Ten+ Years of Research on Online and Blended Learning: Results and Reflections
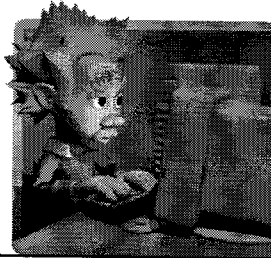
Curt Bonk, Professor, Indiana University
President, SurveyShare, Inc.
cjbonk@indiana.edu
http://mypage.iu.edu/~cjbonk/
http://SurveyShare.com

Theoretical Perspectives and Principles

Learner-Centered Learning Principles

From American Psychological Association, 1993

Cognitive and Metacognitive Factors
1. Nature of the learning process
2. Goals of the learning process
3. Construction of knowledge
4. Strategic thinking
5. Thinking about thinking
6. Context of learning

Developmental and Social Factors
10. Developmental influences on learning
11. Social influences on learning

Individual Differences
12. Individual differences in learning
13. Learning and diversity
14. Standards and assessment

Motivational and Affective Factors
7. Motivational and emotional influences
8. Intrinsic motivation to learn
9. Effects of motivation on effort

Constructivistic Teaching Principles (Brooks, 1990)

1. Build on student prior knowledge.
2. Make learning relevant.
3. Give students choice in learning activity.
4. Student autonomy & active lrng encouraged
5. Use of raw data sources & interactive materials
6. Encourage student dialogue
7. Seek elaboration on responses and justification
8. Pose contradictions to original hypothesis
9. Ask open-ended questions & allow wait time
10. Encourage reflection on experiences

Sociocultural Ideas (Bonk & Cunningham, 1998)

1. Shared Space and Build Intersubjectivity
2. Social Dialogue on Authentic Problems (mind is in social interactions and extends beyond skin)
3. Mentoring and Teleapprenticeships
4. Scaffolding and Electronic Assistance in ZPD
5. Group Processing and Reflection
6. Collaboration and Negotiation in ZPD
7. Choice and Challenge
8. Community of Learning with Experts & Peers
9. Portfolio Assessment and Feedback
10. Assisted Learning (e.g., task structuring)
11. Reciprocal Teaching & Peer Collaboration

Premise #1: Importance of Social Interaction (Vygotsky, Wertsch, etc.)

- Social interaction develops new patterns of thought and strategic behaviors.

Premise #2. Mind is Distributed in Society

- **Mind is in society— individual-in-social-action; mind extends beyond the skin** (Vygotsky, Wertsch, etc.).

Distributed Intelligence (in a learning community)

- Student higher-order mental functioning has its' roots in social relations. The mind, therefore, is distributed in society, and, extends beyond one's skin. Since knowledge is negotiated by members of a community of practice, the classroom should be organized to guide student learning toward membership in a learning community.

Distributed Intelligence (in a learning community)

- Participation in such a classroom is no longer didactic or transmissive, but a sophisticated instructional conversation.

Distributed Intelligence (in a learning community)

- While technology is vital here, it is but one resource of a learning community; other resources that should also be utilized include: experts, mentors, peers, curriculum/textbooks, teachers, self-reflection, assessment, parents, and the funds of capital within one's local community.

Premise #3. Learning Precedes Development

- **Learning precedes development—so must nudge, prompt, provoke it, rouse it to life, etc.**
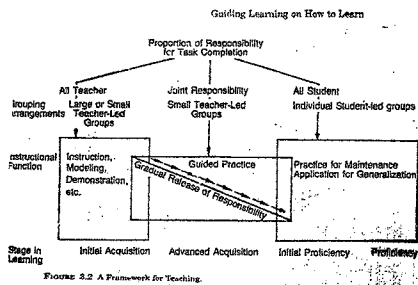
Premise #4: Cognitive Apprenticeship

- Learners should be acculturated into an established community of practice. This is done through guided participation, scaffolding, and a gradual transfer of responsibility for the learning from the more experienced partner to the learner.

Guided Learning Model (Rogoff, 1990)

Guiding Learning on How to Learn

Proportion of Responsibility for Task Completion

	All Teacher	Joint Responsibility	All Student
Grouping arrangements	Large or Small Teacher-Led Groups	Small Teacher-Led Groups	Individual Student-led groups
Instructional Function	Instruction, Modeling, Demonstration, etc.	Guided Practice / Gradual Release of Responsibility	Practice for Maintenance Application for Generalization
Stage in Learning	Initial Acquisition	Advanced Acquisition	Initial Proficiency / Proficiency

FIGURE 3.2 A Framework for Teaching.

Cognitive Apprenticeship

- **Collins, Brown, and Newman (1989) detail six teaching methods in an ideal cognitive apprenticeship; (1) modeling, (2) coaching, (3) scaffolding and fading, (4) articulation, (5) reflection, and (6) exploration.**
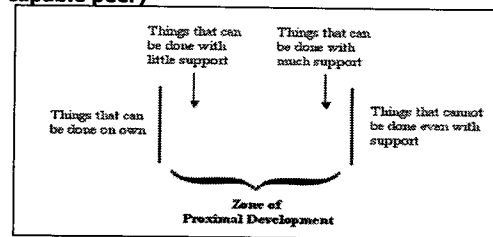

Tele-apprenticeship

- **As a result of advances in technology tools, there are myriad online learning environments that are mediated by experts, peers, mentors, teachers, etc. to help learners and teachers build and share knowledge through access to specialized expertise and information.**
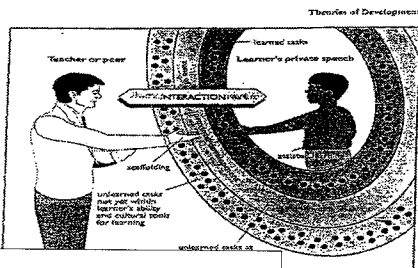

Premise #5:
Zone of Proximal Development

A range of tasks too difficult for child to manage alone, but which can be achieved through interaction with another person (adult or more capable peer)

Things that can be done with little support

Things that can be done with much support

Things that can be done on own

Things that cannot be done even with support

Zone of Proximal Development

Premise #6:
Scaffolding in one's ZPD
(Robert Slavin, 1993)

Theories of Development

Figure 2.5 Teaching Model Based on Vygotsky's Theory

Types of Scaffolding

- Social Acknowledgement
- Questioning
- Direct Instruction
- Modeling/Examples
- Feedback/Praise
- Cognitive Task Structurin
- Cognitive Elaborations/Explanations
- Push to Explore
- Fostering Reflections/Self Awareness
- Encouraging Articulation/Dialogue Prompting
- General Advise/Scaffolding/Suggestions
- Management
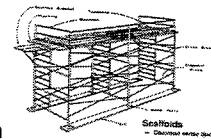
Premise #7:
Assisted Learning

- There are a range of techniques for teachers to assist in the learning process (e.g., modeling, coaching, scaffolding and fading, questioning, directly instructing, task structuring, management and feedback, and pushing students to explore, reflect, and articulate ideas).

Premise #8:
Learning Resources

- The cultural and intellectual capital within one's teaching and learning environment. Includes peers, textbooks and the curriculum, technology tools, teachers, expert guests, community leaders, tests, self-reflection, etc.

Resources in a Learning Environment

- Teachers
- Peers
- Curriculum/Textbooks
- Technology/Tools
- Experts/Community
- Assessment/Testing
- Self Reflection
- Parents

Premise #9:
Authentic Problems

- A learning experience or task which realistically mimics or approximates real world situations. They tend to be more engaging for learners.

Premise #10:
Unit of Analysis

- Unit of analysis is the activity or word meaning.
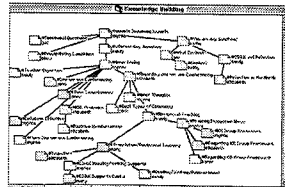
Premise #11:
Internalization

- Development moves from external to internal (appears twice).

Premise #12: Intersubjectivity

- Refers to a temporary shared collective reality among individuals. Conferencing and collaborative technologies can foster such shared space or situational understanding between learning participants which can help them negotiate meaning, design new knowledge, and perceive multiple problem solving perspectives.

Frameworks and Models
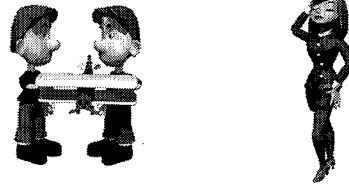
Nature and Nurture: An Interactional Model

Technology | Pedagogy

People, Society, Culture, etc.
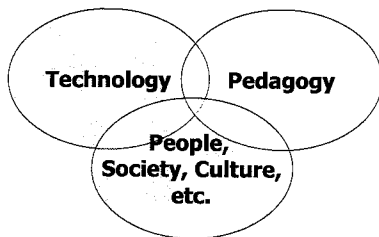
The Web Integration Continuum (Bonk et al., 2000)

Level 1: Course Marketing/Syllabi via the Web
Level 2: Web Resource for Student Exploration
Level 3: Publish Student-Gen Web Resources
Level 4: Course Resources on the Web
Level 5: Repurpose Web Resources for Others
==================================
Level 6: Web Component is Substantive & Graded
Level 7: Graded Activities Extend Beyond Class
Level 8: Entire Web Course for Resident Students
Level 9: Entire Web Course for Offsite Students
Level 10: Course within Programmatic Initiative

Areas of Current Research

1. Wikibook creation and ownership
2. Open source movement in North America and China
3. Synchronous instruction with Breeze
4. Blended learning in corp trng in 5-6 countries
5. Development of online communities in online MBA program
6. Virtual teaming in online MBA program
7. Case learning in online MBA program
8. Teaching of educational psychology from a social constructivist framework
9. Motivation in online environments
10. Podcasting and communities of practice

10 Pieces of this Story
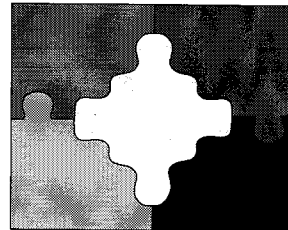
10+ Stories for 10+ Years

1. 1993-1994: Peace, dude, hop off the return key, save me some stress."
2. 1995: What if Vygotsky had lived to 100...
3. 1996: Do not ride your bike to work.
4. 1997: Look out for the Russians...
5. 1998: Do you believe in the power of sharing?
6. 1999-2000: Do you want to be target practice?
7. 2001: You were in, but you were never there.
8. 2002-2005: Who needs a TICKIT?
9. 2003-2006: Where is Disneyland?
10. 2004-2006: Data at your fingertips.
11. 2006-?: A synchronous life is a Breeze.
12. 2006-?: Where is a Wikibookian when you need one?

Story #1 (1994): "Peace, dude, hop off the return key, save me some stress."
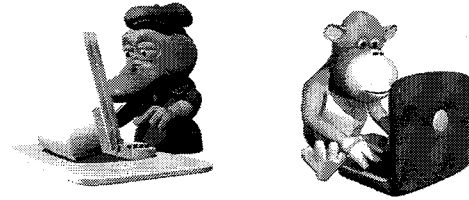
Taxonomy: Level of Collaborative Tool
(Bonk, Medury, & Reynolds, 1994)

Level 0: Stand Alone Tools
Level 1: E-mail and Delayed Messaging Tools
Level 2: Remote Access/Delayed Collab Tools
Level 3: RT Dialoguing and Idea Gen Tools
Level 4: RT Collaboration (text only)
Level 5: Cooperative Hypermedia
Level 6: Tools That Don't Fit Nicely

Web Conferencing Tools

- VaxNOTES
- NiceNet
- WebCrossing
- Sitescape Forum
- COW
- FirstClass
- WebCT, Blackboard, Virtual U, etc.

