Teaching Through Interactive Learning Simulations
Initial Outcomes from Wharton’s Learning Lab Initiative

NERCOMP
March 22, 2006

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Al West Jr. Learning Lab
The Wharton School,
University of Pennsylvania
• Down this road before: television as a new educational medium
Replicate the Classroom

- Distance/distributed learning
  - From web-based conferencing to satellite classrooms
- E-textbooks
- Communication
- Blended models
The Learning Lab Approach

None of the above.
  - Avoid impulse to compress the innovation process
  - Focus on the search.

Go deep
  - Don’t extend the reach, expand the depth.
Dean Pat Harker decides to create a resource for technological experimentation and exploration: The Al West Jr. Learning Lab.

“The goal is to reach a deeper understanding of how people learn and to push that process to a higher level using advancements in technology and learning science.”
Where to Begin?

- Broad impact
  - Core classes
- Take the more traveled road
- Go to the source: faculty
Describe the Elephant

- What we thought: widgets for basic concepts, cd-roms, multimedia cases…

- What they thought: applications demonstrating complex ideas.
The Road More Traveled

- From Powerpoint to Futureview
- Client server brought to the web
- Fare Game & Powerplay: paper-based games and prototypes are your friend.
Let’s Buy a Car Navigation System!

click on the image to begin
The PathMaster turn-by-turn route guidance & information system from Magellan knows exactly where your vehicle is at all times... and it can calculate the most efficient route to reach any destination that you enter into the system. And once the route has been calculated, the system guides you by means of easy-to-understand voice commands.

Simple Controls
You can learn to work the PathMaster system in minutes, thanks to a series of simple menus which lead you through the process. The control/display unit was designed for maximum user convenience, accuracy and simplicity, while maintaining all occupant protection requirements. Only seven simple control functions are needed, and each is conveniently located directly below the color LCD display screen. (No remote control hassle!)
For me, this product has been a life saver. Let me tell you a story. It was a week ago Thursday. My calendar was virtually full, and then a new potential donor called. I found a small opening in my schedule and set up the appointment. That was the beginning of my worst day on the road...ever! I got lost going to the new donor, and arrived so late, they didn't even want to meet with me. That disaster caused me to be late for my next appointment with a very profitable, long term contributor. They were so upset with my tardiness, that I almost lost that account too! I was able to calm them down, but in doing so, lost a considerable amount of travel time to my next appointment. You guessed it...I was late...and had upset the third donor that day!

That convinced me to buy a Navigation system--I got a PathMaster--and I get to all my appointments on time. I never have to think about the best route from one donor to another, PathMaster gives me the shortest route. And new donors, well they are almost always impressed when I show up early without any direction except their address.

Patrick Harker, Philadelphia, PA

Product Owned: Magellan Pathmaster
Would you like to Make a Purchase?

*Click on the Action you would like to Take*

- Buy an Alpine system for $2100
- Buy a Carin system for $1800
- Buy a Magellan system for $2400
- Buy a Sony system for $2100
- Gather More Information
- Not Make a Purchase and Exit

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There's a reason that air travel has long been the safest method of transportation in the world — each plane is supported by a network of air traffic control. Now your car can have the same level of control for fast, safe, and efficient travel on America's automatic highways.

Sit back, relax, and let Ford's AutoDrive System take control.

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Learning Lab Structure

Faculty Approval Committee

Academic Directors

Technical Team
Learning Lab Structure

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Faculty Approval Committee

Academic Directors

Faculty Author(s)

Technical Team

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Learning Lab Structure
Early Success Factors

- Faculty Involvement
  - Clearly defined responsibilities
  - Rapid prototyping is your friend.
- A little knowledge is a helpful thing
  - Strong development team
  - Technology in service to learning
  - Commitment to success
- Technology choices are key
  - Next generation of interfaces and interactivity
  - Vendor recognition
On the Surface, Little Commonality
Underneath, some key similarities

**Common characteristics:**
- Open-ended outcomes
  - OTIS  WSX
- What’s the point?
  - Futureview
- More than meets the eye
  - OPEQ
- Just do it
  - VASE
- Encourage dialog, discussion and socialization
  - Rules of Engagement
The Meaning of Success

Faculty Acceptance & Adoption

Student Reaction

External Adoption
## Faculty Acceptance and Adoption

### The AI West Jr. Learning Lab
<exploring new approaches to learning/>

#### Learning Lab Applications by Year

**(Active vs. non)**

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### Faculty Acceptance and Adoption

#### The Al West Jr. Learning Lab
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#### Learning Lab Applications by Year (Highly Active)

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Faculty Acceptance and Adoption

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<th>Software Development</th>
<th>Servers and Infrastructure</th>
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<td>Successful Game Play</td>
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<td>Models</td>
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Student Reaction

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Attention and Engagement

- 83% of students said that computer/web-based tools increased attention and engagement

Satisfaction

- 78% of students were satisfied with their experience; only 5% expressed dissatisfaction (the rest were neutral)
Contribution to Engagement

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- Product Creation
- New Eyes
- Revisit Pedagogy

- Faculty Engagement

- Student Engagement
- Student and Faculty Satisfaction
- Experimentation & Feedback
- Interactivity
- Head to Head Competition and Interaction

Product Creation

Faculty Engagement

Student Engagement

Student and Faculty Satisfaction

Experimentation & Feedback

Interactivity

Head to Head Competition and Interaction

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External Adoption

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- Wharton’s OTIS:
  2,139 students at 62 institutions since July 2005

- Lessons learned
  - Different standards
  - Broader range of learning/teaching styles
  - Market demands vs. pedagogical demands

- Outreach:
  - Tragedy of the Tuna at Stanford
  - RATE at ISB
  - OPEQ at Wharton Connect
  - RAISE at NYU (scheduled)
These are impressive apps, from student portals to virtual simulation teaching tools to server monitoring tools and much more. Every time I have seen the Wharton guys present their apps I have been impressed, and this time was no exception.

Ben Forta’s blog
2006 Feb 21
Where Do We Go From Here?

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- Challenges:
  - Balancing ongoing support, new development, and outreach
  - Modulating internal and external pedagogical demands
- Curriculum initiative
- Increasingly sophisticated user experience
- Intertwine academic disciplines
- Continue to evaluate and innovate