Technology-Enhanced Learning: Opportunities and Challenges

Chuck Dziuban
Patsy Moskal

University of Central Florida
Technology and the unbundling of many things

- Music
- Banking
- Books
- Real Estate
- Copyright
- Academic Publishing
- Universities?
The University of Central Florida
An Evaluation Plan
Evidence of Impact

Students
- Success
- Retention
- Learning preferences
- Generations
- Predictive models
- Personal geographies

Faculty
- Academic life
- Assessment
- Blended Learning
- Writing
- Digital Theater
- Pedagogy
- Persona
- Web 2.0

Satisfaction
- Demographics
- Information fluency
- Case narratives
A value-added model of technology-enhanced learning

- Technology Augmented (E)
- Blended (M) Engagement
- Fully Online (W) Access and Transformation
Emerging learning modes

- Learning Management Systems
- Lecture capture
- Analytics
- Flipped Classroom
- Web 2.0
- Learning in the cloud
- Time-based blended learning
Shirky, C. (2009)
Sources of UCF SCH Growth

Online-Web
Video
Classroom Instruction
Some Interesting Models
An Engagement Model: Web 2.0

Jay Brophy

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View Full Curriculum Vita

Recent Publications


Professor Brophy joined UCF in 1969 after completing his Ph.D. at Vanderbilt. His current research interests are the effects of humor on stress, health, mood and the immune system. Dr. Brophy is also interested in computer applications to psychology, especially the utilization of the World Wide Web. Professor Brophy is also working on research projects with the Florida Hospital which involves lower extremity rehabilitation and vestibular/balance problems.
An Authentic Model: Public Relations

Robert French
Auburn University
A New Media Model for Blending

Gardner Campbell
Virginia Tech
Second Life
Laureate: A Network Model

Our Network

North America
5 Institutions

Europe
18 Institutions

Middle East
North Africa
2 Institutions

Latin America
29 Institutions

Asia Pacific
10 Institutions
Success
Success rates by modality
Spring 2009 through Summer 2010

F2F (n=618,899)
Blended (n=39,021)
Fully Online (n=109,421)
Success Rates by Modality for the College of Humanities Spring 09 - Summer 10

F2F (n=102,462)
- Spring 09: 88%
- Summer 09: 93%
- Fall 09: 89%
- Spring 10: 89%
- Summer 10: 92%

Blended (n=4,519)
- Spring 09: 83%
- Summer 09: 92%
- Fall 09: 84%
- Spring 10: 86%
- Summer 10: 89%

Fully Online (n=17,204)
- Spring 09: 83%
- Summer 09: 84%
- Fall 09: 84%
- Spring 10: 85%
- Summer 10: 84%
Success Rates by Modality for the College of Sciences Spring 09- Summer 10

- **F2F** (n=164,775)
- **Blended** (n=8,012)
- **Fully Online** (n=29,475)
Success Rates by Modality for the College of Health & Public Affairs Spring 09 - Summer 10

- F2F (n=37,456)
- Blended (n=6,093)
- Fully Online (n=35,833)

<table>
<thead>
<tr>
<th>Semester</th>
<th>F2F</th>
<th>Blended</th>
<th>Fully Online</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 09</td>
<td>94%</td>
<td>96%</td>
<td>96%</td>
</tr>
<tr>
<td>Summer 09</td>
<td>96%</td>
<td>97%</td>
<td>90%</td>
</tr>
<tr>
<td>Fall 09</td>
<td>95%</td>
<td>96%</td>
<td>91%</td>
</tr>
<tr>
<td>Spring 10</td>
<td>94%</td>
<td>96%</td>
<td>90%</td>
</tr>
<tr>
<td>Summer 10</td>
<td>96%</td>
<td>98%</td>
<td>90%</td>
</tr>
</tbody>
</table>
Success Rates by Modality for the College of Education Spring 09 – Summer 10

- F2F (n=42,411)
- Blended (n=7,580)
- Fully Online (n=12,186)

<table>
<thead>
<tr>
<th>Semester</th>
<th>F2F</th>
<th>Blended</th>
<th>Fully Online</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 09</td>
<td>96</td>
<td>93</td>
<td>92</td>
</tr>
<tr>
<td>Summer 09</td>
<td>98</td>
<td>97</td>
<td>95</td>
</tr>
<tr>
<td>Fall 09</td>
<td>96</td>
<td>92</td>
<td>91</td>
</tr>
<tr>
<td>Spring 10</td>
<td>96</td>
<td>91</td>
<td>91</td>
</tr>
<tr>
<td>Summer 10</td>
<td>98</td>
<td>95</td>
<td>93</td>
</tr>
</tbody>
</table>
Student Satisfaction

Q: “Did you like your course?”
A: “Well, yes and no....”
Student satisfaction in fully online and blended courses

- **Blended (n=485)**
  - Very Satisfied: 41%
  - Satisfied: 39%
  - Neutral: 11%
  - Unsatisfied: 3%
  - Very Unsatisfied: 1%

- **Fully Online (n=1,526)**
  - Very Satisfied: 44%
  - Satisfied: 38%
  - Neutral: 9%
  - Unsatisfied: 9%
  - Very Unsatisfied: 5%
Student Satisfaction with Online Learning

- Convenience
- Reduced Logistic Demands
- Increased Learning Flexibility
- Technology Enhanced Learning

Reduced Opportunity Costs for Education
Less Positives with Online Learning

- Reduced Face-to-Face Time
- Technology Problems
- Reduced Instructor Assistance
- Overwhelming
- Increased Workload

Increased Opportunity Costs for Education
Anna Karenina and the Student Voice
Satisfaction Components

