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Data Driven Decision Making for Online Instructional Design

Tuesday, March 15, 2011

Presented by:

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Data Driven Decision Making for Online Instructional Design



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Magna presents

Data Driven Decision Making for Instructional Design

March 15, 2011

1

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IDEAS FOR EFFECTIVE ONLINE INSTRUCTION

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Our presenter



Phil Ice, Ed.D.
Associate VP, Research and Development
American Public University System

Vice President
Sage Road Analytics

3

Poll question

What best describes the role of the majority of those viewing the seminar at your location?

- Instructional designer
- Faculty
- Administrator
- Researcher
- Other

4

The Role of Evaluation in ID

- ADDIE and ASSURE as examples
- Evaluation is the terminal phase of the model
- Carryover to implementation
 - Evaluation viewed as end of course activity
 - Slows the development lifecycle

5

Problems

- Current students benefit little from end-of-course analysis
- Reliance on end-of-course data is responsible for “mid-stream” introduction of media & strategies
- Allows for institutional “blame game”
 - Instructional designers & faculty shift responsibility to each other

6

However...

- End-of-course survey data is a very powerful tool for programmatic improvement
- Requires thorough understanding of student demographics

7

However...

- Demographic mix can alter outcomes
- Multiple iterations of courses are possible if there are large variances in student characteristics
 - Remedial courses
 - Traditional vs. non-traditional learners

8

Poll question

End-of-course surveys at my institution are based on:

- A face-to-face survey
- A custom construct for online learning at my university
- A national model

9

Contemporary Problems

- The vast majority of online course surveys are derivative of face-to-face courses
- Online surveys must account for unique pedagogies
- Institutional inertia makes life difficult for instructional designers
 - ID efforts not measured effectively
 - ID / faculty roles are intertwined in most surveys

10

Measurement Needs

- Effectiveness of media & layout
- Instructor role in discussion & interaction with students
- Student interaction with other students
- Effectiveness of activities
- Cognitive engagement

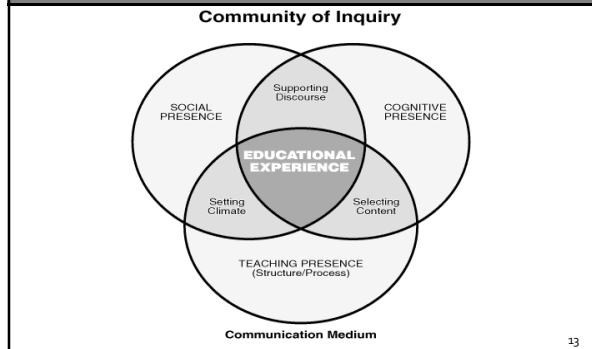
11

Exemplar - The Col Framework

- A process model of learning in online & blended educational environments
- Grounded in a collaborative constructivist view of higher education
- Assumes effective online learning requires development of a community of learners that supports meaningful inquiry & deep learning

12

Three Presences



Social Presence

- The ability of participants in a community of inquiry to project themselves socially & emotionally – as 'real' people
- The degree to which participants in computer mediated communication feel socially & emotionally connected

14

Social Presence – Elements

- Affective expression (expressing emotion, self-projection)
- Open communication (learning climate, risk free expression)
- Group cohesion (group identity, collaboration)

15

Cognitive Presence

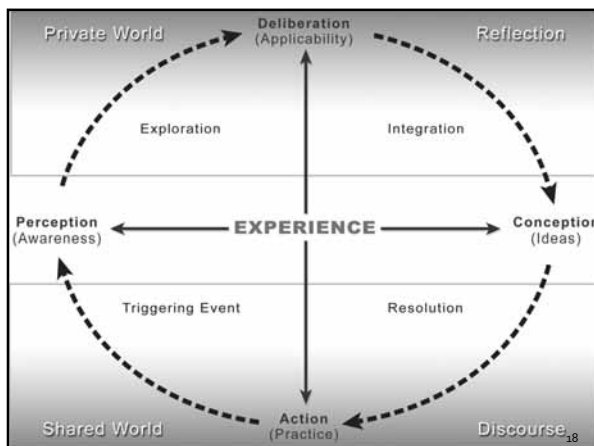
- The extent to which learners are able to construct & confirm meaning through sustained reflection & discourse in a critical community of inquiry

16

Cognitive Presence – Elements

- Triggering event (sense of puzzlement)
- Exploration (sharing information & ideas)
- Integration (connecting ideas)
- Resolution (synthesizing & applying new ideas)

17



Teaching Presence

- The design, facilitation & direction of cognitive & social processes for the purpose of realizing personally meaningful & educationally worthwhile learning outcomes

