Evaluating Faculty and Student Use of Digital Resources for Teaching and Learning

Researchers (in alphabetical order)

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A STUDY BEGINS … A STUDY EVOLVES

Faculty Baseline: Faculty use of Digital Resources (2006)

Faculty in Context Physics, Social Science, Geoscience (2008-2011)

General Student Baseline (2012)
FOCUS GROUPS

Faculty Use of Digital Resources

Student Use of Digital Resources
Focus Group Findings

Research Questions

RQ1 - How do students use digital learning resources?
RQ2 - Why do students use these resources?
RQ3 - What is the impact of this use on students’ learning?
RQ4 - What are the barriers to their use?

Findings

• Very information literate (savvy)
• Used Web as supplement to class materials (text books still very important)
• Social networking important, but most worked alone
• Iterative use of Wikipedia - Google - friends - textbooks
SURVEY

Survey Administration

Student Use of Digital Resources
**Survey Administration**

**Serendipity:** We now have 3 useful groups to compare:

1) Current students (full time part time, etc.)
2) Past students / Alumni
3) Never students/ Never went to college.
Information Seeking Behavior Survey

- Seek out faculty and TAs
- Seek out friends
- Seek out a tutor or the learning center
- Post question on an Internet message board
- Text or IM friends
- Email experts not at your institution
- Consult textbooks
Information Seeking Behavior Survey

• Ask a librarian
• Consult supplemental readings
• View an online lecture
• Review relevant Wikipedia entries
• Review results from a Google search
• Use online library resources (e.g. online journals, e-reserves, or subject guides)
Some demographics…
Age (n=1711)

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-19</td>
<td>22</td>
</tr>
<tr>
<td>20-21</td>
<td>19</td>
</tr>
<tr>
<td>22-23</td>
<td>18</td>
</tr>
<tr>
<td>24-25</td>
<td>17</td>
</tr>
<tr>
<td>26+</td>
<td>25</td>
</tr>
</tbody>
</table>
Student status (n=1740)

- Full time college/university student: 53%
- Part-time college/university student: 9%
- Former college/university student: 31%
- Never a college/university student: 8%
STEM/Non-STEM major (n=1564)

- STEM major: 31%
- Non-STEM major: 69%
Employment (n=1043)

- Not working: 41%
- Part-time: 69%
- Full-time: 9%
Academic standing (n=1041)

- Freshman: 24
- Sophomore: 24
- Junior: 18
- Senior: 19
- Other: 12
- Graduate: 3
Most frequently taken course modalities

- Entirely F2F: STEM (47%), Non-STEM (44%)
- Minimal: STEM (37%), Non-STEM (35%)
- Web: STEM (10%), Non-STEM (13%)
- Equal mix: Non-STEM (2%), Entirely online (6%)
- Extensive Web: STEM (3%), Non-STEM (2%)

(n=346) (n=656)
Preferred class modalities

- **STEM** (n=346)
  - Entirely F2F: 40
  - Minimal Web: 34
  - Equal mix: 18
  - Extensive Web: 5
  - Entirely online: 4

- **Non-STEM** (n=654)
  - Entirely F2F: 40
  - Minimal Web: 30
  - Equal mix: 22
  - Extensive Web: 4
  - Entirely online: 4
Technologies used in class

<table>
<thead>
<tr>
<th>Technology</th>
<th>STEM (n=361)</th>
<th>Non-STEM (n=682)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video/audio</td>
<td>74%</td>
<td>77%</td>
</tr>
<tr>
<td>Wikis/blogs</td>
<td>21%</td>
<td>27%</td>
</tr>
<tr>
<td>E-books</td>
<td>42%</td>
<td>42%</td>
</tr>
<tr>
<td>Sims/Animations</td>
<td>35%</td>
<td>19%</td>
</tr>
<tr>
<td>Mobile apps</td>
<td>1%</td>
<td>5%</td>
</tr>
<tr>
<td>External websites</td>
<td>61%</td>
<td>65%</td>
</tr>
<tr>
<td>Social networks</td>
<td>18%</td>
<td>21%</td>
</tr>
<tr>
<td>Online library resources</td>
<td>1%</td>
<td>21%</td>
</tr>
</tbody>
</table>
Technologies preferred frequently used in class

- Video/audio
- Wikis/blogs
- E-books
- Sims/Animations
- Mobile apps
- External websites
- Social networking

Percentage usage:
- STEM (n=346)
- Non-STEM (n=649)
Student information seeking behavior: Class vs. Interest

