



The Social Informatics of E-learning

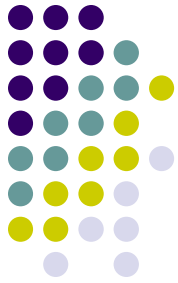
Caroline Haythornthwaite

Graduate School of Library and Information Science

University of Illinois at Urbana-Champaign

haythorn@uiuc.edu

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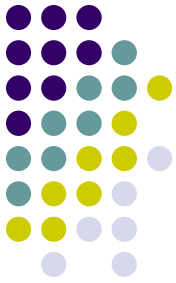
Promoting a *Social Informatics* approach to E-learning

- Aim for this presentation
 - Argue for the need to go beyond pedagogical considerations of e-learning to consider the e-learning enterprise as a whole
 - Show the relevance and importance of applying a social informatics perspective to e-learning
 - Present a framework for exploring the multiple inputs and outputs relating to e-learning
 - Discuss some of these inputs and outputs, as well as some wider impacts



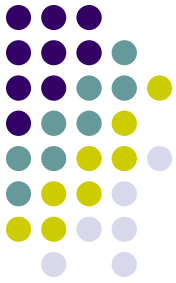
What is Social Informatics?

- Social Informatics
 - “interdisciplinary study of the design, uses, and consequences of ICTs [Information and Communication Technology] that takes into account their interaction with institutional and cultural contexts”
(Kling, Rosenbaum & Sawyer, 2005, p.6)
- An extension of *socio-technical perspectives* that looked at how technologies affected work, including
 - Efficiency studies - “time and motion” - for example in how much coal a worker could move with particular use of a shovel (Taylor, 1911)
- Show how context affected results even with the same technologies



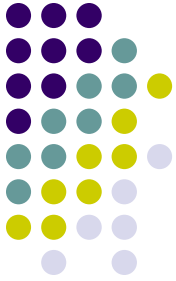
Why a Social Informatics of E-learning?

- More than pedagogy, e-learning is a socio-technical implementation
 - Subject to same influences, and having an influence in the same way as other information and communication technologies (ICTs)
 - 100+ year history of technology implementation and research
 - 30+ year history of ICT implementation and research



Why a Social Informatics of E-learning?

- Social Informatics
 - “interdisciplinary study of the design, uses, and consequences of ICTs that takes into account their interaction with institutional and cultural contexts” (Kling, Rosenbaum & Sawyer, 2005, p.6)
- Educational Informatics
 - “study of the application of digital technologies and techniques to the use and communication of information in learning and education” (Levy, et al, 2003, p. 299)
- E-learning Informatics
 - e-learning is “a problem at the meeting place of social, technical, administrative, and pedagogical considerations” (Haythornthwaite & Kazmer, 2004)



Short Review

- A short review of information technology (IT) history regarding socio-technical systems
- Showing the parallels in e-learning implementation



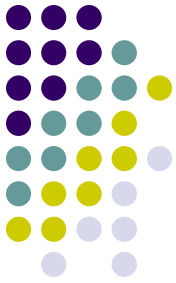
Observations from Early Computing and Parallels in E-learning

- **Computers automate and informate** (Zuboff, 1998)
 - Automated collection of transaction data creates an information trail
 - Increased ease of monitoring
 - The information stream then creates a need (desire) for computerized analysis
 - Attention is given to that which can be automatically captured, counted and analyzed
- **E-learning automates and informs**
 - Conversations, discussions, lectures persist in digital form
 - Reorientation of evaluation based on available data
 - Student participation countable by number, size, and timing of postings; Instructors activities recorded



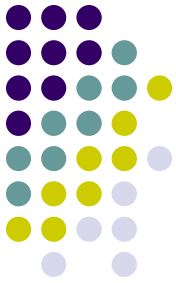
Observations from Early Computing and Parallels in E-learning

- Computers isolate workers (Zuboff, 1998)
 - Formerly social activities become computer-based activities, isolating workers at computer stations
 - Teleworkers are isolated from co-workers and managers
 - Computers are felt to create asocial environments for users (e.g., gamers, computer addicts)
- Computers isolate e-learners
 - E-learning has been depicted as isolating, with an individual working alone at their computer as in a correspondence model of distance education
 - But, the so-called isolated student may just as likely to be carrying on online conversations with many others



Observations from Early Computing and Parallels in E-learning

- Computer-based work makes people invisible
 - Formerly observable behaviors become invisible (e.g., being at one's desk)
 - Managers feel a lack of control over workers
 - Teleworkers are passed over for promotion
- Computer-based learning makes people invisible
 - Lack of visual feedback about distributed students' attention
 - Lack of instructor animation, such as gestures, voice tone
 - The 'reduced cues' view of CMC
 - Invisibility of attendance
 - Is the student who is 'signed-in' actually there?
 - Invisibility of identity, or presence
 - Only a 'name on the screen'
 - Student concerns about being recognized, and known online, of 'being there'



