) My family and/or friends would be disappointed if I stopped volunteering as an EMG. (7) I have learned skills that help me with my paid work. (8) My self-esteem is enhanced by volunteering as an EMG. (9) My volunteerism has allowed me to think about my life in new ways. (10) Volunteering as an EMG allows me the opportunity to escape some of my own troubles. (11) I feel more positive about myself and my place in the world as a result of volunteering as an EMG. (12)							

PART D. We're almost done. Let's talk about some of the volunteer activities you may be asked to do as an EMG.

Following are 8 volunteer activities are typical of those EMGs are asked to provide assistance.

- **Answer client gardening questions one-on-one** – EMGs will be expected to answer questions from the public, such as during a shift at the Extension office help desk or during a plant clinic held at the Farmer's Market or local hardware store.
- **Lead a Junior Master Gardener program** – EMGs will lead gardening lessons after school at a local elementary school. Tasks involve making contact with the school, setting a schedule, planning the activities, finding supplies and resources for the activities, and recruiting other EMGs to assist.
- **Give presentations about gardening topics** – EMGs will respond to requests from the public for presentations on all types of consumer horticulture topics
- **Maintain a historic garden in the community** – EMGs will respond to a request to assist the local community in restoring and maintaining a historic garden. EMGs are asked to guide other community volunteers in the care and maintenance of the site.
- **Provide leadership to a community garden** – EMGs are asked to assist with all aspects of running a community garden, including plot rental, site maintenance, gardener recruitment, and educational outreach.
- **Clerical support at the Extension office** – EMGs are needed to help make copies, answer phone calls, type documents, and assist with various event registrations. Weekly opportunities available at regularly scheduled times.
- **Collect data for Extension research project** – EMGs are asked to follow research protocol, replicating experimental guidelines, and collect data throughout project period. EMGs are expected to report data at the end of the study.
- **Prepare written materials for Extension** about gardening topics for a local newspaper column and Extension's website and Facebook page. May include opportunity to write an Extension Fact Sheet regarding current gardening topics.

Using the list of possible EMG volunteer activities, rank each of the EMG activities in order of your preference. (1 = most preferred choice, 8 = least preferred choice)

- _____ Answer client gardening questions one-on-one
- _____ Lead a Junior Master Gardener program
- _____ Give presentations about gardening topics
- _____ Maintain a historic garden in the community
- _____ Provide clerical support at the Extension office
- _____ Conduct Extension- or University-based research project
- _____ Prepare written materials for Extension
- _____ Provide leadership to a community garden

Below are descriptions of six motives people have given for volunteering:

1. **Values** Volunteerism allows the individual to act on important values. Examples of values may include being concerned for the welfare of others and/or making a contribution toward society.
2. **Career** Volunteerism serves to increase an individual's job prospects, enable him/her to explore job opportunities, and enhance his/her career.
3. **Understanding** Volunteerism gives an opportunity to learn, understand, and practice and apply skills and abilities.
4. **Social** People volunteer because it is expected by those important to them (family, friends, etc.). Volunteering fulfills the need to behave in socially desirable ways.
5. **Protective** Volunteerism serves to lessen an individual's guilt feelings about being more fortunate than others or to escape one's problems.
6. **Esteem** Volunteering serves to enhance a person's self-esteem by making the individual feel needed and important. Thus, volunteerism serves to enhance one's self-esteem, self-confidence, or improvement of one's self.

For each of the following typical EMG volunteer activities, please indicate how the activity would satisfy your motives for volunteering.

Volunteer Activity: Answer gardening questions from clients one-on-one MGEVs will be expected to answer questions from the public, such as during a shift at the Extension office help desk or during a plant clinic held at the Farmer's Market or local hardware store.

- **Values** -- Volunteerism allows the individual to act on important values. Examples of values may include being concerned for the welfare of others and/or making a contribution toward society.
- **Career** -- Volunteerism serves to increase an individual's job prospects, enable him/her to explore job opportunities, and enhance his/her career.
- **Understanding** -- Volunteerism gives an opportunity to learn, understand, and practice and apply skills and abilities.
- **Social** -- People volunteer because it is expected by those important to them (family, friends, etc.). Volunteering fulfills the need to behave in socially desirable ways.
- **Protective** -- Volunteerism serves to lessen an individual's guilt feelings about being more fortunate than others or to escape one's problems.
- **Esteem** -- Volunteering serves to enhance a person's self-esteem by making the individual feel needed and important. Thus, volunteerism serves to enhance one's self-esteem, self-confidence, or improvement of one's self.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Answering client gardening questions one-on-one would satisfy my values motive. (1)							
Answering client gardening questions one-on-one would satisfy my career motive. (2)							
Answering client gardening questions one-on-one would satisfy my understanding motive. (3)							
Answering client gardening questions one-on-one would satisfy my social motive. (4)							
Answering client gardening questions one-on-one would satisfy my protective motive. (5)							
Answering client gardening questions one-on-one would satisfy my esteem motive. (6)							

For each of the following typical EMG volunteer activities, please indicate how the activity would satisfy your motives for volunteering.

