Enhancing Online Course Quality through Multimedia and Interactive Technologies

Melissa Barragan, Community College Research Center

Jason Vance, Thomas Nelson Community College

Di Xu, Community College Research Center

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Online Courses in Postsecondary Education

➢Fast growth in the past two decades overall

➢Particularly popular in community colleges

➢Poorer student outcomes compared to f2f courses

Background of CCRC Online Study

➢Funded by Bill and Melinda Gates Foundation

➢Part of larger qualitative study on teaching and learning in the online environment

➢Fieldwork at 2 community colleges in Virginia in Spring 2011

➢Observed 23 high enrollment introductory online courses

Creating a Quality Measure Rubric

➢ Rationale:

- To dig deeper into online courses

- To measure how online instruction is happening

- To inform how to improve online instruction

➢ Based on:

- Existing literature and quality measures

- Faculty and student perceptions of quality

Rubric Components

- Organization & presentation

- Learning objectives & alignment

- Interaction

- Use of technology

Rubric Criteria: 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.

Rubric Criteria: Technology

- ➤ Technologies are effectively used in service of particular pedagogical goals
- ➤ They bolster, not reduce, instructor presence
- ➤ They facilitate diversification of instructional activities

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Distribution of Rubric Scores

N=23	Org & Pres	Learn Obj	Interaction	Technology
1 (%)	35%	26%	26%	43%
2 (%)	48%	48%	43%	35%
3 (%)	17%	26%	31%	22%
Mean Score	1.83	2	2.04	1.78

1=Does not meet expectations **2**=Meets expectations **3**=Exceeds expectations

Correlations between Rubric Scores & Course Outcomes

	Correlation	*P*-Value
Interaction	0.15	<0.0001
Technology	0.12	0.002

Next Steps for Quantitative Analysis

➢ Adding student-level covariates

➢ More advanced model to control for clustering within courses

➢ Subsample analysis
  ➢ Discipline Comparisons

Jason A. S. Vance

- Blackboard Administrator\E-Learning Specialist @ Thomas Nelson Community College

- 2 years teaching online an Introductory Mathematics

- 2 years teaching Developmental Mathematics

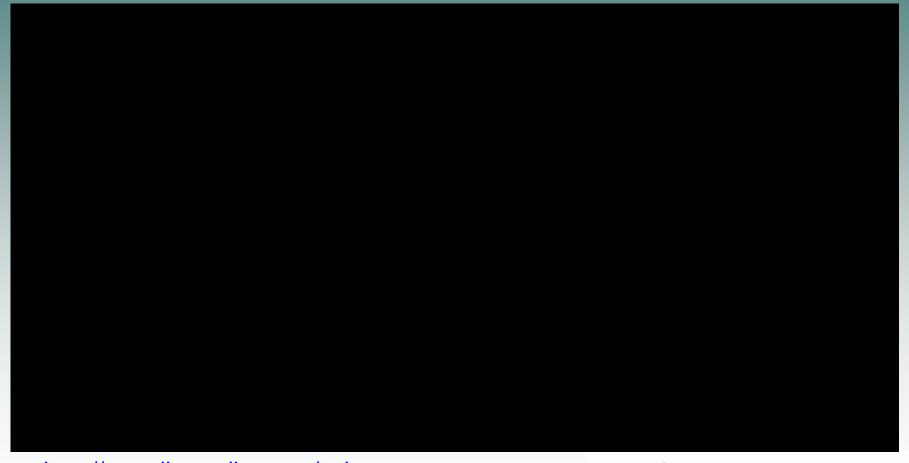- 11 years in higher education & educational technology

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Criteria for Selecting a Technology

- Types of content
  - Concepts
  - Procedures
  - Facts
  - Principles/Rules
  - Interpersonal Skills
  - Attitudes
- Objectives

