

eSCHOOL NEWS

Technology News for Today's K-20 Educator

www.eschoolnews.com

Volume 8, No. 5 \$10.00

May 2005

By the Numbers

Find out which technologies your colleagues plan to buy. | PAGE 6

Best Practices

How to make large classes more personal—and interactive. | PAGE 9

Viewpoint

What the future of one-to-one computing will look like. | PAGE 37

May 2005

eSCHOOL NEWS • 9

InterWrite PRS makes classes more interactive

Keeping students interested and engaged in the classroom is a challenge for every teacher. But for educators like Professor Richard Rogers at the University of Massachusetts, Amherst (UMass), who teaches introductory classes to hundreds of students at a time, just getting students to show up can be a real challenge.

To entice students to attend large lectures, Rogers and other UMass professors are making these classes more interactive with help from the InterWrite PRS (Personal Response System) by **GTCO CalComp**.

Class sizes of 300 students make it difficult for students to connect to the professor or the material. Because students feel disconnected, there is low or passive attendance in large classes. Rogers experienced this firsthand in his introductory statistics course, as he saw as much as 20 percent of his students fail the class.

"Students find it difficult to answer questions in a large class, especially shy students," said Rogers. "Even if I ask them to raise their hands, there would be too many to count. I want to be able to teach 200 students like I teach 20."

Rogers found a solution in the InterWrite PRS, an interactive assessment tool that gives each student a chance to participate during class using a wireless transmitter.

Each student in Rogers' classes has a wireless transmitter with numbers on it, resembling a remote control. Students use their transmitter to answer questions projected in front of the class.

Rogers uses the PRS to ask questions and gather live data to use throughout his lecture, to gauge student understanding, and to introduce new topics. For example, when Rogers introduces students to probability, he has them perform an experiment with coin tosses. Students enter the number of heads produced in four coin tosses using the numbers on their PRS transmitter. The InterWrite software graphs the responses, allowing Rogers to compare the relative frequencies to the theoretical probabilities. The quick results to in-class questions also give immediate feedback to students and the professor, indicating whether a brief review is needed.

Each student's transmitter has a unique number, making individual responses identifiable to each student. This



PHOTO COURTESY OF GTCO CALCOMP

With the touch of a button, students in large lecture courses are no longer anonymous.

allows professors to take attendance electronically by registering who responds to questions asked throughout the class. Professors also can transfer the "grades" from questions asked during class to an electronic gradebook.

For example, Rogers asks up to eight questions per class period. Students receive 50 percent credit if they enter any answer, and the other 50 percent for the correct answer. This method gives students credit for participating while providing incentives for getting the question correct. Rogers found that his PRS scores closely resemble the distribution of exam scores.

After receiving a grant from the Davis Educational Foundation to create active learning through technology, the UMass Provost's Office started redesigning large lecture courses to include the InterWrite PRS. The technology has spread throughout UMass and is now used by at least 40 faculty members teaching across the curriculum, including astronomy, art history, biology,

chemistry, economics, finance, legal studies, nursing, physics, political science, and psychology.

As the PRS grew in popularity, UMass began to support it more throughout the campus. Twenty lecture halls are now configured for the PRS, and it is used in smaller rooms as a portable system. For the system to work, the classroom must be equipped with a data projector and the PRS receivers, and the computer in the classroom must have the InterWrite software installed on it. The InterWrite software is available to PC and Mac users. The Windows version includes a PowerPoint add-in that allows the PRS questions and responses to be included in a presentation.

Like textbooks, professors order the InterWrite PRS transmitters needed for their class through the campus bookstore. Students can purchase a transmitter (\$35 new, \$27 used) at the bookstore when they buy their textbooks and other class supplies and, like textbooks, they can sell it back to the bookstore for a guaranteed \$17.

Rogers' course evaluations indicate that 90 percent of his students call the PRS a success. Students like answering the in-class questions because they appreciate receiving instant feedback. Seventy-four percent of students agreed that the

InterWrite PRS increased their class enjoyment.

Other professors at UMass report similar success at increasing attendance and active learning. However, Rogers notes that the PRS is not a miraculous cure to low attendance and poor teaching. Professors must ask thought-provoking questions for the PRS to be effective.

"PRS should not be viewed as an attendance-taking tool, but as a teaching tool that improves attendance by making lectures more effective," he stresses.

LINKS:

University of Massachusetts, Amherst
<http://www.umass.edu>

InterWrite PRS

<http://www.gtcocalcomp.com/interwriteprs.htm>