

AN ABSTRACT OF THE THESIS OF

Erika M. Kirsch for the degree of Master of Science in Horticulture presented on March 15, 2002.

Title: An Overview of the Oregon State University Master Gardener Program: Demographics, Volunteer Experiences, and Computer and Internet Usage.

Abstract approved _____

Ann Marie VanDerZanden

Oregon Master Gardeners were surveyed to identify volunteer demographics, as well as familiarity with and frequency of use of current computer technology. The Oregon State University Master Gardener Program has evolved over the past 25 years, and as such so have the training needs. New demands are presently being made to create programs that include; youth and school outreach programs, horticultural therapy, and civic function within the community, as well as finding sustainable ways to use environmental resources. The survey data collected in this research will be used to make informed decisions regarding the Oregon State University Master Gardener Program. Ultimately integrating these new technological teaching strategies will enhance the overall efficiency and effectiveness of the program, and may enable the Oregon State University Extension to reach a larger audience.

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An Overview of the Oregon State University Master Gardener Program:
Demographics, Volunteer Experiences, and Computer and Internet Usage

by
Erika M. Kirsch

A THESIS

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I understand that my thesis will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my thesis to any reader upon request.

Erika M. Kirsch, Author

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An Overview of the Oregon State University Master Gardener Program: Demographics, Volunteer Experiences, and Computer and Internet Usage

INTRODUCTION

In 1972, the idea for the Master Gardener (MG) program originated in Washington State. An extension agent in the Seattle-Tacoma area was receiving a high volume of calls from home gardeners in addition to his already heavy workload. To enable WSU Cooperative Extension to better serve home gardeners, extension faculty discussed the idea of recruiting and training volunteers to provide gardening information to the public.

In September an advertisement was placed in *Sunset* magazine to recruit volunteers for this new program in the Puget Sound region. Of the 300 who applied, 120 were selected to be a part of the first group of volunteers. Within three years of beginning the program in Washington, the concept spread to six other states around the country, including Oregon.

Lane and Clackamas counties were the first to initiate the Oregon Master Gardener program with a total of 36 volunteers. The focus, similar to Washington, was to assist local extension agencies. The MG mission has expanded since 1976

to include designing and presenting proactive educational programs addressing issues of concern to Oregon communities.

The community recognizes the expertise of the MG volunteers and acknowledges the tie to the Extension service and Oregon State University. The success of the program can be measured numerous ways by the services they provide. The best measure is the continued growth of the program. Each year, the MG program attracts new volunteers as well as retaining veteran volunteers.

The new volunteers that have been attracted the MG program over the last several years have changed the composition of the group. In general, the group is getting younger, has achieved higher levels of education, is employed, and live in rural areas. The description of an older, retired volunteer does not fit the current Oregon MG profile. In comparing Oregon demographics from the 2000 census, there are several differences. The average age of an Oregon MG, approximately 52 years, is older than the statewide average of 36.3 years. There are more Oregon MGs living in rural areas and higher percentage of females and college graduates than the general Oregon population. The only similarity is ethnicity.

With these new volunteers come new challenges, including how to make the annual training more available. Potential volunteers may be dissuaded from joining the MG program due to the training time commitment. Family, work, and distance from training influence the volunteers' decision to become a part of the MG program.

One way to overcome these difficulties is by the use of current technology. The Extension service has been using the Internet to disseminate information and train faculty, volunteers, and the public for over ten years. Specifically, the Minnesota MG program has been training volunteers through the Internet for several years with successful results.

A survey was developed to gather demographic information regarding currently active MGs in Oregon. Another purpose was to discover how comfortable and familiar these MGs were with computers and the Internet.

DEMOGRAPHICS AND VOLUNTEER EXPERIENCES OF OREGON MASTER GARDENERS

SUMMARY

The last statewide survey of the Oregon Master Gardener (MG) Program was completed in 1992. Since that time, the program has expanded from 20 to 27 counties and increased by over 600 new volunteers. In comparison to other MG programs around the United States, Oregon is the tenth largest in number of volunteers and seventh in hours volunteered. Considering the size of the Oregon MG program and changes seen in annually compiled statistics, a better understanding of who the Oregon MGs are and what they think about their personal volunteer experience became critical. We developed a survey tool to understand the Oregon MG demographic composition and personal volunteer experience. Compared to the 1992 baseline survey, the general trends found in the 2001 survey suggest that Oregon MG volunteers are more likely to be younger, have a higher level of education, and be employed full or part-time. Still, the commitment level to volunteering is similar to, or has exceeded 1992 levels.

INTRODUCTION

The Master Gardener (MG) Program, started in 1973 in Washington State, has spread throughout the United States and to several Canadian provinces. Even though most states have a program, nationwide consistency is lacking in the MG

Program. Although program missions appear similar, the methods used to reach the community can differ (Meyer, 1997).

Nationally, Master Gardeners are a diverse population of volunteers (Rose, 2001; Schrock, et al., 2000). The range of age distribution varies by program; Missouri had ~59% of its volunteers over the age of 50 (Schrock, et al., 2000), Maine had ~35% over 51 years of age (Stack, 1997), Bexar County Texas had 28% of their volunteers over 55 (Finch, 1997), and 55% of Atlanta Master Gardeners were over 50 (Rohs and Westerfield, 1996). In Oregon, 66% of the volunteers were over the age of 51 (McNeilan, 1992).

