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Distance Education--A Case Study in Practical Application

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Abstract
An Extension distance education program was an attempt to provide practical information on pest management topics while assessing acceptance by Extension clientele to an alternative form of instruction. Over 94% of participants indicated they would attend another Extension program taught through the use of distance education. Furthermore, an analysis of costs indicates that there was a substantial cost savings realized as a direct result of the distance delivery format utilized. All Extension programs may not be appropriate for distance delivery; however, as educational practitioners, we must have the capacity to determine what instructional method is most appropriate for a given situation.

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Introduction

In March of 2001, University of Illinois Extension conducted a series of continuing education short courses on the topic of insect identification in urban and agricultural environments. The series was delivered for clientele at host sites by means of distance delivery utilizing the Internet and teleconferencing.

Means of information and knowledge transfer are rapidly changing within society. No longer can Extension rely solely on face-to-face contacts with clientele to accomplish the objectives of the organization (King & Boehlje, 2000). Learning opportunities must exist for clientele when, where, how, and in what form is most expeditious for them. The value of science-based objectivity has dropped in relative importance lately, with access and timeliness moving up as higher priorities for outreach audiences. Objectivity will reemerge as a high priority when access and timeliness are offered by everyone (King & Boehlje, 2000).

Research shows that the economics of online courses are complex and vary, depending on the delivery format used. However, institutional cost savings may be realized by utilizing distance education versus place-based delivery of programs.

The Insect Identification Series was an attempt to provide practical information on Integrated Pest Management topics while assessing acceptance by Extension clientele to an alternative form of instruction.

Methods

Extension clients (n=171) took part in an Insect Identification distance education series taught by University of Illinois Extension in March of 2001. The three-part series was delivered by means of the Internet and teleconferencing. All clients were required to take part in the first session on basic entomology (n=171) and then attend either one or both of the following sessions on urban

(n=116) or agricultural entomology (n=86). The programs were taught synchronously by Extension Specialists located centrally on the campus of the University of Illinois in Champaign.

Host sites were located in each region of the state. Participants attended the session(s) at the host site location. Live teleconferencing enabled synchronous audio interaction between instructors and participants. Computer slides, printed materials, and verbal discussions were used to facilitate the educational process.

Results and Discussion

An analysis of costs associated with the Insect Identification Series indicates that there was a cost savings associated with staff time and travel realized as a result of the distance delivery format of the program. Table 1 shows a comparison of selected costs associated with the distance delivery of the program versus a place-based delivery method.

The variable institutional cost (mileage) per participant was $0.00 per participant, compared to a potential $33.26 per person if the series of programs were taught at each of the 16 host locations. The elimination of 12,430 travel miles resulted in a cost savings for the university. Fixed costs per session (staff salary) were less for the distance program than for place-based delivery due to the fact that 210 hours were saved in staff travel time. These types of cost savings should be similar to those that the Extension system as a whole would experience when utilizing a distance delivery format over a place-based delivery method.

Table 1.
Variable Cost Comparison of Distance and Place-Based Instruction

Cost	Distance Delivery	Place-Based Delivery
Preparation time*	Same	Same
Travel time (16 locations)	0 hours	210 hours
Miles traveled/total cost @$.32 per mile	0/$0.00	12,430/$3892
* Personal conversation with instructors		

Program evaluations were submitted and tabulated from 12 host sites. Composite ratings from each host site (n=12) were tabulated (Table 2). Speed of Internet connections varied from high speed T1 connections to 56K dial-up modems. Although the speed of connection received the lowest evaluation rating of 3.72, a high rating of 4.03 was indicated when participants were asked if they would be able to apply knowledge gained during the program. This would indicate that speed of Internet connection might not necessarily be a limiting factor with regards to the ability of participants to gain knowledge and ultimately apply that knowledge.

