Predicting Online Student Outcomes From a Measure of Course Quality: Preliminary Results

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The Study

• Part of larger qualitative study on teaching and learning in the online environment
• Fieldwork at 2 community colleges in Virginia
• Observed 26 online courses (35 sections)
  • Accounting, Business, Chemistry, English, History, Humanities, Information Technology, Math, Music, Psychology, Sociology
  • For all students enrolled in those 35 sections, received demographic & complete transcript data
Creating a Quality Measure

• More holistic, not just checking off items

• Based on:
  – Existing literature and quality measures
  – Faculty, administrator, and student perceptions of quality

• Four areas (each rated 1-3):
  – Organization & presentation
  – Clarity & connection of learning objectives
  – Interaction
  – Technology
Organization & Presentation

• Course has an easy to navigate interface that is generally self-explanatory and helps students identify and manage course requirements

• E.g.: materials consistently & clearly labeled; orientation to course materials; course calendar; assignment overviews
Organization & Presentation

Tools

- Announcements
  Create and view Course Announcements.

- Blogs
  Create and manage blogs for Courses and Course Groups.

- Calendar
  Track important events and dates through the Calendar.

- Collaboration

- My Grades
  Shows detailed information about your grades.

- Respondus LockDown Browser
  Respondus LockDown Browser

- Roster
  View a list of users enrolled in the Course.

- Send Email
  Send email messages to different types of users, system
**Organization & Presentation**

**Introduction - Begin Here**
To begin the class, complete all of the steps below. Scroll down to view all of the steps.

**Step 1: Online Student Orientation to Distance Learning**
**Enabled: Statistics Tracking**
What do you need to know before you take an online distance course? Review the important information contained in the online student orientation.

**Internet Explorer Active-X issues:**
Microsoft implemented an update to IE. This update changed the way IE handles some active content. Click here to find out more: [ActiveX and IE Information (pdf)](http://www.microsoft.com/ie/technology/platform/activeX/compatibility.mspx).

**Step 2: Technical Help**
Click on the Technical Help button and read the information relative to this topic. Check to be sure that your computer system meets the technical requirements for this online class.

**Step 3: Learn About Netiquette**
**Enabled: Statistics Tracking**
Read the dos and donts for online conversing contained in the links below. We will be using email and discussion boards throughout our course this semester so we all need to be aware of what is expected and acceptable for online communications during our course.

- [Netiquette and Group Dynamics](http://www.cs.ubc.ca/~isaac/courses/it200/2004fall/netiquette.html)
- [Netiquette and Group Dynamics](http://www.cse.ucsc.edu/~kouba/ics41a/Netiquette.html)
- [Netiquette and Group Dynamics](http://www.computer.org/netiquette/netiquette.html)

You will have an opportunity to practice what you learn here in a quiz.

Before participating in our many online communications this semester, please quiz yourself on your understanding of online Netiquette:

- [Netiquette and Group Dynamics](http://www.cs.ubc.ca/~isaac/courses/it200/2004fall/netiquette.html)

**Step 4: Office 2007 Software**
The MS Office 2007 software is used in this class. We will focus on MS Word, MS PowerPoint, MS Excel, and MS Access.

Students who purchased their textbook at the bookstore received a 180 day trial version of the MS Office 2007 software that includes the four applications to be focused on. Install this software if you do not already have it on your computer.

If you already have MS Office 2007, check to be sure that your version includes MS Access. Sometimes students will have the "home" version of the software and it does not include MS Access.
Organization & Presentation

Course Calendar: View By Week

- **Sunday, May 1, 2011**
- **Monday, May 2, 2011**
  - 8:00 AM - 11:59 PM  Final Exam (Course Event)
- **Tuesday, May 3, 2011**
- **Wednesday, May 4, 2011**
- **Thursday, May 5, 2011**
- **Friday, May 6, 2011**
- **Saturday, May 7, 2011**
Learning Objectives

• Learning objectives and performance standards are clearly specified
• Connections among them are articulated to provide explicit rationale & coherence across instructional activities.
Interaction

• Plentiful opportunities for students to meaningfully interact with the instructor, content, and other students in ways that enhance knowledge development.

• Interactions facilitate knowledge and skill application, not just recitation.

• Types and nature of interactivity are determined by the desired learning goal, not by arbitrary criteria for collaboration or communication.
Interaction

**Discussion Board Grading Rubric**
Read instructions carefully. To enter the discussion board, click on the title. Once inside the discussion board, click on the Add Thread button. Timely posting is essential! Do *NOT* wait until the last minute to post your thoughts and replies. Waiting until the last minute to post hampers your classmate’s abilities to complete *their* work too, as they need to post replies.

