

NEWSLETTER

THE LAST CRITO NEWSLETTER BEFORE Y2K

Focus on Teaching, Learning, and Computing

New Report Released: “Teacher and Teacher-Directed Student Use of Computers and Software”

In this information age, it comes as no surprise that computers are being used in classroom instruction. However, how and for what purposes teachers are directing their students to actually use the computers remains a topic for exploration. A 1998 study entitled “The National Survey of Computer Technology and Instructional Reform,” conducted by the University of California, Irvine’s own Teaching, Learning and Computing researchers, Henry Jay (Hank) Becker, Margaret M. Riel, Jason L. Ravitz, and YanTien Wong, together with the University of Minnesota, provides data for a report which sheds light on the use of computers and software by teachers.

“Teacher and Teacher-Directed Student Use of Computers and Software,” the third report in a series, was released in November 1999. The report examines which teachers integrate computers into their instructional practice, what programs they incorporate, and what objectives they have for their students’ use of the technology. One of the findings of the report is that more teachers are emphasizing the use of word processing, CD reference software and the Internet, rather than game and drill software. The shift from drill-and-practice games to other software applications has to do with the fact that the teachers’ objectives for their students’ use of computers have gone beyond the mere acquisition of computer skills and mastery of

specific subject-matter to the exploration and communication of ideas.

Part of this trend may be attributed to the fact that more teachers are using computers in their professional lives and, as a result, are increasing the level of their computer expertise. The report states that the more computer skilled the teacher, the more likely that his/her assignments emphasize the use of computers for presenting material, communicating electronically, and analyzing information. However, not all teachers who use computers as part of their instruction direct their students to develop these proficiencies. Often, the difference in the teacher’s objectives for student computer usage varies according to the subjects they teach. For instance, drills and skills practice usage occurs mostly in math and foreign language classes. Teachers of these subjects are among the least likely to use computers regularly in instruction. The use of computers to research and express ideas, however, occurs more often in social studies, English, and mixed academic subjects.

The report also reveals interesting differences between teachers’ objectives for computer use depending upon *when* teachers assign computer work to be done by their students – during class time versus during the students’ own time. For example, those teachers who report that their students work on class related work outside of class time focus on the integration of skills to produce the assignment. Computers in this instance are not a part of in-class instruction per se, but rather are a tool for completing

assignments. On the other hand, teachers whose students tend to work only during class time are more likely to focus on reinforcing concepts recently taught, using the computer to hone one skill at a time versus emphasizing the use of multiple skills.

For more information on the national study and this report, please visit the Teaching, Learning, and Computing website. The web pages feature new findings (updated continuously), a discussion group, reports and newsletters and an archive of previous newsletters, and findings. Watch for a series of 12 planned reports from the 1998 survey, available on the CRITO website and in hard copy:

- *Internet Use by Teachers (available)*
- *Computer Presence in American Schools (available)*
- *Teacher and Teacher-Directed Student Use of Computers and Software (now available)*
- *School Decision-Making on Technology*
- *Staff Development and School Support for Teachers' Computer Use*
- *Pedagogical Beliefs and Practices Among American Teachers*
- *School Technology Investment Alternatives*
- *Teacher Pedagogy and their Use of Computers*
- *School Context and Personal Factors in Teachers' Use of Computers*
- *Computer Use in Reform and High-End Technology Settings*
- *Dynamic Relationships Between Pedagogy and Computer Use*
- *A Summary of Teaching, Learning, and Computing - 1998*

**Visit the Teaching, Learning,
and Computing Web site:**

www.crito.uci.edu/tlc

Teaching, Learning and Computing in the News

The *M2 Presswire* interviewed Hank Becker about the first two TLC series reports in August of 1999. The article, "University of California: Use and Impact of Computer Technology

Escalate in K-12 Education," stated that the Nation's most progressive teachers are the most likely to use the Internet in the classroom. Progressive teachers are those who are innovatively using computers to instruct students in a way that makes the assignments more meaningful. In the article, Becker pointed out: "These are non-traditional teachers. They are willing to take this new domain of 'cyberspace' and try to integrate it in useful ways into the traditional 'classroom space'."

In the November 1999 *Baltimore Sun* article, "At Private Schools, Laptops among Latest Requirement; An Expensive Leap in Learning but Not Everyone's Buying," teachers are challenged not only to learn to use laptops, but also to incorporate them into their classroom instruction. The biggest issue is how to engage and stimulate children with the laptop technology, without overloading them. Hank Becker cautions that "the machines should never be used to cram more information into a child's head... The theory of 'just teach it to them and they will learn' is wrong for most people. More contemporary cognitive psychology shows us that people won't learn unless they do something with what they've learned."

Technology, School Reform, and the Computer Industry's Role

Hank Becker recently spoke at a meeting of the Business Alliance for Technology in Education (BATE) on December 2, 1999 about the Teaching, Learning, and Computing project and the computer industry's role in technology in the schools. BATE, a group of representatives from the philanthropic programs of major Silicon Valley companies, meets on a regular basis to discuss the use of technology in education and how businesses can best support teachers in its effective use. Becker made several recommendations to the group, including: helping education professionals address the problems of inadequate public understanding of learning and schooling; providing support for the professionalization of teachers; and providing incentives for district investments in staff development.

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New CRITO Faculty Associates

CRITO is pleased to welcome to its research unit two new faculty associates from the UCI Graduate School of Management.