I have reduced ambivalence (positive valence)

I see an enriched learning environment

I understand the rules of engagement

My instructor shows respect and concern for me

My instructor is committed to my learning

I am engaged

I have some learning latitude
Generations
Some characteristics of the generations

- **Matures** (prior to 1946)
  - Dedicated to a job they take on
  - Respectful of authority
  - Place duty before pleasure

- **Baby boomers** (1946-1964)
  - Live to work
  - Generally optimistic
  - Influence on policy & products

- **Generation X** (1965-1980)
  - Work to live
  - Clear & consistent expectations
  - Value contributing to the whole

- **Millennials** (1981-1994)
  - Live in the moment
  - Expect immediacy of technology
  - Earn money for immediate consumption
Generations

<table>
<thead>
<tr>
<th>Generation</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boomers (1946-1964)</td>
<td>3</td>
</tr>
<tr>
<td>Gen X (1965-1980)</td>
<td>11</td>
</tr>
<tr>
<td>Millennial (1981-1994)</td>
<td>86</td>
</tr>
</tbody>
</table>

(n=1217)
Non-ambivalent satisfaction with fully online courses (n=526)

- Boomers (1946-1964): 65%
- Gen X (1965-1980): 56%
- Millennial (1981-1994): 42%
Because of the web I changed my approach to learning (non ambivalent)

Boomer 1946-1964
Generation X 1965-1980
Millennial 1981-1994

(n=1489)
Disruptive Innovation!

- There’s one in YOUR future!!

- And another one right behind it!

Wayne Hodgins, 2007
Student Ratings

“This guy is so boring, my pillow needs a pillow!”
-Ratemyprofessor.com
A decision rule for the probability of faculty member receiving an overall rating of *Excellent*

<table>
<thead>
<tr>
<th>If...</th>
<th>Excellent</th>
<th>Very Good</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilitation of learning</td>
<td><img src="Circle" alt="Facilitation" /></td>
<td><img src="Circle" alt="Facilitation" /></td>
<td><img src="Circle" alt="Facilitation" /></td>
<td><img src="Circle" alt="Facilitation" /></td>
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</tr>
<tr>
<td>Communication of ideas</td>
<td><img src="Circle" alt="Communication" /></td>
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</tr>
<tr>
<td>Respect and concern for students</td>
<td><img src="Circle" alt="Respect" /></td>
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<td><img src="Circle" alt="Respect" /></td>
</tr>
</tbody>
</table>

**Then...**

The probability of an overall rating of *Excellent* = 0.97  

The probability of an overall rating of *Fair* or *Poor* = 0.00  

n=1,280,890
A decision rule for the probability of faculty member receiving an overall rating of *Poor*

**If...**

<table>
<thead>
<tr>
<th></th>
<th>Excellent</th>
<th>Very Good</th>
<th>Good</th>
<th>Fair</th>
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<tr>
<td>Facilitation of learning</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>☐</td>
</tr>
</tbody>
</table>

**Then...**

The probability of an overall rating of *Poor* = .90  &  
The probability of an overall rating of *Very Good* or *Excellent* = .00  

n=1,280,890
A comparison of excellent ratings by college unadjusted and adjusted for instructors satisfying Rule 1

<table>
<thead>
<tr>
<th>College</th>
<th>Overall % Excellent</th>
<th>If Rule 1 % Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>58.6</td>
<td>97.9</td>
</tr>
<tr>
<td>Molecular &amp; Microbiology</td>
<td>49.9</td>
<td>97.6</td>
</tr>
<tr>
<td>Health &amp; Public Affairs</td>
<td>49.8</td>
<td>97.6</td>
</tr>
<tr>
<td>Arts &amp; Humanities</td>
<td>49.1</td>
<td>96.7</td>
</tr>
<tr>
<td>Sciences</td>
<td>44.5</td>
<td>96.8</td>
</tr>
<tr>
<td>Hospitality Management</td>
<td>44.1</td>
<td>96.6</td>
</tr>
<tr>
<td>Business Administration</td>
<td>39.5</td>
<td>96.9</td>
</tr>
<tr>
<td>Engineering</td>
<td>39.0</td>
<td>96.8</td>
</tr>
</tbody>
</table>

n=1,280,890
A comparison of excellent ratings by course modality--unadjusted and adjusted for instructors satisfying Rule 1

<table>
<thead>
<tr>
<th>Course Modality</th>
<th>Overall % Excellent</th>
<th>If Rule 1 % Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blended</td>
<td>48.9</td>
<td>97.2</td>
</tr>
<tr>
<td>Online</td>
<td>47.6</td>
<td>97.3</td>
</tr>
<tr>
<td>Enhanced</td>
<td>46.8</td>
<td>97.5</td>
</tr>
<tr>
<td>F2F</td>
<td>45.7</td>
<td>97.2</td>
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</table>

n=1,171,664
And the Challenges... Opportunities Abound
“I have an opportunity for you”

Academic Integrity

Assessment models and more authentic assessment

Explosive Growth

Alone Together

Adrift in Academia

Dangerous Ideas

Information Fluency and Information Toxicity

Cognitive Abundance or The Shallows?

Proofiness

Multitasking or Partial Attention
Technology-Enhanced Learning and Black Swans
What could this be???

.00000000000000000000001049
Taleb: The Black Swan

- Unpredicted
- Monumental Impact
- Market Crash
- Back-Filled Narrative
- Undetectable Outliers
- Retrospective Prediction
- Technology Enhanced Learning
- 9/11
- Google
- Harry Potter
- Y2K
Research Initiative for Teaching Effectiveness

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