Computer-Mediated Communication and E-Learning
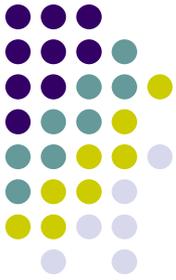
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Elearning is a Complex Phenomenon

- A phenomenon at the intersection of multiple social and technical forces, involving:
  - Teaching and learning
  - Course management
  - Technology implementation and support
  - Administrative buy-in and/or mandate
  - Social and political support for Internet infrastructures
  - Acceptance by stakeholders, e.g., faculty, students, future employers, accrediting agencies
  - Societal trends in technology, e.g., web 2.0

Whose field is it?

CMC and E-Learning

- Education
  - Pedagogy, collaborative learning, learning sciences, adult learning, situated learning
- Computer Science
  - Learning objects; Computer-supported cooperative work; Collaboratories
- Management
  - Knowledge management; Communities of Practice; Records management; Organization theory

- Social psychology & Communication
  - Communication behavior; Group behavior; Life course studies

- Sociology
  - Communities; Social studies of science, and of technology

- Library and information science
  - Use and users of information; Online resources; Digital libraries; Information ecologies

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Interdisciplinary Perspectives on Elearning

- Internet Research
  - Issues about access, culture, online community
- Computer-mediated communication
  - Language, behavior, communication online, literacy
- Virtual communities
  - Creating a group presence online

- Asynchronous learning networks (ALN)
  - Education and online, asynchronous networks
- Computer-supported collaborative learning (CSCL)
  - Education perspective translated into computing setting
- Distributed Knowledge
 - Information transfer to co-construction of new knowledge

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CMC and E-Learning

- Young undergrads or adult learners
- Self-motivated students or all students
  - 70% of institutions offering online courses say it requires greater discipline by students
- Degree oriented or lifelong learners
  - Formal and/or *informal* learning
- University based or elsewhere
  - Workplace, training, libraries
- Ubiquitous learners
  - Searching and accessing learning anywhere, anytime

Who Teaches Online?

- Issues of professional status, administrative control, accreditation
  - Outsourcing teaching from faculty to others
  - Commodification of the teaching process
    - Faculty create the curriculum, others give the course
- Technical and Administration issue
  - Where are they teaching from?
  - Who will support them, their technology, their interactions with students
- Cultural and identity issues
  - How will they gain and disseminate an understanding of college culture?
  - What will it mean to be a faculty member in the elearning institution of the future?

CMC and E-Learning
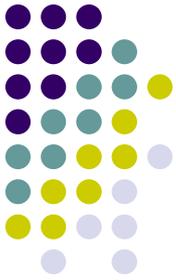
- Collaborative learning
  - Computer-Supported Collaborative Learning (CSCL)
  - From 'Sage on the Stage' To 'Guide on the Side'
- Situated learning with local apprenticeships
- Creating and maintaining "presence"
  - Presence: the feeling of being there, with others
- Building communities of learners
  - Virtual communities
  - Communities of Practice (Wenger)

# What is the Role of the Student? New models and responsibilities

- Collaborative learners
  - Peer-to-peer Learning
  - Learner-leaders (Montague)
- Adult learning style for all ages
  - Independent, student-led inquiry
- Presence
  - Social, cognitive and learner presence
- Joining and staying present in online communities of learners
  - Learning new communication, group and education norms
- Ubiquitous learners
  - From lifelong learning to learning in everyday life

CMC and E-Learning
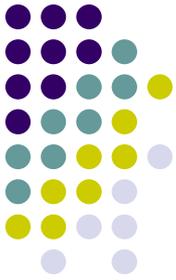
- ## What is a university?
  - ### What purpose does a campus serve? What is the future of land-based colleges and universities?

- ## What are the implications for libraries?

- ## Does e-learning scale?
  - ### Should e-learning scale? Is it a means of reaching many at low cost, or a corruption of the ideals of oncampus teaching?