The number of retired and employed volunteers also varied by program. Twenty-nine percent of Atlanta Master Gardeners were retired and 48% were employed (Rohs and Westerfield, 1996). The Missouri program had a similar breakdown with ~27% and ~53%, respectively (Schrock, et al., 1997). In 1992, the Oregon program had more retired volunteers (46%), and fewer employed (34%) (McNeilan, 1992).

From 1992 to 2000, the Oregon Master Gardener Program grew in numerous ways. The number of counties with the MG program increased from 20 to 27, the number of active Master Gardeners rose from 2137 to 2759, and the hours spent volunteering increased from 73,844 to 115,176. These numbers reflect a visible change in the scope of the program, and lead to questions about who was getting involved in this growing program. General questions included:

Who are the Oregon MGs? Were the training methods currently used to train and reach MGs still appropriate? What impact was the Oregon MG program having on the individual volunteers and their community?

MATERIALS AND METHODS

A survey was developed to answer these questions and others. As a baseline to work from, questions were taken from surveys used previously with the Oregon MGs. Questions also met specifications from the Oregon State University institutional review board. Survey specialists were consulted in the development process to ensure concise questions that would result in useful data (personal communication Molly Engle, Oregon State University Office of Personnel and Organizational Development and Dwaine Plaza, Department of Sociology, Oregon State University).

Incorporating questions used from previously administered Oregon MG surveys made for useful comparison between old data and new data. The survey included a section with basic demographic questions to discover age, gender, ethnicity, income, education level, community size, and employment. A second section asked participants to share their personal MG volunteering experience. They were asked questions to define their involvement with the MG program and also the value they placed on their individual learning and volunteering experience using a 4-point Likert scale (Likert, 1932; Babbie, 1998). Figure 1.1 shows some

example questions from the survey; a complete copy of the survey is available online at www.osu.orst.edu/extension/mg.

Figure 1.1. Sample questions from the 2001 survey sent to currently active Oregon MGs.

	Strongly Disagree	Disagree	Agree	Strongly Agree	
After receiving training, I feel that: I have gained new sources of information.	0	1	2	3	N/A
I am providing a needed service to the community.	0	1	2	3	N/A
The recipients of my volunteer work appreciate my help.	0	1	2	3	N/A

Two hundred fifty-seven surveys were sent to a random stratified proportional sample of currently active Oregon MGs. Using Perseus survey software, the sample size was chosen (Perseus Development Corporation, 1994). By setting alpha equal to 0.05 and 80% power the size of an effective sample was determined to be 257. Three weeks after the survey was mailed, follow-up postcards were sent to non-respondents.

RESULTS AND DISCUSSION

Of the 257 surveys sent to Oregon MGs, 132 surveys were returned for a response rate of 51.4% and this still represented a stratified proportional sample. Responses to the demographic questions demonstrated changes in the volunteer composition of the Oregon Master Gardener Program since the 1992 survey. The 1992 survey had been mailed out to 600 Oregon MGs with 276 returned for a response rate of 46%.

In less than ten years, the demographics have changed considerably in some areas, while other categories remained consistent. Fifty percent of the volunteers were over the age of 61 in 1992; currently 40% are 62 and over (Figure 1.2a and 1.2b). Table 1.1 shows data on gender, income and ethnicity. There are a higher proportion of females in 2001(~74%) compared to 1992 (58%). The annual household income of the volunteers has increased with ~45% earning over \$50,000 in comparison to 1992, when only 16% were at that level. The one thing that has remained constant since the 1992 survey is the percentage (95%) of white European Americans in the program.

The percentage of volunteers with a four-year or higher college degree, rose from 48% to 53% (Figure 1.3). Oregon MGs are spread throughout the state and the number living in rural areas rose from 26% to 46 % (Figure 1.4). And, the number of employed MGs has increased from 34% to 50%, decreasing the number of retired MGs by 11% (Figure 1.5).

Figure 1.2a. Age distribution of Oregon Master Gardeners based on a statewide survey conducted in 1992.

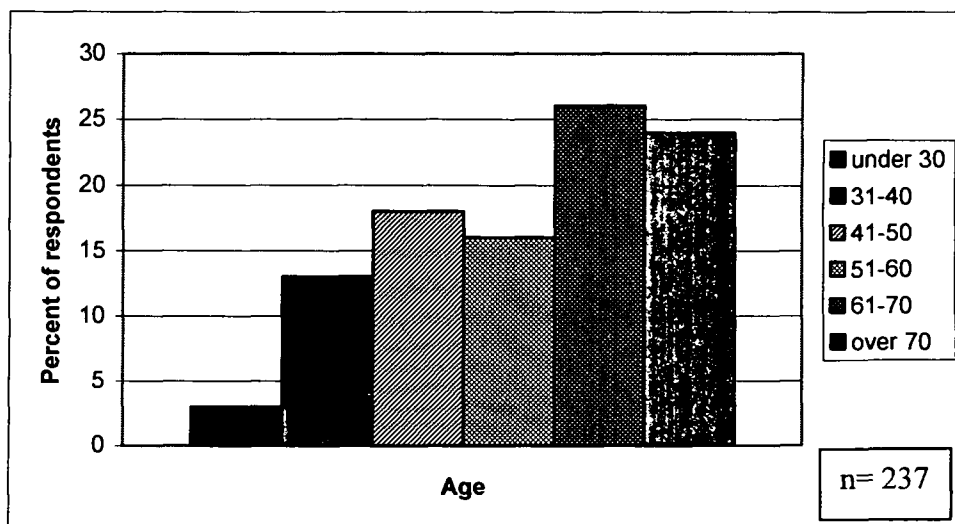


Figure 1.2b. Age distribution of Oregon Master Gardeners based on a statewide survey conducted in 2001.