Research on Electronic Cases

1. RT vs. Delayed Collab
- Groups Preset by Major
- Tchr Generated Cases
- Local/Univ. Networks
- Limited Instructor Mentoring

2. Web-Based Conference
- Grps Formed on Interest
- Student Gen. Cases
- World Wide Web
- Extensive Instructor and Peer Mentoring

Study #1: 1993/1994
(Bonk, Hansen, Grabner, Lazar, and Mirabelli, 1998)

- Two Semester: VAXNotes vs. Connect
- Two Conditions: (1) Real-time vs. (2) Delayed
- Subjects = 65 secondary ed majors
  (5 grps: PE, Foreign Language, Social Studies, English, Math)
- Mentors = limited instructor commenting
- Procedures:
  - (1) Respond to 4 cases in small groups
 - (2) Respond to peer comments

6

Research Questions: Study #1

1. What social interactions occur in real-time & delayed?
2. How code electronic social interaction patterns?
3. How do case size & complexity affect grp processing?
4. Do RT or delayed foster > discuss depth & quality?
5. Do shared experiences stimulate grp intersubjectivity?

Some Findings From Study #1

- Delayed Collab > Elaboration
  - 1,287 words/interaction vs. 266 words/interaction
- RT Collab > Responses
  - 5.1 comments/person/case vs. 3.3 comments/person
- Low off-task behaviors (about 10%)
- Rich data, but hard to code
- Students excited to write & publish ideas
- Minimal q's and feedback
- Interaction inc. over time; common zones
- Some student domination

Study #1. 1993-94

	Content
	Questions
	Peer Responses
	Off-Task

Real Time   Delayed
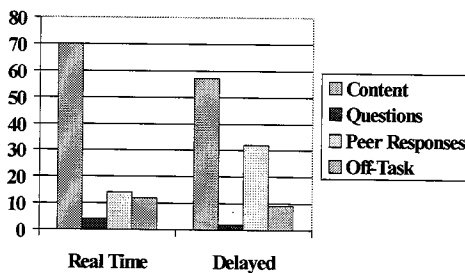
Example of real-time dialogue:

- Come on Jaime!! You're a slacker. Just take a guess. (October 26, 1993, Time: 11:08:57, Ellen Lister, Group 5).
- How might he deal with these students? Well, he might flunk them. He might make them sit in the corner until they can get the problem correct...I don't know. (Um...hello...Jaime where is your valuable insight to these problems?) (October 26, 1993, Time: 11:19:37, Ellen Lister, Grp 5).

Example of Delayed Dialogue:

Joyce's new system offers a wide variety of assessment forms. These different forms complement the diverse learning and test taking abilities of her students. Joyce seems to cover the two goals of classroom assessment with her final exam—to increase learning and increase motivation. Students will increase their learning because they will not just remember information to re[g]urgitate on an exam, but instead they will store these items in their long-term memory and later may be able to make a general transfer. Joyce will increase student motivation because she has deviated from the normal assessment method expected by her students.

Joyce's test will probably be both reliable and valid considering that she implemented three different forms of tests. Joyce's test also might reduce test anxiety. If her students know what to expect on the test (they even wrote the questions) they more than likely will be less anxious on exam day... (January 31, 1994, Time: 19:28, Sarah Fenway, Language Group.)

Larry

- Entertaining,
- Creative and controversial,
- Indirectly intimidating,
- One who set own agenda,
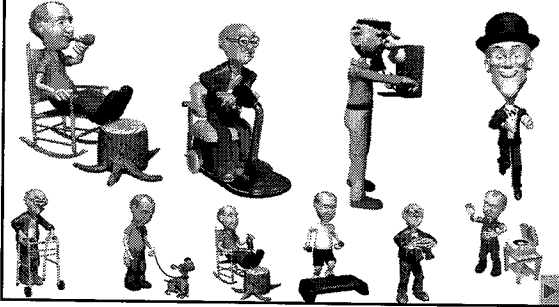- Very articulate and witty.

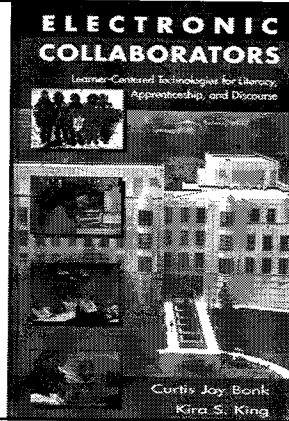## Sample of Larry's Comments....

- "Peace, dude, hop off the return key, save me some stress."
- "I am currently preparing my anti-groupwork support group."
- "I've noticed several people writing and saying that they would have done this or that brilliant or intuitive thing. I personally am brilliant or intuitive and I think other could use a little humility. This Karen's made some mistakes, but we all make mistakes, and when (dare I say), we are in her shoes, we should expect to make some of the same ones that confound her."

Story #2 (1995): What if Vygotsky had lived to 100...?

1994-1996 Computer Conferencing and Collaborative Writing (CCCW) Group at Indiana

ELECTRONIC COLLABORATORS

Learner-Centered Technologies for Literacy, Apprenticeship, and Discourse

Curtis Joy Bonk
Kira S. King

Sample Projects

1. Peer scaffolded support with technology.
2. Critical thinking with tech supports.
3. PBL situations and role play
4. Scaffolded learning from the Arctic.
5. Forms of online e-mail assistance.
6. Bring experts to teach at any time.
7. Online case learning and exam preparation.
8. Alternating class and online activities.
9. Roles in electronic discussions.
10. Structure electronic role play.

Patterns of Knowledge Construction in Electronic Discussion (Zhu, 1998)
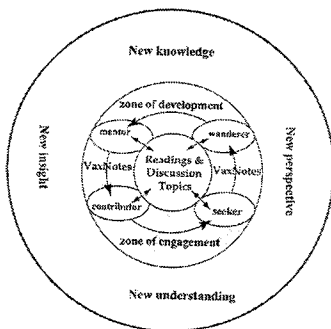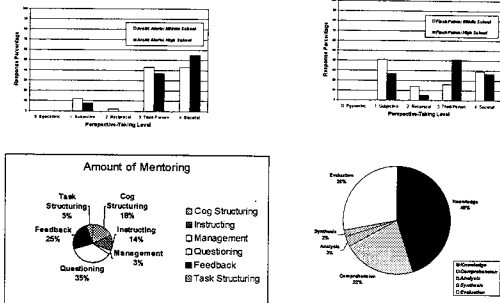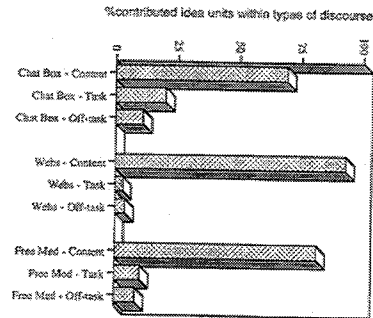

Adventure Learning

Purpose: engage in adventurous study of the global environment. (e.g., Telepresence or virtual fieldtrips, ask an expert forums, cross-classroom collaboration, debate forums, online communities, MayaQuest, the Jason Project)

Adventure Learning Findings
(Bonk & Sugar, 1998)

Amount of Mentoring

Aspects within Aspects (Cooney, 1998)

Implications: Build Courses Based on Sociocultural Principles (Bonk, 1998)

Smartweb Activities
- Weekly Chapter Activ
- Starter-Wrapper Disc
- Personal Profiles
- Student Portfolios
- Feedback on Portfolios
- Links Prior Semesters
- Field Reflections
- Field Observ Case Disc
- Café Latte

Sociocultural Link
- Connect to Experience
- Recip Teach & Dialogue
- Build Intersubjectivity
- Dynamic Assessment
- Scaffolding within Zones
- Modeling and Legacy
- Apprentices Learning
- Scaffolded & Authentic
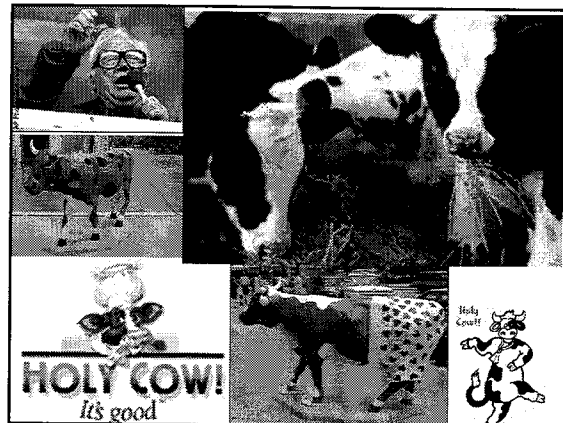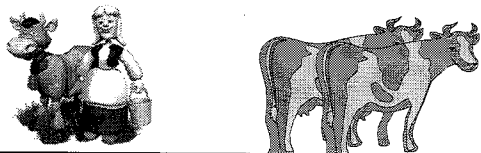- Shared Knowledge

Story #3 (1996): Do not ride your bike to work.
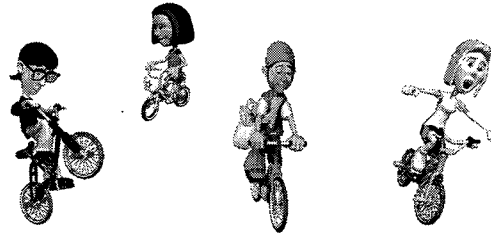
Conferencing On Web (COW)
(1996-2000)
Three Basic Levels:
1. Conference (public or private)
2. Topic (e.g., special education)
3. Conversation (e.g., reading rewards)

HOLY COW!
It's good

Purpose of COW Project

- **Students in field experiences write cases**
- **Teachers and students from around the world provide electronic mentoring**
- **Authentic cases and mentoring transform learning environment**
- **Helps preservice teachers understand the role of technology in education**

The Center for Excellence in Education (CEE)
at Indiana University

the city web's

COW

CONFERENCING
ON THE WEB

Welcome to COW. This system was carefully selected. We hope you enjoy it.

If you would like to tour COW, click the "Enter COW" button and use *guest* as the login name and *cow* as the password.

If you have questions or comments, please contact ...

About COW   **Enter COW**   **Lobby**

Finland_Cases_Fall98

You are the Instructor for this class
[Conference Manager] is available.

Oulun yliopisto

UNIVERSITY OF JYVÄSKYLÄ

(Click on the university logos above to visit their web site.)

Welcome to the Finland Conference! It has been created for you to exchange questions, answers, and ideas with other students, faculty and teachers during your field experience. You can also return to the conferences for ... and the International Cub.

Some of the topics listed below are RESTRICTED to either students, faculty or teachers. Other topics are PUBLIC and anyone may participate. But Dr. Curt Bon and Steve Malikowski serve as "facilitators" to this conference, and they can read ALL messages.

[Note: A ... has been created to help you become familiar with this online system and project.]

Topics:

Number   New   Topic Name

opics:

Number	New	Topic Name
100	1	Big Global Problems
102	76	Classroom Management--General
103	65	Classroom Management--Discipline and Behavior Problems
104	8	Elementary Cases, Math-Science
106	13	Elementary Cases, Reading Writing
108	5	Elementary Cases, Social Studies-Other
110	34	Individual Diffs (SES, IQ, gender, religion, etc.)
111	25	Adapting To Students Different From You
112	7	Learning Communities and Communications
113	74	Poor Teacher Behavior (rude, mean, demeaning, etc.)
114	19	Learning Problems
116	10	Learning Styles & Intelligences
118	31	Legal Problems
120	76	Motivation
122	33	Multicultural Education-Diversity
123	3	Music, Art, and Theater (Any Grade Level)
124	16	Physical Education and Health (Any Grade Level)
125	23	Grading and Assessment (K-6, standardized testing)
126	2	Other Assessment Issues (6-12, teacher created)
128	11	Secondary Cases-Languages, English & Lit
130	0	Secondary Cases-Math & Science
132	2	Secondary Cases-Social Studies & Other
134	35	Technology (Computers and Learning)

[Topic Manager] is available.

by Maarit Saarenkunnas (...)
Date: Sep. 10 11:58 PM 1998

To read a case, click on one the "conversations" listed below
To add a case, click on the Start New button.