Volunteer Activity: Lead a Junior Master Gardener program -- EMGs will lead gardening lessons after school at a local elementary school. Tasks involve making contact with the school, setting a schedule, planning the activities, finding supplies and resources for the activities, and recruiting other EMGs to assist.

- **Values** -- Volunteerism allows the individual to act on important values. Examples of values may include being concerned for the welfare of others and/or making a contribution toward society.
- **Career** -- Volunteerism serves to increase an individual's job prospects, enable him/her to explore job opportunities, and enhance his/her career.
- **Understanding** -- Volunteerism gives an opportunity to learn, understand, and practice and apply skills and abilities.
- **Social** -- People volunteer because it is expected by those important to them (family, friends, etc.). Volunteering fulfills the need to behave in socially desirable ways.
- **Protective** -- Volunteerism serves to lessen an individual's guilt feelings about being more fortunate than others or to escape one's problems.
- **Esteem** -- Volunteering serves to enhance a person's self-esteem by making the individual feel needed and important. Thus, volunteerism serves to enhance one's self-esteem, self-confidence, or improvement of one's self.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Leading a Junior Master Gardener program would satisfy my values motive. (1)							
Leading a Junior Master Gardener program would satisfy my career motive. (2)							
Leading a Junior Master Gardener program would satisfy my understanding motive. (3)							
Leading a Junior Master Gardener program would satisfy my social motive. (4)							
Leading a Junior Master Gardener program would satisfy my protective motive. (5)							
Leading a Junior Master Gardener program would							

satisfy my esteem motive. (6)							

For each of the following typical EMG volunteer activities, please indicate how the activity would satisfy your motives for volunteering.

Volunteer Activity: Giving presentations about gardening topics -- EMGs will respond to requests from the public for presentations on all types of consumer horticulture topics

- **Values** -- Volunteerism allows the individual to act on important values. Examples of values may include being concerned for the welfare of others and/or making a contribution toward society.
- **Career** -- Volunteerism serves to increase an individual's job prospects, enable him/her to explore job opportunities, and enhance his/her career.
- **Understanding** -- Volunteerism gives an opportunity to learn, understand, and practice and apply skills and abilities.
- **Social** -- People volunteer because it is expected by those important to them (family, friends, etc.). Volunteering fulfills the need to behave in socially desirable ways.
- **Protective** -- Volunteerism serves to lessen an individual's guilt feelings about being more fortunate than others or to escape one's problems.
- **Esteem** -- Volunteering serves to enhance a person's self-esteem by making the individual feel needed and important. Thus, volunteerism serves to enhance one's self-esteem, self-confidence, or improvement of one's self.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Giving presentations about gardening topics would satisfy my values motive. (1)							
Giving presentations about gardening topics would satisfy my career motive. (2)							
Giving presentations about gardening topics would satisfy my understanding motive. (3)							
Giving presentations about gardening topics would satisfy my social motive. (4)							
Giving presentations about gardening topics would satisfy my protective motive. (5)							

Giving presentations about gardening topics would satisfy my esteem motive. (6)							

For each of the following typical EMG volunteer activities, please indicate how the activity would satisfy your motives for volunteering.

Volunteer Activity: Maintain a historic garden in the community EMGs will respond to a request to assist the local community in restoring and maintaining a historic garden. EMGs are asked to guide other community volunteers in the care and maintenance of the site.

- **Values** -- Volunteerism allows the individual to act on important values. Examples of values may include being concerned for the welfare of others and/or making a contribution toward society.
- **Career** -- Volunteerism serves to increase an individual's job prospects, enable him/her to explore job opportunities, and enhance his/her career.
- **Understanding** -- Volunteerism gives an opportunity to learn, understand, and practice and apply skills and abilities.
- **Social** -- People volunteer because it is expected by those important to them (family, friends, etc.). Volunteering fulfills the need to behave in socially desirable ways.
- **Protective** -- Volunteerism serves to lessen an individual's guilt feelings about being more fortunate than others or to escape one's problems.
- **Esteem** -- Volunteering serves to enhance a person's self-esteem by making the individual feel needed and important. Thus, volunteerism serves to enhance one's self-esteem, self-confidence, or improvement of one's self.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Maintaining a historic garden in the community would satisfy my values motive. (1)							
Maintaining a historic garden in the community would satisfy my career motive. (2)							
Maintaining a historic garden in the community would satisfy my understanding motive. (3)							
Maintaining a historic garden in the community would satisfy my social motive. (4)							
Maintaining a historic garden in the community would satisfy my protective motive. (5)							

Maintaining a historic garden in the community would satisfy my esteem motive. (6)							

For each of the following typical EMG volunteer activities, please indicate how the activity would satisfy your motives for volunteering.