- ## Where will it end?
  - ### University to Schools to Everyday Life

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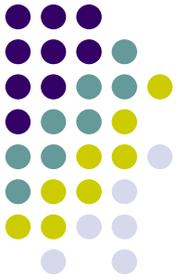
- Three upcoming lectures
  - Computer-Mediated Communication: What a difference a medium makes
    - Presenting also method and results from a longitudinal research study on "community development among distance learners"
  - Social Informatics of E-learning: E-learning as a socio-technical intervention
    - Presenting also method and results on the social networks among members of e-learning classes
  - Emerging E-Learning Theory and Applications
    - Presenting also current work on automating presentation of online networks among e-learners

Comunicação mediada por computador: Que diferença um meio pode fazer

- Background theory and research on Comunicação mediada por computador (CMC)
- Details of a study and analysis of research on student experiences with the e-learning CMC environment

Computer-Mediated Communication and E-Learning

- E-learning depends on CMC
  - The question is not "Is online as good as face-to-face?" but "What similarities and differences exist?" and "What impact does this have on teaching and learning?"
    - What is different (or the same) about communicating via computer media?
    - What is different about communicating via one computer medium versus another?
    - What media should we use for teaching, and for what kinds of interactions?
    - What do we need to be aware of when selecting, initiating and maintaining use of particular media?
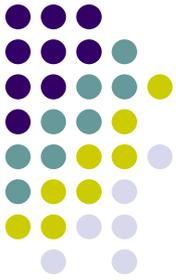
Computer-Mediated Communication

- CMC evaluation needs to be a key part of e-learning planning
  - CMC choices, uses, expectations, and impact can be examined as a user interface problem, in terms of affordances for communication, teaching, learning, interpersonal interaction, etc.
  - CMC is also a sociotechnical intervention, involving initiating and co-evolving social and technical aspects of interaction
- E-learning is a sociotechnical intervention

- Affordances (Gibson, 1979; Norman, 1988)
  - What a technology makes possible or allows, and/or what a user perceives a technology to allow
- Social Affordance (Bradner, Erickson & Kellogg, 1999)
  - The relationship between the properties of an object and the *social characteristics of a group* that enable particular kinds of interaction among members of that group
  - In other words, group conventions for technology use
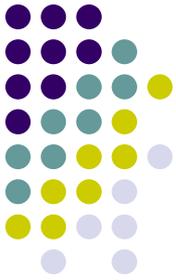
Social Affordances (from Bradner et al)

- "Consider a door that opens out into a busy hallway. If a person opens the door quickly, it may strike someone entering from the other direction. One possible solution is to put a glass window in the door. The glass window addresses the problem at two levels.
  - At the level of **individual** …, the glass makes a person on the other side visible (i.e., the window *affords* seeing through it…).
  - At the **social** level, since people are socialized to not strike others with doors, they will refrain from doing so if given the chance.
- Furthermore, not only can the potential door opener see through the window, but the person on the other side can see as well, and thus there is shared knowledge of the situation (e.g., 'I know that you know that I know'). As a consequence, the door opener will be held accountable for her actions.
- This accountability, which arises from the optical properties of glass, human perceptual abilities, and the social rules of the culture, is an example of what we call a *social affordance.*

What does CMC afford?

- Lean, low fidelity communication *or* reduction to the essentials, content without interfering factors
- Barrier to communication, social presence, immersion, **or** facilitator of equal, remote, status free participation
- Easy entry with low social overhead, **or** need for more time and effort to maintain presence
- Anywhere, anytime connectivity **or** anywhere, anytime control, responsibility, monitoring
- Separation for local life **or** extension of local social relations across time and space
- A lawless frontier **or** environments managed through social practices

CMC Debates: Media Attributes

- Media richness, media choice, message-medium fit
  - Medium's capacity to carry cues, provide immediate feedback; Individuals to choose medium to fit the message
- Cues filtered out
  - Verbal : voice tone, volume
  - Non-verbal : gaze, body language, hand movement
  - Context : meeting site, seating arrangments
  - Status : dress, seating position, sitting/standing, furniture, artifacts, office location
  - Personal : appearance, dress
- Reduced cues
  - Lack of redundancy of cues for validating the identity of the speaker, the truth of the message; lack of contextual information such as physical setting
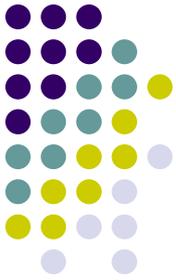
CMC Debates: Psychological Attributes

