

RESEARCH / MANAGEMENT FINDINGS

"The Internet is enabling us to address these educational challenges, bringing learning to students instead of bringing students to learning. It is allowing for the creation of learning communities that defy the constraints of time and distance as it provides access to knowledge that was once difficult to obtain."

— *The Power of the Internet for Learning: Moving from Promise to Practice*, 2000



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Using Webconferencing to Teach about Internet Mapping and Related Technologies

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INTRODUCTION

The rapid development of computer-based spatial technologies, such as geographic information systems, and their integration with the Internet has resulted in a range of new tools for planning, conservation, and environmental protection. In addition, the Internet has become "an important addition to the natural resource learning community and must be tailored to suit different users needs" (High and Jacobson 2005). Recognizing these developments and building on our experiences from multiple in-person training sessions, we collaborated with the University of Wisconsin-Extension's Environmental Resource Center (ERC) to test webconferencing as a means of teaching local officials to use a variety of Internet tools. Through four webconference sessions, we taught local government officials and planners throughout Wisconsin how to use a selection of Internet mapping and related tools. We then surveyed webconference participants to determine the effectiveness of this capacity building method. This report describes our "Internet Tools for Natural Resources: Local Government Webcast Series," summarizes the survey design and administration, and presents the results.

METHODS

The Webconference Series

Webconferencing combines audio conference calling with visually interactive, web-based materials. Participants dial in to a telephone conference call and use their Internet browsers to access a pre-assigned URL to access a conference¹. This modern training method used for distance learning gives participants the ability to hear an instructor while simultaneously viewing the instructor's computer monitor. The technology allows participants to give instructors feedback on the pace of the presentation and their comprehension of the material presented. An instant messaging function allows participants to ask questions privately in real-time.

Using Microsoft's Live Meeting 2005® software², we hosted four monthly, 1.5-hour, topic-specific webconferences in early 2006 (Table 1). ERC provided advice on appropriate teaching approaches, facilitated a pilot testing opportunity, and publicized the series. During each session, we provided information about and demonstrations of two tools that are available freely on the Internet (Table 1).

Local officials could register for an individual webconference or the entire series. When registering, they chose to view the webconference either by attending a group viewing or by participating at their own computer. UW-Extension's county-based educators hosted group viewings in 19 Wisconsin counties (Figure 1).

¹ For more information on webconferencing, see www.uwex.edu/ics/wlw/about.htm.

² Mention or depiction of trade names and commercial products does not constitute endorsement of their use.

Table 1. The "Internet Tools for Natural Resources: Local Government Webcast Series" sessions. Tools demonstrated during each session are listed; an asterisk following a tool name indicates a tool included in our survey of participants.

Internet Tools for Finding Natural Resources Data and Soils Information

January 24, 2006

Web Soil Survey *

Type of Tool: Data clearinghouse and online mapping tool
Developer: Natural Resources Conservation Service
Web Address: websoilsurvey.nrcs.usda.gov/app/

WISCLINC

Type of Tool: Data clearinghouse
Developer: Wisconsin State Cartographer's Office
Web Address: www.sco.wisc.edu/wisclinc/

Internet Mapping Tools for Water Resources

February 28, 2006

Surface Water Data Viewer *

Type of Tool: Interactive mapping tool
Developer: Wisconsin DNR
Web Address: dnr.wi.gov/maps/gis/applist.html

DNR WebView

Type of Tool: Interactive mapping tool
Developer: Wisconsin DNR
Web Address: dnr.wi.gov/maps/gis/applist.html

Internet Mapping Tools for Land and Biological Resources

March 28, 2006

Natural Heritage Inventory Online Database *

Type of Tool: Online database and interactive mapping tool
Developer: Wisconsin DNR
Web Address: dnr.wi.gov/org/land/er/nhi/NHI_ims/onlinedb.htm

Comprehensive Planning Webmapping Site

Type of Tool: Interactive mapping tool
Developer: Wisconsin DNR
Web Address: atriweb.info/Maps/Landuse/index.htm

Internet Modeling Tools for Predicting Impacts of Land Use Change on Runoff

April 25, 2006

Long-Term Hydrologic Impact Assessment *

Type of Tool: Online modeling tool
Developer: Purdue University
Web Address: www.ecn.purdue.edu/runoff/lthianew/

Digital Watershed

Type of Tool: Online computing center and watershed delineation tool
Developer: Michigan State University
Web Address: www.iwr.msu.edu/dw/

One week prior to each webconference, we sent two instructional e-mails to all registered participants. The first provided instructions for using the webconference technology (i.e. downloading the free software needed to view the webconference, connecting to the web and audio portions, contacting technical support for help with any difficulties, etc.). The second e-mail contained instructions for using each of the featured tools, as well as additional resources for further exploration.