Recent Conversations for Finland_Cases_Fall98, Topic 202: [COWSearch]

Number	Total	New	Conversation
5	23	3	...
2	37	9	Sexual Harassment
6	67	20	Discipline in the elementary school
9	26	5	Homework -- love us or leave it?
8	5	5	Influence of cocaine on the society
3	23	11	The students are always positive about conversations??
7	17	14	Problems of differentiation
1	19	8	What do we really teach in school...
4	13	11	Teacher autonomy

Read   conversation number: [   ]   Since: [   ] days ago.

<<< Return to Practice Topic <<<   .. next new post >>

Conference: Secondary_Ed_Cases
Topic: 170. Your Own Cases--Secondary
Conversation 13

My student and Cocaine

All posts and replies

1 Author: Name Removed (Username)
Date: Oct. 22 7:05 PM 1997

The first day of my observing I connected with a fema...
She felt comfortable talking to me and frequently asked ...
during the two class periods I was observing. She is th...
girl I have in any of my classes. She is helpful, consid...
extremely bright.

I have been back to observe twice since then. Today 10-22-97,
when I went to observe today, she was not in class. I asked the
teacher if she had been absent the day before, and I asked him if

Problems Solved By COW

- Student isolation in field experiences
- Lack of community/dialogue among teacher education participants
- Disconnectedness between class and field experience
- Limited reflective practices of novice teachers
- Need for appreciation of multiple perspectives

Quantitative Methods

Average results for prior to TITLE (TITLE):
- Participants per semester: 130 (>300)
- Cases per semester: 230 (624)
- Cases per student: 1.75 (same 1.80)
- Average responses per case: 4.5 (3.9)
- Average words per case: 100-140 (198)

Frequent Case Topics

Topic	Number of Cases
Management	312
Motivation	185
Instructional Approaches	178
Individual Differences (special education and gifted)	152
Hot Topics (e.g., teacher burnout, violence in school, corporal punishment, and drugs and alcohol)	83
Development (physical, cognitive, and social/emotional)	70
Behaviorism and Social Learning Theory	57
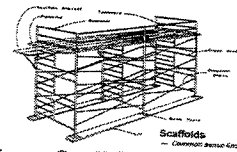
Types of Heavy Scaffolding:
1. Social Acknowledgement
2. Questioning
3. Direct Instruction
4. Modeling/Examples
5. Feedback/Praise
6. Cognitive Task Structuring
7. Cognitive Elaborations/Explanations
8. Push to Explore
9. Fostering Reflection/Self Awareness
10. Encouraging Articulation/Dialogue Prompting
11. General Advice/Scaffolding/Suggestions
12. Management

Bonk, Angeli, Malikowski, & Supplee, 2001)

Transcript Results

A. Peer Content Talk
   31% Social Acknowledgments
   60% Unsupported Claims and Opinions
   7% Justified Claims
   2% Dialogue Extension Q's and Stmts
B. Mentor Scaffolding
   24% Feedback, Praise, and Social
   24% General Advice and Suggestions
   20% Scaffolding and Socratic Questioning
   16% Providing Examples and Models
   8% Low Level Questioning
   8% Direct Instruction & Explanations/Elab

Study #3. Fall, 1997

- Unsupported
- Social
- Justified
- Extension
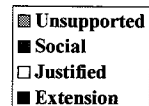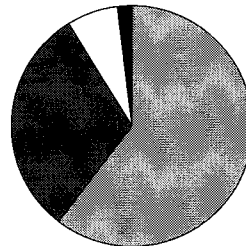
Bonk, Malikowski, Supplee, & Angeli, 1998

Overall Major Findings

- **COW enhanced student learning**
  - provided a link between classroom and field; connected to textbook concepts
  - encouraged learning about technology
- **COW extended student learning**
  - students got feedback from multiple sources and outside their community
  - students saw international perspective
- **COW transformed student learning**
  - students took ownership for learning
  - students co-constructed knowledge base

Qualitative Themes Continued...

- **Students were attracted to cases that...**
  - had interesting titles
  - were on familiar topics
  - were on controversial topics
  - they had opinions about
- **Peer feedback was appreciated but not deep**
- **Mentor feedback was apprec. & motivating**

Study: COW, Spring 1998
(Bonk, Malikowski, Supplee, & Dennen, 2000)

- **Two Month Conference (One Condition)**
  - 3 discussion areas (IU, Finland, and Cultural Immersions)
- **Subjects = 110 students**
  (80 US and 30 Finnish students)
- **Mentors = 2 AIs, 1 supervisor, 4 coop tchrs, 3 conference moderators.**
- **Videoconferences + Web Conferences**

Finnish Cases Were Longer and more Reflective and Often Co-Authored...

Lets consider a math class in an elementary school as an example. Often a teacher teaches the new subject area and after that pupils practice counting those exercises. When a pupil has finished s/he receives extra exercises, or s/he is asked to do some work in other subjects but s/he is not allowed to continue further in the math book. Should the pupil be allowed to continue further on her/his own if s/he wants to? There is a danger that if s/he continues s/he will make more mistakes than if s/he waits until the teacher has taught the next step in the subject area. However, is it dangerous to do mistakes? Do teachers suppose that outside school there is always someone to tell what to do and how to do it in a right way?

Marya Ford Washington states in her summary: "It is painful to consider that a good portion of America's gifted and talented students spend most of their elementary and middle school careers learning to be average. It is even more painful to admit that they usually succeed." The same seems to apply to Finland. How could we solve this problem? Maarit & Maija

Vertical Mentoring Examples

9. Author: Jerry Cochey (Mentor)
Date: Mar. 11 1:46 PM 1998

To shift from teacher centered classrooms to child centered classrooms and learning takes time, patience and a commitment to the idea that students are responsible for their own learning. Even in this age of enlightenment(?), we think that a quiet, teacher controlled classroom shows learning, while research shows that active, talking, sharing of learning experiences with peers is more productive. Be patient, it takes a long time to have students change to being responsible for their own.

Horizontal Finnish Mentoring

12. Author: Leena Date: Mar. 30 11:52 AM 1998

This case is something I feel very close to. I have been trying struggle with finding ways to be a teacher in a new way, trying to think everything from the students' perspective, to challenge my own old traditions of teaching and try to seek ways which the I could find ways of studying things together with the students. What really puzzles me is that these different "projects" have had such extremely different lives.......What I really don't know yet is how to be a proper supporter of these processes for students... - Leena

Justified Statement (Finnish)

3. **Author:** Kirsi

Date: Mar. 6 8:11 AM 1998

Why not let the student study math further by himself and the teacher could help him whenever the teacher has time. At least some of the math study books are so designed that one page has examples that teach you how to solve the problem and then on the next page there are exercises. I personally hate being said 'wait' since when I'm interested in something I want to go on and learn more and not wait. This way I think the child learns to be responsible of his own learning. If I quote dear mr Vygotsky here again, the teacher should be sensitive to see where the child's proximate zone of development is and to help him 'over' it. The teacher's task is not to try to keep the child on the level he has reached but to help him learn more if he is interested...

Unjustified Statements (US)

24. **Author:** Katherine

Date: Apr. 27 3:12 AM 1998

I agree with you that technology is definitely taking a large part in the classroom and will more so in the future with all the technological advances that will be to come but I don't believe that it could actually take over the role of a teacher...but in my opinion will never take over the role of a teacher.

25. **Author:** Jason
Date: Apr. 28 1:47 PM 1998

I feel technology will never over take the role of the teacher...I feel however, this is just help us teachers out and be just another way for us to explain new work to the children. No matter how advanced technology gets it will never be able to...

26. **Author:** Daniel
Date: Apr. 30 0:11 AM 1998

I believe that the role of the teacher is being changed by computers, but the computer will never totally replace the teacher... I believe that the computers will eventually make teaching easier for us and that most of the children's work will be done on computers. But I believe that there will always be the need for the teacher.

Indicators for the Quality of Students' Dialogue (Angeli, Valanides, & Bonk, 2003)

ID	Indicators	Examples
1	Social acknowledgement/ Sharing/Feedback	Hello, good to hear from you...I agree, good point, great idea
2	Unsupported statements (advice)	I think you should try this....This is what I would do...
3	Questioning for clarification and extend dialogue	Could you give us more info? ...explain what you mean by...?
4	Critical thinking, Reasoned thinking-judgment	I disagree with X, because in class we discussed....I see the following disadvantages to this approach....

Caseweb Visions

- Intros, Expert Commentaries, Reviews
- Expanded and Shrunken Case Views
- Hyperlink Options
- Conceptual Labels—chapters, themes, ideas
- Role Taking Options
- Mentoring Scaffolds/Questions
- Forced Counterpoints
- Sample Mentor and Peer Feedback
- Case Comparison Statistics

Story #4 (1997): Look out for the Russians...

Spring of '97 (FirstClass)
Content Analysis of Online Discussion in Ed Psych
(Hara, Bonk, & Angeli, 2001, Instructional Science)

Purpose and Questions of this Study
- To understand how graduate students interact online?
- What are inter patterns with starter-wrapper roles?
- What is role of instructor in weekly interactions?
- How extensive is social, cog, metacog commenting?
- How in-depth would online discussions get?
  - And can conferencing deepen class discussions?

Dimensions of Learning Process
(Henri, 1992)

1. **Participation** (rate, timing, duration of messages)
2. **Interactivity** (explicit interaction, implicit interaction, & independent comment)
3. **Social Events** (stmts unrelated to content)
4. **Cognitive Events** (e.g., clarifications, inferencing, judgment, and strategies)
5. **Metacognitive Events** (e.g., both metacognitive knowledge—person, and task, and strategy and well as metacognitive skill—evaluation, planning, regulation, and self-awareness)

## Graduate Course Findings

• Participation
+ Most participated once/week
+ Student-centered & depend on starter
+ Posts more interactive over time
+ Lengthy & Cognitively Deep
  - Ave post: 300 words & over 18 sentences
  - From 33 words to over 1000 words
- Some just satisfied course requirements

Findings Continued
(see Henri, 1992)

- **Social** (in 26.7% of units coded)
  - social cues decreased as semester progressed
  - messages gradually became less formal
  - became more embedded within statement
- **Cognitive** (in 81.7% of units)
  - More inferences & judgments than elem clarifications and in-depth clarifications
  - Cog Deep: 33% surface; 55% deep; 12 both
- **Metacognitive** (in 56% of units)
  - More reflections on exper & self-awareness
  - Some planning, eval, & regulation & self q'ing

Cognitive Skills Displayed in Online Conferencing
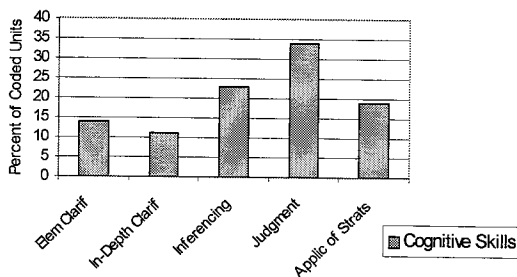
Metacognitive Skills Displayed in Online Conferencing

14
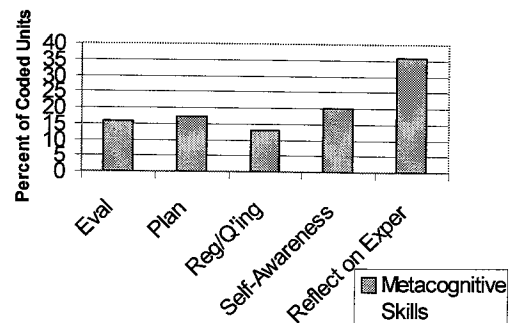
Surface vs. Deep Posts
(Henri, 1992)

Surface Processing
- making judgments without justification,
- stating that one shares ideas or opinions already stated,
- repeating what has been said
- asking irrelevant questions
- i.e., fragmented, narrow, and somewhat trite.