- Individual's experience of the online relationships, environment, tasks
- Social Presence
  - Being there, and being there with others
  - Telepresence and immersion
    - "subjective experience of being in one place or environment, even when one is physically situated in another" (Witmer & Singer, 1998, p. 225); "perceptual illusion of nonmediation" (Lombard & Ditton, 1997, p. 8)
  - Too little social presence hinders commitment to others and joint work
  - Too much social presence and online relations become more real than local ones; taking you away from 'real life'

CMC Debates: Social Attributes

- Group experience and co-construction of online conventions
  - Emergent norms: Shared and negotiated practices emerge from use by pairs and by groups
    - Locally defined norms for use of media, including which media and with whom
    - Social workarounds for technical shortcomings
    - Takes time, takes effort
  - Stable norms emerge in online communities
    - FAQs, rituals and ceremonies, roles
    - Use of message headers
  - Online conventions emerge
    - Paralanguage, acronyms, signatures

New Aspects of CMC

- New communication style
  - Persistent conversation, somewhere between text and conversation
- New roles: Wizards, webmasters, newbies, trolls
- New behaviors
  - Lurking, texting, chatting, blogging; 24/7 accessibility
- New vocabularies
  - Flame, lurker, text chat, blog, splog, wiki, sms, emoticons
  - Acronyms, orthography: LOL … C U L8r … :-)
- Generational differences
  - In expectations and use: young vs older users; early vs late adopters
- Global reach
  - Crossing cultures, domains, communities, geographies, local entrainments, time zones

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Models of CMC: Technology Views

- Deficit model
  - CMC is deficient compared to ftf for conveying cues
    - Deficient for gaining trust, building strong and intimate relationships, conveying complex information, conveying multi-modal information
- Extension and Enhancement models
  - CMC extends connectivity to remote participants
    - Affords simultaneous communication to all participants, affords synchronous communication across distance, asynchronous communication affords anytime, anywhere communication
- Attraction/Detraction model
  - Immersiveness faciliated by online environments draws people in, reduces fears of exposure, promotes participation
  - But, immersion in the artificial online life takes people away from real interaction, home and civic engagement

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CMC and E-Learning

- Social construction models
  - Norms emerge, created, adapted, re-invented, reinforced by group use
  - Societal norms emerge that drive CMC use in local contexts

- Social Network models
  - Patterns of media use are associated with the nature of the tie between communicators, rather than attributes of the medium or use by groups
  - Group level aggregation on CMC use covers up differences by type of tie

CMC and E-Learning

- CMC adoption follows principles common to the general principles of **Diffusion and Adoption of Innovation** (Rogers, 1995)
- S-shaped adoption curve
- Stages of adoption
  - Awareness, Persuasion, Decision, Implementation, Confirmation
- Known attributes of an innovation promoting adoption
  - How compatibile it is with existing practices
  - Whether it gives an advantage over old ways of doing things
  - Whether it can be used on a trial basis
- Early, middle and late adopters with known demographic characteristics
  - For example, those who adopt an innovation early generally have high income and higher education, and are more willing to take risks

CMC and E-Learning

- The same CMC debates have been adapted for the E-learning sphere

Arguments about E-Learning

Arguments against …

- How can an online class deliver the same kind of experience as on-campus education?
- Learners lose close interaction with faculty and other students
- How can they learn without ftf lectures, and discussion groups?
- How can you maintain a learning community without co-location and on-campus activities?