Survey Design and Administration

In early August 2006, a little more than 6 months after the first webconference, we conducted an e-mail survey of participants. We asked each participant for feedback regarding one of the tools (Table 1) demonstrated at one of the webconference sessions that s/he had participated in. Limiting surveys to a single tool allowed respondents to avoid generalization of answers and ensured that the data collected would be useful when evaluating our efforts. We determined which survey to send each participant through a random selection of webconference sessions. If the participant didn't register for the selected session, a different one was chosen from the list of sessions s/he did register for. We tried to e-mail an equal number of surveys for each session.

We designed the survey to minimize respondent burden. We included the survey questions within the body of an e-mail so that participants only had to reply to the e-mail and place "x" marks next to their answers to the survey's questions. Four days after sending the initial survey, we followed up with a second e-mail to all participants thanking those that had already completed the survey and reminding those that hadn't to do so by a certain date. A day before the specified date, we sent an additional e-mail, with the survey again included, to those participants who had not completed the survey asking them to do so by the following week. Overall, we received a 54 percent response rate ($n=52$). We pooled responses for the four different tools for our analysis and reporting.

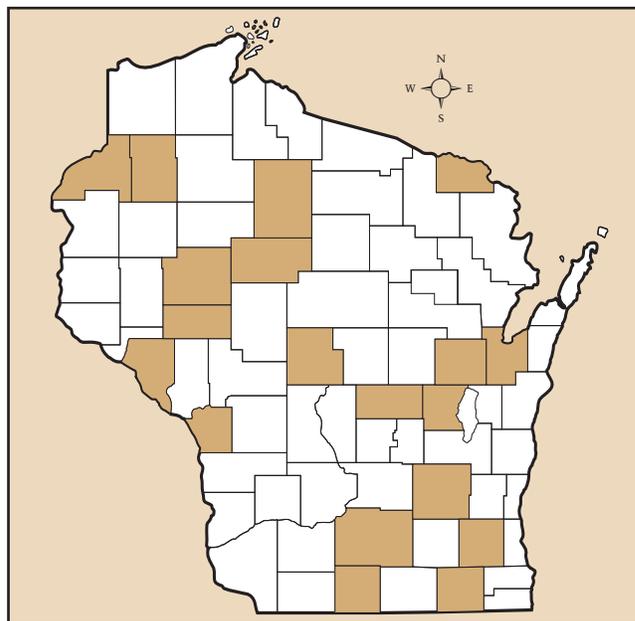


Figure 1. UW-Extension's county-based educators hosted group viewings at 19 Wisconsin locations (shaded counties).

RESULTS AND DISCUSSION

Interest in and Understanding of the Tools

We asked each participant how interested s/he felt about trying a specific tool after the webconferences. Asking about a specific tool allowed us to separate participants' general interest in Internet resources from their interest in the specific tools. Ninety-three percent indicated they were either somewhat or very interested (as opposed to not too interested or not at all interested) in trying the specific tool they were asked about.

We recognize that a participant may know what a specific tool is and how it functions, but not know how to apply it in her/his day-to-day work. Therefore, we also asked participants to estimate their level of understanding of how the tool can be applied to their work. Seventy-eight percent felt they had a good or very good understanding (as opposed to fair, poor, or unsure understanding) of how the tool could be applied.

Using the Tools

A technology's value wanes unless the technology can be transferred to a user who can apply it to create a tangible benefit. We wanted to know how well respondents understood the tools, as well as if and how the respondents used the tools.

We asked participants how confident they felt using the tools on their own following the webconference. Ninety-six percent indicated they were somewhat or very confident (as opposed to not too confident or not at all confident). This suggests the tools demonstrated during the webconferences are user friendly and the webconferences were effective enough for participants to feel confident in using the tools on their own.

We asked participants if there were opportunities to use the tool in their work. Seventy-eight percent thought there was probably or definitely an opportunity to use the tool in their work. We also asked participants how many times they had used the tool for their work since the webconference (3-6 months later). Seventy-one percent used the tool at least once and 54 percent indicated they had used a given tool for their work 2 or more times. We asked participants to share specific tasks that they employed the tools for. Table 2 provides representative responses to this open-ended question.

