

Just a Lot of Bonk: 10+ Years of Technology Research, Results, and Reflections



**Curtis J. Bonk,
Indiana University**

<http://php.indiana.edu/~cjbonk>



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: Who needs a TICKIT?
9. 2003: Where is Disneyland?
10. 2004-2005: Data at your fingertips.

**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 | 2. Web-Based Conference |
| • Groups Preset by Major | • Grps Formed on Interest |
| • Tchr Generated Cases | • Student Gen. Cases |
| • Local/Univ. Networks | • World Wide Web |
| • Limited Instructor Mentoring | • 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

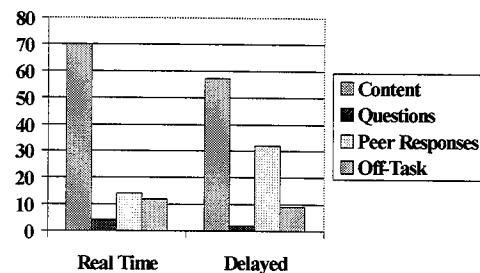
Research Questions: Study #1

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



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.

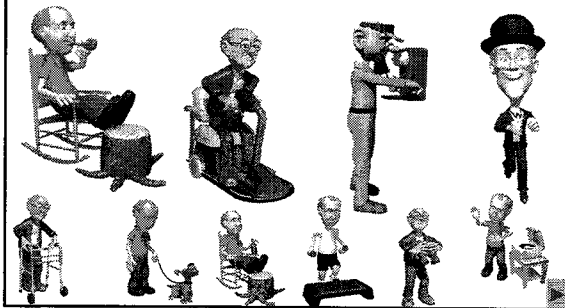


Sample of Larry's Comments....

- "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...?

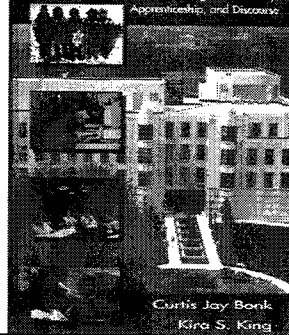


1994-1996 Computer Conferencing and Collaborative Writing (CCCW) Group at Indiana



ELECTRONIC COLLABORATORS

Learn-Content Technologies for Library, Apprenticeship, and Distance

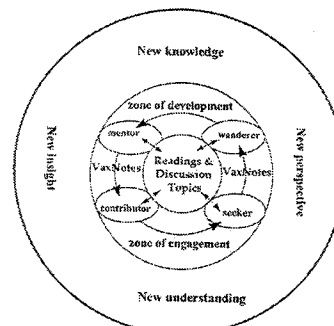


Sample Projects

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

Mentoring Type	Task Structuring	Feedback	Questioning	Management	Instructing	Cog Structuring
Open-Ended Mentoring	5%	23%	35%	3%	18%	16%
Task-Driven Mentoring	18%	12%	10%	10%	10%	30%

Aspects within Aspects (Cooney, 1998)

%attributed idea units within types of discourse

Discourse Type	%attributed idea units
Chat Box - Content	~25%
Chat Box - Task	~15%
Chat Box - Off-task	~10%
Web - Content	~25%
Web - Task	~15%
Web - Off-task	~10%
Free Med - Content	~25%
Free Med - Task	~15%
Free Med - Off-task	~10%

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

Smartweb Activities <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Connect to Experience • Recip Teach & Dialogue • Build Intersubjectivity • Dynamic Assessment • Scaffolding within Zones • Modeling and Legacy • Apprentices Learning • Scaffolded & Authentic • Shared Knowledge
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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)



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
CONFERRING
ON THE WEB

Welcome to COW. This system was graciously donated. We hope you enjoy it!


If you would like to use 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 Shawn.Malkowski@indiana.edu.

[About COW](#) [Enter COW](#) [Lobby](#)

Finland_Cases_Fall98

You are the instructor for this class. (Configure Assignments) is available.


Oulun yliopisto
UNIVERSITY OF JYVÄSKYLÄ

(Click on the security logo above to see this 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 Finland_Cases_Fall98 and the International class.

Some of the topics listed below are RESTRICTED to other students, faculty or teachers. Some topics are PUBLIC and anyone may participate. The Dr. Our Site and Sierra Malkowski center are "RESTRICTED" in this conference, and they can read ALL messages.

[New!](#) A [chat](#) system has been created to help you become familiar with this online system and program.