Arguments for …

- No significant difference in learning outcomes
- Delivers different learning experience but just as good
- Delivers better experience when closer to the workplace
- Online provides perception of closer contact with instructors
- No turn-taking: All voices can be heard
- Promotes contributions by shy students, ESL students
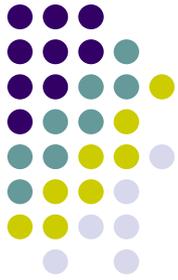- Strong communal bonds are created

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CMC and E-Learning

- Asynchronous versus Synchronous communication
  - **Gain** anywhere, anytime involvement
    - *Lose* immediacy for interaction and feedback
- Text-only versus voice + dress + body languages
  - **Gain** anonymity, judgment on writings alone
    - *Lose* multiple cues to interpret and judge others
      - Lack of *social presence* can lead to difficulties in commitment, trust, engagement
  - **Gain** skills in communicating via contemporary online means
    - *Lose* use of multiple means of communication and persuasion
  - **Gain** a written, visible, and persistent record of conversation
    - But the written record can make people initially shy about conversing
- Physical versus Virtual Presence
  - *Lose* physical presence in the classroom

Critiques of E-Learning

- Critiques are based on two, untested assumptions
    - Physical co-location is the key factor making the educational experience
    - On-campus experience is the one best way to interact, teach, and learn
- Need to separate the educational experience from the institutional context
    - Unbundle education from physical classrooms

Educational Experience Models

- Community of Inquiry Model (Garrison & Anderson, 2003)
  - Social Presence, Cognitive Presence, Teaching Presence
  - Social presence
    - the "ability of learners to project themselves socially and emotionally in a community of inquiry" (Rourke, Garrison, Anderson & Archer, 2001)
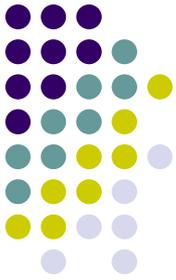
CMC and E-Learning

Cognitive, Teaching and Social Presence

- Three types of presence identified as important for online education (see Rourke, Anderson, Garrison & Archer, 2001)
  - Cognitive Presence
    - "the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication"
  - Teaching Presence
    - "designing and managing learning sequences, providing subject matter expertise, and facilitating active learning"
  - Social Presence
    - "the ability of learners to project themselves socially and emotionally in a community of inquiry"
    - Supports the cognitive and affective objectives, and is associated with aspects of engagement, appeal, and persistence in completing the cognitive tasks

CMC and E-Learning

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Other Educational Experience Models

- Collaborative Learning (Bruffee, 1993; Koschmann, 1996)
  - Participation, sharing of information, exposure to new ideas

- Social Networks and Learning Communities (Haythornthwaite, 2002)
  - Collaboration + Task Completion = weak + strong tie interaction
  - More media used the closer the work or social tie

- Immersion (Burbules, 2004)
 - Interest, Involving, Imagination, Interactive

CMC and E-Learning

- Socially, technically, pedagogically …
  - Creating social presence online
  - Promoting participation, sharing, communication, interaction
  - Creating and sustaining immersion

CMC and E-Learning

- Current state of CMC use by most programs
  - Asynchronous communication (largely)
  - Distributed communication
  - Site-independent communication (anywhere, anywhen)
  - Text-based interaction (largely)
  - Stored communication: sometimes modifiable and deletable, sometimes not
  - Anonymity or close to it -- identification by email address or pseudonym
  - Reduced amount of personal information about self and others
  - Lack of redundancy of cues
  - Reduced interactivity, immediacy
  - Increased turn-around time for feedback (maybe)
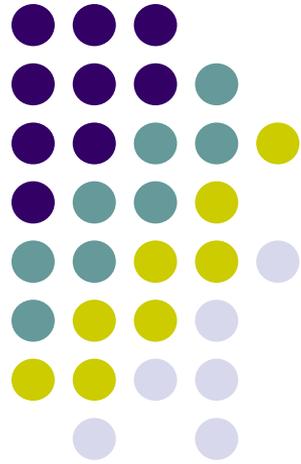
Studies of E-learners' Experiences

Caroline Haythornthwaite

Michelle Kazmer

Jenny Robins

Susan Shoemaker

Alvan Bregman

Study of E-Learners' Experiences

- Longitudinal study to find out what made it possible for students to manage in this new environment

  - What is their experience?

  - Who or what helps them learn, interact, complete work, complete courses and the program?

  - Did they experience a sense of *community*?

