Persuasive Pervasive
Real Learning or Hype?

Carl Berger
University of Michigan

Yvonne Belanger
Duke University

Melissa Poole
University of Missouri
School of Journalism

Susan Metros
The Ohio State University

Cole Camplese
The Pennsylvania State University

Victoria Szabo
Stanford University

Copyright Y. Belanger, C. Berger, C. Camplese, S. Metros, M. Poole, and V. Szabo, 2005. This work is the intellectual property of the authors. Permission is granted for this material to be shared for non-commercial, educational purposes, provided that this copyright statement appears on the reproduced materials and notice is given that the copying is by permission of the authors. To disseminate otherwise or to republish requires written permission from the authors.
What is Pervasive Computing?

The concept that technology is moving beyond the personal computer to everyday devices with embedded technology and connectivity.

Small Business Computing, 2004
http://sbc.webopedia.com/TERM/P/pervasive_computing.html
The Apple Digital Campus (ADC) Charter Members

- Collaborative partnership between Apple Computer, Inc. and five charter universities
  - Duke University
  - University of Missouri School of Journalism
  - The Ohio State University
  - Penn State University
  - Stanford University
QRAC? revisited

Stanford University
Intro to the Humanities Program

- First...
- Pervasive Lifestyle
- Students and faculty are the pervasive
- iPod First-Year Experiment Project Goals
- The Ohio State University
ePortfolios

Quasi Repetitive Activity Cycle
The ADC Purpose

- To use and assess the value of pervasive computing in higher education
ADC Member Goals

- Develop and integrate pervasive learning technologies into teaching theory and practice
- Develop strategies for assessing the impact of pervasive computing on higher education
- Measure and gather data indicating the commonalities and differences between faculty and students engaged in pervasive computing across member institutions
- Disseminate open source tools and results
Missouri School of Journalism
Convergence of Media

- Driving forces for change
  - Changes in industry
  - Need for “digitally literate” journalists
Goals

- Explore the interface between new media and journalism
- Integrate technology across the curriculum to prepare journalists for today’s (and tomorrow’s) media landscape
Missouri School of Journalism

Convergence of Media

- Signs of Change
  - Faculty adoption
  - Student laptop program
  - Convergence sequence
Missouri School of Journalism

Convergence of Media

- J FIG iLife Challenge
  - 267 students in 77 teams
  - Self selected topics -- news, sports, politics, music, entertainment, humor, advertising
  - Laptops and cameras available for checkout
  - iPhoto, iMovie, GarageBand
- http://jfig.missouri.edu
And the winners are ...

Click on the following links to view the category award winners of the 2004 JFig iLife Challenge ...

- Best-of-Show iPod Mini Winner
  - Student Experience Category
  - Dozing in the Strangest Places

- Humorous I Category
  - Plaza 900

- Sports Category
  - Dormlympics

- Music Category
  - She Will Be Loved

- Advertising Category
  - Missouri vs. Kansas

- Peer Advisor Category
  - The Raptor

Thanks for your participation!!
Well see you again next year.
Missouri School of Journalism

Convergence of Media

- J 2100 -- News
  - 4 experimental sections
  - Laptops and cameras available for checkout
  - iLife and Macromedia’s Contribute
  - Learning made visible
  - Multimedia reporting
  - http://jfig.missouri.edu/j2100/index.htm
Holiday Influx is Seen At Needs Agencies

By Kate Giovann and Dusty Luthy

As the holiday season rolls around, giving becomes a main interest, which is good news for the Central Missouri Food Bank Network, Inc. During the holidays, the food bank sees an increase in need and donations of food, money and help.

Peggy Kirkpatrick, executive director of the food bank, describes it as the best of times and the worst of times.

“The best of times is that people have the tendency to think about the hungry during the holidays than any other time of the year,” said Kirkpatrick. “It becomes almost a tradition.”

“We have a tendency at that time to think of how blessed we are and think of those people who don’t have very much of anything,” she said.

Kirkpatrick said that during the holidays many organizations, businesses and churches hold food drives and volunteer. The number of people that give monetary donations also increases.

“The bad thing is that as the weather gets colder, the demand for food assistance literally goes through the roof,” Kirkpatrick said.