Volunteer Activity: Provide leadership to a community garden EMGs are asked to assist with all aspects of running a community garden, including plot rental, site maintenance, gardener recruitment, and educational outreach.

- **Values** -- Volunteerism allows the individual to act on important values. Examples of values may include being concerned for the welfare of others and/or making a contribution toward society.
- **Career** -- Volunteerism serves to increase an individual's job prospects, enable him/her to explore job opportunities, and enhance his/her career.
- **Understanding** -- Volunteerism gives an opportunity to learn, understand, and practice and apply skills and abilities.
- **Social** -- People volunteer because it is expected by those important to them (family, friends, etc.). Volunteering fulfills the need to behave in socially desirable ways.
- **Protective** -- Volunteerism serves to lessen an individual's guilt feelings about being more fortunate than others or to escape one's problems.
- **Esteem** -- Volunteering serves to enhance a person's self-esteem by making the individual feel needed and important. Thus, volunteerism serves to enhance one's self-esteem, self-confidence, or improvement of one's self.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Providing leadership to a community garden would satisfy my values motive. (1)							
Providing leadership to a community garden would satisfy my career motive. (2)							
Providing leadership to a community garden would satisfy my understanding motive. (3)							
Providing leadership to a community garden would satisfy my social motive. (4)							
Providing leadership to a community garden would satisfy my protective motive. (5)							

Providing leadership to a community garden would satisfy my esteem motive. (6)							

For each of the following typical EMG volunteer activities, please indicate how the activity would satisfy your motives for volunteering.

Volunteer Activity: Provide clerical support at the Extension office EMGs are needed to help make copies, answer phone calls, type documents, and assist with various event registrations. Weekly opportunities available at regularly scheduled times.

- **Values** -- Volunteerism allows the individual to act on important values. Examples of values may include being concerned for the welfare of others and/or making a contribution toward society.
- **Career** -- Volunteerism serves to increase an individual's job prospects, enable him/her to explore job opportunities, and enhance his/her career.
- **Understanding** -- Volunteerism gives an opportunity to learn, understand, and practice and apply skills and abilities.
- **Social** -- People volunteer because it is expected by those important to them (family, friends, etc.). Volunteering fulfills the need to behave in socially desirable ways.
- **Protective** -- Volunteerism serves to lessen an individual's guilt feelings about being more fortunate than others or to escape one's problems.
- **Esteem** -- Volunteering serves to enhance a person's self-esteem by making the individual feel needed and important. Thus, volunteerism serves to enhance one's self-esteem, self-confidence, or improvement of one's self.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Providing clerical support at the Extension office would satisfy my values motive. (1)							
Providing clerical support at the Extension office would satisfy my career motive. (2)							
Providing clerical support at the Extension office would satisfy my understanding motive. (3)							
Providing clerical support at the Extension office would satisfy my social motive. (4)							
Providing clerical support at the Extension office would satisfy my protective motive. (5)							

Providing clerical support at the Extension office would satisfy my esteem motive. (6)							

For each of the following typical EMG volunteer activities, please indicate how the activity would satisfy your motives for volunteering.

Volunteer Activity: Conducting an Extension- or University-based research project EMGs are asked to follow research protocol, replicating experimental guidelines, and collect data throughout project period. EMGs are expected to report data at the end of the study.

- **Values** -- Volunteerism allows the individual to act on important values. Examples of values may include being concerned for the welfare of others and/or making a contribution toward society.
- **Career** -- Volunteerism serves to increase an individual's job prospects, enable him/her to explore job opportunities, and enhance his/her career.
- **Understanding** -- Volunteerism gives an opportunity to learn, understand, and practice and apply skills and abilities.
- **Social** -- People volunteer because it is expected by those important to them (family, friends, etc.). Volunteering fulfills the need to behave in socially desirable ways.
- **Protective** -- Volunteerism serves to lessen an individual's guilt feelings about being more fortunate than others or to escape one's problems.
- **Esteem** -- Volunteering serves to enhance a person's self-esteem by making the individual feel needed and important. Thus, volunteerism serves to enhance one's self-esteem, self-confidence, or improvement of one's self.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Conducting an Extension- or University-based research project would satisfy my values motive. (1)							
Conducting an Extension- or University-based research project would satisfy my career motive. (2)							
Conducting an Extension- or University-based research project would satisfy my understanding motive. (3)							
Conducting an Extension- or University-based research project would satisfy my social motive. (4)							
Conducting an Extension- or University-based research project would satisfy my protective motive. (5)							