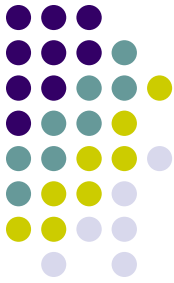
Further Examples from Early Computing and E-learning

- Interconnection affords data sharing
 - Standards emerge for automated data exchange
 - For example, 'Learning objects' standards
- Invisible work
 - Learning computer skills
 - Buying, maintaining, operating equipment and applications
- Prescriptive systems supplemented with permissive ones
 - MIS systems supplemented by permissive email, chat
 - Lectures supplemented by asynchronous bulletin boards, email (blended learning)
- Social communication finds a way
 - Comment fields in data forms carry chat, email as 'killer app'
 - Email, social bulletin boards, whispering in chat



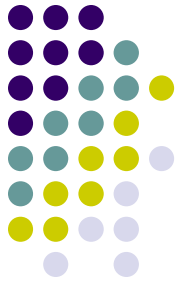
What's Different Now?

- **Co-evolution** of social and technical practices
 - Design from 'above' gives way to design that accommodates change
 - But is that so for current Course Management Systems?
 - Barab and colleagues write about design *in the service* of e-learning, rather than *for* e-learning
- **New design philosophies**
 - Participatory design is more prevalent
 - Rapid prototyping
 - Modular and user driven design
 - Mash-ups
 - Open-source



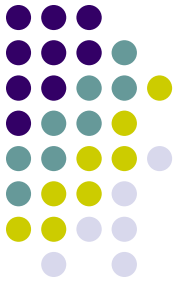
What's different now?

- Closed vs open socio-technical systems
 - Early systems were closed
 - Systems designed for in-house use
 - Employees trained to use systems
 - Systems are now open
 - Internet protocols, global operation and data exchange
 - Basics are outside control of institution:
 - email, bulletin boards, blogs, wikis, gaming, virtual worlds, internet, GIS
- Need to deal with both *institutional* and *cultural* contexts
 - Slow institutional change
 - Rapid change in social use
 - Blogging, texting, tweets
 - Social networking : Facebook, Orkut, Cyworld, Academia, LinkedIn



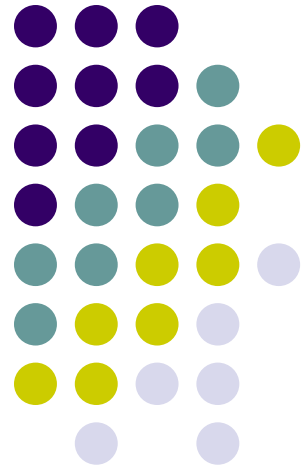
From Socio-technical To Social Informatics Perspective

- Management researchers observed that when systems were not aligned with practices
 - The system could change, the people could change, or both could change (Markus and Robey, 1983; Noble and Newman, 1993)
 - Technological *and* social determinism give way to recognition that computing systems and their use co-evolve according to the local context
- A socio-technical approach aims to optimize work processes by
 - Aligning social practices and technological support in the service of **work** outcomes
- A social informatics approach
 - Adds consideration of the embedding context, including institutional, community, and societal practices



Co-Evolution

- Socio-technical perspectives recognize the co-evolution of technology and practice
 - Literacy practices are affected by new technologies -- such as texting (SMS) -- that then affect expectations for new technologies -- for example Twitter
 - In Japan, novels have been written by texting
- Older practices transfer to new technologies
 - ‘Coterie publishing’ -- stories exchanged among groups of women -- is found again in LiveJournal (Rebaza, 2009)

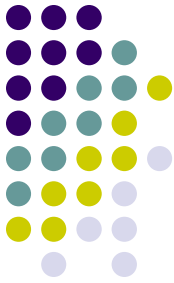


E-Learning Informatics



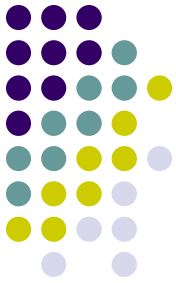
E-learning Informatics (EI) Perspective

- Applying a social informatics approach to e-learning means
 - Aligning social practices and technological support in the service of learning outcomes
- Beyond pedagogy, an informatics of E-Learning includes
 - Institutional practices, Learning practices, and embedding contexts
- Also a newly emerging **educational informatics** (Ford, 2008)
 - More concerned with computing aspects