Finally, we asked participants how likely it was that they would use the tool in their future work. Seventy-five percent thought it was somewhat or very likely (as opposed to not too likely, not at all likely, or unsure) they would use the tool in the future.

No single one tool can be used for everything and many times tools are only needed in specific situations. Nonetheless, taken together, these results suggest that local government officials value the tools we demonstrated for the work that they do. We cannot, however, conclude that the low level of use of a tool implies that it is not useful or that it will not be used for work. It is quite possible that a situation to use it hasn't arisen yet.

Accessing the Tools

Participants may understand a tool, be interested in a tool, and know how to apply a tool in their work, but still might not go back to the Internet tool website and use it. Anything is easy to forget about if not used often enough. As a result, when a situation arises in which the tool might be of use, it may not be thought of. Therefore, we asked participants how soon after the

Table 2. Representative responses to the question "What did you use the tool for?" Responses are provided verbatim.

- Sorting out soil layers for slopes and depth to bedrock.
 - Comprehensive land use planning, storm water management planning, storm water permitting, site and public infrastructure engineering and design.
 - Showing others that it existed and how to use it.
 - Checking distribution of threatened and endangered species.
 - Show landowners what's available.
 - It had to do with water quality issues on Lake Koshkonong but I don't remember exactly.
 - A Landscape Ecology/GIS class.
 - Review some sites in our community.
 - Subdivision reports.
 - To determine if there were prime statewide important soils on a parcel of land we were considering protecting.
 - Research for hydric soils.
 - Project planning.
-

webconference they visited the tool's website. Eighty-two percent visited a tool's website within 1 week after the webconference; only 11 percent never visited the tool's website following the webconference. The quickness of visiting the site may be a further indication of participants' interest in the tools.

We also asked if participants bookmarked the tool's website or added it to their Internet "favorites" folder. Given the sometimes long and strange URLs associated with the different tools (Table 1), bookmarking provides an efficient way of repeatedly accessing a site. In addition, experience tells us that users often bookmark frequently used websites. Thus, bookmarking may be another indication of the interest in a tool and the possibility of using it in the future. Therefore, we were a little surprised that despite their interest in, and use of, the tools, only 42 percent of participants indicated they bookmarked a tool's website. There are, however, other ways to get to sites quickly and participants in other sessions we have conducted have suggested assembling links to the most useful tools on a single web site, something we plan to follow through on.

Teaching and Learning about the Tools

When participants share their knowledge with colleagues or customers, they extend the benefits of our work. Given this, we assessed participants' confidence in showing someone else how to use a tool. Sixty-seven percent indicated they were either somewhat or very confident (as opposed to not too confident or not at all confident) in showing others how to use the tool.

High and Jacobson (2005) described in two case studies how "the growth of the Internet, combined with the shifting demographics of private forest landowners that indicate increasing Internet use, presents great opportunities for natural resource extension." We have observed similar circumstances throughout the Midwest and wanted to assess participants' training preferences related to the Internet. We asked them if given a choice would they rather participate in a web-



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conference or an in-person workshop. Forty-four percent indicated they would rather participate in a web-conference, 30 percent in a workshop, and 11 percent in either. Fifteen percent felt unsure. These results are similar to results found elsewhere. Local officials in New York, Pennsylvania, and West Virginia “predominantly prefer face-to-face training,” but were willing to give distance learning a chance (Kelsey, et al. 2002). A majority (55%) of county Extension agents from 6 southern states (Alabama, Georgia, South Carolina, North Carolina, Florida, and Virginia) thought that training offered through the Internet can be as effective as a face-to-face learning environment (Lippert, et al. 2000). Together these results seem to suggest webconferencing could be an important element of the environmental outreach tool kit.

The time and financial costs associated with travel appear to be the main reasons for preferring webconferencing over in-person workshops. Webconferences also allow more individuals to receive the training at once. Having the ability to participate as groups during webconferences can give the webconference an in-person workshop feel and foster peer learning, while limiting costs.

One hundred percent of respondents indicated that the instruction sheets e-mailed in advance of the webconferences were either somewhat or very helpful (as opposed to not too helpful or not at all helpful) suggesting written materials that supplement webconferences may enhance their effectiveness as a training method.

Just as others (e.g., Lippert et al., 1998) have concluded that “this approach to in-service training requires considerable planning in anticipation of possible problems,” we too believe effort must be put into prior planning for webconferencing to be an effective technology transfer technique.



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