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User Perceptions of the University of Florida's On-line System for Continuing Educational Opportunities for Certified and Licensed Pesticide Applicators

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Abstract: The University of Florida offers CEUs through an approved online system to meet recertification standards for applicators of pesticides to renew their licenses. The system allows Florida applicators to achieve recertification with minimal time away from work. Data extracted from a portion of the audience completing our second-year surveys show that applicators perceive our online system as an effective and comfortable method to learn. The applicators in our survey are also likely to use Web-based learning tools in the future

Introduction

Federal and Florida law require that applicators of pesticides classified as "restricted" be certified and licensed. During the mid-1970's, the Federal Insecticide, Fungicide, and Rodenticide Act (USEPA, FIFRA, 2005) was amended to authorize each state to enact a certification/licensing program for applicators of restricted use pesticides. The regulating agency for this program in Florida is the Florida Department of Agriculture and Consumer Services (FDACS, 2007). Restricted use pesticides are those that are classified as such by the EPA because they pose a significant risk to humans or to the environment. For a person to become certified to purchase and handle restricted use pesticides, they must meet competency standards as demonstrated by passing (70%) mandated examinations.

To keep the license valid, pesticide license holders must accumulate between four and 20 continuing education units (CEUs) every 4 years, depending on license type. In Florida, FDACS is very flexible in the type of CEU programs they will approve (Fishel, 2008). Traditionally, live, face-to-face programs conducted by the UF/IFAS Extension Service have been the most common venue. In recent years, Internet and software technological advances have provided opportunities for Extension educators to develop internet-based

learning activities.

An early assessment study with pesticide applicators conducted in Oregon compared interactive computer with traditional classroom training. The study found, at least short-term learning in this audience, interactive computer training to be equal to traditional delivery methods while requiring 50% less time (Shenk, 1999). Since that study, online opportunities for pesticide applicator CEU credit have been developed in Washington (Washington State University, 2008) and Florida (Ferrell & Fishel, 2007).

This article reports on user perceptions of our online system during its second year of availability.

Methodology

Our development effort was initiated during 2006, became publicly available later that year, and is described in Ferrell & Fishel (2007). A preliminary survey instrument administered with our online system during its initial year was designed to provide input for logistical purposes (data not reported). Our preliminary questions of concern involved applicator acceptance, ease of use, and software capability. Results were overwhelmingly positive.

A follow-up survey instrument was put into place during 2008 to better ascertain applicator perceptions of effectiveness and likelihood of using Web-based learning in the future. Applicators who purchased tutorials during a 2-month period in early 2008 were surveyed for the data collection (n = 21). In order to receive the CEU, users of our system were required to complete the brief survey. Our questionnaire asked two yes/no response questions and contained 4 statements using a 5-point Likert scale (5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, and 1 = strongly disagree). Response means are presented along with their standard deviations.

Results and Discussion

The first two questions of the survey attempted to ascertain applicators' experience using Web-based learning tools and the likelihood of them using it in the future. Apparently, Web-based training was a new experience for most (76%) of the applicators who used our online CEU system. A positive perception from an Extension educator's viewpoint is that of the 16 first-time users, 14 of them (88%) plan to use Web-based learning tools in the future. At least with our system, nine of these 21 applicators took additional tutorials later during this same 2-month period. Several took a total of three or four tutorials. Although not directly asked, this may have been due to the fact that these nine applicators were very close to reaching their license expiration dates.

The four statements in the survey addressed their perceptions of Web-based learning tool effectiveness. All 21 of the applicators either strongly agreed or agreed that the online tutorial they took was an effective method of presenting information and an effective method of learning. We can't quantify this due to limitations of our current management system, which will not save and retrieve our tutorials' pre- and post-test scores.

Concerning the effectiveness of Web-based learning tools when compared to traditional "face to face" classes, responses were variable (response mean = 4.05; sd = .97), but they generally agreed that it seemed just as effective. Previous studies have quantified data using pre- and post-tests for comparing computer-based learning to traditional classes and found no differences in learning turfgrass management technology (Mayfield, Wingenbach, & Chalmers, 2006). This may be true, at least with their short-term learning. Long-term learning effectiveness would require future study. Because we have spent a significant effort into launching this project, it was reassuring to see the response level regarding applicator comfort in

using such a system for learning (4.52). This was our initial assumption; this confirms those thoughts.

Table 1.
Pesticide Applicator Response to the University of Florida Online CEU System (n = 21).

Survey Question	**Yes**	**No**
Is this the first Web-based tutorial or training that you have completed?	16	5
If yes, do you plan to use Web-based learning tools in the future?	14	2
Survey Statement	**Response Mean[1]**	**SD[2]**
I found this tutorial to be an effective method of presenting information.	4.52	.50
I found this tutorial to be an effective method of learning.	4.62	.49
I found this tutorial to be just as effective for learning as traditional "face-to-face" classes.	4.05	.97
I feel comfortable using this Web-based tutorial as a way of learning.	4.52	.66

[1]Mean was based on a 5-point scale where 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, and 1 = strongly disagree.
[2]Standard deviation.

Implications

Because certification and licensing of pesticide applicators is mandated by law, opportunities will always exist to provide educational opportunities. Web-based learning presents opportunities for Extension educators to effectively teach relatively technical subject matter. The technology is also an opportunity for Extension educators to increase their clientele base while maximizing cost and time efficiency. Because our results show that this audience is comfortable with online learning tools and is likely to use these tools in the future, it should be an indication to Extension educators of opportunities that this technology presents.

References

Ferrell, J., & Fishel, F. M. (2007). Using Articulate® to develop on-line pesticide training modules. *Journal of Extension* [Online], 45(5) Article 5TOT5. Available at http://www.joe.org/joe/2007october/tt5.shtml

Fishel, F. M. (2008). Providing quality continuing educational opportunities for certified and licensed pesticide applicators. *Journal of Extension* [Online], 46(2) Article 2TOT5. Available at http://www.joe.org/joe/2008april/tt5.shtml

Florida Department of Agriculture and Consumer Services (2007). Florida Pesticide Law. Retrieved February 12, 2009 from: http://www.flaes.org/statutesandrules.html

Mayfield, C. A., G. J. Wingenbach, & D. R. Chalmers (2006). Using CD-based materials to teach turfgrass management. *Journal of Extension* [Online], 44(2) Article 2FEA5. Available at http://www.joe.org/joe/2006april/a5p.shtml

Shenk, M. (1999). Improving PAT and IPM training through an interactive training/testing program. *Journal of Pesticide Safety Education* 1:11-14. Retrieved May 3, 2008 from: http://www.jpse.org/jpseShenk.pdf

U.S. Environmental Protection Agency (2005). Federal Insecticide, Fungicide, and Rodenticide Act. Retrieved May 3, 2008 from: http://www.epa.gov/region5/defs/html/fifra.htm

WSU Urban IPM and Pesticide Safety Education Program (2008). Pesticide Applicator Internet Recertification. Retrieved February 12, 2009 from: http://cru84.cahe.wsu.edu/cgi-bin/pestrecert

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