Conducting Research in Blended and Online

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What is your question?

http://tinyurl.com/elidetaq1
How do we ensure all students have access to a quality higher education?
Pathway to degree

Online

CBE

Blended and Flipped

Access through distance education
Ensuring quality
F2F gold standard
Identify practices (instructional and institutional) that impact those outcomes.
Conduct rigorous, interdisciplinary, and standardized research.
National Research Center for Distance Education and Technological Advancements (DETA)

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Poll

Does your institution currently conduct empirical research to identify effective instructional practices in blended and/or online courses and programs?

1. Yes
2. No
3. Not sure
Area of investigation guided by overarching research questions

Formulate hypotheses to be tested
- Identify variables and their direction

Design study
- Develop measures and instrumentation to test hypotheses

Conduct the study and analyze results
- Collect data and analyze results across institutions

Research models
Year 1 activity: Host national summit
Access
Learning Effectiveness
Satisfaction
Instructional Effectiveness

http://uwm.edu/deta/desired-outcomes/
Research questions

1. What characteristics are most critical for "good" online instruction?

2. What are the different design components (content, interactivity, assessments) that impact student learning?

3. What support structure are critical to providing quality access to online instruction?
### Defined

- **What are the different design components (content, interactivity, assessments) that impact student learning?**
- **What patterns of behaviors lead to increased student learning for different populations?**
- **What support structures are critical to providing quality access to online instruction?**

### Exploratory (Interpretive)

- **What are the definitions of success from students’ perspective?**
- **How can we define and measure student success beyond traditional outcomes?**
- **What is the currency of student learning beyond the existing credit hours?**
- **What are the key components that promote a sustainable and an effective teaching and learning ecosystem?**

**Research questions**
What can you measure?

http://tinyurl.com/elidetaq2
Year 1 activity: Host national summit
Framework of inquiry
Framework of inquiry
RQs - What are the different design components (content, interactivity, assessments) that impact student learning?

Shared measures – Student performance is based on numerical representation of grade converted to a 4.0 scale received in the course on assessments and as an overall grade.

Research toolkit
<table>
<thead>
<tr>
<th>Enrl Official</th>
<th>Enrl Status</th>
<th>Pers Gender</th>
<th>Pers D Eth</th>
<th>Cterm Acad</th>
<th>Age at end</th>
<th>Age at begi</th>
<th>Uappl Acad Plan Ldesc</th>
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<td>20</td>
<td>Finance - Int</td>
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<td>Enrolled</td>
<td>F</td>
<td>African Am</td>
<td>Freshman</td>
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<td>21</td>
<td>Business Und - Int</td>
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<td>M</td>
<td>White</td>
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<td>M</td>
<td>Multi Ethn</td>
<td>Senior</td>
<td>24</td>
<td>23</td>
<td>Finance</td>
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Goal: Collect data
Research toolkit: Guides to research

SECTION 3: GUIDES TO RESEARCH

EXPERIMENTAL RESEARCH DESIGN
Methodological Considerations in Conducting Experiments

SURVEY RESEARCH DESIGN
A Practical Guide to Survey Research

<table>
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<th>Intervention Course</th>
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<tr>
<td>Mean Exam Score</td>
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<td>38</td>
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<td>Standard Deviation (SD)</td>
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<td>2</td>
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<td>Effect Size</td>
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Experimental Research Design

A description of considerations in designing and conducting experimental research. Reference in developing a proposal in response to the call.

Methodological Considerations in Conducting Experiments

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<th>Semester</th>
<th>Intervention</th>
<th>Comparison</th>
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<tr>
<td>Spring 2014</td>
<td>9.4%</td>
<td>6.5%</td>
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<tr>
<td>Summer 2014</td>
<td>4.0%</td>
<td>7.3%</td>
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<tr>
<td>Fall 2015</td>
<td>8.4%</td>
<td>2.5%</td>
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<tr>
<td>Spring 2015</td>
<td>8.8%</td>
<td>2.6%</td>
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SECTION 4: DATA COLLECTION

INSTITUTIONAL WAREHOUSED DATA

SURVEY INSTRUMENT DEVELOPMENT

Developing the DETA Survey Packet

STUDENT SURVEY INSTRUMENTATION PACKET

Student Survey Instrumentation Packet

Survey items to be administered to students to collect data of variables at differing levels of the input-throughput-process guided by the Framework of Inquiry.

Learner Characteristics

Demographics

Gender

Variable Name: GEN
Which restroom do you choose?
0 = Men
1 = Women

Age

Variable Name: AGE
When is your birthday? <mm/dd/yyyy>

Birthday
## SECTION 5: DATA CODEBOOKS

### INSTITUTIONALLY WAREHOUSED DATA

- Student and Learner Characteristics
- Course Characteristics
- Student Outcomes

### STUDENT SURVEY DATA

- Student and Learner Characteristics
- Course Characteristics
- Instructional Characteristics
- Student Behaviors and Perceptions
- Student Outcomes

