Proc. Fla. State Hort. Soc. 121:399–401. 2008.

Comparing the Costs and Educational Value of Delivering Distance Education Programming versus Traditional Face-to-face Classroom Education

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ADDITIONAL INDEX WORDS. Continuing Education Units, pesticide license, distance education

Extension clients have indicated that to remain competitive in a changing industry they need educational programming (DeCamp et al., 2001). In the past, this was accomplished through a face-to-face classroom setting (Chambers et al., 2006). Although research has shown that the value of classroom delivery is still important, producers have become concerned with increases in the cost of traveling to a live classroom (DeCamp et al., 2001). In an effort to help curtail costs associated with face-to-face workshops while still delivering pertinent educational resources, a statewide team of University of Florida/IFAS Commercial Horticulture Extension educators began authoring a series of monthly articles in a regional commercial nursery industry magazine. The purpose of this study was to compare costs associated with traveling to a traditional face-to-face classroom situation against costs incurred through receiving the same material via distance education. This study determined the effectiveness, satisfaction, and quality of the resources delivered via distance education.

Through the creation of the Smith-Lever Act of 1914, the Cooperative Extension Service was empowered with the mission to educate the public about agriculture, home economics, rural energy, and other subjects (Smith-Lever Act, 1914). As a result of Smith-Lever, the mission of Extension has been to deliver objective research-based education to its clients in a number of settings (Chambers et al., 2006). The dissemination of this information has for years been delivered through face-to-face classroom methods, field, and demonstrations (Chase et al,. 2006). However, methods of information and knowledge transfer are constantly changing and Extension can no longer rely exclusively on face-to-face contacts with clientele to achieve the objectives of the organization (Cecil and Feltes, 2002). Research has shown that the value of face-to-face education delivery is still important; however, some Extension clients in the production field have become concerned with the cost (DeCamp et al., 2001). Today, with advancements in technology, higher values for information are being placed on convenience and access (Boehlje and King, 2000). However, with the growing popularity of distance-delivered education technology, questions are still being asked as to the effectiveness, cost, and satisfaction of distance-delivered education compared to traditional face-to-face classroom activities (Risdon, 1994).

The following objectives guided this study: 1) to evaluate participant satisfaction with obtaining Continuing Education Units (CEUs) via distance education; and 2) to determine if the method for delivering educational material via a distance mechanism is more cost effective than delivering similar educational material in a classroom environment.

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Materials and Methods

To begin this process, a survey instrument was developed and randomly distributed to 80 article readers by both e-mail and phone survey with a response rate of 43 (n=43). To determine the educational value of the articles, questions regarding clarity, information transfer, and delivery methods were asked of the participants. Participants rated their responses using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Results from the respondents were then entered into a Microsoft Excel spreadsheet and mean scores were calculated.

To determine economic costs associated with traveling to a classroom workshop, survey questions regarding travel time and distance, worth of personal time in dollars per hour, registration and food costs, and estimated vehicle gas mileage in miles per gallon (MPG) were asked. The results were averaged out and then placed into a distance learning calculator created by the State University of New York learning network, for analysis. Those figures were then compared utilizing the same process to the costs of earning CEUs via the distance articles.

Results / Discussion

Results indicated that respondents strongly agreed the articles were clearly presented (m=4.55) and delivered at an understandable level (m=4.74). Participants were also presented with questions rating the value of the information. Results indicated the licensed pesticide applicators strongly agreed the articles helped to maintain their current license (m=4.62), and that the information was transferred into daily work routines (m=4.74). When asked to rate the distance delivery process, results indicated that the format was convenient to daily work schedules (m=4.67), and that information should be delivered more often via a distance mechanism (m=4.72). When asked if the articles would be used as a ongoing source of earning CEUs, the results indicated a strong

Table 1. Educational value of articles to the reader (n=43).