Means

Class

Interest

Textbk
Google
Friend
Faculty
Online Lib
Wikipedia
Readings
Text/IM
Lecture
Tutor cent.
Msg board
Librarian
Expert
HOW STUDENTS SEE THEIR SEARCH ENVIRONMENT
Student Self-Perception Dimensions

- Agency
- Organization
- Preparedness
- Engagement

MSA = .82
Residual MSA = .59
Average r = .42
Difficulty in Class Dimensions

Internet Search

Course Related Resources

Friends, Social Networks

Seek Expertise

MSA = .71
Residual MSA = .54
Average r = .29
Seeking Information About a Topic of Interest Dimensions

Blended Resources

Friends, Social Network

Internet Search

MSA = .82
Residual MSA = .51
Average r = .30
Smallest Space Analysis of Student Self-Perception and Search Technique

Traits

Skills

Structure

Berry Picking

Preparedness

Organization

Engagement

Experts

Blended Resources

Course Related Materials

Internet

Friends, Social Networks

Internet

Friends, Social Networks

Agency
PERSONAS

Survey

Student Use of Digital Resources
How Were Personas Derived?

Started with the questions on learning/studying preferences (same questions used for factor development)

Conducted a Latent Class Analysis on these items

Found different, internally consistent subgroups. Developed “narratives” or personas to help explain these subgroups.
### Ambivalent Learners

**48% of Sample**

This segment addresses learning problems using a plan (at least they believe that they have a plan). But, mostly, they do not feel strongly about their learning. They are confident in their ability to find information, but do not enjoy studying nor do they have a need to learn. This is the largest learner segment from the sample.

### Adaptive Learners

**26% of Sample**

This segment exhibits a lot of characteristics of “ideal” learners (They solve problems with a plan, they are systematic, they set goals, they ask for help if they experience a problem, they enjoy studying and have a need to learn). A differentiator in this group is that there is more variance around setting specific times to study. For example, this could be a learner who studies in a hallway whenever they had some free time.

### Free Form Learners

**13% of Sample**

This group is not systematic in their learning, and do not solve problems with plans. But they are willing to change what they do when presented with new information (may speak to an experiential type of learner). This group also feels like they have a need to learn, but are among the least likely to set aside specific time to study.

### Time Sensitive Learners

**11% of Sample**

This segment is similar to the adaptive learners in many ways (use a plan, are systematic, etc), but they are just not quite as strong in these skills. Directionally they are identical to adaptive learners. The other key difference is that this group is the most likely to set specific times to study, and least likely to ask for assistance with a problem. This is also the smallest learner segment.
## Persona Demographics

<table>
<thead>
<tr>
<th></th>
<th>Ambivalent Learners</th>
<th>Adaptive Learners</th>
<th>Free Form Learners</th>
<th>Time Sensitive Learners</th>
</tr>
</thead>
<tbody>
<tr>
<td>% full time student</td>
<td>54%</td>
<td>55%</td>
<td>39%</td>
<td>47%</td>
</tr>
<tr>
<td>% former students</td>
<td>30%</td>
<td>33%</td>
<td>44%</td>
<td>33%</td>
</tr>
</tbody>
</table>

### School/Institution

<table>
<thead>
<tr>
<th></th>
<th>Ambivalent Learners</th>
<th>Adaptive Learners</th>
<th>Free Form Learners</th>
<th>Time Sensitive Learners</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 year/ community college</td>
<td>13%</td>
<td>15%</td>
<td>21%</td>
<td>28%</td>
</tr>
<tr>
<td>4 year college/ university</td>
<td>72%</td>
<td>57%</td>
<td>51%</td>
<td>55%</td>
</tr>
</tbody>
</table>

### Race

<table>
<thead>
<tr>
<th></th>
<th>Ambivalent Learners</th>
<th>Adaptive Learners</th>
<th>Free Form Learners</th>
<th>Time Sensitive Learners</th>
</tr>
</thead>
<tbody>
<tr>
<td>% White/ Caucasian</td>
<td>74%</td>
<td>75%</td>
<td>73%</td>
<td>48%</td>
</tr>
</tbody>
</table>

### Is / Was Major

<table>
<thead>
<tr>
<th></th>
<th>Ambivalent Learners</th>
<th>Adaptive Learners</th>
<th>Free Form Learners</th>
<th>Time Sensitive Learners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business, Marketing</td>
<td>17%</td>
<td>14%</td>
<td>17%</td>
<td>25%</td>
</tr>
<tr>
<td>Humanities &amp; Fine Arts</td>
<td>8%</td>
<td>11%</td>
<td>20%</td>
<td>8%</td>
</tr>
<tr>
<td>Engineering</td>
<td>10%</td>
<td>13%</td>
<td>7%</td>
<td>10%</td>
</tr>
</tbody>
</table>
Personas And Blended Learning