In-depth Processing
- linked facts and ideas,
- offered new elements of information,
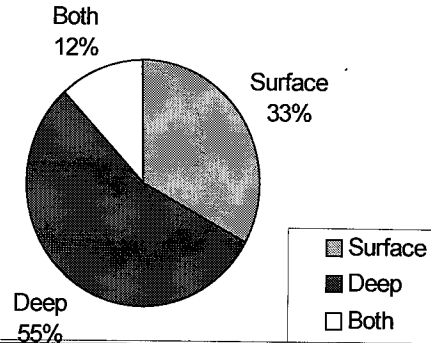- discussed advantages and disadvantages of a situation,
- made judgments that were supported by examples and/or justification.
- i.e., more integrated, weighty, and refreshing.

Level of Cognitive Processing: All Posts

Both 12%
Surface 33%
Deep 55%

Legend:
- Surface
- Deep
- Both

Starter Centered Interaction:
Week 1

Legend
- starter
- wrapper
- instructor
- student
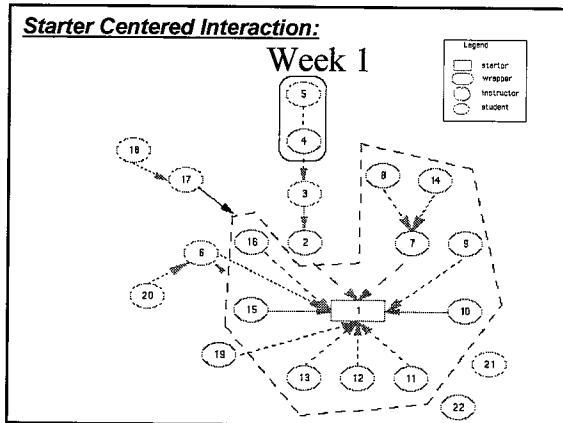
Scattered Interaction (no starter):
Week 4

Legend
- starter
- wrapper
- instructor
- student
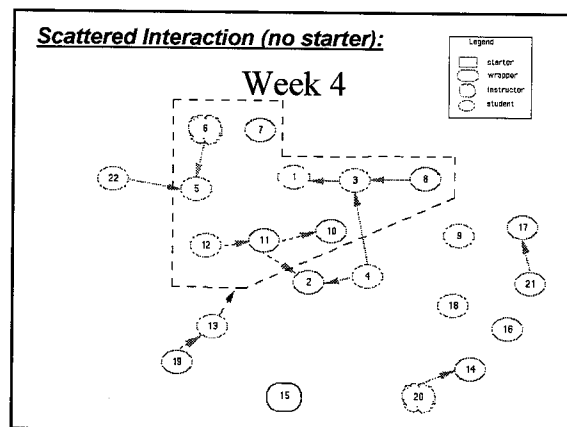
Synergistic Interaction:
Week 8

Legend
- starter
- wrapper
- instructor
- student
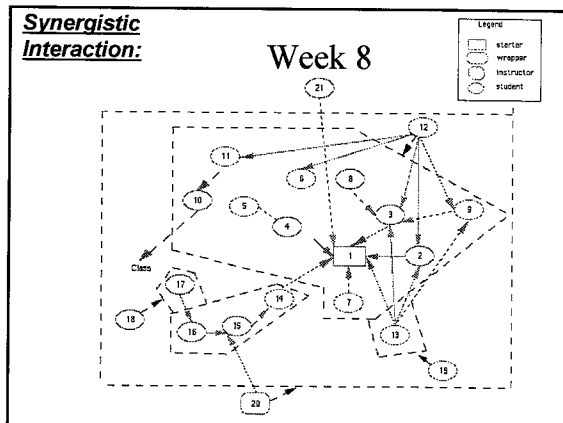
Recommendations

- **Structure online discussions**
  - e.g., get them to use subject line better.
- **When done, have them print out transcripts!**
  - Can take the class with them when done!
- **Realize that diff conferencing software and features serve diff instructional purposes**

15

Story #5 (1999): Do you believe in the power of sharing?

1999 Study of the World Lecture Hall Matrix of Web Interactions
(Cummings, Bonk, & Jacobs, 2002)

Instructor to Student: syllabus, notes, feedback
      to Instructor: Course resources, syllabi, notes
      to Practitioner: Tutorials, articles, listservs
Student to Student: Intros, sample work, debates
      to Instructor: Voting, tests, papers, evals.
      to Practitioner: Web links, resumes
Practitioner to Student: Internships, jobs, fieldtrips
   to Instructor: Opinion surveys, fdbk, listservs
      to Practitioner: Forums, listservs

Table 2
Percent of online syllabi with different options for communication flow among instructors, students, and practitioners/experts

	To students	To instructors	To practitioners/experts
From instructor	Assignment schedule (70%) Class roster (10%) Lecture notes/PowerPoint slides (43%) Web links (70%) Instructor profiles (70%)	Online syllabi (100%) Web forums or discussions on course material (4%) Lecture notes/activities (43%)	Online tutorials (3%) General information (1%)
From students	Post or publish current student work (14%) Within-course discussions or electronic conferences (65%) Outside of course discussions (5%) Personal profiles (10%)	Journal reflections (6%) Online quizzes/tests (38%) Reflective electronic minute papers (0%) Session evaluations (3%) Instructor email feedback (84%)	Web links (13%) Resumes on the Web (0%)
From practitioners/experts	Jobs (0%) Virtual field trips (5%)	Course feedback (0%)	Virtual professional development communities (0%)

Story #6 (2000): Do you want to be target practice?

Bonk, C. J., & Wisher, R. A. (2000). *Applying collaborative and e-learning tools to military distance learning: A research framework.* (Technical Report #1107). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
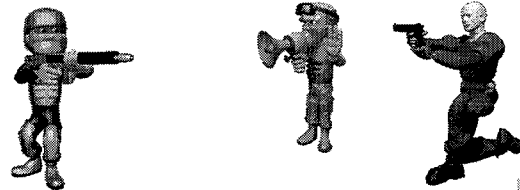
Online Officer Training Program (2000-2003)

- Evaluated social interaction, problem solving, online mentoring, and social interaction environment of Army officer training program; focus on instructional design, blended learning.

Online Officer Training Program Team

1. Dr. Robert Wisher, DOD and ARI
2. Dr. Tatana Olson, was at SRI/Purdue, now at Navy as Aviation Experimental Psychologist, Pensacola (wants to be first female fighter pilot)
3. Dr. Kara Orvis, was at ARI, Optima, Boston.
4. Dr. Ji-Yeon Lee, University of South Carolina (now at Inha University in Korea)
5. me

Orvis, K. L., Wisher, R. A., Bonk, C. J., & Olson, T. (2002). Communication patterns during synchronous Web-based military training in problem solving. *Computers in Human Behavior*, *18*(6), 783-795.

National Guard Classrooms
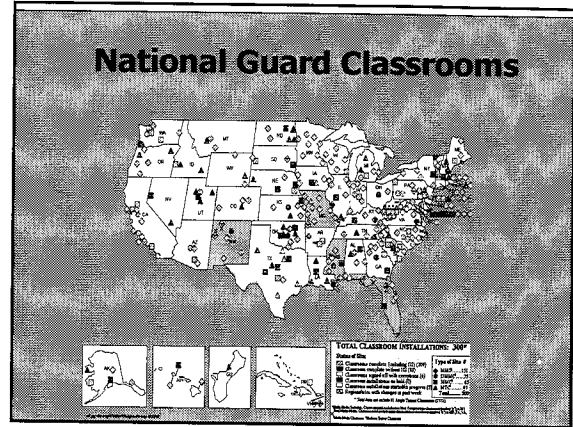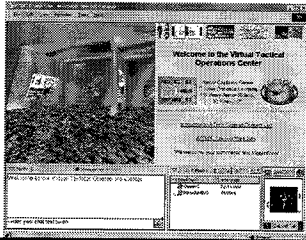
Three Phases of AC3-DL

I. Asynchronous Phase: 240 hours of instruction or 1 year to complete; must score 70% or better on each gate exam

II. Synchronous Phase: 60 hours of asynchronous and 120 hours of synchronous; Virtual Tactical Operations Center (VTOC) (7 rooms; 15 people/extension (chat, avatars, audio conferencing)
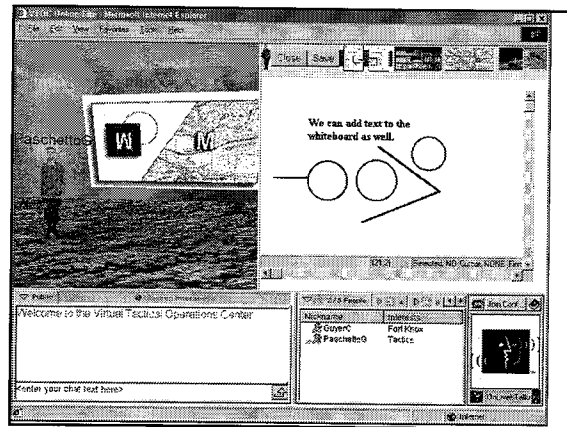
III. Residential Phase: 120 hours of training in 2 weeks at Fort Knox

Previously Reported Results
Sanders & Burnside (2001); Sanders & Guyer (2001)

- Completed coursework in less time than correspondence course.
- Positive attitudes
- Covered add'l content not in correspondence
- More likely to make decisions
- Develop greater sense of team identity
- Greater planfulness, confidence, tactical proficiency, and leadership skills.
- Problems encountered: time, drill time conflicts, tech problems, family responsibilities, no compensation

Study #1. Overall frequency of social, mechanical, and on-task interactions across chat categories (6,601 chats).
(Note: conducted focus groups, interviews, q'ers, chat transcript analyses, document analyses)
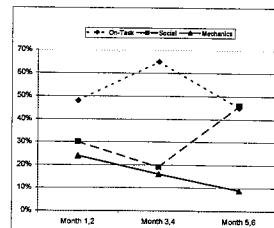
Overall frequency of interactions across chat categories (6,601 chats).

Mechanics 15%

On-Task 55%

Social 30%

On-Task Problem Solving Mayer & Wittrock (1996); Sternberg (1997)

- "Terrain does not allow for effective maneuver of your element"
- "Harder to detect a liquid agent in rain"
- "Rain can also degrade optics on weapon systems"
- Remember in the BDE OPORD-the BDE CMDR wants this to occur at about this time"

Social Interactions

- "Kids are great we made breakfast for Mom (wife)"
- "Did you go out for a run last night?"
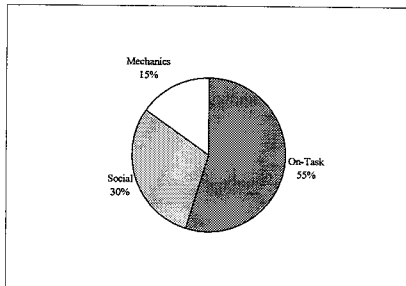- "Tell her I said happy mothers day"
- "3 miles in 24 mins all hills"
- "If God had meant for us to run, he wouldn't have given us tanks"

Study #2 Reflections on Blended

Bonk, C. J., Olson, T., Wisher, R. A., & Orvis, K. L. (2002). Learning from focus groups: An examination of blended learning. *Journal of Distance Education, 17*(3), 97-118.