	M	SD
Rating the author(s):		
1. The author(s) presented the information at a level appropriate for me to understand.		
strongly disagree 1 ... disagree 2 ... not sure 3 ... agree 4 ... 5 strongly agree	4.74	0.44
2. The questions asked by the author(s) were clearly stated and found within the article content.		
strongly disagree 1 ... disagree 2 ... not sure 3 ... agree 4 ... 5 strongly agree	4.55	0.58
Rating the Information:		
1. The information presented in the article(s) helped to maintain my pesticide license.		
strongly disagree 1 ... disagree 2 ... not sure 3 ... agree 4 ... 5 strongly agree	4.62	0.65
2. I was able to apply the knowledge I gained to real life situations.		
strongly disagree 1 ... disagree 2 ... not sure 3 ... agree 4 ... 5 strongly agree	4.58	0.54
3. I found the article(s) interesting and informative.		
strongly disagree 1 ... disagree 2 ... not sure 3 ... agree 4 ... 5 strongly agree	4.74	0.44
Rating the Distance Delivery Method:		
1. The delivery format used to earn continuing education units was convenient to my work schedule		
strongly disagree 1 ... disagree 2 ... not sure 3 ... agree 4 ... 5 strongly agree	4.67	0.56
2. I would like to see distance education used more often when delivering educational material.		
strongly disagree 1 ... disagree 2 ... not sure 3 ... agree 4 ... 5 strongly agree	4.72	0.45
3. I will continue to earn CEUs by reading the Ornamental Outlook CEU series		
strongly disagree 1 ... disagree 2 ... not sure 3 ... agree 4 ... 5 strongly agree	4.76	0.41

degree of agreement (m=4.76). Table 1 displays the results of the value of the magazine articles to the reader.

The second section of the survey was designed to compare costs associated with earning CEUs through traveling to a face-to-face classroom workshop to the costs of earning the same CEUs via a distance mechanism. Analysis of costs associated with travel indicated the driving expense for classroom workshops averaged $9.31 and that commuting costs other than driving was $73.00. The average costs of personal time associated with earning CEUs through the classroom environment equaled $37.70. The average cost of personal time for earning CEUs through a distance mechanism was 17.40. The total average costs from this study indicated travelling to a classroom program would cost the participant $120.00, while receiving equivalent information via distance mechanism would cost $17.40. This represented a savings of $102.61 between the two methods. Table 2 shows the comparison of traveling vs. distance education costs.

Several conclusions can be drawn about participants' satisfaction with the articles presented through distance education. First, participants were satisfied with the content of the articles and the convenience of earning CEUs through them. These results parallel previous research, which indicated higher values for information are being placed on convenience and access (Boehlje and King, 2000). Second, it was indicated that the articles offering of CEUs enabled the licensed pesticide applicator to maintain a current license. By maintaining a license, the holders will remain competitive in their respective fields, concurring with DeCamp et al. (2001), who found that to remain competitive in a changing industry, producers need educational resources. This survey also indicated participants were able to transfer the knowledge they gained from the articles into their work routines. This may be the single most important aspect of Extension education and an important component of the Smith-Lever act.

Conclusions from the cost comparisons indicated that earning CEUs online saved the participant $102.61. These savings can help satisfy the concerns found in past research that producers have toward the cost of travel to educational programming.

To improve the depth this study, the results may be more conclusive if the survey was placed on the Ornamental Outlook website, increasing the opportunity for reader response. Results could then be analyzed at the end of an article's cycle (1 year), and made easily available to participating authors for evaluation. The results could also provide the magazine and its advertisers with a reasonable indication of any value in providing column space and advertising dollars for the articles. An interesting parallel study to this project may be to determine the preparation and associated travel costs for Extension educators to deliver classroom education, and compare those costs to delivering similar information via distance.

Conclusion

With increasing costs for travel, it will become more difficult for the Extension educator to attract clientele into the traditional classroom environment. This was supported by results from this study, which indicated that the participants strongly agreed

Table 2. Comparison of traveling vs. distance education costs (per CEU).

Classroom vs. distance cost comparison	Classroom	Distance
1. Cost of driving expense (assuming gas cost @ $3.00 per gallon):	$9.31	$0.00
2. Your commuting costs other than driving:	$73.00	$0.00
3. The cost of personal time used for earning continuing education units	$37.70	$17.40
Total costs of traveling to a classroom workshop vs. distance education	$120.01	$17.40
Difference between the cost of traveling to a classroom workshop vs. distance education	**$102.61**	---

(m=4.72) that they would like to have educational material delivered more often through distance means. This study also implied that in today's continuing education environment, high value is placed on learning convenience. Extension educators must understand and respond to this paradigm shift, and begin to develop and integrate innovative distance delivery methods. These methods must help curtail participant costs while providing relevant, easily understood, and applicable information that also complements the increased workload of today's society.

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