  - What aspects of their experience created a sense of connection with others?

Study Design

- 4 interviews with each of 17 Master's students in the "LEEP" program
- Program characteristics
  - Begins with 2-week on-campus session with 30-50 others
  - Complete all other courses via the Internet
- Courses typically include:
  - Regular real-time ("live") lectures using RealAudio, web pages and Chat
  - Ongoing asynchronous discussions (Bulletin Boards) (either mandatory or optional)
  - LEEP weekend: On-campus session mid-semester (1 day per course)
  - Person-to-person contact via Email and Telephone
  - Individual and/or group assignments, 'handed in' as web pages, email attachments, etc.

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Why the emphasis on community?

- Other research shows that individuals gain
  - a greater sense of well being and happiness
  - a larger and more willing set of others to call on for support in times of need
  - they demonstrate an increased willingness to share information and resources
- A learning community can benefit by
  - Increased flow of information among all community members
  - Increased availability of support in the community
  - Greater commitment to group goals
  - Greater cooperation among members
 - Greater satisfaction with group efforts

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Qualitative Study:
Using a "grounded theory" approach

- Questions about community
  - What characterizes the LEEP community?
  - How does it differs from other communities the students know?
  - How do students become initiated into their community?
  - How do they maintain their community membership over time?
- Questions about social support for individuals
  - Who gives support that helps students succeed in the program?
  - What kinds of support are important, and from whom (family, work mates, others students, etc.)?
 - What does the community offer that supports students in the program?

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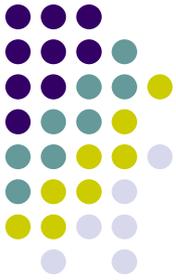
- Data were coded for themes in student experiences, comparing across students for commonalities and differences, and analyzing the characteristics of the themes that emerged
  - Temporal effects in becoming part of the online community
  - Basic concerns of e-learners about their experience
 - Juggling multiple worlds
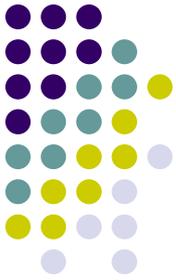
1. Community Development

- Students learn how to manage in the online environment
- Different stages of becoming part of the online community
  - Joining the community
  - Staying with the community
  - Disengaging from the community

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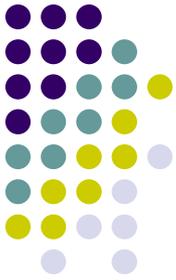
- Initial bonding with members of the community
  - For LEEP, this happens with the shared experience of 'boot camp'
- Separate experience from others in their home communities
  - *It's a different kind of world that most people aren't used to so they can't really understand it since they're on the outside. [Betty]*

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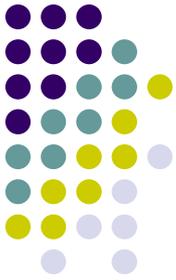
- Continued visibility and attachment to community members from boot camp

  - *Even though they would be just a name on the screen in the chat room or on the [Discussion Boards], you still had the memory of knowing them from boot camp, which was such an intense experience. That gave you a connection. It was almost like they were there. You could imagine them. Since it was just recently, and you had them fresh in your mind. [Alice]*

  - *There's a group of people out there who know exactly what I'm going through and can help me, that have been there, and have done everything, and they're supportive and caring and kind. [Rene]*

CMC and E-Learning

- A safe environment for trying things out
  - *I think the other thing that the community has given me is the encouragement, you know in a regular situation to just...to speak out and say something...to write something in and to have a comment. It doesn't feel like an unsafe environment to say something. [Barbara]*

Staying with the Community

- Making an effort
  - Making a conscious effort to maintain contact and relationships with others
  - Requires more effort than face-to-face so you do not "fade back" and become invisible
- Those who make the effort are happier with the experience
  - *You have to make more of a point to reinforce things because you're not going to bump into people, you have to make a point of nurturing friendships more so than you do in a neighborhood community or church community or work community where you just bump into people. [Doris]*