- Portability
  - File types
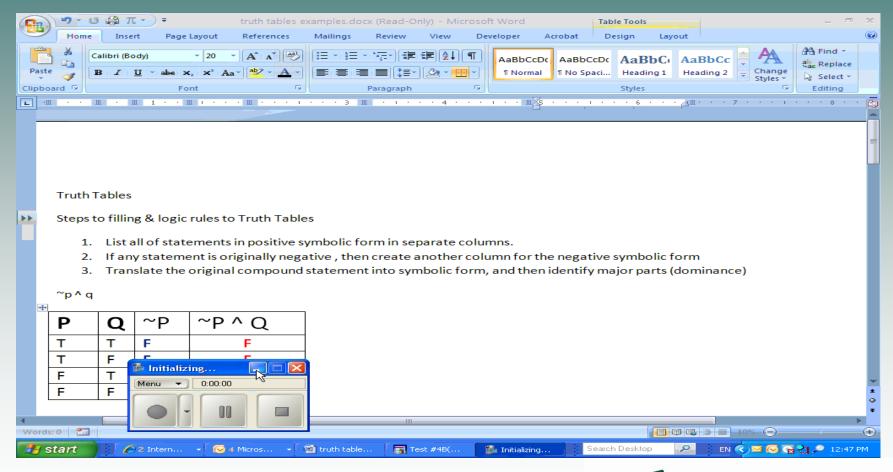 - File size
- Accessibility
- Time
- Seamless
- Reusability

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Sample of a LiveScribe Recording

http://www.livescribe.com/cgi-bin/WebObjects/LDApp.woa/wa/MLSOverviewPage?sid=qw9cZM7FFp7b
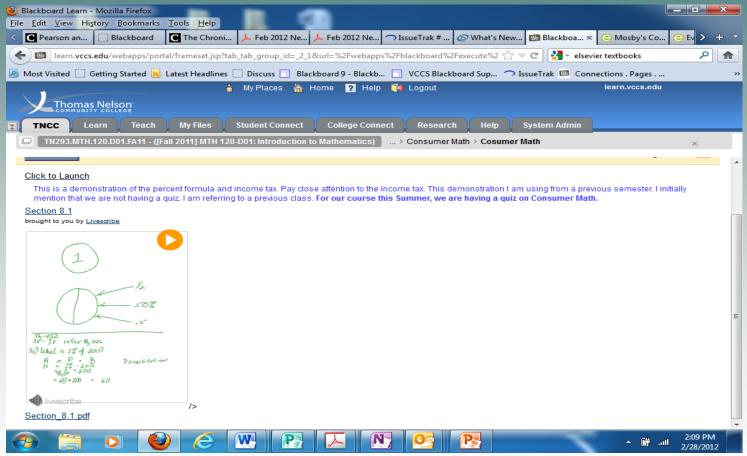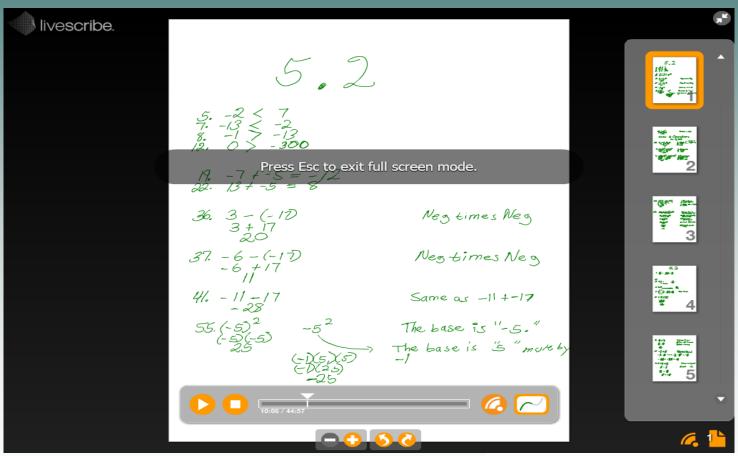
SmartBoard Recorder
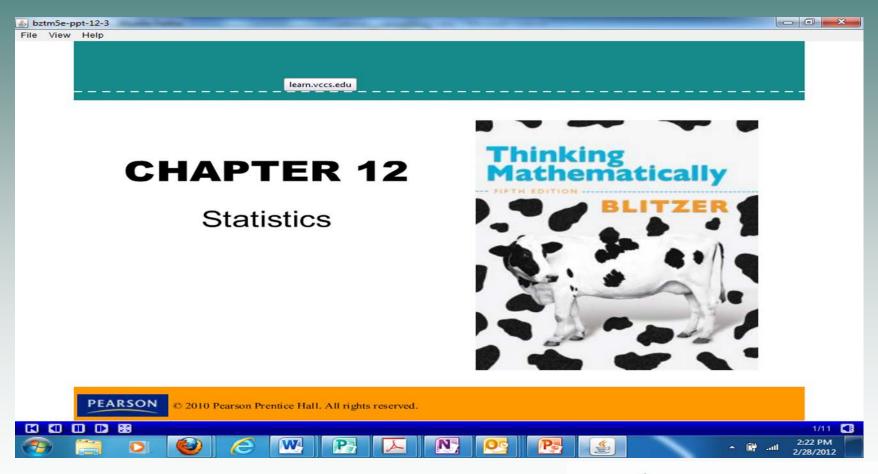
LiveScribe and
BB Learning Module