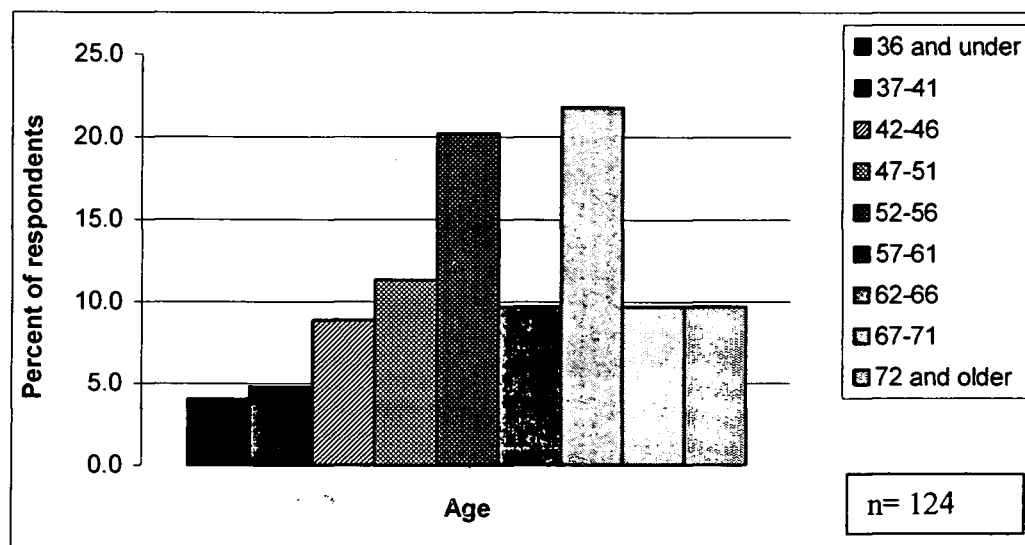


Table 1.1. Gender, ethnicity and annual household income of Oregon Master Gardeners based on a statewide survey conducted in 2001.

Parameter	Respondents (%)	
	2001 (n= 132)	1992 (n= 276)
Gender		
Female	74	58
Male	26	42
Ethnicity		
White European American, Non-Hispanic	95	95
Native American	4	2
Other	2	3
Annual household income		
Under \$15,000	5	13
\$15,000- \$24,999	17	25
\$25,000- \$49,999	33	46
\$50,000 or more	45	16

Figure 1.3. Education level of Oregon Master Gardeners based on a statewide survey conducted in 2001.

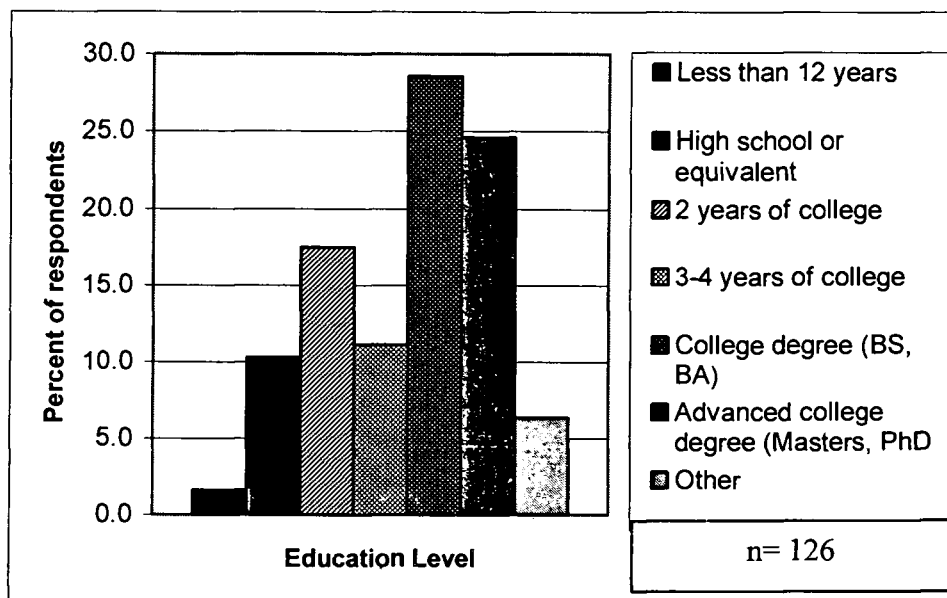


Figure 1.4. Size of community Oregon Master Gardeners live in based on a statewide survey conducted in 2001.

