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A Successful Portable Computer Lab Training Program

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A Successful Portable Computer Lab Training Program

Abstract

Penn State Cooperative Extension and the Pennsylvania Farm Credit System joined forces to fund a portable computer laboratory. A simplified lab management procedure allowed Extension agents to offer 33 computer operation workshops for 300 participants at minimal participant cost. Participants indicated their future use of computers would focus on farm financial, crop, and livestock management. Although considerable competence was gained, more than 50% viewed themselves with poor to moderate computer skills at the end of the workshops. The lab has enabled agents to contact a preciously under-served population as 54% of the participants had not attended any Extension workshops in the previous year.

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Introduction

In 1997, the Department of Agricultural Economics and Rural Sociology partnered with the Farm Credit System (FCS) of Pennsylvania to finance a portable computer lab consisting of 12 outreach laptops and a LCD projector. Since its inception, Extension agents have conducted 101 workshops for 821 paid participants from 1997-2000, including 33 computer workshops for approximately 300 participants during 2000. Participation has been well received, with registration for many workshops exceeding available computers.

The results of participant evaluations for the 1999-2000 program year indicate that the portable lab addressed a high-demand training niche. Evaluations also suggest that many of the lab workshop participants would benefit from in-depth follow-on training focused specifically on using software for management applications. The lab provides a unique tool for Extension that presents many challenges for future workshops and programming objectives.

Workshops conducted with the lab generally consist of 2-day formats, focusing on basic computer skills as well as software applications. The objectives of the lab were to train agricultural producers

in the use of computers, provide training on general software applications, including spreadsheets and word processing, and provide training on specific farm management applications. Since its beginning, workshops have been primarily directed toward farmers but have also reached out to non-farm Extension clientele.

The lab's initial setup involved a joint effort by the Pennsylvania FCS and Penn State Cooperative Extension, who viewed the lab as a win-win outreach education investment in building the human capital of farmers (Patton, 1986; Lafontaine, 1995). Workshop participants were charged a small fee of \$10 per workshop as a contribution toward future dating/replacement of lab computers. The computers were stored at Penn State when not in use and transferred among individual agents as needed. The agents scheduled the lab over the department Web page.

Results

Participant Familiarity with Computers

One of the primary challenges to incorporating computer information processing in farm management programs is the lack of a familiarity with basic computer operations (Table 1). Extension agents found that farmers had computers but that they became a possession of the children because the parents lacked basic operational knowledge (T. Beck, personal communication, 2000). Improving basic operating skills was an important objective of the computer lab, because prior to the 2000 lab workshops, 50.5% of the producers/spouses were not familiar with commonly used Windows 95/98 operating systems. However, Extension agents also were challenged to meet the needs of the nearly 40% of workshop participants who were very familiar with Windows.

Table 1.
Familiarity with Computer Operating Systems

Operating System	Not Familiar (1)	Moderately Familiar (2)	Very Familiar (3)	Mean Scale
DOS	76.0%	10.0%	14.0%	1.87
Windows 95/98	50.5%	10.1%	39.4%	2.66
Macintosh	93.9%	3.0%	3.0%	1.30

* Scored on a scale of 1-not familiar to 3-very familiar (n=101).

Information (not shown) from these evaluations, however, supports the idea that the computer is a useful tool for farm business management. For example, about 40% had used the computer for personal or business record keeping, and about 35% used the computer for business correspondence purposes (letters) and Internet use. These participants rated their pre-workshop computer knowledge level as 1.85 (on a scale of 1-5, where 1 represented minimal knowledge and 5 indicated very knowledgeable), and their comparative post-workshop computer knowledge level as 3.45.

In addition to rating their improvement in computer knowledge as substantial, 81% of the participants indicated they would be "likely" or "very likely" to attend future Cooperative Extension outreach workshops focused on computer applications. By a slightly higher margin, 85%, the participants found the computer lab to be "important" or "very important" to outreach education training programs.

