

Interactive Television Delivers Master Gardener Training Effectively

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ADDITIONAL INDEX WORDS. survey, distance learning

SUMMARY: Five of the ten training sessions for Maine Master Gardeners (MGs) were taught using interactive television (ITV) in 1993. Trainees at one location participated in the sessions live; trainees at seven locations participated in the sessions from distant locations but in real time; and trainees at two locations viewed videotapes of the ITV sessions at later dates. Trainees ($n = 215$) were quizzed weekly to assess their level of learning and surveyed about their learning experience 6 months after completing their training. ITV distance learners' quiz scores and hours of volunteerism were equal to those of local learners. More than 90% of all respondents would enroll in a MG program again if it were conducted and taught locally, while 83.9% would enroll in a program taught half locally and half using ITV.

Master Gardener (MG) programs offer horticultural training to home gardeners in return for volunteer service in educational gardening projects. Programs throughout the United States have grown in size and popularity since their origin, from one county-based program in 1972, to >700 programs in 45 states and 4 Canadian provinces in 1991, to >1000 programs in all 50 states and 4 Canadian provinces in 1996 (Master Gardeners International, 1996). McLellan and Carlson (1997) reported that >100,000 people have been trained in 25 years, and that 1997 training programs will add >10,000 new MGs to that number. In Maine, county-based programs began in the early 1980s when one county trained a small group of volunteers. By the early 1990s, more than one-half of Maine's 16 counties participated, training ≈ 200 MGs annually. A statewide program was established to respond to the need for support materials, program coordination, and a standardized base curriculum.

In 1993, 10 Maine county extension offices, representing 12 counties, participated in the program by training 215 volunteers (Stack, 1994). Four factors led to using interactive television (ITV) to deliver half of the 1993 training sessions.

First, county educator time dedicated to program coordination was reduced by conducting ITV sessions. This reduced the county-by-county duplication of advertising programs and the need to arrange for speakers.

Second, speakers' time for program preparation and delivery was reduced by reaching several locations simultaneously using ITV.

Third, administrative interest in using new information delivery systems such as ITV was high."

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With tight budgets and a growing MG program, administrators looked closely at program efficiency. Fourth, a University of Maine Public Service Award supported the cost of a 1-year trial of ITV for MG program delivery.

We surveyed participants to determine their attitudes toward the ITV delivery technique, their knowledge level compared to that of participants trained by the traditional face-to-face method, and their rate of volunteerism compared to that of participants trained by the traditional method.

Materials and methods

The Spring 1993 Maine MG training program delivered 30 hours of training in ten 3-hour sessions. Five of the ten sessions at all sites were conducted locally and independently. The remaining five sessions were offered only once using ITV on five consecutive Saturday afternoons. One county site served as the broadcast center for the ITV sessions. Seven programs, representing eight counties, were connected to the ITV programs in real time but at separate local sites. The remaining two programs, representing three counties, did not participate in real time in the ITV broadcasts but used videotapes of those sessions at later dates for their local training.

Participants were quizzed each week on the previous week's topic. These quizzes were composed by one person to ensure consistency and were administered similarly at participating sites.

A survey addressing the effectiveness of the training program was mailed to the 215 program participants in Fall 1993, 6 months after they completed their training. An identical follow-up survey was mailed to nonrespondents 2 weeks later.

The survey addressed three important questions that had surfaced during the planning of the ITV sessions:

1. Did MG trainees who used ITV learn as much as those who learned from the onsite instructor? MGs must gain technical competency in horticulture to contribute expertise to volunteer projects.

2. Did participants **enjoy** the ITV aspect of the training program? An enjoyable learning experience leads to enthusiastic volunteers.
3. Did ITV-trained participants **volunteer** at the same rate as locally trained participants? Training is only the first step of any MG program. If the participants do not become active volunteers, then the program fails.

Results and discussion

The 152 responses represented 70.7% of the participants. This response rate falls within the desirable range of 60% to 75% for mail surveys (Dillman, 1978), lending confidence to the results.

DEMOGRAPHICS. Respondents were experienced gardeners, with only 31 (20.4%) having gardened 1 to 5 years and 86 (56.5%) having gardened for >10 years. They were also active seekers of gardening information. Previous to the training program, they had sought information from many sources: gardening books—134 (88.2%); friends, neighbors and relatives—127 (83.6%); seed catalogs—123 (81.0%); magazines—122 (80.3%); seed packets—115 (75.7%); newspapers—89 (58.6%); garden center personnel—69 (45.4%); television—61 (40.1%); extension publications—56 (36.8%); garden center pamphlets—55 (36.2%); classes or workshops—41 (27.0%); county extension educators—40 (26.3%); and radio—24 (15.8%) (survey respondents could indicate multiple sources of information).

Of the respondents, 48 (31.6%) had taken a garden course before, 77 (51.3%) had previously called extension for garden information, 37 (24.3%) had taken an extension workshop, 94 (62.7%) had volunteered, and 13 (8.7%) had taken an ITV course.

Respondents were well educated: 35 (23.0%) had attended some college; 48 (31.6%) had earned a college degree; and 33 (21.7%) had completed advanced college work.

By gender, 102 (67.5%) respondents were female and 49 (32.5%) were male. By age, 31 (20.4%) respondents were 18 to 35; 68 (44.7%) were 36 to 50; 37 (24.3%) were 51 to 65; and 15 (9.9%) were >65.