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Staying with the Community

- Synchronous connection ("Live" sessions: audio + chat) increase feeling of being connected with others
  - *I seem to get more out of class when we meet live more often. It keeps you from feeling isolated. The immediacy [is nice], even though you're typing, not speaking to them directly, you're typing with them. [Jan]*
- Email used between pairs of classmates, often in a near synchronous manner, builds personal relationships
  - *A lot of times last semester when I was working late at night, and then I would post my assignments, we found out that a lot of our □ well, both of us were working late at night. We were both working late at night; so even now, sometimes, I'll w if I'm finishing up something, and I'll just send her a quick note. I'll say 'Sandra, are you there?' And she'll write me back, 'Yes, I'm here.' So, yeah I really feel very close to her, even though she's in [another state]. [Nancy]*
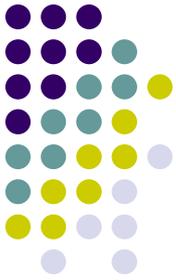
Disengaging from the Community

- Classes now include more people from other cohorts, not just the people they met at 'boot camp'

- As they near completion, other 'worlds' become more important (Kazmer, 2002, 2007)

  - Immersion in the courses and people of LEEP gives way to people at work, family, and outside interests

- But some feel a real loss

  - *I feel a sense of loss because that real close community that I had with those folks isn't there any more, and I think because you have that on campus time with those people, and you really develop a bond with them. [Holly]*

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- Three 'root' or 'basic' concerns for students about being online
  (referred to as 'radicals' in Bregman & Haythornthwaite, 2003)
  - Visibility
    - Concern about posting for class
  - Relation
    - Importance of the relationships made with others in the online space
  - Co-Presence
    - Importance of "being there" with others online at the same time

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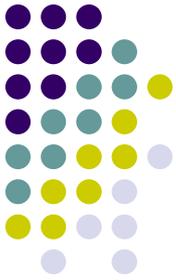
- Awareness of the visibility of their conversations
  - "Persistent Conversation" (Erickson & Herring)
- New students are concerned about
  - how to write online and post to the bulletin boards
  - what to write online for class
  - using the right language
  - using online language
- New students need to get comfortable in the online environment, both technically and socially

CMC and E-Learning

- Discovering Visibility
  - *At first I was self-conscious about the webboards and putting myself out there for everybody to read rather than its being between you and the teacher.*
    [Ellen, looking back on her early days in the program as she nears completion]
- Learning to be Visible
  - *At the beginning it was difficult for me because I felt like when I posted something it had to be perfect… It takes me a lot of time just to post on the webboard just because of the idea that it has to be perfect. [Ted]*
- Observing Others
  - *You also get to know them [the other students] through their postings and their responses to what we are supposed to be doing [for the class]. [Beth*

- This reflects a concern about who else is with them in the online space
  - Are they online with a group of friends or a group of strangers
- Knowing other people who are online with them increases their feeling of being in a safe environment
  - *There's 5 or 6 of us that are sort of a group – someone will ask…'Does anyone have any idea what she's talking about?' and then one or two people might clarify it without having everyone in the class see that this person doesn't have any idea what the teacher is talking about. [Bill]*

CMC and E-Learning

- This reflects a concern with being isolated and all on their own in dealing with learning and technical problems

- Being online with others *at the same time* increases the immediacy of feedback, and helps students feel more connected to the class

- *I need to hear my professor's voice. I need the stimulation of comments … I need my other classmates to respond to me … I mean I just need that feedback from them. [Nancy]*

3. Juggling Multiple Social Worlds

- Social worlds, as defined by Strauss (1978) involves
  - People who share activities, space, and technology and who communicate with one another
  - Worlds coordinated around a primary activity
    - e.g., learning, tending family, earning a living
  - Usually associated with one site
    - e.g., the university, the home, the workplace
- E-learning happens in the middle of other social worlds
  - At work
    - with or without an understanding employer
  - At home
    - with our without a understanding spouse
- For many, e-learning is added as the 'third shift' on top of work and family, particularly by women (Kramarae, 2001)
- Students juggle obligations for the E-learning, Work, and Home worlds

What is the Role of Local Context?

