Assessment-Orientated Instructional Design Using DREAM Approach

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Outline

• Rationale & DREAM Assessment-Oriented Design
• Types of Assessment in Online Learning Environment
• Method of Design-based Research (DBR)
• Settings of Design-based Research
• Instruments for DBR Data Collection
• Initial Results
• Future of the Study
Rationale

- Engaging in learning process/activities
- Connecting knowledge
- Learning how to learn
- Performing teamwork
- Solving problems

Learning Outcomes & Measurement
Learning Outcomes

- **D**esign learning-centered assessment
- **R**evitalize collaborative/cooperative learning
- **E**nable good feedback
- **A**llign criteria with activities and outcomes
- **M**ediate w/technology to ensure academic integrity

DREAM Model
<table>
<thead>
<tr>
<th>Assessment methods</th>
<th>Most likely kind of learning assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essay-type</td>
<td>Synthesis of widely read materials, interrelating, organizing, application, integration, evaluation</td>
</tr>
<tr>
<td>• Essay exam, Open book assignment, take home exam</td>
<td></td>
</tr>
<tr>
<td>Objective test</td>
<td>Recognition, identification, memorization, understanding</td>
</tr>
<tr>
<td>• Multiple-choice, short answer</td>
<td></td>
</tr>
<tr>
<td>Performance assessment</td>
<td>Skills needed in real life, communication skills, reflection, application, sense of relevance, application, research skills, creativity</td>
</tr>
<tr>
<td>• Practicum, Seminar, Presentation, Project, Reflective journal, Case study, Problem solving, Portfolio</td>
<td></td>
</tr>
<tr>
<td>Alternative assessment</td>
<td>Verbalizing and visualizing relationship, sense of relevance, holistic understanding, application, reflection, comprehension.</td>
</tr>
<tr>
<td>• Concept mapping, venn diagrams, muddy-point essays, peer review</td>
<td></td>
</tr>
</tbody>
</table>

(Biggs, 1999; Palloff & Pratt, 2009)
Types of assessment that can be completed at any time and any place

- Course Overview and Introduction (Welcome to Online Class)
- Instructional Materials
- Learning Interaction and Engagement
- Assessment and Measurement
- Emails
- Canvas Announcements/Class Tweets
- Recorded Lectures
- Discussion Forums
- Wiki Pages (Canvas & Google Doc)
- Class Blog (WordPress)
- Peer Reviewed Assignments
- Quizzes & Exams
- Group Collaboration via Group Home Pages
Types of assessment that can be completed at anyplace but require class members to connect at the same time.
Design-based Research (DBR)

Analysis of practical problems by researchers and practitioners in collaboration

Development of solutions informed by existing design principles and technological innovations

Iterative cycles of testing and refinement of solutions in practice

Reflection to produce “design principles” and enhance solution implementation

Refinement of problems, solutions, methods, and design principles

Amiel, T., & Reeves, T. C. (2008).
DBR Research Design - Convergent Parallel Mixed Method

Quantitative Data Collection and Analysis

Comparing or Relating

Interpretation

Qualitative Data Collection and Analysis

(Creswell & Clark, 2011; Creswell, 2014)
Settings of DBR Research

Class
Critical Reading of Educational Technology

103 juniors
Shenyang Normal University
Shenyang City
China

Learning Objectives
• describe the history of the field
• identify and evaluate the current status, and synthesize the readings for application

Course Content
technology philosophy, communication, psychology, social network, big data, resources revolution, and artificial intelligence (AI).

Learning Activities
• Online discussion within LMS Tronclass
• Group screencast
• Peer feedback
Assessment in “Critical Reading of Educational Technology” Class

- Graded Discussion
- Online Participation
- Group Assignments
- Peer Review
- Feedback
- Rubrics
# Research Instruments

<table>
<thead>
<tr>
<th>Delivery of Post</th>
<th>Utilizes poor spelling and grammar in most posts; posts appear &quot;hasty&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Errors in spelling and grammar evidenced in several posts; Few grammatical or spelling errors are noted in posts; Consistently uses grammatically correct posts with rare misspellings;</td>
<td></td>
</tr>
<tr>
<td>Relevance of Post</td>
<td>Posts topics which do not relate to the discussion content; makes short or irrelevant remarks Occasionally posts off topic; most posts are short in length and offer no further insight into the topic Frequently posts topics that are related to discussion content; prompts further discussion of topic Consistently posts topics related to discussion topic; cites additional references related to topic</td>
</tr>
<tr>
<td>Expression Within the Post</td>
<td>Does not express opinions or ideas clearly; no connection to topic Unclear connection to topic evidenced in minimal expression of opinions or ideas Opinions and ideas are stated clearly with occasional lack of connection to topic Expresses opinions and ideas in a clear and concise manner with obvious connection to topic</td>
</tr>
<tr>
<td>Contribution to the Learning Community</td>
<td>Does not make effort to participate in learning community as it develops; seems indifferent; Does not participate in peer evaluation Occasionally makes meaningful reflection on group’s efforts; marginal effort to become involved with group; Participates in peer evaluation but does not have constructive input Frequently attempts to direct the discussion and to present relevant viewpoints for consideration by group; interacts freely; Participate in peer evaluation with input Aware of needs of community; frequently attempts to move the group discussion; pre-creative approaches to topic Participate in peer evaluation with constructive input</td>
</tr>
</tbody>
</table>

Modified based on Edelstein, S. & Edwards, J. (2002). *If you build it, they will come: Building learning communities through threaded discussion*.  

(---) questionnaire (So & Brush, 2008)
CLSS Questionnaire

Collaborative Learning (8)  Social Presence (17)  Satisfaction (11)

5-point Likert Scale: Strongly Disagree=1; Strongly Agree=5
Initial Data Analysis Results - Demographics

**Response from phones:** 66

**Responses from web browsers:** 35

**Total responses:** 101
Initial Data Analysis Results - Demographics

- 87 female
- 14 male
Initial Data Analysis Results - Demographics
Initial Data Analysis Results - Demographics
Cronbach’s alpha

.923
# Perception of Social Presence & Online Discussion Performance

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
</table>
| 1     | Regression     | 70.744 | 1 | 70.744 | 8.863 | .004<br>
|       | Residual       | 790.206 | 99 | 7.982  |       |      |
|       | Total          | 860.950 | 100|        |       |      |
| 2     | Regression     | 116.603 | 2 | 58.301 | 7.676 | .001<br>
|       | Residual       | 744.348 | 98 | 7.595  |       |      |
|       | Total          | 860.950 | 100|        |       |      |

a. Dependent Variable: Online-Discussion
b. Predictors: (Constant), SP10
c. Predictors: (Constant), SP10, SP12
Perception of Social Presence & Online Discussion Performance

SP 10 – Computer-mediated communication is technically reliable

SP 12 - Computer-mediated communication allows me to build more caring social relationship with others
Conclusion and Discussion

Reliability of computer-mediated communication

Perceived social presence through expected learning community building
Future Directions

- Qualitative data collection and analysis
- CLSS validation with more data
- Constructs of cooperative vs. collaborative learning with cultural context
References


▪ Edelstein, S., & Edwards, J. (2002). If you build it, they will come: Building learning communities through threaded discussions. Online Journal of Distance Learning Administration, 5(1).

Thank you!

Any questions?