Conducting an Extension- or University-based research project would satisfy my esteem motive. (6)							

For each of the following typical EMG volunteer activities, please indicate how the activity would satisfy your motives for volunteering.

Volunteer Activity: Preparing written materials for Extension Prepare written materials for Extension about gardening topics for a local newspaper column and Extension’s website and Facebook page. May include opportunity to write an Extension Fact Sheet regarding current gardening topics.

- **Values** -- Volunteerism allows the individual to act on important values. Examples of values may include being concerned for the welfare of others and/or making a contribution toward society.
- **Career** -- Volunteerism serves to increase an individual’s job prospects, enable him/her to explore job opportunities, and enhance his/her career.
- **Understanding** -- Volunteerism gives an opportunity to learn, understand, and practice and apply skills and abilities.
- **Social** -- People volunteer because it is expected by those important to them (family, friends, etc.). Volunteering fulfills the need to behave in socially desirable ways.
- **Protective** -- Volunteerism serves to lessen an individual’s guilt feelings about being more fortunate than others or to escape one’s problems.
- **Esteem** -- Volunteering serves to enhance a person’s self-esteem by making the individual feel needed and important. Thus, volunteerism serves to enhance one’s self-esteem, self-confidence, or improvement of one’s self.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Preparing written materials for Extension would satisfy my values motive. (1)							
Preparing written materials for Extension would satisfy my career motive. (2)							
Preparing written materials for Extension would satisfy my understanding motive. (3)							
Preparing written materials for Extension would satisfy my social motive. (4)							
Preparing written materials for Extension would satisfy my protective motive. (5)							
Preparing written materials for Extension would satisfy my esteem motive. (6)							

PART E. A few last questions...

In what year were you born?	
With which gender do you identify?	Male Female
44 Please indicate the race/ethnicity with which you identify (check all that apply):	White Black or African American American Indian, Native American, or Alaska Native Asian Native Hawaiian or Pacific Islander Latino Mixed Other
What is your relationship status?	single, never married married divorced widowed separated
Do you have children?	No Yes
What is your annual household income level?	under \$25,000 \$25,000 - \$49,999 \$50,000 - \$99,999 \$100,000 - \$149,999 \$150,000 - \$199,999 \$200,000 or more
What is your current work status?	work outside the home full time work outside the home part time work from home full time work from home part time do not work outside the home retired
What is the highest level of education/schooling you have attained?	Some high school High School diploma or GED Some college or university Associate's Degree Technical program/ Professional degree Bachelor's Degree Graduate Degree

This concludes the survey questions.
Thank you for participating in the Extension Master Gardener Motivations study!

Please mail your completed survey by December 5, 2016, to:

Sheri Dorn
University of Georgia
1109 Experiment Street, Cowart Building
Griffin GA 30223-1731

Appendix E

REMINDER MESSAGES SENT AT WEEK 2 (OCTOBER 17, 2016)

Dear State Master Gardener Coordinators:

Two weeks ago, we introduced “A National Study of Motivations of Extension Master Gardeners” that is being conducted by faculty at the University of Georgia and Iowa State University (IRB-approved Study 00003567). The results of this national study have the potential to benefit all of us, and we need your help to make it happen! Thank you to each of you who have already completed the state Master Gardener coordinator survey and encouraged local coordinators and Extension Master Gardener Volunteers to participate, as well.

If you haven’t yet participated, please do so! To participate in the National Study of Motivations of Extension Master Gardener Volunteers,” referred to as the Motivations study:

1. Click this link to complete the state Extension Master Gardener coordinator questionnaire: <http://tinyurl.com/StateMGCoordinator>
2. Write a personal note of support for the study (example included below) and forward the message (below) to ask local coordinators to participate

OR

send the last message block directly to current and inactive Extension Master Gardeners for them to participate in the Motivations study.

In return for helping us launch this survey, you will receive results specific to your state and counties that participate. You will learn information about your EMG volunteers that will help you coordinate and develop your EMG program. Additionally, the study has the potential of identifying additional tools to select individuals who are good matches for your EMG volunteer program.

