

An Evaluation of Web-based Training on Water Resources for Extension Professionals

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Introduction

- A gap was identified between water training programs and the knowledge base of Colorado State University (CSU) Cooperative Extension (CE) faculty.
- CSU Cooperative Extension administrators became interested in funding a water training course for its faculty.
- An interest developed in evaluating the effectiveness of the Web-based education as a means to deliver water resources training to CSU Cooperative Extension faculty.
- CES W101 "Colorado Water Basics" was developed and implemented in order to fulfill this evaluation process.

Objective

- To evaluate the effectiveness of an online training course for CSU Cooperative Extension faculty concerning natural resources.

Participants

- Study population = 250 Colorado CE Agents & Specialists
- Participant age range = 20 to 60 years old
- 41 Colorado CE faculty volunteered to participate
- 17 participants completed CES W101 Colorado Water Basics
- 24 faculty members completed a follow-up survey

Faculty Area of Specialization

Agronomy	3
Agriculture/Natural Resources	2
Agriculture/4-H	2
Animal/4-H	1
Horticulture	3
Horticulture/Natural Resources	1
Water Resources	1
Community Development	2
Consumer/Family	1
Unspecified	1
Total Participants	17

Methodology

- Development of the course curriculum
- Evaluation of various electronic delivery methods
- Design and implementation of course onto Web Course Tools (WebCT)
- Administration of course to Colorado CE faculty
- Evaluation of the course

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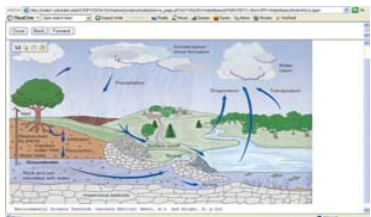
- The Course Content Page guided students through the course content material.
- This page also directed students to a pretest, posttest, 3 quizzes, an online survey, a glossary and discussion questions.

Example Content Page



- This is the first page of the Water Basics section of the course.
- Clicking on the blue links, within the text, displays a definition for the given term.
- Students can also access visual representations and websites by clicking on the blue links at the bottom of the page. (See the Hydrologic Cycle Graphic below)

Example Graphic Page



- All course material, including photos and graphics, are currently maintained online and made available to agents as reference material and for their own training programs.

Course Evaluation

Quantitative

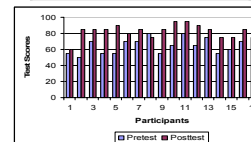
- A comparison of pretest and posttest scores was performed.
- Three quizzes tested participants' knowledge of course content.

Qualitative

- An online survey evaluated the participants' perceptions of the course.
- Follow-up survey evaluated the reasons why faculty did not complete the course.

Comparison of Pretest and Posttest Scores

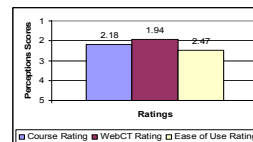
	Mean	N	Std. Deviation
Pretest	65.0	17	9.7
Posttest	83.8	17	8.9



Survey Results

- 11 participants (64%) rated the course as excellent or good.
- 14 participants (82%) rated WebCT as excellent or good.
- 9 participants (53%) rated the course's ease of use as either excellent or good.

Course, WebCT, and Ease of Use Ratings



- Ratings were based on a Likert scale with: 1=excellent, 2=good, 3=average, 4=fair, 5=poor.

Survey Comments

- "Very good course!!! It's great to be 300 miles from CSU and able to take a course like this one."
- "I have taken other WebCT courses and this was easy to navigate. It's really nice that the quizzes and tests were graded instantly...Thanks!"
- "Sorry, but I don't like the computer-based format at all...I like the subject matter very much and the info provided was interesting. But it would be more useful for me to have this on paper."

Conclusions

- Developing online courses requires a substantial amount of time and money, but costs decrease significantly after initial course development.
- Web-based training can be offered to large numbers of faculty with minimal incremental costs after the initial course development is completed.
- A demonstrated increase in knowledge of course material occurred, shown by the increase of mean scores from pretest to posttest.
- Perceptions of the course, WebCT, and course ease of use were positive.
- Time was given as the primary reason for not completing the course.
- Learning style preferences of participating agents ranged from a technology oriented to a classroom-oriented setting.

Implications for Cooperative Extension

- Natural resource-related subject matter can be effectively delivered to CSU Cooperative Extension faculty by online distance courses.
- A significant amount of time and money is necessary for the initial development of web-based educational courses.
- Adequate faculty incentive from both administrators and supervisors is necessary to justify the time, money, and effort necessary for web-based training.
- Online training that is regularly updated can provide professional development training for new and existing staff for an indefinite period of time.

Additional Resources

- A second course concerning water conservation was developed and offered to CSU Cooperative Extension faculty via WebCT. This course built upon the information learned during the development of the first course.
- A water quality interpretation tool was also developed to help agents, farmers, ranchers, and residents determine whether their water supplies are suitable for various uses. (See Below)

Water Quality Interpretation Tool



Go to the following site to access the Water Quality Interpretation Tool: <http://www.colostate.edu/Depts/Soil/Crop/extension/WQ/>