More money is needed for transportation costs and utilities that are
“No change factor is more evident than the continuing and ever-more-rapid growth of technology, which affects not only what is taught but how.”
The Ohio State University
ePortfolios Goals

- Build a multi-layer institutional portfolio
- Develop rubrics for creating and describing content
- Work within the open source community (OSPI)
- Evaluate success using the shared ADC assessment tools
The Ohio State University
ePortfolios Pilot Projects

1. Visual Design, Math and Statistics, and Educational Counseling students
2. Teaching process
3. Faculty research
4. Administrators
5. Writing skills for under prepared high school students entering college
6. Literacies across the curriculum
7. Workforce competencies
The Ohio State University

ePortfolios

Login for account or guest access:
username: [Enter username]
password: [Enter password]

Do you need access to create a new portfolio?

©2004 The Ohio State University and the Open Source Portfolio Initiative (OSPI)
University of Minnesota Duluth in 1995. Portfolio is now an open-source project freely available for download:
http://www.theospi.org
Professor Gill's research focuses on design communication. What are the methods, media and materials by which designers communicate during the design process, and how do they impact the communication task. Professor Gill believes that these issues are critical for professional designers and are at the core of the design foundation curriculum.

The different communication techniques should be based on who is the audience and what is the nature and purpose of the information exchange. For example, if the designer is trying to solve a design problem, what are the appropriate mediums for self-communication? Drawings, sketches, 3-D models, technical drawings and digital technology are some of the mediums available to them. The other aspect is communicating the ideas, processes and designs to others.
Penn State University
Pervasive Teaching and Learning Value Chain

- The School of Information Sciences and Technology:
  - Founded in 1999 to create leaders for the 21st century global economy
  - Built on a PBL foundation with teaming, project management, and solution creation as core teaching and learning tenants
  - Supports a 20-campus system throughout the Commonwealth
  - Directly address the needs of today’s “digital students”
Penn State University
Creating Pervasive Opportunities

- **Project Goals:**
  - Integrating digital expression into the teaching and learning process
  - Utilizing digital lifestyle devices to move the walls of the classroom
  - Integrating faculty more closely into the creation and management of assets in our digital materials repository
Digital Expression as a Core Value

- IST is a non-media intensive program
- Changing the rules by pushing students and faculty to express their solutions using digital tools
Penn State University
Pervasive Lifestyle

- Students and faculty are the pervasive components of the environment
- Building tools to allow faculty and students to use Digital Lifestyle Devices to interact beyond the walls and constraints of the classroom

Remote Delivery of Presentations • RSS Enclosures • Podcasts • Integrated Blogging
Faculty Input: Digital Assets

- Can faculty create reusable digital assets and do they value the outcomes?
- Faculty given the tools, perform several tasks, and publish outcomes to our repository
- Students love this stuff … can faculty produce it to satisfy their needs?

iBooks • DV Cameras • iPods • iSights • iLife
Stanford University
Stanford iTunes Pilot: Spring 2005

- Enhancing undergraduate education experience as whole
- Legacy of first-generation projects
- Scaling up with researched plans
- Three pilot areas
  - Courses
  - Advising
  - Campus Events
What’s new?

- Benefits of centralizing systems (but *not* content selection or use)
- Streamlined production options
- Streamlined distribution options
- Enhanced assessment from a common baseline
- Negative repercussions?
Stanford University
Intro to the Humanities Program

- First-year required humanities sequence
- Lectures Online
- Verbal Content: primary, secondary
- Non-verbal Content: primary, secondary
Stanford University

Advising

- Advising the whole student from frosh to grad
  - Incoming students resources
  - Course selection
  - Majors
  - Research opportunities
  - Extra-curriculars
  - Beyond graduation

- Success: Enhanced effectiveness of personal interactions
Stanford University
Heard on Campus

- Greater awareness and experience of campus events for breadth and depth
  - Performance Beat
  - Book Beat
  - Heart Beat
  - Back Beat

- Aural equivalent of being ten places at once--where do people like to congregate most?
Duke University
iPod First-Year Experiment Project Goals

- Technology innovation
- Student life, campus community
- Academic impact

http://www.duke.edu/ipod
http://cit.duke.edu/ipod
Duke University
Defining “Impact” for Academic iPod Use

- Feasibility of using iPod to support teaching and learning
- Improving logistics of course delivery
- Enhancing student learning and engagement
Duke University
Evaluation Methods and Tools

- Mixed method approach
- Stakeholder driven
- Matrix (menu) of evaluation strategies

“Research is aimed at truth. Evaluation is aimed at action.”