Thank you, in advance, for your support and assistance!

Sincerely,

Sheri

Sheri Dorn

Coordinator, Georgia Master Gardener Extension Volunteer Program
University of Georgia

Griffin Campus, Horticulture Department
1109 Experiment Street, Cowart Building
Griffin GA 30223-1731
Email: sdorn@uga.edu
Tel. 770-412-4766

(Please forward the message below on to your local EMG program coordinators with a note of encouragement for them to redirect the message to their local EMG volunteers)

Dear Local Extension Master Gardener Coordinators,

Our state has been asked to contribute to a national study of Extension Master Gardener volunteers that is being conducted by University of Georgia and Iowa State University. I sent you the links and materials to forward to your Extension Master Gardener Volunteers. Thank you to each of you who have already completed the local Master Gardener coordinator survey and encouraged local Extension Master Gardener Volunteers to participate, as well.

If you haven't yet participated, please do so! Complete the local coordinator questionnaire, and then send the email message (below) to your local Extension Master Gardener volunteers. This is a legitimate study and one in which I encourage you to participate.

Below, you will find a note of reminder to you from the people conducting the survey as well as note to forward on to your Master Gardener volunteers. Please send on to current and inactive Master Gardeners in your local programs.

Thank you for supporting this project!

[insert your signature line]

PS: Consider offering Master Gardeners volunteer service credit for the time spent completing the survey.

Dear Local Master Gardener Coordinator,

Two weeks ago, we introduced "A National Study of Motivations of Extension Master Gardeners" that is being conducted by faculty at the University of Georgia and Iowa State University (IRB-approved Study 00003567). The results of this national study have the potential to benefit all of us, and we need your help to make it happen! Thank you to each of you who have already completed the local Master Gardener coordinator survey and encouraged local Extension Master Gardener Volunteers to participate, as well.

If you haven't yet participated, please do so! To participate in the National Study of Motivations of Extension Master Gardener Volunteers," referred to as the Motivations study:

Click this link to complete the local Extension Master Gardener coordinator questionnaire: <http://tinyurl.com/LocalMGCoordinator>

Write a personal note of support for the study (example included below) and send the message (below) directly to current and inactive Extension Master Gardeners for them to participate in the Motivations study.

In return for helping us launch this survey, you will receive results specific to your state and counties that participate. You will learn information about your EMG volunteers that will help you coordinate and develop your EMG program. Additionally, the study has the potential of identifying additional tools to select individuals who are good matches for your EMG volunteer program.

Thank you, in advance, for your support and assistance!

Sincerely,

Sheri

Sheri Dorn

Coordinator, Georgia Master Gardener Extension Volunteer Program

University of Georgia

Griffin Campus, Horticulture Department

1109 Experiment Street, Cowart Building

Griffin GA 30223-1731

Email: sdorn@uga.edu

Tel. 770-412-4766

(Please forward the message below on to your local EMGs with a note of encouragement for them to participate in the study)

Dear Extension Master Gardener volunteers,

Our state has been asked to contribute to a national study of Extension Master Gardener volunteers that is being conducted by University of Georgia and Iowa State University. I shared with you the links and materials from University of Georgia and Iowa State University. Thank you to each of you who have already completed the Master Gardener Motivations survey!

If you haven't yet participated, please do so! This is a legitimate study and one in which I encourage you to participate. Below, you will find a note of reminder to you from the people conducting the survey.

Thank you for supporting this project!

[insert your signature line]

Extension Master Gardeners:

You are invited to participate in a research study entitled "A National Study of Motivations of Extension Master Gardener Volunteers," referred to as the Motivations study (IRB-approved Study 00003567), conducted by the University of Georgia and Iowa State University. This quantitative study of Extension Master Gardeners (EMGs) in the United States creates a snapshot in time and space of the EMG volunteer program. Thank you to each of you who have already completed the Master Gardener Motivations survey!

If you have not yet completed the Motivations study survey, there is still time to participate! The survey will be open until December 5, 2016. Simply click on this link to access the survey:

<http://tinyurl.com/MasterGardenerMotivations>

Completion of this online Motivations survey should take about 30 minutes. The survey uses Qualtrics survey software to present the questions and collect responses. You can respond to the survey using a tablet or computer. Accessing the survey link is not harmful to your computer.

Involvement in the study is voluntary, and you may choose not to participate or to stop at any time without penalty or loss of benefits to which you are otherwise entitled. If you decide to stop or withdraw from the study, the information/data collected from or about you up to the point of your withdrawal will be kept as part of the study and may continue to be analyzed. If you have received this reminder email and do not wish to participate, simply delete this message – there is no need to respond.