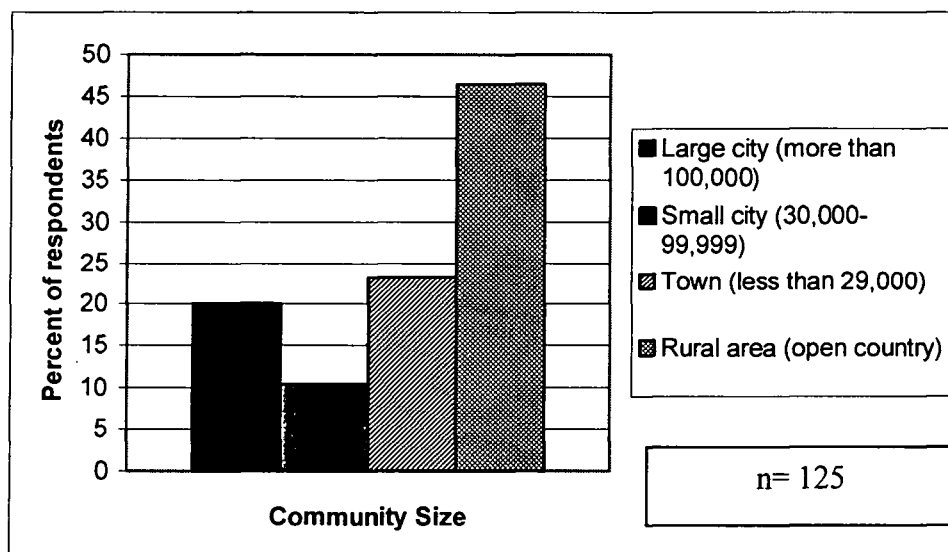
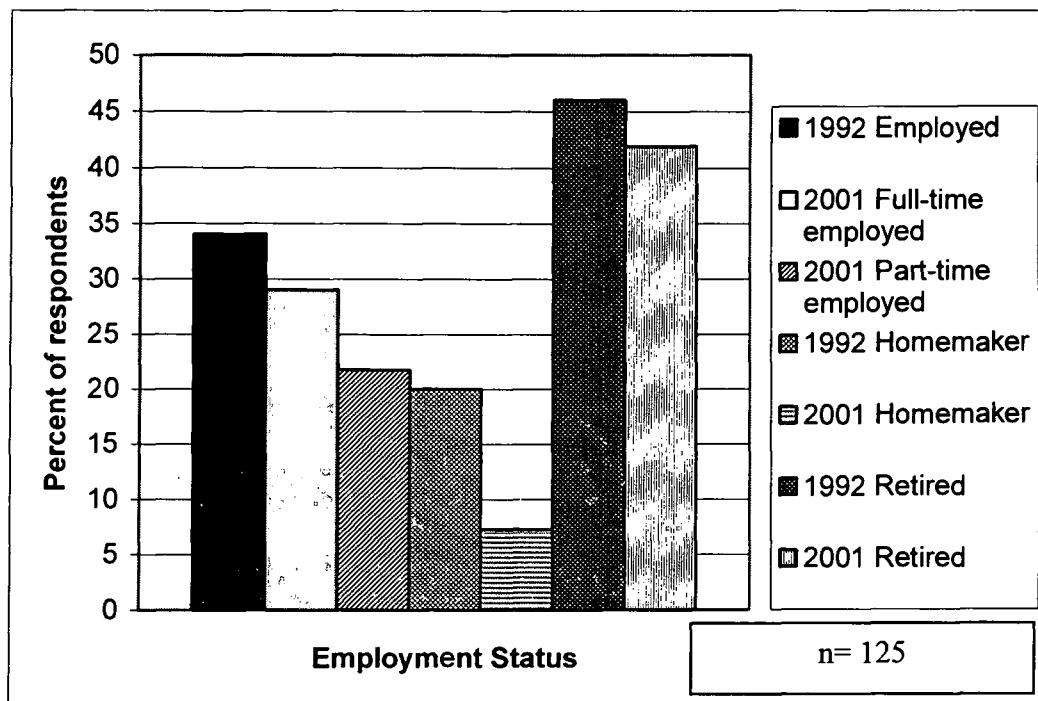


Figure 1.5. Oregon Master Gardener employment status based on a statewide survey conducted in 2001.



Another comparison is the length of time MGs stay involved in the program. Previously, the average tenure of a volunteer was 3.7 years; this increased to 5.0 years in 2001 (Figure 1.6). The average hours spent volunteering in a year remained similar with 63 hours in 1992 compared to 65 in 2001 (Figure 1.77). Volunteer hours are set by each county individually and range from a commitment

of 50 to 70 hours per year. The data also supports the idea that volunteers are staying involved in the program longer, and continue to have high levels of commitment.

Figure 1.6. Number of years spent volunteering with the Oregon Master Gardener program based on a statewide survey conducted in 2001.