Grading Rubric:

<table>
<thead>
<tr>
<th>10 pts possible for excellent threads</th>
<th>Focus</th>
<th>Specificity</th>
<th>Support</th>
<th>Thoughtfulness</th>
<th>Use of Language</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Excellent (2 points for post)</strong></td>
<td>Comments make vividly clear references to specific readings</td>
<td>Majority of comments include specific details</td>
<td>Comments are well-supported and documented</td>
<td>Comments are articulate and show a high level of thought</td>
<td>Writing is well-organized, unified and error-free</td>
</tr>
<tr>
<td><strong>Good (1 point for post)</strong></td>
<td>Comments make some reference to readings</td>
<td>Some comments include specific details</td>
<td>Comments are somewhat well-supported</td>
<td>Comments show some thought</td>
<td>Writing is somewhat organized and unified, with some errors</td>
</tr>
<tr>
<td><strong>Fails to meet Expectations (0 points)</strong></td>
<td>Comments make no reference to readings</td>
<td>No comments include specific details</td>
<td>Comments are not supported</td>
<td>Comments show no thought</td>
<td>Writing is not organized or unified; errors impair communication</td>
</tr>
</tbody>
</table>

**Excellent Reply:** *(5 points)* Reply addresses all points or questions made by the author and draws upon readings to validate their position

**Good Reply:** *(2.5 points)* Reply addresses some points or questions made by the author

**Reply That Fails Expectations:** *(0-1 points)* Reply basically says "Me, too!" or “I agree with Bob.”

**Total Possible Points:** 10 for each post and 5 for two replies= 20 points

Posts and replies received after the due date will receive a 5 point reduction per day.
Technology

- Technologies are effectively used in service of particular pedagogical goals
- They bolster, not reduce, instructor presence
- They facilitate diversification of instructional activities
### Two Colleges’ Rubric Scores

<table>
<thead>
<tr>
<th>Subscale</th>
<th>College 1</th>
<th>College 2</th>
<th>sig (N = 35)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Org &amp; Pres</td>
<td>1.92</td>
<td>1.29</td>
<td>p &lt; .001</td>
</tr>
<tr>
<td>Learn Obj.</td>
<td>1.72</td>
<td>1.55</td>
<td>p &lt; .05</td>
</tr>
<tr>
<td>Interaction</td>
<td>1.85</td>
<td>1.83</td>
<td>n.s.</td>
</tr>
<tr>
<td>Technology</td>
<td>1.75</td>
<td>1.38</td>
<td>p &lt; .001</td>
</tr>
</tbody>
</table>

- As might be expected, the college with more structured instructor training had higher scores.
### Two Colleges’ Student Preparation & Outcomes

<table>
<thead>
<tr>
<th>Measure</th>
<th>College 1</th>
<th>College 2</th>
<th>sig (N = 35)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior credits</td>
<td>24.32</td>
<td>26.67</td>
<td>n.s.</td>
</tr>
<tr>
<td>Prior online</td>
<td>0.69</td>
<td>0.63</td>
<td>n.s.</td>
</tr>
<tr>
<td>Prior GPA (0-4)</td>
<td>2.66</td>
<td>2.82</td>
<td>p &lt; .10</td>
</tr>
<tr>
<td>Credit load</td>
<td>10.50</td>
<td>10.58</td>
<td>n.s.</td>
</tr>
<tr>
<td>Completed</td>
<td>0.84</td>
<td>0.78</td>
<td>n.s.</td>
</tr>
<tr>
<td>Grade (completers)</td>
<td>2.29</td>
<td>2.48</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

- However, *other* school had marginally better-prepared students
We can predict variation in course-level outcomes... using course characteristics (like rubric subscales) using aggregated student characteristics (like avg. prior gpa)
• We can predict variation in student-level outcomes within a course

• Using student chars (like individual prior gpa)
Variation Across Courses

• Looking at variation in overall student grade across the 35 sections –
• The four subscales together explain 24% of that variation
• However, when controlling for one another, only “interaction” is significant at $p < 0.05$
Covariates

• Section-level:
  – Avg. prior gpa for these students
  – Proportion mid-semester enrollees who dropped

• Student-level:
  – Deviation from class avg. prior gpa
  – Prior credit accrual, prior online, current load
  – Gender, ethnicity, 25 or older
  – Program type (transfer, CTE, unknown)
## Final Estimates

<table>
<thead>
<tr>
<th>Model</th>
<th>Coeff for subscale</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Org &amp; Pres</td>
<td>0.00</td>
<td>n.s.</td>
</tr>
<tr>
<td>Learn Obj.</td>
<td>0.02</td>
<td>n.s.</td>
</tr>
<tr>
<td>Interaction</td>
<td>0.31</td>
<td>$p &lt; .05$</td>
</tr>
<tr>
<td>Technology</td>
<td>0.07</td>
<td>n.s.</td>
</tr>
</tbody>
</table>
Prior GPA

- Was a powerful course-level predictor
- Related to interaction subscale ($raw \ r = 0.37$)
- What is its role vis-à-vis interaction?
  - Instructors of more advanced classes build in better opportunities/structures for interaction?
  - More-advanced students participate more fully in opportunities for interaction?
Next Steps

• Rubric
  – Consider splitting ‘interaction’ into separate categories, or moving student-content into another category

• Outcomes
  – Need more precise learning outcomes

• Larger sample
  – At least 100 course sections would be ideal
For more information:

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