Computer Lab Training Applications

Use of the computer lab to increase human capital has focused on the training programs indicated in Table 2.

Table 2.
Future Importance of Applications from This Computer Workshop

Computer Application	Level of Importance (%)					Mean Scale
	1	2	3	4	5	
Email applications	13.0	9.1	35.1	29.9	13.0	3.21

Internet ag applications	9.1	10.4	29.9	32.5	18.2	3.40
Basic word processing	2.5	11.1	30.9	33.3	22.2	3.62
Use of spreadsheets	2.4	7.3	37.8	30.5	22.0	3.62
Basic computer literacy	3.6	2.4	27.7	31.3	34.9	3.92
Livestock management	2.4	4.9	14.6	46.3	31.7	4.00
Crop management	1.3	3.8	19.0	40.5	35.4	4.00
Financial planning/analysis	1.2	2.4	14.1	31.8	50.6	4.28
Business record keeping	0.0	1.1	9.2	31.0	58.6	4.47
* Scored on a scale of 1-not very important to 5-very important (n=101).						

Business record keeping, financial planning, and financial analysis were viewed to have the greatest future importance for the workshop participants (Table 2). This finding is consistent with the mutual interest of FCS and farm management Extension specialists in establishment of the lab for producer financial management training. Crop and livestock management topics were also viewed to have greater future importance than, in particular, E-mail and Internet applications. Thus both finance and production management applications were found to be central to participants' training needs.

Integrating Information Management

More than 30% of the participants indicated that basic computer literacy, livestock and crop management, and financial and record management were very important. Thus, workshop participants recognized the computer as an important tool to manage farm business activities. Because the trend to increased computerization of management information has been in evidence for some time (Patton, 1986) and will with little doubt continue to occur in the future, the portable lab concept remains highly relevant to outreach education activities targeted to farmers.

Computer Lab Training Limitations

A third set of participant evaluations (n=34) obtained from another county Extension agent reaffirmed both the need for the computer lab training and its success (Table 3).

Table 3.
Knowledge Levels Regarding Computers and Programs

	Numeric Score (%)					Mean Scale
	1 Minimal	2 Poor	3 Moderate	4 Good	5 Excellent	
Computer operation						
Pre-workshop	58.8	14.7	23.5	2.9	0.0	1.71
Post-workshop	0.0	11.8	47.1	32.4	8.8	3.38
Program operation						
Pre-workshop	58.8	26.5	11.8	2.9	0.0	1.59
Post-workshop	0.0	11.8	38.2	47.1	2.9	3.41

The mean knowledge level ratings increased substantially from pre-workshop to post-workshop, although 58.9% of the participants indicated they still viewed themselves as having no more than "moderate" computer operation skills at the close of the workshop (Table 3). Correspondingly, 50% of the participants indicated their post-workshop knowledge of running programs was no better than "moderate." Thus, at least half of the workshop participants rated their knowledge levels regarding computer basics and program operation less than "good."

There was also evidence that the workshops were not helping business management skills of all participants, with 46.6% (not shown) of the participants indicating that they were "not very likely" or "uncertain" that the workshop helped them improve business management. This has traditionally been the case, that producers find they are not obtaining an adequate level of usage from their business software (Powell, Powell, Green, & Bitney, 1991). Because these low-experience participants still indicated broad satisfaction with the lab workshop, 88.6% reporting to be "satisfied" or "highly satisfied," there is a strong likelihood that follow-on computer training would be well attended and well received by these participants.

Specific Program Workshops

One key aspect enjoyed by the Extension agents was the flexibility of teaching what they thought was appropriate for their clientele. Significant success was enjoyed by agents in a variety of topics. One program was focused on basic computer and spreadsheet operation. These programs were very successful in enabling participants to gain an operational use of their computers and use of basic programs. In the case of spreadsheets, many knew basic accounting but were never exposed to the program's capability. Attending the workshop enabled participants to use spreadsheet applications for their own farm business needs.