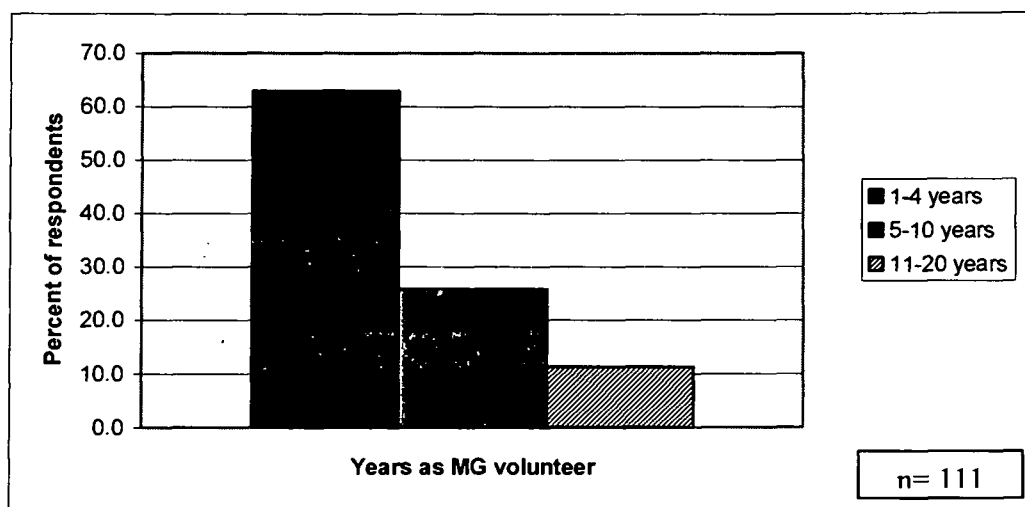
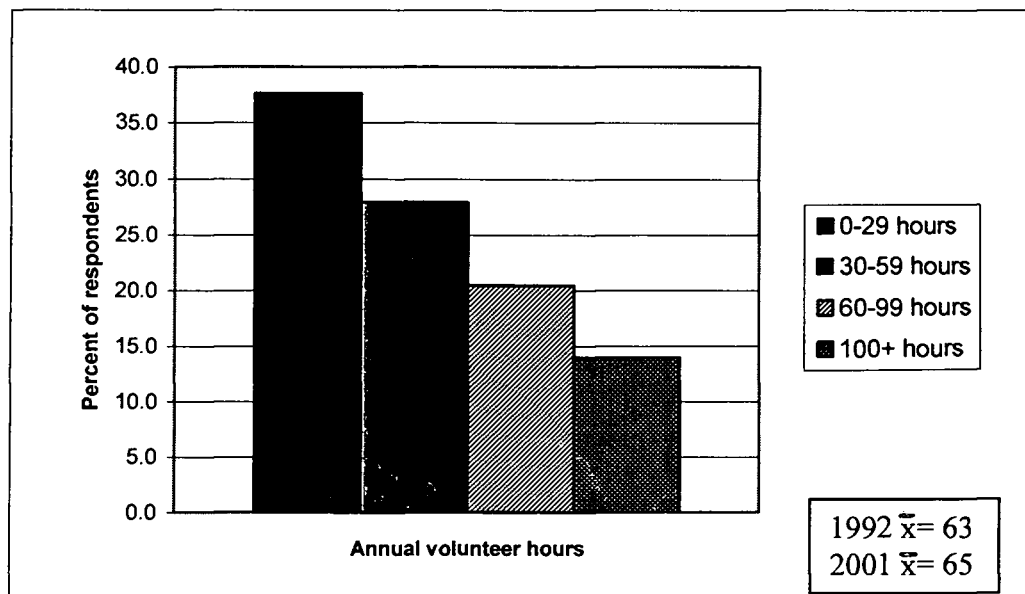


Figure 1.7. Hours spent annually volunteering by Oregon Master Gardeners based on a statewide survey conducted in 2001.



Even as MGs get younger, and have more outside commitments such as work or raising a family, they seem to find the time to remain involved. When asked if they plan to remain active in the program, 84% of the respondents replied affirmatively.

Those surveyed were asked to compare prior horticulture knowledge and skill levels to the levels obtained after they completed their training. Before Oregon MG training, horticultural knowledge was 1.72 (4-point Likert scale: 0=little/low; 3=high) and horticultural skill level was 1.74. After receiving 6-10 weeks of

training, reported knowledge and skill level had increased to 2.49 and 2.31, respectively.

Oregon MGs noted that personal growth and community enhancement were two motivations for active participation in the program. Not only do they improve personal knowledge and skills through training, there are adequate opportunities provided through the MG program to share through service (2.23). Providing a needed service to the community (2.35) allows the volunteer to grow personally through education and service (2.44 and 2.27, respectively). They feel that the community appreciates the help they provide (2.50) and that their service is rewarding (2.39). Involvement with the MG program has motivated several volunteers (39%) to become involved with various other community organizations, thereby furthering their community involvement.

CONCLUSION

Because there is no standard national MG program, understanding the composition of the volunteer group on a state or local level is important. The responses received from the 2001 survey show that as a group, the Oregon MGs have changed over the past 9 years. These changes indicate the need for modifications to the MG program in order to meet the needs of these volunteers. Knowledge of the Oregon MGs educational experiences and employment backgrounds can guide modifications to the training format and methods of

educational delivery that will be most effective for the group. These modifications may include capitalizing on the benefits of current technology such as computers and the Internet, by offering the entire training on-line; and/or offering evening or Saturday classes.

In a survey encompassing all Oregon State University Extension Service volunteer programs, volunteers rated personal growth and increased knowledge and skills as the most important benefits they received (Braker et al., 2000). Our data suggest this is particularly true of MG volunteers, and contributing to their community is equally important.

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COMPUTER AND INTERNET USE AMONG OREGON MASTER GARDENERS

SUMMARY

The Internet has become a tool used in business, education, and for leisure pursuits. Extension has used the Internet in a variety of ways including the training of extension staff and volunteers and the dissemination of information. In 2001, a survey was developed to discover the comfort level, familiarity, and use of computers and the Internet by currently active Oregon Master Gardeners (MGs). Additionally, basic demographic data was collected. We found that composition of the volunteer group in 2001 was highly compatible with computer and Internet users. This compatibility may suggest the Internet could be an alternative to the traditional face-to-face training method for some Oregon MGs.

INTRODUCTION

When the Master Gardener (MG) Program started in 1973 in Washington State, the original focus was training volunteers to diagnosis, and offer solutions to plant problems. In the 29 years since the inception of the MG program, the services provided have expanded to include community enhancement projects, youth outreach, and a variety of educational projects.

To increase the impact of the MG program beyond personal contact, various types of media are used, including publications, radio, and television (Meyer,

1997). The intent of using multiple methods is to maintain consistent, high quality information and training while increasing efficiency, effectiveness, and decreasing the expense, both time and money wise (Ginsburg, 1999).