- The results on juggling multiple worlds suggest further consideration of the role of local contexts -- those local to the distance student
- Online is 'local' to the online student
  - Learning new norms of interaction and education
  - New technologies, each supporting different aspects of interaction (different 'affordances')
- Competing offline contexts
  - Work, Home, Family
- Embedding in local contexts
  - Community-embedded learners (Kazmer)
  - Learning while at work, and also people at work also learning from the student
  - Helping family with their technology

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- Results on juggling multiple worlds also show how we can look at e-learning as an ecology, composed of
  - Online places and spaces; Offline learning and work places; Libraries; Laboratories; Workplaces; Cyberspace
- Ecologies that include home, work and school for *both* students and teachers
  - Home ecologies of working in the kitchen, bedroom, home office; during the day or at night; with or without children and spouses who require attention
  - Work ecologies where work and learning mix, during or after work hours
- School ecologies
  - Online 'school' ecology or learning during and after class hours, in private (such as at home), or in public (in a library, at a coffee shop)
  - Online ecologies of email, discussion lists, social networking (e.g., Facebook, Orkut, etc.)
- Hybrid on and offline components
  - Classes with on and offline components
 - Lives with on and offline components
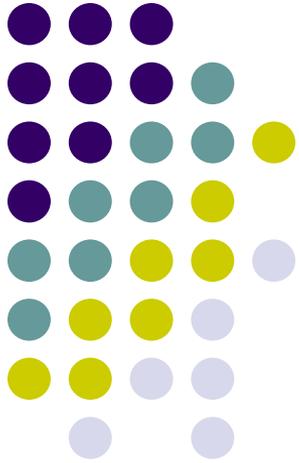
Suggestions on E-Learning Practice

Suggestions on Managing Entry

- Address expectations
  - Train new students on CMC, online communication, expectations for class, schedule management
  - Instructors specify their expectations about use of language, contributing, responding
- Technology
  - Provide ways to try out technology
  - Provide way to post personal identifying information, to change names
- Social and Technical
  - Synchronous sessions for immediate feedback, co-presence
  - Multiple media for public and private communication
 - Common meeting place for groups interaction
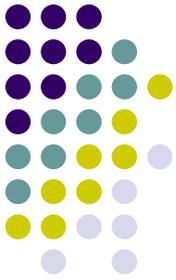
Suggestions on Maintaining Presence

- Staying connected, not 'fading back'
  - Takes more effort online because of lack of serendipitous encounters
- Juggling worlds
  - Not the isolated world of school, but instead mixed with home or work distractions
- Managing new information with task completion, and engaging with others for class, for projects
  - Using CMC to interact with classmates and instructors in class; added, private CMC with friends and project workmates
- Engaging in local-to-student pedagogical relationships (e.g., apprenticeships; Kazmer 2002)
- Maintaining commitment to personal goal, embedding online community, embedding family, work and local-to-student community

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Suggestions on Managing Disengagement

- Help students stay engaged to the end
  - Activities to engage students
  - Encourage learner-leaders who help new students learn about the environment
- Help students leave
  - Connect them to future work world
  - Connect them to alumni worlds
  - Continue access to communication technology (e.g., email accounts)
  - Continue access to course sites, bulletin boards, etc.
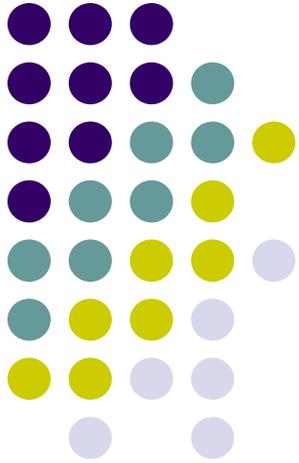
Summary: CMC and E-Learning
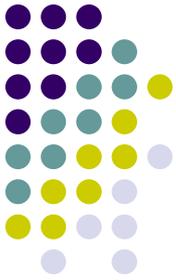
Celebrating the Differences