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<table>
<thead>
<tr>
<th>VariableID</th>
<th>MeasureID</th>
<th>Definition</th>
<th>Label</th>
<th>Coding</th>
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<tr>
<td>Student and Learner Characteristics</td>
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</tr>
<tr>
<td>Gender</td>
<td>Gender</td>
<td>Male/female/unknown (transgender collapsed into “unknown” due to low numbers)</td>
<td>IGEN</td>
<td>Match to IPEDS</td>
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<tr>
<td></td>
<td></td>
<td>1=Male 2=Femail 99=Unknown</td>
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<td></td>
</tr>
<tr>
<td>Age</td>
<td>Birthday</td>
<td>month and year of birth</td>
<td>IAGE</td>
<td>Match to FAFSA</td>
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<tr>
<td></td>
<td></td>
<td>Numerical age (after calculating based on birthday)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Match to FAFSA</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Numerical age (after calculating based on birthday, xx/xx/xxxx matching FAFSA)</td>
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<tr>
<td>Ethnicity</td>
<td>Ethnicity</td>
<td>Hispanic/Not Hispanic/Unknown</td>
<td>IETH</td>
<td>Not Hispanic = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hispanic = 1 Unknown = 99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>Race</td>
<td>Hispanic/Not Hispanic/Unknown based on IPEDS2</td>
<td>IRACE</td>
<td>Match to IPEDS</td>
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<tr>
<td></td>
<td></td>
<td>Not Hispanic = 0 Hispanic = 1 Unknown = 99</td>
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An example
Framework of inquiry
Framework of inquiry
What are the different design components (content, interactivity, assessments) that impact student learning?
# Data Codebooks

## Course Characteristics

## Instructional Characteristics

<table>
<thead>
<tr>
<th>Interactivity</th>
<th>Student report of perceptions of course interactivity with other students and the instructor</th>
<th>ICACTIVITY1 - ICACTIVITY30</th>
<th></th>
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<tbody>
<tr>
<td></td>
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<td>30 items</td>
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<td></td>
<td></td>
<td>5-point likert scale</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>“Strongly Disagree” to “Strongly Agree”</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 reverse coded</td>
<td></td>
</tr>
</tbody>
</table>
Interactivity

Variable Names: ICACTIVITY1 - ICACTIVITY30

30-items; 5-point Likert Scale; Ranges → (1) “Strongly Disagree” to (5) “Strongly Agree”

--Instructor-Student

1. The instructor facilitated learning in the course.
2. The instructor effectively communicated ideas and information.
3. The instructor showed interest in my learning.
4. I received responses to my emails in a timely manner.
5. I received information on my instructor’s availability (e.g., office hours) and turnaround time for email.
6. I received a welcome message before the class began through email or on the course site.
7. The instructor helped us understand the importance of course topics and how they were related to learning outcomes.
8. The instructor actively strived to keep course participants engaged and participating in productive dialogue.
9. The instructor encouraged us to explore new concepts throughout the course.
10. The instructor helped focus online discussions on relevant issues.
11. The feedback I received from the instructor was detailed and meaningful.
Interactivity

Variable Names: INTERACT1 - INTERACT16

16-items; 5-point Likert scale; Ranges → (1) “Never” to (5) “Very Often”

How often do you ...

1. Send email to your instructor
2. Receive emails from your instructor
3. Participate in class discussions
4. Read the instructor’s posts on the discussion board
5. Read other students’ posts on the discussion board
6. Post to the course discussion board
7. Read feedback on the course discussion board
8. Post questions about the course readings, lectures, or videos
9. Answer other students questions about course readings, lectures, or videos
10. Read course news or announcements
11. Post questions about the course procedures
12. Answer other students questions about course procedures
13. Participate in group activities
14. Discuss course topics or information with the instructor or other students using social media
<table>
<thead>
<tr>
<th>Student Outcomes</th>
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</thead>
<tbody>
<tr>
<td>Performance</td>
</tr>
<tr>
<td>Learning</td>
</tr>
</tbody>
</table>

- 5 items
- 5-point likert scale
- “Strongly Disagree” to “Strongly Agree”
- 5 reverse coded (PERFORM5) and
- 1 qualitative open-ended question
- 10 items
- 5-point likert

How to measure
Institutionally Warehoused Data

*Note: The codebook will be revised based on feasibility determined during data collection.
Institutionally warehouse data will be merged with experimental and survey measures.

<table>
<thead>
<tr>
<th>Variable ID</th>
<th>Measure ID</th>
<th>Definition</th>
<th>Label</th>
<th>Coding</th>
</tr>
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<tbody>
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</table>

### Student Outcomes

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Final course grade</td>
<td>includes incompletes, W, pass/fail, audits. Excludes penalty fee drops</td>
<td>IGRD_FIN</td>
<td>Coding provided by individual institutions</td>
<td></td>
</tr>
<tr>
<td>Course Completion</td>
<td>Passing grade in a course</td>
<td>ICOMP</td>
<td>0=no</td>
<td>1=yes</td>
</tr>
<tr>
<td>Success</td>
<td>Student received a C or better in the course</td>
<td>ISUCC</td>
<td>0 = no</td>
<td>1 = yes</td>
</tr>
</tbody>
</table>
What is your research question?
What variables will be examined? Define.
How will you measure the variable?
Who/How will the data be collected?
Who/How will the data be analyzed?
What tools or support do you need to complete the research?

What’s your plan?
Poll

What is one concern you have in conducting empirical research about online and blended courses and programs on your campus?

1. Time
2. Ability to access to data
3. Skills to collect data
4. Skills to analyze data
5. Staff resources
6. Faculty engagement
7. Administrative engagement
thank you
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http://www.uwm.edu/deta
http://www.slideshare.edu/tjoosten