Education through the Internet is transforming the way we learn, and has the potential to bring about lifelong learning. The Internet increases the educational opportunities available to those who would not normally partake due to distance, job, or family (Ginsburg, 1999). The Extension service has seen the usefulness of this delivery method and has incorporated education through the Internet for faculty, volunteers, and volunteer managers (Lipert et al., 2000; Sherfey et al., 2000). A recent study in Minnesota suggests online learning, as a method of training MGs, can be as effective as classroom learning (Jeannette and Meyer, 2002).

With this in mind, we developed a survey to discover the demographic profile of Oregon MGs and how this group of volunteers felt using computers and the Internet. We also wanted to determine if there were relationships between demographic components and computer and Internet use and comfort level.

MATERIALS AND METHODS

The survey was developed using a 1992 Oregon MG survey as a model. Questions also met specifications from the Oregon State University institutional review board. Survey specialists were consulted in the development process to

ensure concise questions that would result in useful data (personal communication Molly Engle, Oregon State University Office of Personnel and Organizational Development and Dwaine Plaza, Department of Sociology, Oregon State University).

The demographic portion of the survey included questions to discover age, gender, ethnicity, income, education level, community size, and employment of Oregon MGs. To understand how familiar current Oregon MGs were with computers, survey questions addressed whether they owned a computer, where they had access to a computer, and the length of time they had used a computer. Similar questions were asked about Internet familiarity to allow comparison between computer and Internet use. Questions regarding comfort level with computers and the Internet were asked using a Likert scale (Likert, 1932) of 1 to 5, with 1 being defined as rather not use to 5 being an expert.

A random proportional sample of 257 from the currently active 2759 Oregon Master Gardeners was selected to complete the survey using Perseus survey software, setting alpha equal to 0.05 and the power at 80% (Perseus Development Corporation, 1994). Three weeks after the survey was mailed, follow-up postcards were sent to nonrespondents. Data analysis was done using SAS (SAS Institute, 1987).

RESULTS AND DISCUSSION

Of the 257 MGs who received the survey, 132 responded for a return rate of 51% and the response was still a stratified proportional sample. Oregon MGs have high education levels and income, tend to live in rural areas, and have a bimodal age distribution (Table 2.1). The Oregon MG profile illustrates volunteers who utilize computer and Internet technology extensively as evidenced by the 85% who use computers. Of those who do use a computer, 97% own their own computer, and 82% have used computers for over five years (Figure 2.1). When asked how comfortable they were using a computer, 83% rated themselves a 3 or higher, which is adequate or above, on a scale from 1 to 5 (Figure 2.2).

Table 2.1. Oregon Master Gardener demographic results based on a statewide survey conducted in 2001.

<u>Parameter</u>	<u>Respondents (%)</u>
Age	
36 or younger	4
37 to 41	5
42 to 46	9
47 to 51	11
52 to 56	20
57 to 61	10
62 to 66	22
67 to 71	10
72 or older	10
Education level	
High school graduate	13
Four year college degree (BS, BA)	36
Advanced college degree (MS,MA,PhD)	31
Income	
Under \$15,000	5
\$15,000 to \$24,999	17
\$25,000 to \$49,999	33
Over \$50,000	45
Community size	
Large city (population>100,000)	20
Small city (30,000 to 99,999)	10
Town (population <30,000)	23
Rural area (open country)	46
Employment Status	
Employed	48
Retired	41
Homemaker	7

n= 132 currently active Oregon MGs

When asked if they used the Internet, 92% of Oregon MGs responded affirmatively. The number of years MGs have used the Internet varies from less than a year to five years or more. The amount of time spent on the Internet weekly, ranged from 15 minutes to over 20 hours (Figure 2.3), with an average of 5 to 6 hours online each week. The most frequent uses of the Internet were for e-mail, information gathering, business, travel, and shopping. A large percentage, 83%, rated their personal comfort level using the Internet as a 3 or above, on a scale of 1 to 5 (Figure 2.4).

Chi-square tests were compiled on demographic data thought to influence familiarity with and usage of technology. The chi-square tests compare expected results with observed results. When these tests were run with the Oregon MG volunteer data, we found the observed results differ from the expected results and the only significant correlation ($r = 0.342$) was between frequency of computer and Internet use, and comfort in using these technologies ($p\text{-value} \leq 0.05$).

When demographic data was correlated with the technology data, there were no significant correlations. There was no relationship between computer use or comfort level with age, education level, income, where the MGs live, or employment status, suggesting Oregon MGs have a similar comfort level using technology regardless of their demographic profile.

Figure 2.1. Years of computer use for Oregon Master Gardeners based on a statewide survey conducted in 2001.