- Asynchronous communication
  - Provides time for reflection, to form clear language, to join even if shifted in time and place
- Multiple simultaneous voices
  - Removes traditional turn-taking issues
- Relative or actual anonymity
  - Reduces barriers to participation
- Multiple media
  - Provide opportunity for variety of interaction styles, support of different aspects of relationships (e.g., public, private interaction; one-to-many, one-to-one interaction)
- Recording and archiving
  - Provides ability to hear and review synchronous class presentations

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Cautions about the Differences

- Asynchronous communication
  - Out of sight, out of mind
  - Assumption it can be fit with other activities
  - Assumption by others that it is deferable, not real
- Multiple simultaneous voices
  - Not manageable with larger class sizes, with one instructor
- Relative or actual anonymity
  - Reduces responsibility, accountability
- Multiple media
  - More to learn about, more to manage on a daily basis
- Archiving
  - Barrier to participation, awareness of persistence
  - Assumption that listening to archive replaces interaction
  - Ownership: who owns the text; who manages the archive

Why Does the Medium Matter?

- Need advance understanding of how each means of communication differs
  - To make the right use of the media available
  - To understand how it changes how people communicate
  - To understand and adjust for the effect on learning and social interaction
  - To consider how prepared students (and teachers) are for this new environment

Why Does the Medium Matter?

- Our perceptions of others affect our acceptance of them as real
  - Trust; Identity; Commitment to joint efforts
- The perception of the communication environment draws us into its reality
  - Online programs, online worlds
- The perception of others draws us into a jointly constructed reality
  - Group projects, online (virtual) communities, Multiplayer games
- Perceptions of others affect the way we treat relationships built and maintained online
  - Being trustworthy, staying committed

Conclusion

- CMC research informs E-learning research and practice
  - Lays the groundwork for understanding how interactions happen online, what relations are important, how groups work online
- Using CMC for E-learning
  - Use social and technical ways to promote social presence
  - Be aware of differences between computer-mediated and face-to-face communication and settings
  - Take advantage of CMC features
  - Enhance educational experience with attention to
    - Cognitive, Teaching, and Social Presence
    - Visibility, Relations, Co-presence
    - Online community
    - Social, technical and pedagogical immersion

Further Reading

CMC and E-Learning

- Reviews of the effects of Computer-Mediated Communication
  - Herring, S. C. (2002). Computer-mediated communication on the Internet. *Annual Review of Information Science and Technology*, 36, 109-168.
  - Haythornthwaite, C. & Hagar, C. (2004). The social worlds of the web. *Annual Review of Information Science and Technology*, 39, 311-346.
  - Haythornthwaite, C., & Nielsen, A. (2006). CMC: Revisiting Conflicting Results. In J. Gackenbach (Ed.) *Psychology and the Internet*, 2nd edition (pp. 161-180). San Diego, CA: Academic Press.
- Presence and Community
  - Garrison, D. R. & Anderson, T. (2003). *E-Learning in the 21st Century*. London: RoutledgeFalmer.
  - Haythornthwaite, C. (2002). Building social networks via computer networks: Creating and sustaining distributed learning communities. In K. A. Renninger & W. Shumar, *Building Virtual Communities: Learning and Change in Cyberspace* (pp. 159-190). Cambridge: Cambridge University Press.
- Learner Experience
  - Haythornthwaite, C., Kazmer, M.M., Robins, J. & Shoemaker, S. (2000). Community development among distance learners: Temporal and technological dimensions. *JCMC*, 6(1). http://jcmc.indiana.edu/vol6/issue1/ haythornthwaite.html
  - Kazmer, M. M. & Haythornthwaite, C. (2001). Juggling multiple social worlds: Distance students on and offline. *American Behavioral Scientist, 45*(3), 510-529.
  - Bregman, A. & Haythornthwaite, C. (2003). Radicals of presentation: Visibility, relation, and co-presence in persistent conversation. *New Media and Society, 5*(1), 117-140.
  - Haythornthwaite, C. & Bregman, A., Affordances of persistent conversation: Promoting communities that work. (pp. 129-143). In C. Haythornthwaite & M.M. Kazmer *Learning, Culture and Community in Online Education* (pp. 129-143). NY: Peter Lang.