19

Teaching Presence – Elements

- Design & organization (setting curriculum & activities)
- Facilitation (shaping constructive discourse)
- Direct instruction (focusing & resolving issues)

20

Col Survey

- 9 social presence items
- 12 cognitive presence items
- 13 teaching presence items

21

Col Survey – Social Presence

- 9 social presence items
 - 3 affective expression
 - 3 open communication
 - 3 group cohesion

22

Col Survey – Cognitive Presence

- 12 cognitive presence items
 - 3 triggering
 - 3 exploration
 - 3 integration
 - 3 resolution

23

Col Survey – Teaching presence

- 13 teaching presence items
 - 4 design & facilitation
 - 6 facilitation of discourse
 - 3 direct instruction

24

Col Survey - Validation

- Tested in graduate courses at four institutions in the US & Canada
- Principal component factor analysis
- Three-factor model predicted by Col framework confirmed

25

Col Survey – Validation (cont'd)

- Arbaugh, Cleveland-Innes, Diaz, Garrison, Ice, Richardson, Shea & Swan – 2008
- Subsequent validation & cumulative n over 500,000

26

Community of Inquiry Survey Instrument (draft v15)

Developed by Ben Arbaugh, Marti Cleveland-Innes, Sebastian Diaz, Randy Garrison, Phil Ice, Jennifer Richardson, Peter Shea & Karen Swan

Teaching Presence

Design & Organization

1. The instructor clearly communicated important course topics.
2. The instructor clearly communicated important course goals.
3. The instructor provided clear instructions on how to participate in course learning activities.
4. The instructor clearly communicated important due dates/time frames for learning activities.

Facilitation of Discourse

5. The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn.
6. The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking.
7. The instructor helped to keep course participants engaged and participating in productive dialogue.
8. The instructor helped keep the course participants on task in a way that helped me to learn.
9. The instructor encouraged course participants to explore new concepts in this course.
10. Instructor actions reinforced the development of a sense of community among course participants.

Direct Instruction

11. The instructor helped to focus discussion on relevant issues in a way that helped me to learn.
12. The instructor provided feedback that helped me understand my strengths and weaknesses.
13. The instructor provided feedback in a timely fashion.

27

Social Presence

Affective Expression

- 14. Getting to know other course participants gave me a sense of belonging in the course.
- 15. I was able to form distinct impressions of some course participants.
- 16. Online or web-based communication is an excellent medium for social interaction.

Open communication

- 17. I felt comfortable conversing through the online medium.
- 18. I felt comfortable participating in the course discussions.
- 19. I felt comfortable interacting with other course participants.

Group cohesion

- 20. I felt comfortable disagreeing with other course participants while still maintaining a sense of trust.
- 21. I felt that my point of view was acknowledged by other course participants.
- 22. Online discussions help me to develop a sense of collaboration.

Cognitive Presence

Triggering Event

- 23. Problems posed increased my interest in course issues.
- 24. Course activities piqued my curiosity.
- 25. I felt motivated to explore content related questions.

Exploration

- 26. I utilized a variety of information sources to explore problems posed in this course.
- 27. Brainstorming and finding relevant information helped me resolve content related questions.
- 28. Discussing course content with my classmates was valuable in helping me appreciate different perspectives.

Integration

- 29. Combining new information helped me answer questions raised in course activities.
- 30. Learning activities helped me construct explanations/solutions.
- 31. Reflection on course content and discussions helped me understand fundamental concepts in this class.

Resolution

- 32. I can describe ways to test and apply the knowledge created in this course.
- 33. I have developed solutions to course problems that can be applied in practice.
- 34. I can apply the knowledge created in this course to my work or other non-class related activities.

Instructional Design 1

- Col analysis informs optimal design strategy
- Bifurcation of Teaching Presence is an indicator of need for review of “instructor voice”
- Social Presence bifurcation is an indicator of the need for more collaboration
- Strength of factor loadings can indicate areas where content review is needed

Instructional Design 2

- Socio-epistemological orientation – objectivist vs. constructivist
- Two-factor loading pattern indicative of an objectivist orientation
- Constructivist paradigm important for those most impacted – 38-47 years of age

31

Resource Access

- Even basic data can be informative
- Most LMSs allow for viewing of fundamental statistics (e.g. time on task, course components accessed, last entry date, etc.)