LiveScribe and BB Learning Module

Impatica version of PowerPoint

Challenges

- Availability
- Time
- Inter-operability
- File management
- Staff
- Willing to share

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	Types of Tools	Usage Purposes
Content Presentation: 15/23 Instructors (65%)	Wimba, Podcasts, Adobe Connect, PPTs, LiveScribe, Panopto	• Intro content • Modeling/ Emphasis of Concepts
Communication Forums: 22/23 (95%)	Discussion Boards in BB, Chats (e.g., Adobe Connect, Voice Direct)	• Assignments • Q&A • Review Sessions
External Web-Based Sources: 7/23 (30%)	Videos (YouTube, PBS), web-links to sources	• Modeling • Assignments • Contextualization
Instructional Software: 7/23 (30%)	MyMathLab, Mastering Chemistry, SAM, WebAssign	• Practice/ Application • Assessment

Tool Categories & Prevalence

Student Perspectives

- Students rated courses with interactive technologies higher than those that rely on text-based materials and assignments.

  - **Interactive Technologies**: A software or technological tool that promotes substantive interaction with content, between students, and with the instructor

- Use of technological tools allowed for:

  - Clarification of content and questions

  - Appeal to different learning modalities

  - Enhanced interaction and feedback

Student Perspectives

- **Clarification of content and questions**

"[The instructor's lectures] really clarify a lot of issues that you don't get from the reading. All of the other instructors, they just write something down and you sit there and read it sometimes [and think] 'What is that?'"
-Accounting Student

"One thing I can say is I like the videos that she does, with her actually in it and explaining it...I think more teachers should do that…still go ahead and have the reading assignments and the training assignments...But I really like how they gave more depth to it"- ITE Student

Student Perspectives

- **Appeal to different learning modalities**

"That's the good thing about some of the videos. It sticks in your mind, a visual… That's what you're losing sometimes from classroom to Distance Learning…It does make it at times hard to grasp some concepts that are more in detail where if it a teacher was up there and they were doing something, hand gestures, or drawing something on the board, your memory, motor skills, will grasp some of that a little better."- Psychology Student

Student Perspectives

- **Enhanced interaction and feedback**

"[My instructor] comes on and says 'Very good, So-and-So. This is exactly right.' Or, she'll say 'Yes you could think about it that way, but it may be more direct to do it this way.' She's very tactful."- Chemistry Student

"She'll give us questions and in those questions it might ask you "Discuss such-and-such, being in depth with this, be specific with that" and you can put your opinion in there. But the thing is, you put your opinion but you never get anything back. You don't get any feedback. And so it feels like…You're just talking to the wall, telling it all this stuff, and the wall doesn't react."- Sociology Student

Summary

- Observed minimal strategic use of interactive technologies
  - Nature of content delivery was generally static, relying heavily on text-based assignments and materials
  - Attempts to encourage robust interaction were few
  - Use of technologies was not always connected to learning objectives

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Summary

- Interactive technologies provide a viable way for instructors to enhance their teaching and students' learning experience.

  - Instructors can present, and students can learn content in a more dynamic way

  - Provide opportunities to gauge learning and address student needs

  - Diversify the nature of interaction

- Students feel less like they are teaching themselves

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Suggested Authors & Topics

- Authors
  - Richard E Meyer – *Dual Coding Theory*
  - Desmond Keegan – *Distance Education*
  - Gary R. Morrison, Steven Ross, & Jerrold Kemp – *Designing Effective Instruction*
  - Anymir Orellana, Terry L. Hudgins, & Michael Simonson – *The Perfect Online Course*
  - Robert M. Thorndike & Tracy Thorndike – *Measurement & Evaluation in Psychology and Education*
- Topics
  - Universal Instructional Design
  - Web Design Principles
  - Online Learning Communities
  - Instructional Content Types

For more information:

Melissa Barragan: Barragan@tc.edu
Jason Vance: vancej@tncc.edu
Di Xu: dx2108@columbia.edu

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Community College Research Center
Institute on Education and the Economy, Teachers College, Columbia University
525 West 120th Street, Box 174, New York, NY 10027
E-mail: ccrc@columbia.edu
Telephone: 212.678.3091

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