- Some Keys: feedback, smaller modules, need instructor facilitation, use basic tech, move from async to sync, better orientation sessions
- Enjoyed the course, excellent technologies
- Favored sync over asynchronous
- All noted ways to address high attrition
- Perceived training transfer, active learning
- Learned to work as a team
- High individual and collective efficacy

Bonk, C. J., Olson, T., Wisher, R. A., & Orvis, K. L. (2002). *Reflections on blended learning: The Armor Captains Career Course.* (Research Note #2002-13). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

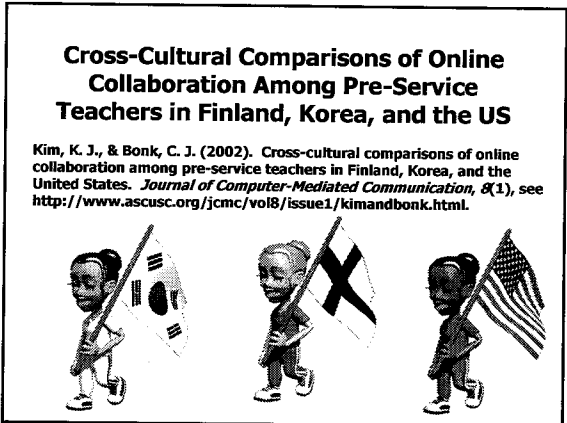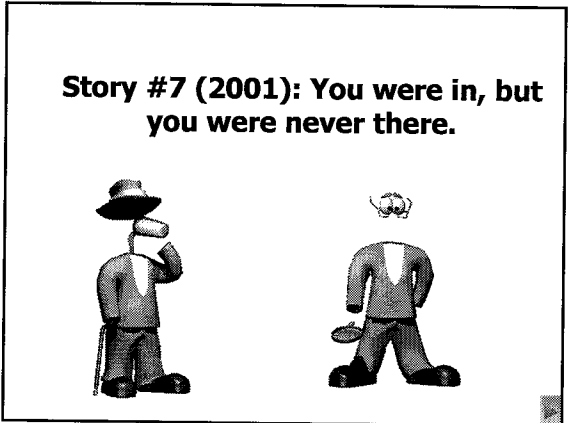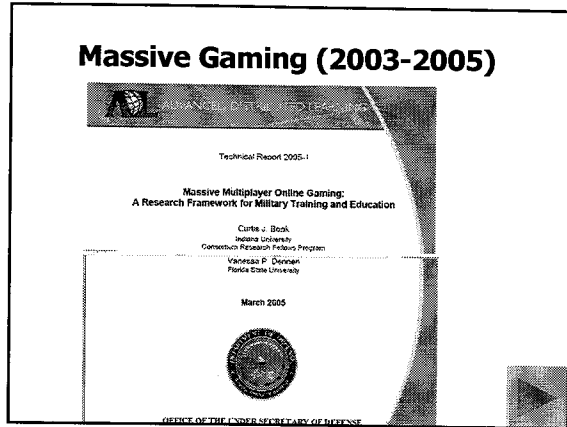## Follow-up: Massive Multiplayer Online Gaming (MMOG) (2003-2005)

- Exploring the educational and training potential of massive multiplayer online games and mapping out a research agenda in this area for the Advanced Distributed Learning Lab within the Department of Defense.

Massive Multiplayer Online Gaming (MMOG) Team

1. Dr. Vanessa Dennen, Florida State
2. me
3. With help from Dr. Robert (Bob) Wisher

Publications: Massive Multiplayer Online Gaming (MMOG)

1. Bonk, C. J., & Dennen, V. P. (2005). *Massive multiplayer online gaming: A research framework for military education and training.* (Technical Report # 2005-1). Washington, DC: U.S. Department of Defense (DUSD/R): Advanced Distributed Learning (ADL) Initiative.

Massive Gaming (2003-2005)

Story #7 (2001): You were in, but you were never there.

Cross-Cultural Comparisons of Online Collaboration Among Pre-Service Teachers in Finland, Korea, and the US

Kim, K. J., & Bonk, C. J. (2002). Cross-cultural comparisons of online collaboration among pre-service teachers in Finland, Korea, and the United States. *Journal of Computer-Mediated Communication, 8*(1), see http://www.ascusc.org/jcmc/vol8/issue1/kimandbonk.html.

Sample & Data Sources

- In Spring 1998:
  - Finland: 30 students and 5 instructors
  - USA: 88 students and 7 instructors
- In Fall 1998
  - Korea: 21 students and 1 instructor
- A content analysis using Curtis & Lawson's coding scheme to describe utterances in online collaboration.
  - Post collaboration questionnaire, interviews, video conference

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Behavior Categories	Codes	Description
Planning	GS	Group Skills
	OW	Organizing Work
	IA	Initiating Activities
Contributing	HeG	Help Giving
	FBG	Feedback Giving
	RI	Exchanging Resources and Information
	SK	Sharing Knowledge
	CH	Challenging Others
	EX	Explaining or Elaborating
Seeking Input	HeS	Helping Seeking
	FBS	Feedback Seeking
	Ef	Advocating Efforts
Reflection/ Monitoring	ME	Monitoring Efforts
	RM	Reflection on Medium
Social Interaction	SI	Social Interaction

Online Collaboration Behaviors by Categories

Behavior Categories	Conferences (%)		
	Finland	U.S.	Average
Planning	0.0	0.0	0.0
Contributing	80.8	76.6	78.7
Seeking Input	12.7	21.0	16.8
Reflection/ Monitoring	6.1	2.2	4.2
Social Interaction	0.4	0.2	0.3
Total	100.0	100.0	100.0

Online Collaboration Analysis (Korea)

Behavior Categories		Korean	
		Code totals	Code percent
Planning	GS	0	0
	OW	0.0	0.0
	IA	0	0
Contributing	BeG	2	2
	FBG	1.3	1.3
	RI	44	44
	SK	28.4	28.4
	CH	2	2
	EX	1.3	1.3
Seeking Input	BeS	1	1
	FBS	0.6	0.6
	EI	36	36
Reflection/ Monitoring	ME	3	3
	RM	1.9	1.9
Social Interaction	SI	15	9.7
Total		155	100.0

← Sharing Knowledge

← Advocating efforts

← Social Interaction

Findings from the Quantitative Analysis

- Low participation rate of instructors across all the groups.
  - A majority of utterances fell into the "contributing" category.
  - Cross-cultural differences in "Seeking Input," "Reflection/ Monitoring," and "Social Interaction" behaviors.
  - Differences in the intercultural participation levels across cultures.

Differences in Reflection Behaviors (monitoring effects)

- A Finnish case on student motivation (ME)

"As a result of this discussion so far, we have made some conclusions dealing with students' motivation to learn. We agree that it is impossible to motivate students deliberately. There is not any specific act that can be used to increase students' motivation. According to McCombs, almost everything that teachers do in the classroom has a motivational influence on students ... Intrinsic motivation and self-regulation strategies are also important and these can be supported by successful external supports...."

Differences in Feedback Seeking & Giving

- A U.S. case on disciplinary problems (FBS)

"One day I come into teach the class and one of the twenty students is very quiet. He seemed alright at the time of teaching, but towards the end he just starts crying for no reason... The questions that were raised in my head were: 1. How involved should I get?, 2. Should I call the family and tell them what happened?, 3. Should I tell the other teachers and see what we all can do?"

Differences in Social Interaction Behaviors

- Social Interactions Among Korean students

- Well, like a cup of coffee, may this new thing be relaxing (I am praying now). It must be the beginning, so I am happy now. I wonder whether someone would reply to me. I am a little bit nervous 'cause I am not so familiar with Web conferencing.

- Sister Sunny, take care of yourself, and I hope your health will be good soon. I'm not accustomed to Web conference, either, but it is a good chance to participate. Please, cheer up!

- Thank you for your interest in my health, but I'm all right now. Just before, my long message to you has gone by my slight mistake, so I am sad (crying). And, sorry for my late reply to you.

Communication Styles & Culture

- Low context communication
  - Focuses on explicit verbal message
  - U.S. Finland, and most of the Western cultures
- High context communication
  - emphasizes how intention or meaning is conveyed through the context (e.g., social roles, positions, etc.)
  - Korea and most of the Asian cultures
- Importance of social interaction in the high context communication culture

Findings from the Qualitative Analysis

- U.S. students more action-oriented and pragmatic in seeking results or giving solutions.
- Finnish students were more group focused as well as reflective and theoretically driven.
- Korean students were more socially and contextually driven.

Implications

- Instructors have a key role in facilitating effective cross-cultural communication (e.g. social interaction activities for students from high context cultures).
- Instructional designers and software developers need to build learning tools that address learner needs from different cultures (usability tests in different cultures.
- Online learners need prior examples or case transcripts highlighting cultural differences in communication styles.

Story #8 (2002-2005): Who needs a ticket?

The Pedagogical TICKIT: Teacher Institute for Curriculum Knowledge about the Integration of Technology
(1998-2003)
Curt Bonk
Lee Ehman
Emily Hixon
Lisa Yamagata-Lynch
John Keller
Indiana University

TICKIT (1998 to 2003 and to present)

- Five year investigation of the implementation of the *Teacher Institute for Curriculum Knowledge about the Integration of Technology* which annually trains 25 teachers from 5 rural Indiana schools; exploring long-term impact of inservice technology integration program.

TICKIT Team

1. Dr. Lee Ehman, IU, C&I Dept.
2. Dr. John Keller, IUPUI
3. Dr. Emily Hixon, IU Northwest
4. Dr. Lisa Yamagata Lynch, Univ of Northern Illinois
5. Timothy Hew, IU, IST Dept.
6. me

TICKIT Program Features

- Teachers in rural schools
- Inservice teacher education
- Cohorts of 4-6 teachers per school
- Six hours of graduate credit
- Blended model (e.g. on-line and site-based interactions)
- Action research
- Academic Year Duration
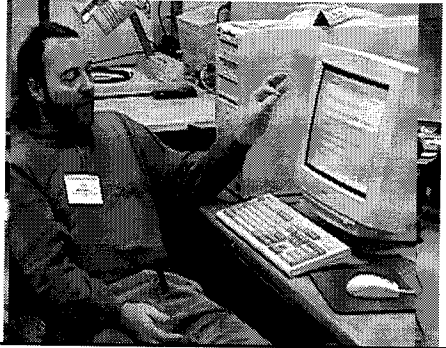
TICKIT Goals

- Knowledge, skill, & confidence
- Thoughtful integration of technology
- Leadership cadres in schools
- Link schools and university
- Help schools capitalize on their technology investments

TICKIT Teachers

Goal Statement

"Obviously, I'm technologically in the Dark Ages. My students are so computer savvy that I feel I must at least attempt to catch up with them." – Debbie White, North Gibson, summer 2002

North Gibson
School Corporation

TICKIT Model

Online Interaction

Typical TICKIT Training and Projects

Web: Web quests, Web search, Web edit/pub.
- Includes class, department, or school website.
- Write: Electronic newsletters, book reviews.
- Tools: Photoshop, Inspiration, PowerPoint.
- Telecom: e-mail with foreign key pals.
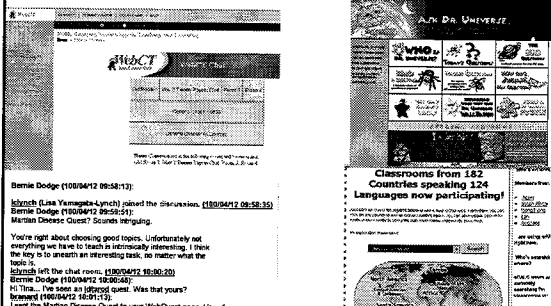- Computer conferencing: Nicenet.org.
- Digitizing: using camera, scanning, digitizing.
- Videoconferencing: connecting classes.
- Web Course: HighWired.com, MyClass.net, Lightspan.com, eBoard.com

Project type	Number of projects (132)
Webquest	64
Electronic newsletters	1
Web editing & publishing	13
Online conferencing, collab, and discussion (includes email and phone)	10
Virtual tours	1
Computer apps (Excel, PP, Word, Internet)	38
Book review	2
Brochure construction	1
Electronic portfolio	2

Example Projects

Critical Friend Post Example

"Beverly: Before I forget, I want to thank you again for your invaluable help at the ICE conference. I get used to using a particular piece of equipment or program, and it's hard for me to adapt quickly. You saved the day. One thing I have learned from using technology is that we need to depend upon each other for support. We are all in this boat together."