Michael Quinn Patton
Shared Research
Protocols and Rubrics

- It’s important that we measure and gather data from students, faculty and support about:
  - Pervasive Learning
  - Pervasive Teaching
- so that we can all share in the development, analysis and dissemination.
Driving Questions About Pervasive Computing

- Student/instructor background?
- Student/Instructor patterns of pervasive learning/teaching?
- Compare/change across time and/or projects?
- How well do Apple iTools support learning/teaching?
- Sustained over time and experiences?
- Administrative support?
Three Protocols/Rubrics

- Focus groups/situated interviews
- Evolving survey protocols
- Inventory protocols to measure progress of faculty/students/support
Tools to Share

- Focus and interview protocols
- Three levels of protocols and templates:
  - Common research
  - Shared research
  - Unique research
How often students use technology for:

<table>
<thead>
<tr>
<th>Activity</th>
<th>1/day</th>
<th>1-2/week</th>
<th>several/mo</th>
<th>1/mo</th>
<th>several/yr</th>
<th>1/yr</th>
<th>never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surf</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research on the Web</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Write Reports/Papers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-Mail Faculty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use Online Lib. Resources</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Play Games</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manage Data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learn of Activies/Clubs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collaborate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teach/Attend Class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use News Groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buy/Sell/Payments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create Presentations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create Web Pages</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Give Presentations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Assessing Growth in Pedagogy

High perception

Low perception

Begin course | Middle course | End course

Engineering | Laboratory | LitArts | Laboratory

Engineering | Collaboration | LitArts | Collaboration

Engineering | Inquiry | LitArts | Inquiry

High perception

Low perception
## Items from Penn State’s Unique Questions

### 4) Using iWork

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
<th>Highest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comfort using personally</td>
<td>✅</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom experience with it</td>
<td>✅</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value as part of class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 5) Using Keynote

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
<th>Highest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comfort using personally</td>
<td>✅</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom experience with it</td>
<td>✅</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value as part of class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 6) Using iPhoto

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
<th>Highest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comfort using personally</td>
<td>✅</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom experience with it</td>
<td>✅</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A Hopeful Hypothesis--- iChat

Graph showing the use and value of iChat over the course:

- **Personal use**
- **Class use**
- **Class value**

Timeline:
- Start
- Course start
- Middle
- Course end
A Hopeful Hypothesis--- Keynote

Start | Course start | Middle | Course end

- Personal use
- Class use
- Class value
A Hopeful Hypothesis

- **iChat**
  - Personal use
  - Class use
  - Class value

- **Keynote**
  - Personal use
  - Class use
  - Class value

---

**Axes**
- X-axis: Start, Course start, Middle, Course end
- Y-axis: 1, 2, 3, 4, 5
ADC Next Steps

- Dissemination of research and assessment tools
- Apple Digital Campus Leadership Institute
- Join the Apple Digital Campus Community

**Contacts:**

**Peter Hoffman**
Strategic Relations Manager
Education Marketing
Apple Computer
408.974.0260
phoffman@apple.com

**John Ittelson**
CSU Monterey Bay
jittelso@mac.com
Carl Berger
University of Michigan
Director, Advanced Academic Technologies
ADC Assessment Consultant
carl.berger@umich.edu

Susan Metros
The Ohio State University
Professor and Deputy CIO
metros.1@osu.edu

Yvonne Belanger
Duke University
Program Evaluator
Center for IT
yvonne.belanger@duke.edu

Cole Campese
The Pennsylvania State University
Director, IST Solutions Institute
cole@ist.psu.edu

Melissa Poole
Grant Writer/Researcher
University of Missouri
School of Journalism
poolem@missouri.edu

Victoria Szabo
Stanford University
Academic Technology Manager
vszabo@stanford.edu

Apple Digital Campus Charter Members