Topic:

[Number](#) [New](#) [Topic](#) [Home](#)

Indiana_Cases_Fall98 - Microsoft Internet Explorer

Address: http://cee.indiana.edu/cow/cow/cew_cow/indiana_Cases_Fall98

topics:

Number	New	Topic Name
100	1	Bad Global Problems
102	76	Ilkka's Questions-Answers
103	86	Classroom Management-Questions and Answers-Feedback
109	8	Elementary Cases, Math-Science
106	13	Elementary Cases, Reading-Writing
108	5	Elementary Cases, Social Studies-Other
110	94	Elementary Cases, Math-Science
111	25	Elementary Cases, Math-Science
112	7	Elementary Cases, Math-Science
113	74	Elementary Cases, Math-Science
114	19	Elementary Cases, Math-Science
116	10	Elementary Cases, Math-Science
118	31	Elementary Cases, Math-Science
120	76	Elementary Cases, Math-Science
122	33	Elementary Cases, Math-Science
123	3	Elementary Cases, Math-Science
124	16	Elementary Cases, Math-Science
125	21	Elementary Cases, Math-Science
126	2	Elementary Cases, Math-Science
127	11	Elementary Cases, Math-Science
130	0	Elementary Cases, Math-Science
132	0	Elementary Cases, Math-Science
134	30	Elementary Cases, Math-Science
136	1	Elementary Cases, Math-Science

Finland_Cases_Fall98 Topic 202 - Microsoft Internet Explorer

Address: http://cee.indiana.edu/cow/cow/cew_cow/indiana_Cases_Fall98

Configure Assignments is available.

by Maarit Sasavakunnas (maarith)

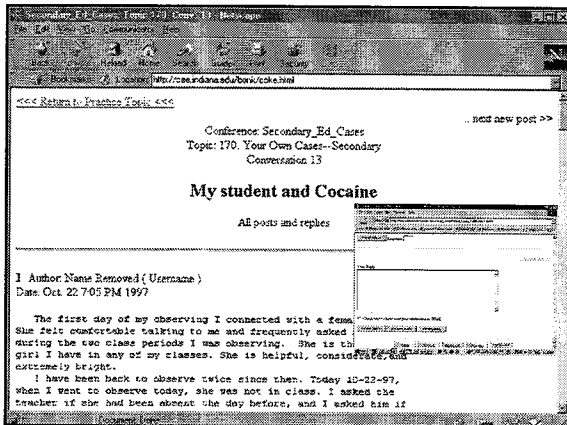
Date: Sep 10 11:50 PM 1998

To read a case, click on one of the "conversations" listed below.
 To add a case, click on the [New](#) button.

Recent Conversations for Finland_Cases_Fall98, Topic 202: [COW]Search!

Number	Total	New	Conversation
5	11	0	WIKI: THE DISCOVERY OF DNA - WHAT IS THE DISCOVERY OF DNA?
6	11	0	WIKI: THE DISCOVERY OF DNA - WHAT IS THE DISCOVERY OF DNA?
7	11	0	WIKI: THE DISCOVERY OF DNA - WHAT IS THE DISCOVERY OF DNA?
8	11	0	WIKI: THE DISCOVERY OF DNA - WHAT IS THE DISCOVERY OF DNA?
9	11	0	WIKI: THE DISCOVERY OF DNA - WHAT IS THE DISCOVERY OF DNA?
10	11	0	WIKI: THE DISCOVERY OF DNA - WHAT IS THE DISCOVERY OF DNA?
11	11	0	WIKI: THE DISCOVERY OF DNA - WHAT IS THE DISCOVERY OF DNA?
12	11	0	WIKI: THE DISCOVERY OF DNA - WHAT IS THE DISCOVERY OF DNA?
13	11	0	WIKI: THE DISCOVERY OF DNA - WHAT IS THE DISCOVERY OF DNA?
14	11	0	WIKI: THE DISCOVERY OF DNA - WHAT IS THE DISCOVERY OF DNA?

conversation number Size days ago



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

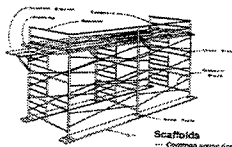
Quantitative Methods

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

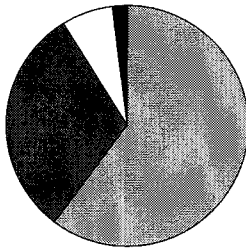
A. Peer Content Talk

- 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....

TITLE

Fair Witness: Dr. Curt Bonk (mailto:cbonk@eduserv.nl)

Welcome to "The Interdisciplinary Teacher Learning Exchange" (ITLE). Note, you can discuss protocols seen in schools, write case situations, ask for feedback, or joke with peers in the cafes.

Topics:

Number	How	Topic Name
100	50	The Interdisciplinary Cafe
200	60	Class Management-General & Class Planning
210	166	Class Management-Instructional & Behavior Issues
220	59	Class Management-Real Educational Strategies/Plans
250	39	Instructional Management-Instructional Management & Learning on Back Channels
270	28	Instructional Management-Instructional Management & Learning on Back Channels
280	60	Instructional Management-Instructional Management & Learning on Back Channels
400	60	Instructional Management-Instructional Management & Learning on Back Channels
420	60	Instructional Management-Instructional Management & Learning on Back Channels
430	69	Instructional Management-Instructional Management & Learning on Back Channels
500	11	Instructional Management-Instructional Management & Learning on Back Channels
520	33	Instructional Management-Instructional Management & Learning on Back Channels
530	16	Instructional Management-Instructional Management & Learning on Back Channels
532	16	Instructional Management-Instructional Management & Learning on Back Channels

Cases for Undergraduate Educational Psychology Classes

These are cases originally written by students during the field observation in real schools in 1997-98, which have been re-purposed for this web site by Gary & Katrina Dayton.