Forms of Learning Assistance

Figure 1. Forms of Learning Assistance in TICKIT Activities
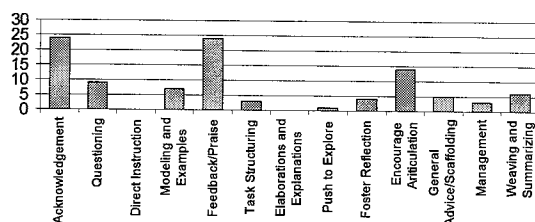
Findings: Summary

- Feedback, praise, social interaction most frequent
- Critical friends provide peer support, help, social
- Reading reactions & debates more content focus
- Critical friend postings perceived more beneficial
- Reading reactions & debates "just another task"
- Justification: 77% claims unsupported; 20% referenced classroom & other experience
- Depth: ~80% surface level
- Off Task: 7% total; most in critical friend activity

Research Question: Study #2

Do teachers who have been through the TICKIT program differ from teachers who have not on dimensions of computer integration?

TICKIT Results

	Means				
Factors	TICKIT Completers[1]	TICKIT Applicants[1]	t	Sig.	* Effect Size
1. Technology Integration	74.05	38.25	7.663	.000***	1.81
2. Technology Limitations	11.60[††]	15.79	-3.281	.002**	.63
3. Technology Resistance	4.37[††]	7.91	-3.143	.003**	.80
4. Computer Proficiency	25.51	18.84	4.614	.000***	1.20
5. Learner-centered Instruction	18.29	12.40	5.120	.000***	1.22

Relative Impact

Source of Influence	1st choice	2nd choice	3rd choice	% Ranking this 1,2 or 3
Peer Teacher Support	3	5	4	15%
Grant Money	0	2	2	5%
Administrative support	4	3	4	14%
Undergraduate Training	0	1	3	5%
Stipends	1	1	0	3%
Curriculum technology integration expectations	3	5	5	18%
Graduate courses outside TICKIT	2	4	4	13%
Personal ambition and interest in technology	34	16	12	78%
Parental and community expectations	1	2	5	8%
TICKIT professional development	15	23	16	68%
In-school professional development other than TICKIT	4	6	15	32%
Conferences, institutes, and other external	5	9	8	28%
Other	5	2	1	10%

TICKIT Teacher Voices

➢ "This class was very helpful. I gained a lot of confidence as a technology user from this class."

➢ "The door is now open. I will continue to try to find technological ways to teach them."

➢ "This was the best program I have ever been involved with as a teacher."

Story #9 (2003):
Where is Disneyland?
Online Learning Survey Research (2001-2006)
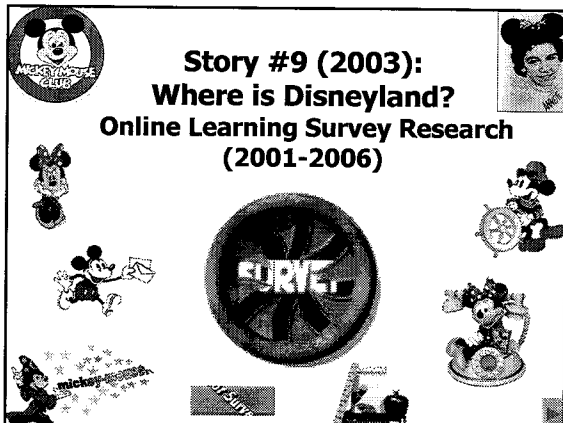
Myth #1.
College instructors are loyal.

Do You Plan to Teach as a Freelance Instructor in the Future (blended or fully online)
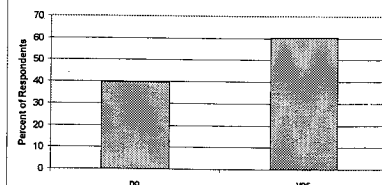
Myth #2.
Young instructors will jump on this.

Respondent's Age

20-35 / 36-50 / 51-65 / 66+
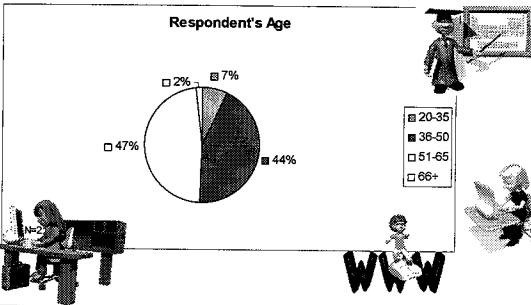
Myth #3.
College instructors will flock to sophisticated technologies.

Figure 19. Degree of Comfort with Web Skills

Low ■ Medium □ High
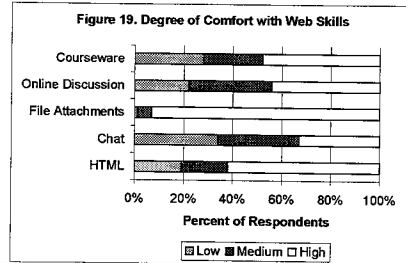
Myth #4.
College faculty just need a little more training to teach on the Web.

Figure 32. Major Obstacles to Use of the Web in Teaching
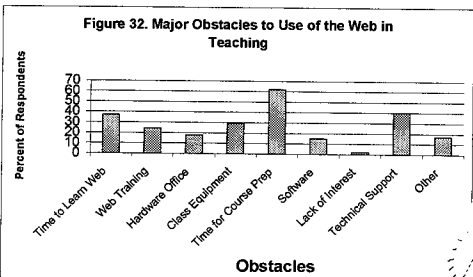
Myth #5.
Shhh...If you don't say anything, college instructor will just do this for free.

Figure 17. Suggested Instructor Compensation for Teaching Online
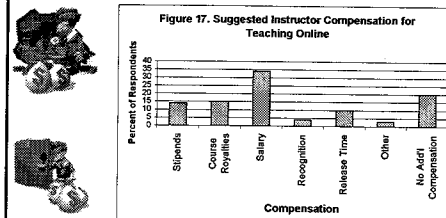
Trend 1: Enrollments Growth in Certificates and Short Programs

Degrees, Programs, and Credentials Your Organization will Offer Online During the Next Few Years
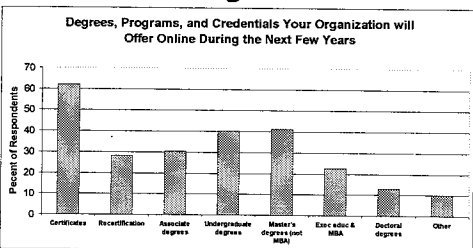
Trend 2: Course Quality Issues Become Pervasive (need for quality control police)

Student Outcomes in Online Learning Compared to Traditional Instruction.

2003 / 2006 / 2013
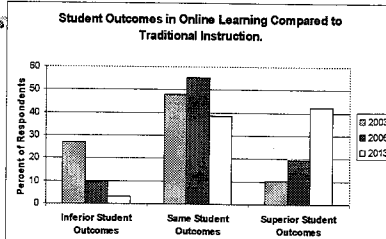
Trend 3: Technology Outpaces Theory Kevin Kluse, November 2003, CLO, Tech Trends Impacting E-Learning

Activities, Tools, and Resources that will Most Influence Course Web Sites
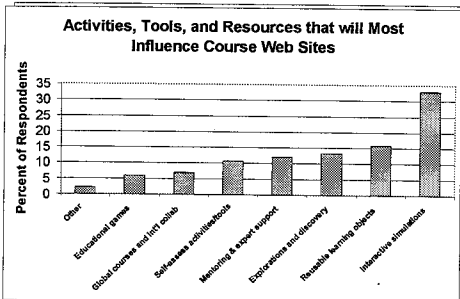
Present State and Future of E-Learning and Blended Learning (2000-Present)

- In process of analyzing new directions in e-learning and blended learning in both higher education and corporate settings in the UK, USA, China, Taiwan, and Korea via survey research (Note: my previous studies explored current state of online learning in higher educ and corporate settings).

Present and Future of E-Learning and Blended Learning Team

1. Dr. KJ Kim (now at Portland State)
2. YaTing Teng, Univ of Illinois
3. Su Jin Son, Univ of Illinois
4. Tingting Zeng, Roehampton Univ, UK
5. Eun Jung Oh, Univ of Georgia
6. Jingli Cheng, Indiana University
7. Chris Essex, IU, IST Dept.
8. me

Using Blended?

7. Is your organization using blended learning as part of its employee training? (US, UK, Korea, Taiwan)
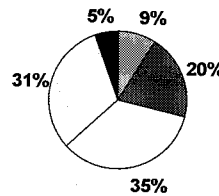
- No, it is not something that we have considered.
- No, but we are considering using it.
- Yes, we have recently started using it.
- Yes, we have been using it for more than 2 years now.
- Not sure. What is blended learning?

Skills Taught Blended

Skill Ares Taught Through E-Learning (US, UK, Korea, Taiwan)
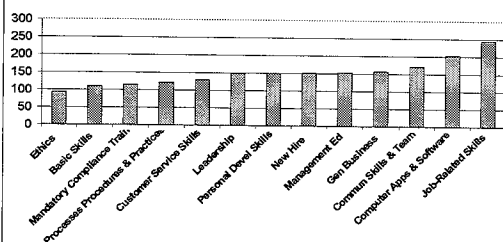
Government Support Online

Government support? (US, UK, Korea, Taiwan)
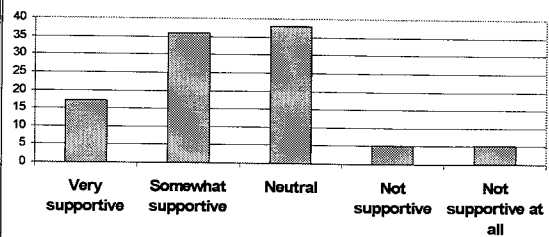
Major Issue for Blended

Most Significant Issue or Problem of BL (US, UK, Korea, Taiwan)

Categories: Learner resistance, Org resistance, Fast changing tech, Boring content, Lack self-reg skills, Insuff manage support, Lack understand of BL
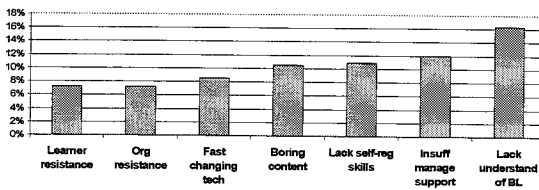
Instructional Strategies Online

Which strategies will become more widely used in BL?
(US, UK, Korea, Taiwan)

Categories: Socratic, Debates, Lecturing, Discuss, Explore, Model, Guided, Sims, Virtual teams, Self-paced, PBL, Coaching, Authentic cases

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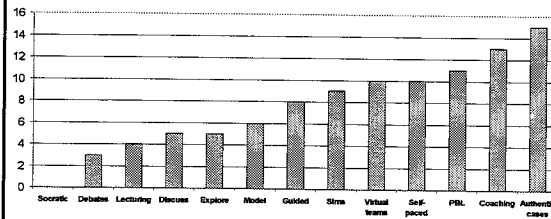
Story #10 (2004-2006): Data at your fingertips...