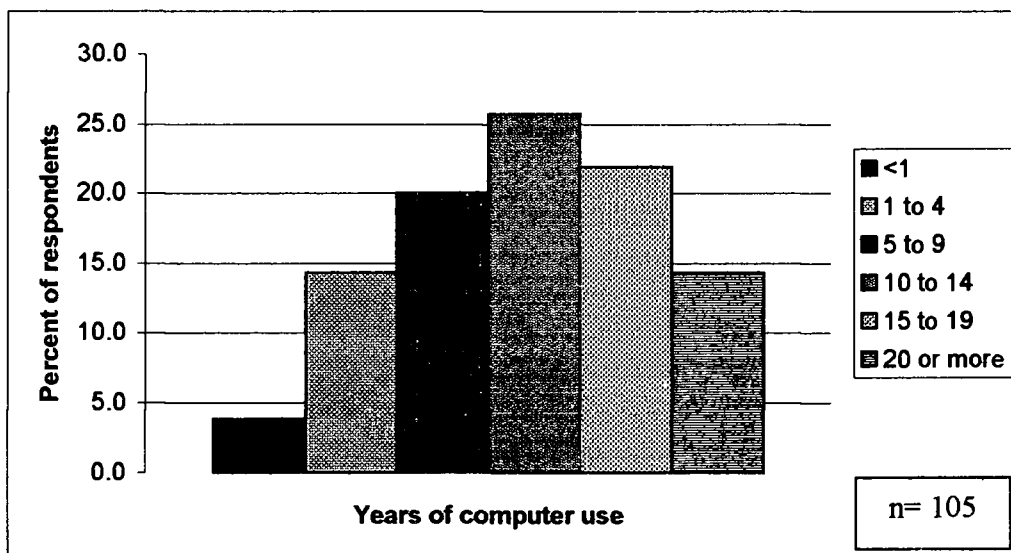


Figure 2.2. The Oregon Master Gardeners level of comfort using computers based on a statewide survey done in 2001.

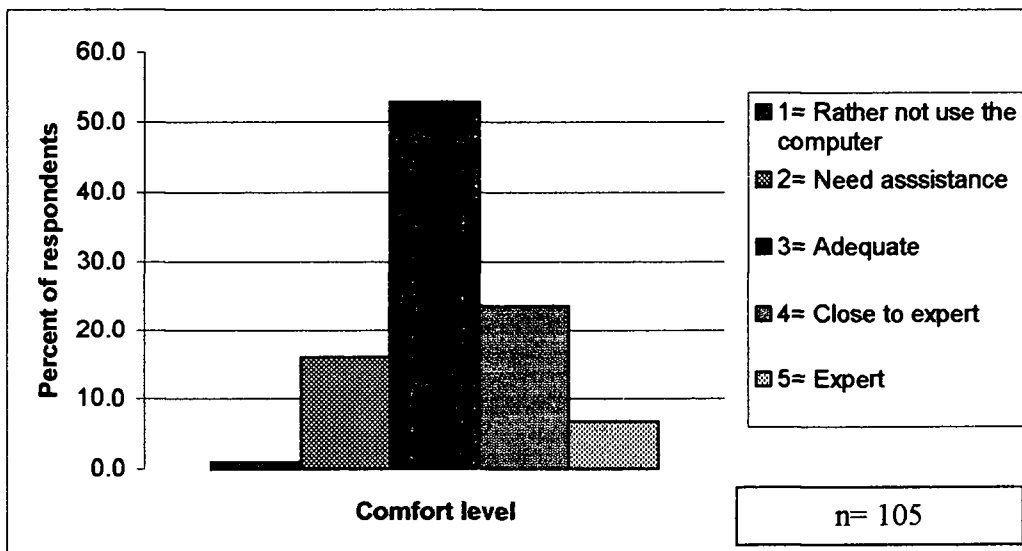


Figure 2.3. Hours per week that Oregon Master Gardeners use the Internet according to a statewide survey done in 2001.

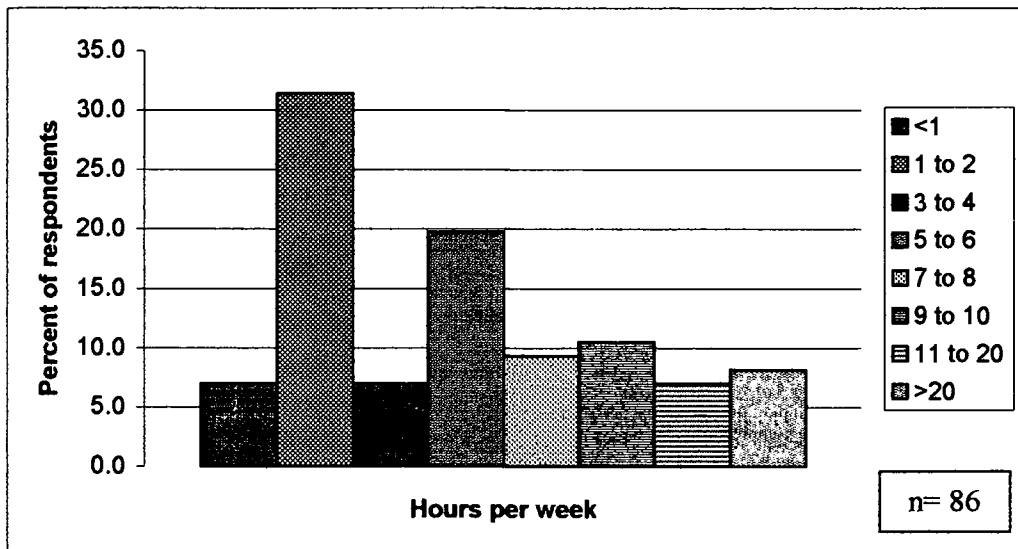
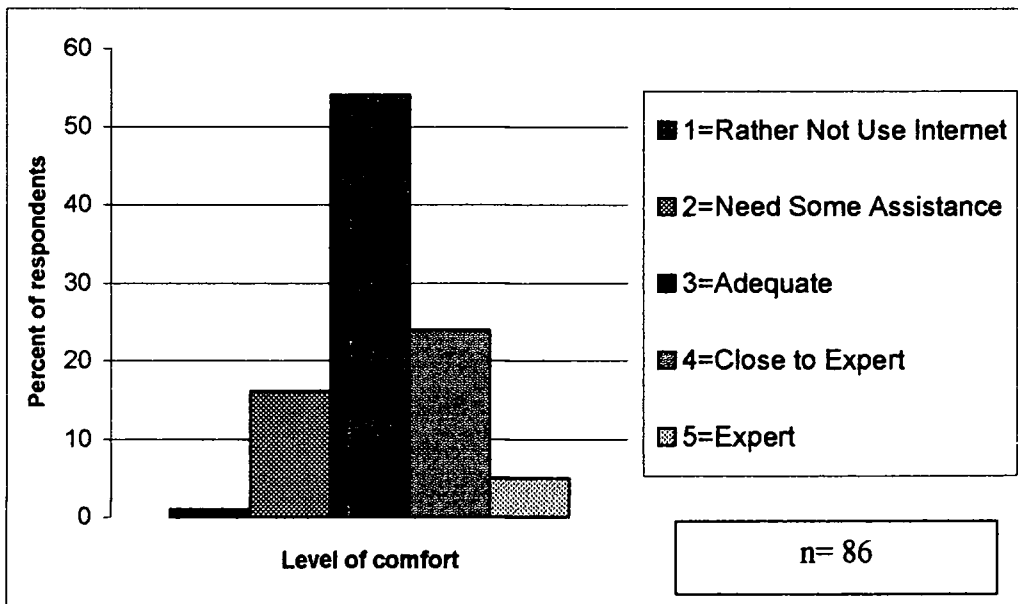