Note: These are directly linked to chapters in the upcoming edition of the Shaevman, J. and Biehler, R. F. (2000). *Psychology Applied to Teaching*, sixth edition. Dr. Bonk will be a technology contributor to this edition.

Chapter 1: Applying Psychology to Teaching

- Case A: How do you spell enormous? (online discussion for Case 1.A)
- Case B: The results are in, so listen up! (online discussion for Case 1.B)

Chapter 2: Stage Theories of Development

- Case A: Too formal or not too formal? (online discussion for Case 2.A)
- Case B: A little assistance, please. (online discussion for Case 2.B)

Chapter 3: Age-Level Characteristics

- Case A: Who does popularity hurt? (Case feedback) (mentor feedback) (online discussion for Case 3.A)
- Case B: Girls to the left, boys to the right. (online discussion for Case 3.B)

Chapter 4: Understanding Student Differences

Chapter 9: Cognitive Learning Theories and Problem Solving

Case A: Making things meaningful.

Case Introduction/Commentary

Cognitive theories of learning stress the importance of making learning meaningful. It is not enough for teachers to simply present their material. Rather, cognitive theories believe that teachers have an obligation to help students engage the material so that students can develop their own meaning. The following case exemplifies cognitive learning theory.

Case from Preservice Teacher

I am observing an eighth grade science class. The teacher does some fun things. The last time I went there they were studying the difference between living things and non-living things. One of the students said that all living things move. The teacher continued with the discussion obtaining different answers from a variety of students. A little later into the discussion, the teacher decided to test the statement - all living things move. It was the teacher's intent to prove that not only living things move. The teacher asked for the students who had not washed their hair that day to come to the front of the room. Once they were there, he had each student shake his or her head over two pieces of cardboard that had caulked in between them. Then he shook the cardboard over a coin dish with water in it. When the caulked fell the water in between the hair, there were bugs everywhere.

Online Discussion: Case A in Chapter 9

[Post a New Message | Subscribe | Search | Personal Display]

Welcome!

Message Index

All Messages



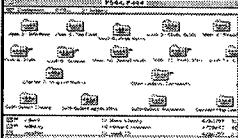

5 of 6 Messages Displayed
(Previous 70 added during)

- [great teacher](#)
Last Message: Wednesday, 14 April 1999, at 8:59 p.m.
- [Missing Living Organisms?](#)
Sent: Wednesday, 10 March 1999, at 10:33 a.m.
- [Missing Living Organisms?](#)
Case: Wednesday, 10 March 1999, at 11:22 a.m.
- [Re: Missing Living Organisms?](#)
Sent: Wednesday, 10 March 1999, at 7:58 a.m.
- [Re: Missing Living Organisms?](#)
Sent: Wednesday, 10 March 1999, at 7:45 p.m.
- [Re: Missing Living Organisms?](#)
Sent: Wednesday, 10 March 1999, at 8:44 p.m.

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, inferecing, 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

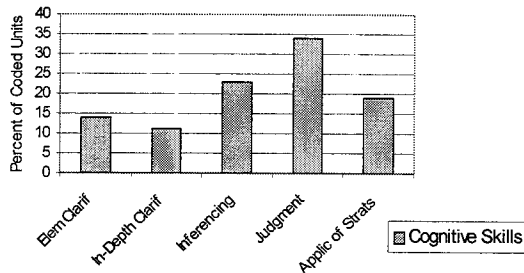
- + Most participated once/week
- + Student-centered & depend on starter
- + Posts more interactive over time
- + Lengthy & Cognitively Deep
 - Ave post: 300 words & over 18 sentences
 - From 33 words to over 1000 words
- Some just satisfied course requirements

Findings Continued

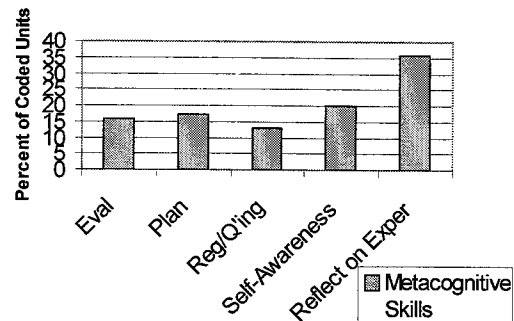
(see Henri, 1992)

- **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



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