% within each persona desiring... *All face-to-face, half-and-half, or all online courses*

- **Time Sensitive**
  - Entirely Face-to-face: 60%
  - An equal mix (Online and face-to-face): 29%
  - Entirely Face-to-face: 11%

- **Free Form**
  - Entirely Face-to-face: 21%
  - An equal mix (Online and face-to-face): 41%
  - Entirely Face-to-face: 0%

- **Adaptive**
  - Entirely Face-to-face: 39%
  - An equal mix (Online and face-to-face): 22%
  - Entirely Face-to-face: 5%

- **Ambivalent**
  - Entirely Face-to-face: 5%
  - An equal mix (Online and face-to-face): 14%
  - Entirely Face-to-face: 5%
### Personas And Technology

<table>
<thead>
<tr>
<th>Wikipedia</th>
<th>Ambivalent Learners</th>
<th>Adaptive Learners</th>
<th>Free Form Learners</th>
<th>Time Sensitive Learners</th>
</tr>
</thead>
<tbody>
<tr>
<td>% using Wikipedia (for school or work)</td>
<td>56%</td>
<td>57%</td>
<td>62%</td>
<td>47%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technology Preferences</th>
<th>Ambivalent Learners</th>
<th>Adaptive Learners</th>
<th>Free Form Learners</th>
<th>Time Sensitive Learners</th>
</tr>
</thead>
<tbody>
<tr>
<td>% wanting FREQUENT wiki or blog use in their classes</td>
<td>10%</td>
<td>13%</td>
<td>21%</td>
<td>26%</td>
</tr>
<tr>
<td>% wanting FREQUENT e-book or eText use in their classes</td>
<td>23%</td>
<td>40%</td>
<td>34%</td>
<td>45%</td>
</tr>
<tr>
<td>% wanting FREQUENT content from websites outside of campus used in their classes</td>
<td>24%</td>
<td>48%</td>
<td>53%</td>
<td>45%</td>
</tr>
<tr>
<td>% wanting FREQUENT social media (Facebook, Twitter, etc.) use in their classes</td>
<td>10%</td>
<td>18%</td>
<td>11%</td>
<td>32%</td>
</tr>
</tbody>
</table>
### Personas, Support and Searching

<table>
<thead>
<tr>
<th>Class Difficulties</th>
<th>Ambivalent Learners</th>
<th>Adaptive Learners</th>
<th>Free Form Learners</th>
<th>Time Sensitive Learners</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Very Likely to ask FRIENDS for help</td>
<td>46%</td>
<td>59%</td>
<td>45%</td>
<td>65%</td>
</tr>
<tr>
<td>% Very Likely to seek out a TUTOR</td>
<td>14%</td>
<td>18%</td>
<td>18%</td>
<td>54%</td>
</tr>
<tr>
<td>% Very Likely to seek out a LIBRARIAN</td>
<td>5%</td>
<td>17%</td>
<td>11%</td>
<td>42%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Resources/ Searching</th>
<th>Ambivalent Learners</th>
<th>Adaptive Learners</th>
<th>Free Form Learners</th>
<th>Time Sensitive Learners</th>
</tr>
</thead>
<tbody>
<tr>
<td>% STRONGLY AGREE; &quot;I prefer sites where others have determined the reliability/accuracy of content&quot;</td>
<td>30%</td>
<td>47%</td>
<td>53%</td>
<td>78%</td>
</tr>
<tr>
<td>% STRONGLY AGREE; “I prefer searching for one large resource first when I do not know where to look”</td>
<td>24%</td>
<td>50%</td>
<td>42%</td>
<td>68%</td>
</tr>
</tbody>
</table>
NOW WHAT?

Student Use of Digital Resources

Survey

Factors & Personas
Follow-ups with the Ambivalent Learners

- Who are they, ways that their ambivalence manifests itself etc
- How can we help overcome the ambivalence

Questions of all types of learners

- More about the types of digital resources they use
- The importance of brand
- More on the importance of curation and personal geographies of learning
- Use of resources in class and to help outside of class – what prompts it and how can we expand it? (Motivational triggers)
Implications of this Information

• We have a more nuanced view of learners (Historically this is overly simplistic, and this is just the start of understanding learner behaviors)

• Student preferences for technology use and course mode (many guesses and suppositions out there)

• Expands the notion of digital fluency to include “learning to learn”

• Libraries…

• Textbooks…

And that’s just the beginning…
Questions and Comments

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Or one of the other researchers on the project

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