While there is a limit to the anonymity that can be guaranteed due to technology of Internet communications itself, standard procedures will be employed. In addition, the only identifiable information being collected will be the IP address of the computer you use to fill out the survey and all IP addresses will be stripped from this data.

Thank you for participating!

Sincerely,

Sheri

Sheri Dorn

Coordinator, Georgia Master Gardener Extension Volunteer Program

University of Georgia

Griffin Campus, Horticulture Department

1109 Experiment Street, Cowart Building

Griffin GA 30223-1731

Email: sdorn@uga.edu

Tel. 770-412-4766

Appendix F

REMINDER MESSAGES SENT AT WEEK 4 (OCTOBER 31, 2016)

Dear State Master Gardener Coordinators:

This fall, the University of Georgia and Iowa State University have been conducting a research study entitled “A National Study of Motivations of Extension Master Gardener Volunteers,” referred to as the Motivations study (IRB-approved Study 00003567). You are invited to be a part of this quantitative study of Extension Master Gardeners (EMGs) in the United States that will create a snapshot in time and space of the EMG volunteer program. Thank you to each of you who have already completed the Master Gardener state coordinator questionnaire and forwarded materials to local Master Gardener coordinators!

If you haven’t yet participated, please do so! The survey will be open until December 5, 2016.

To participate in the National Study of Motivations of Extension Master Gardener Volunteers,” referred to as the Motivations study:

Click this link to complete the Extension Master Gardener state coordinator questionnaire:

<http://tinyurl.com/StateMGCoordinator>

Would you also please send a note of reminder about the study?

Write a personal note of support for the study (example included below) and forward the message (below) to ask local coordinators to participate

OR

send the last message block directly to current and inactive Extension Master Gardeners for them to participate in the Motivations study.

In return for helping us launch this survey, you will receive results specific to your state and counties that participate. You will learn information about your EMG volunteers that will help you coordinate and develop your EMG program. Additionally, the study has the potential of identifying additional tools to select individuals who are good matches for your EMG volunteer program.

Thank you, in advance, for your support and assistance!

Sincerely,

Sheri

Sheri Dorn

Coordinator, Georgia Master Gardener Extension Volunteer Program
University of Georgia
Griffin Campus, Horticulture Department
1109 Experiment Street, Cowart Building
Griffin GA 30223-1731
Email: sdorn@uga.edu
Tel. 770-412-4766

(Please forward the message below on to your local EMG program coordinators with a note of encouragement for them to redirect the last message block to their local EMG volunteers)

Dear Local Extension Master Gardener Coordinators,

Our state has been asked to contribute to a national study of Extension Master Gardener volunteers that is being conducted by University of Georgia and Iowa State University. I encourage you and your local Extension Master Gardener Volunteers to participate in this important study. Thank you to each of you who have already completed the local Master Gardener coordinator survey and encouraged local Extension Master Gardener Volunteers to participate, as well.

Below, you will find a note of reminder to you from the people conducting the survey as well as note to forward on to your Master Gardener volunteers. Please send on to current and inactive Master Gardeners in your local programs. The study closes December 5, 2016, so be sure to send out as soon as you can.

Thank you for supporting this project!

[insert your signature line]

PS: Consider offering Master Gardeners volunteer service credit for the time spent completing the survey.

Dear Local Master Gardener Coordinator,

This fall, the University of Georgia and Iowa State University have been conducting a research study entitled “A National Study of Motivations of Extension Master Gardener Volunteers,” referred to as the Motivations study (IRB-approved Study 00003567). You are invited to be a part of this quantitative study of Extension Master Gardeners (EMGs) in the United States that will create a snapshot in time and space of the EMG volunteer program. Thank you to each of you who have already completed the local Master Gardener coordinator questionnaire and forwarded materials to local Master Gardener volunteers!

If you haven’t yet participated, please do so! The survey will be open until December 5, 2016. To participate in the National Study of Motivations of Extension Master Gardener Volunteers,” referred to as the Motivations study:

Click this link to complete the Extension Master Gardener local coordinator questionnaire:

<http://tinyurl.com/LocalMGCoordinator>

Would you also please send a note of reminder about the study?

Write a personal note of support for the study (example included below) and send the message (below) directly to current and inactive Extension Master Gardeners for them to participate in the Motivations study.

In return for helping us launch this survey, you will receive results specific to your state and counties that participate. You will learn information about your EMG volunteers that will help you coordinate and develop your EMG program. Additionally, the study has the potential of identifying additional tools to select individuals who are good matches for your EMG volunteer program.

Thank you, in advance, for your support and assistance!