MG programs can introduce people to cooperative extension. While respondents to this study were experienced gardeners, only half had previously called extension for garden information and only one-fourth had taken an extension workshop before. Many people who enroll in MG training programs are first-time extension users, and extension provides them with information about gardening, a popular leisure activity.

COMPARISON OF LEARNING. To compare level of learning using ITV versus onsite instructor, weekly quiz scores of the local group (n = 29) were compared to weekly quiz scores

Table 1. Comparison of means of Master Gardener quiz scores for four weekly topics. Local = group (n = 29) that participated in the broadcast studio, with speaker in the room; distant = group (n = 42) that participated in one distant studio, with speaker viewed on ITV in real time.

Quiz topic	Group		Significance
	Local	Distant	
Basic botany	8.72 ^a	8.40	NS
Pest management	7.32	8.00	NS
Ornamentals	6.88	6.81	NS
Vegetables	8.24	9.17	*

^aValues represent quiz scores; perfect score = 10

^{NS} Nonsignificant or significant within row determined by *t* test at *P* ≤ 0.05.

of one distant group ($n = 42$). For three quizzes the mean scores for the two groups did not differ, and for one quiz the ITV group's score was significantly higher (Table 1). No pretest was administered as a base value for these quiz scores, but several indicators suggest that the two groups were similar. Groups did not vary by age, gender, education level, or years of gardening experience.

The growing popularity of the MG program poses a dilemma for extension: How can a high number of people be trained effectively and efficiently? In this study, distance learners accessing information by way of ITV seemed to learn as much or more than local learners, suggesting that ITV could be an efficient and effective delivery system for at least part of a MG training program. Other states' MG programs have used ITV to deliver training, but no other data were found about the effectiveness of such programs.

PROGRAM SATISFACTION. Since master gardening has an important social component, it is important that the experience be enjoyable. The three subgroups of this study (onsite learners, distance ITV learners, and videotape learners) were asked if they would enroll in the program again if it were held locally but taught partly on ITV, as it was offered in 1993. Overall, 120 respondents (83.9%) indicated that they would enroll in the program again if it were partially presented on ITV. However, responses varied according to how the participants experienced the program (Table 2).

The three subgroups were also asked if they would enroll in the MG program if it were held locally but taught entirely on ITV. Overall, 58 (42.3%) of the respondents indicated that they would enroll in such a program, but again the responses varied according to how they experienced the program (Table 2).

The three subgroups did not differ significantly with respect to several aspects of their satisfaction with the program. A total of 130 (91.5%) respondents would enroll again in a MG program held and taught completely locally. A total of 142 (94.7%) respondents would recommend the MG program to a friend. A total of 148 (97.4%) respondents would contact extension for gardening information again.

VOLUNTEERISM. Participants in this program were expected to give at least 30 hours of time to volunteer projects. There was a significant difference in the number of hours members of the groups had given by 6 months after their training (Table 3).

ITV sessions were less effective as measured by the number of hours volunteered by graduates of the program. Because volunteer projects are the reason for the MG Program, this study suggests that ITV training sessions may not provide the confidence or the level of knowledge necessary for volunteers. However,

Table 2. Comparison of Master Gardener (MG) trainees' attitude toward interactive television (ITV). Local = MGs ($n = 29$) who participated in broadcast studio, with speaker in room; Distant = MGs ($n = 158$) who participated in distant broadcast studios, with speaker viewed on ITV in real time; Videotape = MGs ($n = 29$) who saw videotapes of ITV sessions at later dates.

Question	Group		
	Local	Distant	Videotape
Would you enroll in the program if it were held locally but taught partly on ITV, as in 1993?	0.95 b ^{z,y}	0.84 ab	0.67 a
Would you enroll in the program if it were held locally but taught entirely on ITV?	0.63 b	0.42 ab	0.14 a

^zValues represent mean of responses within group, with 0 = no; 1 = yes.

^yMeans within rows with a common lower case letter are not significantly different at $P \leq 0.05$ as determined by t test.

this study did not assess the reasons for this lack of volunteerism, which could be related to lack of personal contact, lack of development of esprit de corps, difference among local county educators' programs, or other factors.

ADMINISTRATIVE CONSIDERATIONS. The results of this survey suggest that ITV can effectively deliver MG training sessions. Using this method can reduce local program management time by county educators, reduce the need for repetitive teaching by instructors, and maintain the rate of learning and the rate of volunteerism compared to traditional face-to-face training. In the context of increasing competition for extension programming funds, ITV can be an effective component of MG training.

Literature cited

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Table 3. Number of hours given by Master Gardeners (MGs) to volunteer projects in first 6 months after completing training. Local = MGs ($n = 29$) who participated in broadcast studio, with speaker in room; distant = MGs ($n = 158$) who participated in distant broadcast studios, with speaker viewed on interactive television (ITV) in real time; videotape = MGs ($n = 29$) who saw videotapes of ITV sessions at later dates.

	Group		
	Local	Distant	Videotape
Mean number of hours of time volunteered per person	26.36 b ^z	20.52 ab	15.28 a

^zMeans within rows with a common lower case letter are not significantly different at $P \leq 0.05$ as determined by t test.