32

Resource Access (cont'd)

- Informs what resources & activities are & are not being utilized
- Basic ratios can inform the relationship between activity & grades
- Identification of problem areas

33

Extended Analysis

- Regression, factor analysis & qualitative data mining can be powerful tools
- Institutional researchers are always looking for new topics
- Partner with faculty to analyze your data

34

Qualitative Data

- Student focus groups
- What works for them and what doesn't
- Especially helpful in determining how effective activities and material are

35

Qualitative Data

- Let students navigate you through the process of knowledge acquisition
- Combine with quantitative data for an explanatory mixed methods approach

36

Faculty as Data Points

- Faculty are closest to the students
- Regular feedback forms, suggestion box, & ID / faculty interaction
- Make a part of the faculty research agenda

37

Faculty as Data Points (cont'd)

- ID as partners
- Differences in the same or similar courses between individual faculty can inform design
- Identification of isolated vs. systemic problems

38

American Public University System – 2009 COI Faculty Analysis	University	Act 4 Institutions	Faculty Name
Program Overview			
# COI Responses	43,669	8,204	187
Status	Count	Count	Satisfactory
*Net Registrations	74,475	N/A	216
*Withdrawal %	5.37%	N/A	7.43%
1. The instructor clearly communicated important course topics.	4.45	4.46	4.23
2. The instructor clearly communicated important course goals.	4.47	4.47	4.23
3. The instructor provided clear instructions on how to participate in course learning activities.	4.43	4.43	4.26
4. The instructor clearly communicated important due dates/times frames for learning activities.	4.54	4.53	4.26
5. The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn.	4.28	4.27	3.86
6. The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking.	4.29	4.28	3.83
7. The instructor helped to keep course participants engaged and participating in productive dialogues.	4.27	4.26	3.78
8. The instructor helped keep the course participants on track in a way that helped me to learn.	4.26	4.27	3.84
9. The instructor encouraged course participants to explore new concepts in this course.	4.35	4.35	3.92
10. The instructor actively encouraged the development of a sense of community among course participants.	4.24	4.22	3.85
11. The instructor helped to focus discussion on relevant issues in a way that helped me to learn.	4.20	4.20	3.93
12. The instructor provided feedback that helped me understand my strengths and weaknesses.	4.24	4.23	3.72
13. The instructor provided feedback in a timely fashion.	4.29	4.27	4
14. Getting to know other course participants gave me a sense of belonging in the course.	3.97	3.90	3.93
15. I was able to form distinct impressions of some course participants.	4.00	3.99	4.04
16. Online or web-based communication is an excellent medium for social interaction.	4.00	3.97	4.13
17. I felt comfortable conversing through the online medium.	4.38	4.38	4.43
18. I felt comfortable participating in the course discussions.	4.40	4.38	4.41
19. I felt comfortable interacting with other course participants.	4.37	4.34	4.46
20. I felt comfortable disagreeing with other course participants while still maintaining a sense of respect.	4.30	4.27	4.33
21. I felt that my point of view was acknowledged by other course participants.	4.29	4.27	4.32
22. Online discussions help me to develop a sense of collaboration.	4.17	4.13	4.23
23. Problems posed increased my interest in course topics.	4.13	4.12	3.99
24. Course activities pleased my curiosity.	4.22	4.21	4.12
25. I felt motivated to explore content related questions.	4.26	4.26	4.14
26. I utilized a variety of information sources to explore problems posed in this course.	4.40	4.37	4.34
27. Exploring and finding relevant information helped me resolve content related questions.	4.28	4.25	4.24
28. Online discussions were valuable in helping me appreciate different perspectives.	4.11	4.07	4.15
29. Combining new information helped me discover aspects not involved in course activities.	4.29	4.26	4.27
30. Learning activities helped me construct explanations/solutions.	4.27	4.24	4.2
31. Reflection on course content and discussions helped me understand fundamental concepts in this class.	4.30	4.29	4.23
32. I feel confident to test and apply the knowledge created in this course.	4.30	4.27	4.33
33. I have developed solutions to course problems that can be applied in practice.	4.26	4.22	4.04
34. I can apply the knowledge created in this course to my work or other non-class related activities.	4.33	4.31	4.16
*All net registration and withdrawal percentages are based on courses starting in 2009 and ending by 6/30/2009			

39

Long-term Trends

- Aggregation of data can identify trends over time versus semester effects
- Can highlight institutional culture issues (positive & negative)
- Informs integration of new technologies through beta testing against norms

40

Institutional Issues

- Large-scale data collection requires IT cooperation to facilitate infrastructure requirements
- The case for improved ROI needs to be made with administrators
- Faculty relationships are key – ID & analytics as partnership

41

Thank You!

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42

Thank you for joining us

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<http://www.surveymonkey.com/s/31511>