Research on the Online MBA Program, Kelley Direct (KD), at Indiana Univ
- 12 students in 1999 to 1,000 in 2004
- fully online; 1 week summer residencies
- Use regular on-ground instructors
- Data Collected: Surveys, focus groups, content analysis, interviews, document review, etc.

Kelley Direct Online Programs
Indiana University Kelley School of Business

Online MBA Program (Dec. 2003-Present)

- Exploring many aspects of Kelley Direct online MBA program at IU—the only top 20 MBA program that is fully online (includes research on virtual teaming, case-based learning, student and faculty perceptions, asynchronous discussion, instructor roles, technology use, time management, etc.). (Supervised 8-9 people on this project—work includes student and faculty interviews, focus groups, surveys, content analyses, etc.)

Online MBA Program Team

1. Dr. Rich Madjuka, IU, KD Bus School
2. Dr. Seung-hee Lee, IU, KD Bus School
3. Dr. Xiaojing Liu, IU, KD Bus School
4. Bude Su, IU, IST and KD Bus School
5. Dr. KJ Kim, Portland State University
6. Shijuan Liu, IU, IST Dept.
7. Dr. Min Shi, University in China
8. Mengyu Zhai, IU, Ed Psych Dept.
9. Dr. Minyoung Doo, James Madison University
10. Allysa Wise, IU, Learning Sciences
11. Pam Fuhrmann, IU, Ed Psych Dept.
12. Jieun Lee, IU, IST Dept.
13. me

Exploring Four Dimensions of Online Instructor Roles: A Program Level Case Study (Liu, Bonk, Magjuka, Lee, & Su, 2005)

Categories: Instructional designer, Profession inspirer, Feedback giver, Interaction facilitator, Conference manager, Organizer, Social support developer, Technical coordinator, Media designer, Technology user

Figure 1. Instructors' preferences for different roles based on interview findings
(High priority=3, Medium=2, Low priority=1)

Problems within Roles

- Lack program wide faculty interaction (P)
- Lack facilitation skills (P)
- Concerns about time commitment (P/S)
- Lack skills in weaving discussion (M)
- Lack awareness of social role (S)
- Lack better technology for social role (S)
- Lack technical skills (T)
- Concern about accessibility issues (T)

Bude, S., Bonk, C. J., Magjuka, R., Liu, X., Lee, S. H. (2005). The importance of interaction in web-based education: A program-level case study of online MBA courses. *Journal of Interactive Online Learning.*

Table 2. Summary of Technology Tools and Other Course Resource Used in Online MBA Program.

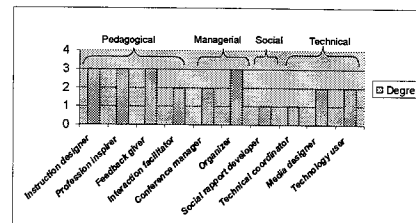| Technologies	Course using	Course not using	Percentage of usage
Text books	27	0	100%
Email	26	1	96%
Text-based two way communications/discussions	25	2	93%
-Asynchronous text-basted (e.g., discussion forums)	23	4	85%
-Synchronous text-based (e.g., chat)	11	16	41%
Interactive quiz tools	18	9	67%
PowerPoint slides	15	12	56%
Web-pages	13	14	48%
Audio and video clips	12	15	44%
Telephone	8	18	30%
Voice- and visual-based two way communications (voice mail, instant messaging, video conf. etc.)	0	27	0%

Bude, S., Bonk, C. J., Magjuka, R., Liu, X., Lee, S. H. (2005). The importance of interaction in web-based education: A program-level case study of online MBA courses. *Journal of Interactive Online Learning.*
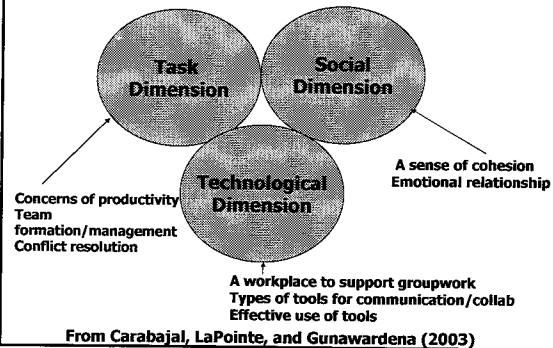
Instructional Activities	Course used	Course not used	Percentage of usage
Asking/responding to instructor questions	27	0	100%
Feedback on assignments	27	0	100%
Summary of class key points/concepts	26	1	96%
Instructor participation in class discussions	25	2	93%
Team-based learning activities	22	5	81%
Participation in online discussions as part of assessment	18	9	67%
Small team discussions	11	16	41%
Instructor participation in team discussions	1	26	4%
Virtual office hours	3	24	11%
Inter-team feedback/critique	4	23	15%
Peer evaluation	5	22	19%
Student online coffee house	2	25	7%
Student introduction forum	2	25	7%
Bulletin board to express student expectations	4	23	15%
Newsline	2	25	7%

Dimensions of virtual teaming

Concerns of productivity
Team formation/management
Conflict resolution

A sense of cohesion
Emotional relationship

A workplace to support groupwork
Types of tools for communication/collab
Effective use of tools

From Carabajal, LaPointe, and Gunawardena (2003)

Strategies Used for Virtual Teaming
(Lee, Bonk, Magjuka, Su, & Liu, in press)

Dimension	Strategies	Courses in use (%)
Task dimension	Team change by each assignment	2 (7%)
	Team discussion	23 (85%)
	Team-level deliverables	21 (78%)
	Internal interaction (critique, feedback, idea sharing)	9 (33%)
	Peer evaluation	5 (19%)
	Combination of teamwork and individual work	21 (78%)
Social Dimension	Online coffee house	2 (7%)
	Online introduction forum	2 (7%)
	Personnel profile	27 (100%)
	Other social events	5 (19%)

Strategies Used for Virtual Teaming

Dimension	Strategies	Courses in use (%)
Technological dimension	Email	26 (96%)
	Telephone	8 (30%)
	Text based asynchronous tools (e.g., discussion forums)	4 (15%)
	Text based synchronous tools (e.g., chat)	5 (19%)
	Voice-/visual based asynchronous tools (e.g., voice mail, voice message board)	0 (0%)
	Voice-/visual based synchronous tools (e.g., instant messaging, audio/video conferencing, live meeting)	0 (0%)

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Summary of Dimensions of Virtual Teams in Online MBA Courses

Dimensions of virtual teams		Degree[1]
Task Dimension	•Shared purpose of virtual teams	H
	•Belief on contribution of knowledge building	H
	•Use of task techniques for team activity design	M
Social Dimension	•Use of social techniques in virtual teams	M
	•Use of human interaction approach	M
	•Sharing social presence and cohesion	M
Technological Dimension	•Use of text based (a)synchronous tools	H
	•Use of audio-and video-based (a)synchronous tools	L
	•Usefulness of collaborative tools	M

[1] H=High, M=Medium, L=Low

Concerns with Community Building (Blended!)

"As for community, I think we're staggering toward one that's driven by the faculty members themselves. The times that we've been in the same room we say to each other, "We've got to get together. We've got to form some kind of group so we can trade ideas." We did get together for a lunch but it was like very unplanned and we can do a lot more with that."

Strength of the Program

- *Flexibility:* 60%; Per 1 student "Flexibility, if it wasn't online I wouldn't be getting an MBA."
- *Excellent faculty:* 34%; Students perceive professors as knowledgeable, various teaching methods, good at providing immediate feedback.
- *High quality curriculum and course content:* 30% felt the program offers a high quality curriculum and course content; case-based instructional method valuable.
- *Reputation (13%); Admin support:* 11%; *Quality students:* 7%; *Diversity of community:* 6%
- **Other strengths including its week long in-residence program,** relatively low cost, overall program quality, and the possibility to use what is learned directly in the work setting

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Key Barriers to Online Learning

- Lack of human interaction: 33% of respondents think more interactions are needed between student and instructor, and among students.
- Team schedule issue: 18% of the respondents expressed the frustration over time zone differences and difficulty of scheduling sync mtg.
- Lack of sense of community: 11%. A few students felt lonely due to lack of peer support and lack of a strong network of students.
- Lack of interactive technology: 8%; Delayed feedback: 8% Large group size: 7%;
- Other barriers include unclear expectations, not enough time for reading, unequal work load distribution, lengthy discussion forum, and lack of lecture.

Dropping out???

- Only 9% thought about dropping out due to disappointment with course design.
- Also a problem with a lack of community, lack of social presence of instructor, lack of bonding
  - The intention of dropping out of the classes
  - negatively correlated with the learner engagement (r=-.40),
  - feeling of being a part of a learning community (r=-.47),
  - comfort level of reading messages and materials online (r=-.40),
  - and helpfulness of instructor facilitation (r=-.51).

One Word to Describe Program

- **70% were positive!**
- **Common words were excellent, good, exciting, rewarding, effective, satisfied, enlightening, educational, solid, and empowering.**
- **About 16% think the program is quite challenging (challenging, intense, demanding, adventure, and hard).**
- **One student wrote "this is the hardest thing I have ever done."**
- **New, unique, eye-opening, and surprising.**

Recommendations for Improvement

- More technology integration: 52%. Video & tele-conferencing, better chat.
- Immediate and detailed feedback
- More human interactions: Over 50%.
- More options, flexibility, elective courses.
- Enhance administrative support: Consulting services, contact options, hot line help.
- Flexibility on Team assignment: Choose teammates.
- Specific recs: More lectures, burned CDs, slide narrations, key take aways, emailing course announcement, and more instructor check up.

Story #11 (2006--?): A synchronous life is a Breeze.

Research on use of Breeze synchronous training tool in online teaching in Instructional Systems Technology at IU.
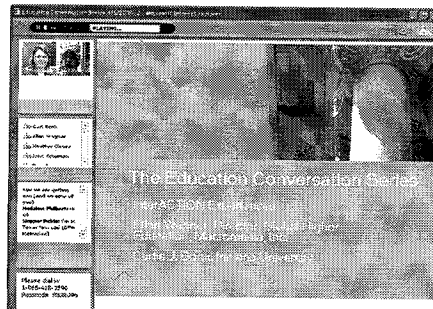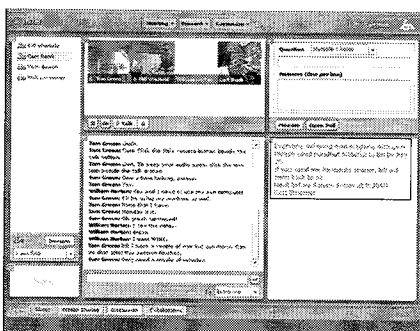- Transcripts
- Interviews

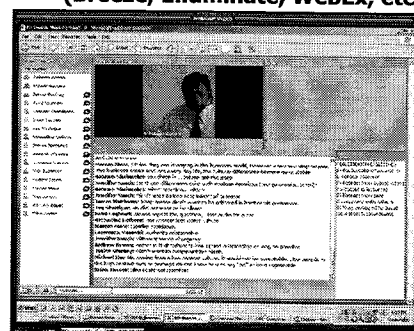

The movement toward synchronous instruction

Making learning interactive is a Breeze!

Synchronous Conferencing

Synchronous Sessions (Breeze, Elluminate, WebEx, etc.)

Research Questions

- What sync strategies employ in critique activity?
- What instructional benefits of sync?
- What issues and challenges encounter?
- How is Breeze as a sync collaboration tool?
- What suggestions and practical guidelines?