Sincerely,

Sheri

Sheri Dorn

Coordinator, Georgia Master Gardener Extension Volunteer Program
University of Georgia
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1109 Experiment Street, Cowart Building
Griffin GA 30223-1731
Email: sdorn@uga.edu
Tel. 770-412-4766

(Please forward the message below on to your local EMGs with a note of encouragement for them to participate in the study)

Dear Extension Master Gardener volunteers,

Our state has been asked to contribute to a national study of Extension Master Gardener volunteers that is being conducted by University of Georgia and Iowa State University. I have previously shared with you the links and materials from University of Georgia and Iowa State University. Thank you to each of you who have already completed the Master Gardener Motivations survey!

If you haven't yet participated, please do so! This is a legitimate study and one in which I encourage you to participate. Below, you will find a note of reminder to you from the people conducting the survey. The survey closes December 5, 2016, so be sure to respond soon!

Thank you for supporting this project!

[insert your signature line]

Extension Master Gardener:

This fall, the University of Georgia and Iowa State University have been conducting a research study entitled “A National Study of Motivations of Extension Master Gardener Volunteers,” referred to as the Motivations study (IRB-approved Study 00003567). You are invited to be a part of this quantitative study of Extension Master Gardeners (EMGs) in the United States that will create a snapshot in time and space of the EMG volunteer program. Thank you to each of you who have already completed the Master Gardener Motivations survey!

If you have not yet completed the Motivations study survey, there is still time to participate! The survey will be open until December 5, 2016. Simply click on this link to access the survey:

<http://tinyurl.com/MasterGardenerMotivations>

Completion of this online Motivations survey should take about 30 minutes. The survey uses Qualtrics survey software to present the questions and collect responses. You can respond to the survey using a smart phone, tablet, or computer. Accessing the survey link is not harmful to your computer. To participate, simply click on the link (below). It will take you directly to an online survey where you simply click your responses or type in short answers.

Involvement in the study is voluntary, and you may choose not to participate or to stop at any time without penalty or loss of benefits to which you are otherwise entitled. If you decide to stop or withdraw from the study, the information/data collected from or about you up to the point of your withdrawal will be kept as part of the study and may continue to be analyzed. If you have received this reminder email and do not wish to participate, simply delete this message – there is no need to respond.

Thank you for participating!

Sincerely,

Sheri

Sheri Dorn

Coordinator, Georgia Master Gardener Extension Volunteer Program

University of Georgia

Griffin Campus, Horticulture Department

1109 Experiment Street, Cowart Building

Griffin GA 30223-1731

Email: sdorn@uga.edu

Tel. 770-412-4766

Appendix G

REMINDER MESSAGES SENT AT WEEK 6 (NOVEMBER 14, 2016)

Dear State Master Gardener Coordinators:

Over the last six weeks, the University of Georgia and Iowa State University have been conducting a research study entitled “A National Study of Motivations of Extension Master Gardener Volunteers,” referred to as the Motivations study (IRB-approved Study 00003567). You are invited to be a part of this quantitative study of Extension Master Gardeners (EMGs) in the United States that will create a snapshot in time and space of the EMG volunteer program. Thank you to each of you who have already completed the state Master Gardener coordinator questionnaire and forwarded materials to local Master Gardener coordinators!

If you haven’t yet participated, please do so! The study closes December 5, 2016, so be sure to participate as soon as you can. To participate in the National Study of Motivations of Extension Master Gardener Volunteers,” referred to as the Motivations study:

1. Click this link to complete the state Extension Master Gardener coordinator questionnaire: <http://tinyurl.com/StateMGCoordinator>
2. Write a personal note of support for the study (example included below) and forward the message (below) to ask local coordinators to participate. Include the attached PDF file.

OR

send the last message block directly to current and inactive Extension Master Gardeners for them to participate in the Motivations study.

Please also find attached to this message a PDF version of the Motivations survey that can be printed, completed, and returned by mail by EMGs who do not wish or are not able to participate in the online version. **If an individual has already participated online, he/she should not complete the paper version.** Surveys postmarked by December 5, 2016, will be included in the study. Surveys can be collected and mailed together, or surveys can be mailed individually.

In return for helping us launch this survey, you will receive results specific to your state and counties that participate. You will learn information about your EMG volunteers that will help you coordinate and develop your EMG program. Additionally, the study has the potential of identifying additional tools to select individuals who are good matches for your EMG volunteer program.