Participants attending the basic computer operation workshops rated their pre- and post-workshop knowledge in 16 areas on a scale of 1 to 5 (n=30). The greatest change in knowledge was shown for creating shortcuts on the desktop (2.18 change in scale), deleting files from a floppy disk and hard drive (2.15), accessing control panels (2.11), and managing multiple windows (2.11). Overall, participants showed improvement of greater than 2 points on 4 topics and greater than 1.5 points on 10 topics.

Participants attending the spreadsheet workshop rated their pre- and post-workshop knowledge in 21 topics on a scale of 1 to 5 (n=39). Initial knowledge was very low, with 14 of the 21 areas averaging less than 2.0 (out of 5). Greatest gain in knowledge was shown inserting rows and columns, creating formulas, the use of if statements, and creating charts. Overall, participants gained more than 1.5 points on 6 topics and more than 2 points on 10 topics.

Reaching Under-Served Audiences

One of the greatest advantages of the computer lab has been the opportunity to provide programs to a previously under-served population. The 204 individuals attending an Extension computer training workshop across the state attended an average of 1.24 Extension meetings or events the previous year. More than 54% of the participants did not attend any Extension event the previous year.

One farm management agent commented on how the computer lab has opened the door to a class of progressive farm operators with whom he previously had minimal contact (Beck, 2000). Farmers attending the computer workshops have asked for additional assistance in use of farm and crop management computer applications. The lab has also been utilized to reach non-farm audiences. In one case, a family resource specialist took advantage of the lab to instruct providers of daycare centers on financial management software.

Limitations

One topic not addressed in the computer workshops to date is learning the use of the Internet. The computers were not initially equipped with modems, so use of the Internet was not possible. However, participants and agents have expressed the need to address Internet topics. The biggest obstacle to accessing the Internet is finding locations with enough phone outlets for 12 computers. Most of the workshops to date have been held in county Extension offices, which do not have this capability.

The computers will be upgraded with memory and modems this coming year to increase capability and versatility. This will allow workshops to focus to Internet applications. Just as the Internet is currently being used to train county Extension agents (Lippert, Plank, & Radhakrishna, 2000), it will also be used to train producers. With limited wired locations to choose from, it would indeed be a challenge find sites that can be used for the workshops while keeping the cost down to an affordable level.

The Outreach Training Challenge

A laboratory consisting of laptop computers can fulfill the challenge of providing a flexible, basic computer training program to producers who continue to be isolated from the high-tech computer

approach to business management. Identification of computer training needs in our case was assessed through comments and requests by clientele. There was an obvious need, although unmeasured, that agents sought to fulfill. Penn State Cooperative Extension was able to fulfill this need through partnering with ag business to fund the laboratory equipment.

Extension can surely capitalize to meet the needs of this under-served clientele niche to develop some persuasive grant proposals to fund and maintain a computer laboratory. Funding is generally a major problem because of the large initial costs. Success is also dependent on ensuring that there is adequate funding for equipment maintenance. In our case, a user fee was not designed to replace the equipment but to fund maintenance and upgrades. Final but not least, outreach computer training programs must have instructors with sound computer skills and training in the selected programs.

Penn State Cooperative Extension has been fortunate in having highly motivated agents who have put the lab to much use and enthusiastically accepted a role in coordinating the pick-up of the lab computers. Administrative details related to computer coordination and management of reservations of the lab via an Internet Web site need not be burdensome.

The benefits of the portable computer lab were found to be considerable. Extension agents were provided with a critical resource that helped them deliver a current, needed outreach program. Linkages with agribusiness, in this case FCS, were fostered by joint funding. The primary beneficiary, with little doubt, are farm families who receive expert, specialized instruction on computers and use of management programs that help them to survive and prosper in a highly competitive agricultural sector.

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