Spring 2006: Merge distance and residential

- 22 distance students
- 11 residential students
- One full-time faculty member
- Five graduate teaching assistants
- 49 synchronous critique sessions

Table 1: Numbers of Synchronous Critique Sessions and Tools Used

Number of synchronous Critique sessions held	Tools used for synchronous critique sessions
49 (including 3 practice sessions)	Breeze[1] & telephone (38)[2] Breeze & Breeze voice chat (4) Breeze & Breeze text chat (5) Breeze & Breeze voice chat & telephone (2)

[1] Breeze used as a visual display for uploading student's projects and help to share the same screen during the presentation.
[2] Numbers in parentheses denote the number of critique sessions via the various communication tools.

Purpose of Critique Sessions

- (1) to help students apply the newly learned design principles in order to evaluate media design products,
- (2) to exchange constructive feedback on each other's project in progress.

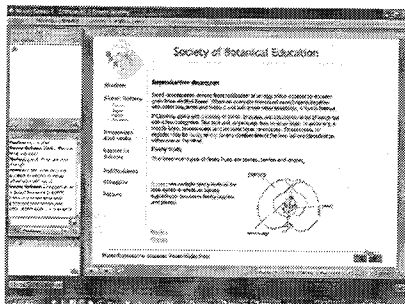## Figure 1. Synchronous Critique in Breeze Context

Table 3: Benefits of Peer Critique

•Providing immediate feedback •Encouraging to exchange multiple perspectives •Increasing interactions among participants •Enhancing dynamic interactions •Promoting passive students to become active •Strengthening social presence allowing to exchange of emotional supports and supplying verbal elements

Table 4: Instructional Strategies Employed

- Prepare students:
  - Provide ground rules and guidelines
  - Hold practice sessions
  - Provide materials to be critiqued

- Promote interactions:
  - Structure the synchronous critique activity
  - Scaffold the discussion
  - Moderate students' critique behaviors
  - Use a small-group and be flexible about synchronous activity management

Table 5: Issues Identified on Synchronous Tools and Scheduling

	Advantages	Disadvantages
Breeze collaboration tool	Screen-share function during presentation Features to organize participants' roles and screen control Compatibility with the existing course Easiness of use Recording and archiving function	Small viewer. Delay or difficulty in playing large-sized files.
Breeze voice chat	No additional cost needed Easiness of use	Vulnerability to user's technical conditions
Telephone conference	Stable condition Easiness of use	Relatively high cost
Breeze text-based chat	No additional cost required	Difficulty in moderating discussions with a large group of students
Scheduling		Additional workload for instructors to arrange the meeting. Fixed- time meeting causing inconvenience for some distance students.

Story #12 (2006-?): Where is a Wikibookian when you need one?

Survey of more than 80 Wikibookians about the creation and coordination of a Wikibook. Issues addressed include owership, problems encountered, tools to facilitate online collaboration.

The Challenges and Successes of Wikibookian Experts and Want-To-Bees

Suthiporn Sajjapanroj, Indiana University
ssajjapa@indiana.edu
Curt Bonk, Indiana University
Mimi Lee, University of Houston
Grace Lin, University of Houston
Paper presented at the E-Learn Conference, Honolulu, Hawaii
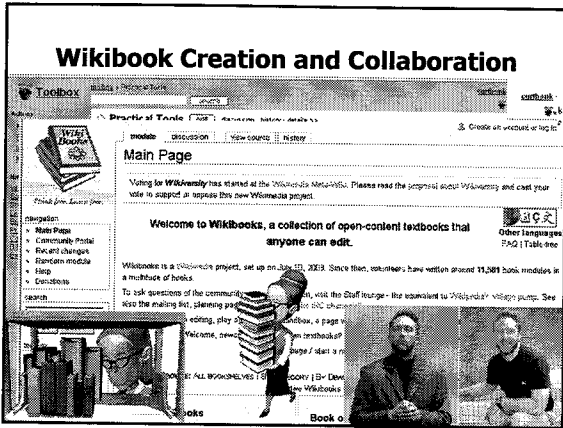October 2006

Basic Study

Survey of more than 80 Wikibookians about the creation and coordination of a Wikibook. Issues addressed include owership, problems encountered, tools to facilitate online collaboration.

Wikibookian

A Wikibookian is someone who coordinates a Wikibook project.

Wikibook Creation and Collaboration

Objective and Design

Two-part study:
I. Wikibook project among 3 classrooms in 3 locations
II. Wikibooks web site - http://en.wikibooks.org/wiki/Main_Page

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Methodology

- Two Surveys for each group
  - 13 participants of cross-institutional Wikibook project
  - 80 participants of Wikibookians

- Follow-up questions were sent via email to:
  - Three people of the Wikibook project
  - Eight people of the Wikibookian group

Findings from Surveys (cont.)

- Demographical data: 58% of Wikibookians were younger than 25 years old.

Age of Wikibookians

- Under 18
- 18-25
- 26-34
- 35-50
- 51-65
- Over 65

11% 3% 3% 19% 25% 39%

Demographical data: more than 97% were male

Gender of Wikibookians

Female 3%

Male 97%

Male
Female

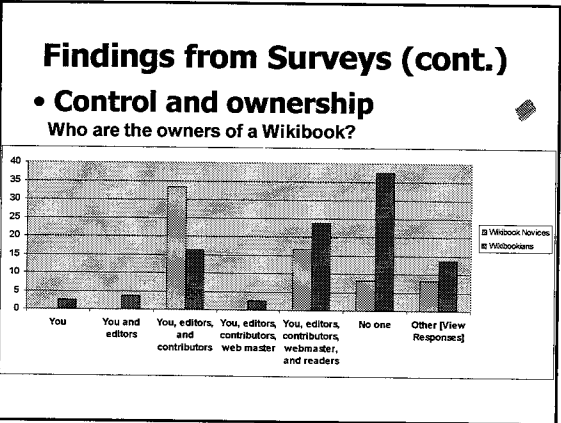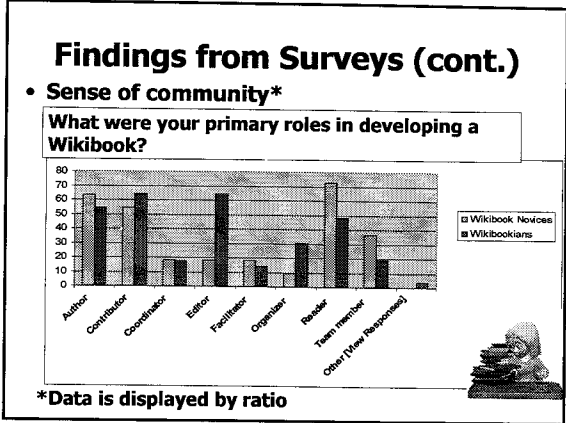
Findings from Surveys (cont.)

- Demographical data: many without a college education

Highest Year of Schooling

Post-graduate Level 11%
Lower than High School 10%
Graduate Level 16%
High School 29%
4-Year College 23%
2-Year College 11%

Findings from Surveys (cont.)

- **77% of Wikibookians agree that their recent Wikibook project was successful.**

Strong Agree
14%

Strong Disagree
4%

Disagree
19%

Agree
63%

Findings from Surveys (cont.)

- **Sense of community***

What were your primary roles in developing a Wikibook?

Legend: Wikibook Novices, Wikibookians

X-axis: Author, Contributor, Coordinator, Editor, Facilitator, Organizer, Reader, Team member, Other [View Responses]

*Data is displayed by ratio

Findings from Surveys (cont.)

- **Control and ownership**

Who are the owners of a Wikibook?

Legend: Wikibook Novices, Wikibookians

X-axis: You | You and editors | You, editors, and contributors | You, editors, contributors, web master | You, editors, contributors, webmaster, and readers | No one | Other [View Responses]

Findings from Surveys (cont.)

- **Inspiration to work on Wikibooks**

Legend: Wikibook Novices, Wikibookians

X-axis: Experiencing an emerging technology | External requirements (e.g. jobs, degree, course assignment, community, etc.) | Learning new ideas from others | Making a learning contribution and sharing knowledge | Networking with and meeting other people | Publishing work (i.e., to author, edit, or contribute to a Wikibook) | Self exploration and personally learning new ideas for my chapter or book

Findings from Surveys (cont.)

How long been involved in designing or contributing to a Wiki of any kind?

10%

32%

18%

40%

- Less than 6 months
- 6 months – 1 year
- 1 year – 2 years
- More than 2 years

Findings from Surveys (cont.)

- **Question: Can a Wikibook ever be completed?**

Legend: Yes, No

X-axis: Wikibook Novices, Wikibookians

What type of learning does a Wikibook foster?

Qualitative Themes from Email Interviews

---

1. How did you know about Wikibooks? Who, if anyone, initially showed you them or recommended Wikibooks and what did they say? (Wikibookian)

- *I discovered WIKIBOOKS through WIKIPEDIA- some Wikipedia articles refer to articles on WikiBooks, saying "WikiBooks has more on the subject" and include a link.*

---

2. What was (were) your expectation(s) before using Wiki? (Wikibookian)

- *My expectation was to help create a free, collaboratively written textbook. At this point I have done almost all of the work on the book. Admittedly, word about the book hasn't gotten out, but hopefully once it does others will begin to contribute. Until that happens, my expectations will not, technically, have been met.*

---

5. Are there situations in a Wikibook environment that are unique or different from other collaborative environments you have encountered? If so, what are they?

- *The difference is that I'm usually working with people I've never met, and with the sort of people I wouldn't ordinarily work with in writing. It's much more challenging to see where someone is coming from if you haven't had a chance to meet her or talk with her..... Sometimes, the new perspective is very interesting. At other times, the other person can be way off base.*

---

6. Explain whether a Wikibook is ever complete? Why or why not?

- No wiki is ever complete, because it is ever evolving. That's one of the best things about wiki's. I personally think that paper is dead and in many ways the ideas contained within them too. I want my ideas and thought evolved and allowing others to improve them makes the work alive.

35

7. What would happen if someone edited or changed a section of your Wikibook but you did not agree with the change? Has this ever happened to you? If so, what did you do?

– Sure it has happened and usually I challenge the changes and or clarify my points and will revert the changes after I have posted a discussion section and got others opinions.

8. What are the advantages and disadvantages of Wikibooks mechanisms?

– Advantages: Openness, accountability, record of changes and attributions, easiness of use, free license, formatting buttons, levels of permissions, automated features like the Infobox, formatting shortcuts, templates, and navigation, ...

9. Which activities or tools would you suggest to include in Wikibooks environment in order to promote learning collaboration?

– Make a special area where one set group of people can take over a book for a time, for example, to enable one class or one group of professors develop materials in a protected environment where, at least for a time, they have the final authority of whatever happens in that area.

10. Are there any concerns, suggestions, and/or recommendations to someone creating a Wikibook or for someone wanting to become a Wikibook author or editor?

– *Get help. Don't try to do it on your own, it's a too big amount of work and you will definitely loose the overview.*

11. What do you see in the future in terms of Wikibooks?

– *I don't know. It might go two ways:*
*Become a success, people will use it.
*Die a silent death, people won't use. it.
There is no "some people will use it".
Because when you want your book to become used, it has to be used by a large amount of people, not by a few.

12. Do you have any other comments about Wikibooks or the Wikibook process?

– *Go rockin' on!*

Two + 1 (3) Key Research Questions for the Next 2 years?

1. What new sorts of collaborations will knowledge repositories spur? What impact will these have on innovative pedagogy?

2. How will wikis, blogs, podcasts and other technology innovations foster more individualized learning and opportunities for social constructivist teaching practices?

3. What new forms of education will emerge from handheld devices and mobile computing?