Paul Chwelos

Assistant Professor, Information Systems
Ph.D., University of British Columbia

In his dissertation, Paul Chwelos developed two novel approaches to measuring the quality of microcomputer systems using hedonic techniques; these measures were used to construct quality-adjusted price indexes that showed a more dramatic rate of price/performance improvement than previous studies. He has published invited chapters on the intellectual property rights issues that are surfacing as a result of the transition to the knowledge-based economy, as well as on the organizational and technological challenges associated with electronic commerce.

Kevin Zhu

Assistant Professor, Information Systems
Ph.D., Stanford University

Kevin Zhu received his Ph.D. from Stanford University in 1999. His dissertation dealt with strategic investment in information technologies (IT), in which he took a real-options and game-theoretic approach. His current research focuses on IT investments and economics of information systems, with projects on evaluating IT investments by option valuation models, empirical analysis of IT investments, electronic commerce and its impacts on organizations and markets, network externality, price competition, and product differentiation in the emerging electronic markets.

CRITO Associates Update

Y2K Bugs

The August 7, 1999 *San Jose Mercury* article, "Y2K Bug in Asia poses risks for U.S. Firms" stated that while Silicon Valley firms have been praised for their preparation to avert system crashes when the century changes to the year 2000, it is not entirely clear that they are out of the danger zone because of their dependency

upon manufacturers in the production markets of Asia. There is concern that Asian suppliers are the one hitch in the Y2K preparedness plans for many firms. However, **Jason Dedrick** pointed out that it is important not to lump all Asian countries in this instance. The senior research fellow at CRITO said, "There's a big difference whether you are talking about Singapore or China... Singapore is probably more ready for Y2K than is the U.S."

Journal of Management Information Systems

Paul Gray was recently a guest editor for the Summer 1999 edition of *JMIS* featuring a special section on Data Mining.

Holiday Shopping on the Internet

Kenneth Kraemer was recently seen on a nationally broadcast news clip talking about the three factors he believes contribute to holiday shopping on the Internet – cost, convenience, and control. The clip featured information about *HolidayShoppingNews.com*, an aggregator of information about online shopping for consumers.

New Publicly Available Papers Posted to CRITO Website

Acer: An IT Company Learning to Use IT to Compete, Jason Dedrick, Kenneth L. Kraemer, and Tony Tsai, October 1999.

Impacts of Liberalization and Economic Integration on Mexico's Computer Sector, Jason Dedrick, Kenneth L. Kraemer, and Juan J. Palacios (University of Guadalajara), November 1999.

From Industry Protection to Industry Promotion: IT Policy in Brazil, Antonio José Junqueira Botelho (Pontificia Universidade Católica do Rio de Janeiro), Jason Dedrick, and Kenneth L. Kraemer, November 1999.

Visit CRITO's website for complete information on CRITO activities, current projects, and publications.
www.crito.uci.edu

CRITO Consortium Update



CRITO's NSF Center Website has a New Look!

CRITO's National Science Foundation Industry/University Cooperative Research Center has given a new name, the CRITO Consortium. Along with the name come a new logo and a fresh web site. Check out the CRITO Consortium at:

MEMBERS:

<http://www.crito.uci.edu/CONSORTIUM/MEMBERS/INDEX.HTML>

VISITORS:

<http://www.crito.uci.edu/CONSORTIUM/VISITORS/INDEX.HTML>

Activities

CRITO held a faculty E-commerce breakfast series throughout the Fall academic quarter to stimulate discussion on E-commerce topics. Faculty members met once a month to hear industry speakers talk about the marketplace, business models, technology, and business strategy. CRITO thanks the following speakers for their participation and willingness to share their valuable insights and time:

E-Commerce Business Models

Ken Norland, Partner, Ernst and Young
"eC Market Perspective"

E-Commerce Marketplace

Stan Dolberg, Group Director, Research, Forrester Research
"The Future of eCommerce"

E-Commerce Technologies

Ashwin Rangan, Senior Vice President and CIO, Conexant
"E-Commerce Technology Vectors"

Pure Play Internet Companies

Rick Cabral, VP, Information Services, Autobyte.com
"Autobyte's Business Model and Strategies"



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Upcoming Events

CRITO Consortium Industry Advisory Board Meeting: January 20-21, 2000

Twice a year, CRITO Faculty Associates meet with the industry board members from the companies who sponsor research projects in the CRITO Consortium. January's meeting will feature sessions on E-commerce research (new proposals and updates on ongoing work), knowledge management, and the home of the future. Papers to be discussed at the meeting include:

- *Channel Conflict: The Risks of "Clicks and Mortar"*
– Paul Chwelos
- *Contrasting Consumer Choice Behavior in Online vs. Traditional Supermarkets*
– Imran Currim
- *Business Models for the Information Age*
– Vijay Gurbaxani
- *Internet Valuation Fundamentals: A Study of Tangibles and Intangibles*
– Eli Talmor
- *Does Electronic Commerce Lead to More Competitive Markets? Impacts of E-Commerce on Market Structure*
– Kevin Zhu

E-Commerce Conference: "Competing in the Digital Economy"

CRITO is planning an E-commerce conference for the public on Friday, April 14, 2000 at the Beckman Center on campus at UCI. The daylong event will be an opportunity to explore the issues surrounding the development and execution of electronic business strategies from business models to technology. The conference will be geared to an executive-level audience.

The event is being sponsored by the law firm of Stradling, Yocca, Carlson and Rauth. Look for more information soon on the CRITO website or please contact Leslie Fell, External Relations, at (949) 824-1323 or lfell@uci.edu.