Table 2.
Program Evaluation Composite Ratings

Rating the Presenter(s):	
1. The instructor presented the information at a level appropriate for me. strongly disagree 1.....2.....3.....4.....5 strongly agree	**Avg. 4.22**
2. The instructor answered questions clearly and concisely. strongly disagree 1.....2.....3.....4.....5 strongly agree	**Avg. 4.13**
Rating the Information:	
1. How useful was the information presented? strongly disagree 1.....2.....3.....4.....5 strongly agree	**Avg. 4.14**

2. I will be able to apply knowledge I gained in real life situations. strongly disagree 1.....2.....3.....4.....5 strongly agree						**Avg. 4.03**
Rating Teaching Methods and delivery:						
The distance education format used was	1 poor	2	3	4	5 excellent	**Avg. 4.14**
The speed of the Internet connection was	1 poor	2	3	4	5 excellent	**Avg. 3.72**
The instructor's use of the distance education format was (i.e., encouraging discussion related to the material on screen)	1 poor	2	3	4	5 excellent	**Avg. 3.93**
My ability to discuss questions with instructors during the program was	1 poor	2	3	4	5 excellent	**Avg. 3.95**
The educational quality of the PowerPoint programs used for discussion was	1 poor	2	3	4	5 excellent	**Avg. 4.16**
Overall, rate the quality of the delivery method	1 poor	2	3	4	5 excellent	**Avg. 4.07**

These results are similar to those from other studies that indicate that increasing the video capability of an Internet-based course does not necessarily improve the learning of factual information (Wisher & Curnow, 2000). Furthermore, even with the speed of Internet connection varying so markedly across the state, 94.75% of participants statewide indicated they would attend another Extension program taught through the use of distance education.

Participants rated the quality of the delivery method high at 4.07 indicating that the instructional format used was appropriate in this situation. A rating of 4.14 was given when asked about the usefulness of the information presented, further reinforcing that knowledge can be gained by Extension clientele through methods other than place-based education.

Conclusions

Distance education is an appropriate and viable method for Extension to integrate into its educational programming efforts. It is important to realize that the distance delivery format chosen must be appropriate for the program being taught and the clientele being served. Not all Extension programs will be appropriate for distance delivery. As educational practitioners, we must have the capacity to determine the instructional method most appropriate for a given situation. In addition, we must possess the ability to facilitate the multiple learning styles of clientele participating in our distance education programs.

This fact was made evident to the authors when one host site decided to offer the Insect Identification Series by teleconferencing (audio) only and to omit the Internet (visual) portion of the program. Composite results from this host site were markedly lower than from the other host locations utilizing both audio and visual portions (Table 3).

Table 3.
Composite Evaluation Scores from a Host Site Using Only Audio Portion of the Program

Rating the Presenter(s):	
1. The instructor presented the information at a level appropriate for me. strongly disagree 1.....2.....3.....4.....5 strongly agree	**Avg. 2.8**
2. The instructor answered questions clearly and concisely. strongly disagree 1.....2.....3.....4.....5 strongly agree	**Avg. 3.0**

Rating the Information:						
1. How useful was the information presented? strongly disagree 1.....2.....3.....4.....5 strongly agree						**Avg. 2.9**
2. I will be able to apply knowledge I gained in real life situations. strongly disagree 1.....2.....3.....4.....5 strongly agree						**Avg. 2.8**
Rating Teaching Methods and delivery:						
The distance education format used was	1 poor	2	3	4	5 excellent	**Avg. 1.5**
The speed of the Internet connection was	1 poor	2	3	4	5 excellent	**Avg. 0.7**
The instructor's use of the distance education format was (i.e., encouraging discussion related to the material on screen)	1 poor	2	3	4	5 excellent	**Avg. 1.1**
My ability to discuss questions with instructors during the program was	1 poor	2	3	4	5 excellent	**Avg. 2.0**
The educational quality of the PowerPoint programs used for discussion was	1 poor	2	3	4	5 excellent	**Avg. 1.0**
Overall, rate the quality of the delivery method	1 poor	2	3	4	5 excellent	**Avg. 1.4**

As Extension looks towards the future and its role in providing opportunities for its clientele to learn, we must continually strive to improve our ability to actively engage the learner through whatever delivery method is chosen. Extension administrators can encourage their educators to utilize distance technologies through support of new delivery mediums, professional development opportunities for staff, time to practice utilizing the technology, and a financial commitment to a technology infrastructure capable of supporting new educational initiatives.

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