Figure 2.4. Oregon Master Gardeners' level of comfort with the Internet according to a statewide survey done in 2001.



CONCLUSION

Based on the statewide survey in 2001, volunteers in the Oregon MG program have a high familiarity and comfort level with computers and the Internet. This comfort and familiarity with computers and the Internet allows for increased flexibility for those potential volunteers that live in rural areas and/or are employed, both of which are recent demographic changes seen in Oregon MGs, to receive the MG training online rather than in the traditional face-to-face setting. With an increased number of volunteers that have other outside commitments, receiving training via the Internet will allow them to complete the training units throughout the week and save time and money driving to the training location.

Capitalizing on this technology by offering the training online may make this Oregon MG program more effective, efficient, and more available to new volunteers. Minnesota has been successfully offering this as an alternative method of MG training since 1996.

Potential drawbacks to offering the training online are a lack of human interaction and reduced volunteer service after training. Although the social aspect of the MG program is important to some volunteers, for others learning new skills is the most important aspect. In Minnesota the level of volunteerism for those who trained online was no different from those who received face-to-face training (personal communication, Mary Meyer, University of Minnesota).

Although the Internet can be a useful training tool, it is not suitable for everyone, nor is it a quick and inexpensive alternative to traditional classroom training. Planning is essential during the development of an online course to create a clear, concise learning tool that will be user friendly. As well, the volunteer must be a motivated self-learner. From a potential MG volunteer perspective, they should plan to spend as much, if not more time completing the MG training on-line as their counterparts receiving traditional face-to-face training (Jeanette and Meyer, 2002). A key to successful online training is to create an effective learning tool that is adapted to this method of learning.

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CONCLUSION

The lack of a standard national program makes understanding the composition of the volunteer group on the state level important. The purpose of the 2001 survey was to discover the volunteer composition of the Oregon MGs and to use this information to improve the effectiveness and efficiency of the current program.

Since the last statewide survey, done in 1992 and used as a base comparison for 2001, there have been changes in the group composition. The changes suggest the need for modifications to meet the needs of the new volunteers entering the program. Understanding the Oregon MGs' educational background, employment, and where they live can guide and shape the modifications made to the training format and educational delivery to make it most effective. Possible modifications to the program could include capitalizing on current technology to offer the training via the Internet and/or offer evening and Saturday classes.

To explore the feasibility of offering the entire training via the Internet, similar to what Minnesota has been doing for the past six years, the survey included questions on computer and Internet comfort and familiarity. Oregon MGs responded with a high degree of comfort and familiarity to both the computer and the Internet. With this overwhelming positive response, the idea of using the Internet as an educational delivery method becomes a possibility for Oregon MGs.

Previously it was difficult for volunteers who lived in rural communities and had hours to commute to train and/or employment that coincided with the time the training was offered in their community. Adding this format of training, along with the traditional face-to-face method, will hopefully have the ability to attract potential volunteers. Offering training via the Internet will allow MGs to complete the units throughout the week and to save time and money driving to the training location. Not only can the Internet be used for the training of volunteers that sign up specifically for training via the Internet, it could also be used as a reference for volunteers being trained through traditional means. Capitalizing on this technology may be a way to make the program more effective, efficient, and increase availability of the program to new volunteers.

There are concerns and arguments with using the Internet to train volunteers. One concern is that the lack of human interaction will limit the volunteer's personal connections with the other MGs in their county. This may result in a lack of participation and involvement after their training is completed. Another issue is the lesser commitment of the Internet trained volunteer to complete the volunteer payback hours. However, this has not been the case in Minnesota. Training via the Internet may actually be more suitable for volunteers who are mostly interested in furthering their horticulture knowledge and not the social aspect of the group.

The Internet can be a useful tool for training, but it is not suitable for everyone in every situation. It is not a quick and inexpensive alternative to traditional classroom training. Planning must go into the development of the course to create a clear, concise, and easy to use tool. A major responsibility related to the success of Internet training rests on the volunteer. They must be a self-motivated, independent learner. They should plan to spend as much time, if not more, completing the training via the Internet as their counterparts receiving traditional training. The key to success in using the Internet as a method of delivery is to create an effective learning tool that is adapted to this style of learning.

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