Thank you, in advance, for your support and assistance!
Sincerely,

Sheri

Sheri Dorn
Coordinator, Georgia Master Gardener Extension Volunteer Program
University of Georgia
Griffin Campus, Horticulture Department
1109 Experiment Street, Cowart Building
Griffin GA 30223-1731
Email: sdorn@uga.edu
Tel. 770-412-4766

(Please forward the message below on to your local EMG program coordinators with a note of encouragement for them to redirect the message to their local EMG volunteers)

Dear Local Extension Master Gardener Coordinators,

Our state has been asked to contribute to a national study of Extension Master Gardener volunteers that is being conducted by University of Georgia and Iowa State University. I encourage you and your local Extension Master Gardener Volunteers to participate in this important study. Thank you to each of you who have already completed the local Master Gardener coordinator survey and encouraged local Extension Master Gardener Volunteers to participate, as well.

Below, you will find a note of reminder to you from the people conducting the survey as well as note to forward on to your Master Gardener volunteers. Please send on to current and inactive Master Gardeners in your local programs. The study closes December 5, 2016, so be sure to send out as soon as you can.

Thank you for supporting this project!

[insert your signature line]

PS: Consider offering Master Gardeners volunteer service credit for the time spent completing the survey.

Dear Local Master Gardener Coordinator,

Over the last six weeks, the University of Georgia and Iowa State University have been conducting a research study entitled “A National Study of Motivations of Extension Master Gardener Volunteers,” referred to as the Motivations study. You are invited to be a part of this quantitative study of Extension Master Gardeners (EMGs) in the United States that will create a snapshot in time and space of the EMG volunteer program. Thank you to each of you who have already completed the local Master Gardener coordinator questionnaire and forwarded materials to local Master Gardener volunteers!

If you haven't yet participated, please do so! The survey will be open until December 5, 2016. To participate in the National Study of Motivations of Extension Master Gardener Volunteers," referred to as the Motivations study:

Click this link to complete the local Extension Master Gardener coordinator questionnaire: <http://tinyurl.com/LocalMGCoordinator>

Write a personal note of support for the study (example included below) and send the message (below) directly to current and inactive Extension Master Gardeners for them to participate in the Motivations study.

Please also find attached to this message a PDF version of the Motivations survey that can be printed, completed, and returned by mail by EMGs who do not wish or are not able to participate in the online version. **If an individual has already participated online, he/she should not complete the paper version.** Surveys postmarked by December 5, 2016, will be included in the study. Surveys can be collected and mailed together, or surveys can be mailed individually.

In return for helping us launch this survey, you will receive results specific to your state and counties that participate. You will learn information about your EMG volunteers that will help you coordinate and develop your EMG program. Additionally, the study has the potential of identifying additional tools to select individuals who are good matches for your EMG volunteer program.

Thank you, in advance, for your support and assistance!

Sincerely,

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(Please forward the message below on to your local EMGs with a note of encouragement for them to participate in the study)

Dear Extension Master Gardener volunteers,

Our state has been asked to contribute to a national study of Extension Master Gardener volunteers that is being conducted by University of Georgia and Iowa State University. I have shared with you the links and materials from University of Georgia

and Iowa State University. Thank you to each of you who have already completed the Master Gardener Motivations survey!

If you haven't yet participated, please do so! This is a legitimate study and one in which I encourage you to participate. Below, you will find a note of reminder to you from the people conducting the survey. The survey closes December 5, 2016, so be sure to respond soon!

Thank you for supporting this project!

[insert your signature line]

Extension Master Gardeners:

Over the last six weeks, the University of Georgia and Iowa State University have been conducting a research study entitled "A National Study of Motivations of Extension Master Gardener Volunteers," referred to as the Motivations study. You are invited to be a part of this quantitative study of Extension Master Gardeners (EMGs) in the United States that will create a snapshot in time and space of the EMG volunteer program. Thank you to each of you who have already completed the Master Gardener Motivations survey!

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Completion of this online Motivations survey should take about 30 minutes. The survey uses Qualtrics survey software to present the questions and collect responses. You can respond to the survey using a smart phone, tablet, or computer. Accessing the survey link is not harmful to your computer. To participate, simply click on the link (below). It will take you directly to an online survey where you simply click your responses or type in short answers.

Involvement in the study is voluntary, and you may choose not to participate or to stop at any time without penalty or loss of benefits to which you are otherwise entitled. If you decide to stop or withdraw from the study, the information/data collected from or about you up to the point of your withdrawal will be kept as part of the study and may continue to be analyzed. If you have received this reminder email and do not wish to participate, simply delete this message – there is no need to respond.

Thank you for participating!

Sincerely,

Sheri

Sheri Dorn

Coordinator, Georgia Master Gardener Extension Volunteer Program

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