El: Institutional Practices

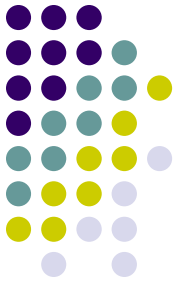
- Academic work practices
 - Accreditation; relation with professional associations
- Relations with stakeholders
 - Feeder schools, future and current employers
- Relations with institutional employees
 - Reward structures for teaching, for taking on new techniques
- Relation with resource providers
 - Role, place and funding of libraries and bookstores
 - Electronic journals and other online resources
 - Academic publishing, institutional employees publications, institutional repositories



El: Learning Practices

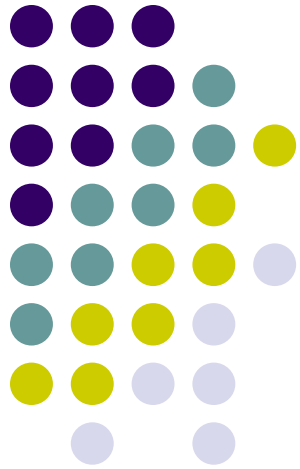
How people learn

- Processes of teaching and learning, course components in an institutional context, institutionalized evaluation procedures
- Differences for children, teens, young adults, older adults
- Power relations between instructors and students
- Place of collaboration and participation



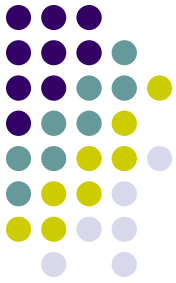
EI: Embedding Contexts

- Individual
 - Home, work, coffee shop, train
- Communities (regional and competitive)
 - Community standards, relations with other institutions, societal standards
- Societal trends
 - New technologies
 - User readiness and/or expectations of use
 - Information literacy
 - Reading and writing online, fluency with technologies, literate use of information sources
 - Information sources
 - Role and place of Internet-mediated resources (e.g., anything found on the web), and library-mediated resources (physical and digital libraries)



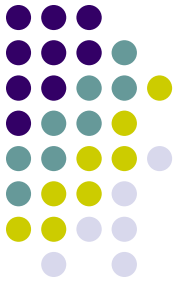
Examining E-Learning Effects and Outcomes

The beginnings of a framework



Four Prime Areas that Affect, and are Affected by E-Learning

- Administration
 - The decisions made about e-learning initiatives in education, and the decision makers who direct this agenda
- Pedagogy
 - The knowledge accumulated about teaching and learning, as well as the teachers and instructors who build and deliver courses
- Technology
 - Used narrowly as the delivery mechanisms for e-learning; primarily computer-based technology, including course management systems, email, the Internet, and newly emergent ICTs (e.g., digital libraries)
- Community
 - The potential and actual elearners and the communities they live in, both physical and virtual, on-campus and off



Actions and Outcomes

- **Action**
 - Primary Actions in one of the four areas that push (or drive) changes in on other aspects of education
- **Immediate outcome**
 - Practices directly transformed by the primary action
- **Later outcomes and effects**
 - Outcomes arising from changes inside or outside the local institution
 - Outcomes that emerge later in time



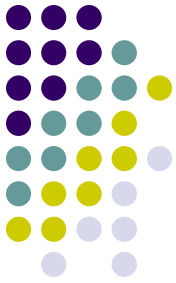
Teaching practices push changes in Administration

- Teachers
 - Early experimenters with new teaching technologies push class transformation, outreach programs, and distributed learning
 - A critical mass of experimenters, pushes up to create changes at the administration level
- External Practices drives Administration
 - The need to meet demand for new technology-based pedagogy drives administration to implement support mechanisms for e-learning, and support for those not yet teaching online



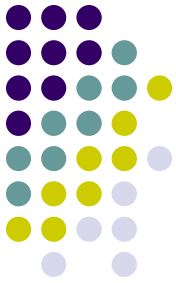
Teaching pushes change in Teaching

- General changes in how others teach stimulates changes in how we teach
 - Changes in teaching practice discovered and exchanged through professional organizations, research, and publications are adopted and incorporated into local practice



Teaching pushes change in Technology

- Teachers who adopt and experiment with technology in their classes join working committees that decide on technology adoptions
- E-learning technologies are adopted and implemented in response to opportunities for outreach, new pedagogy, etc.



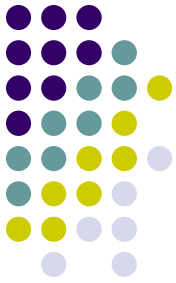
New teaching practices push change in local communities

- Distributed, online students need access to online resources, so they go out to public access points
- Need for library resources drives use of ‘local-to-them’ facilities, i.e., physical libraries geographically close to the student’s home base
- Use of local university libraries by non-enrolled students lead to new inter-organizational administrative practices
- Common use of online learning in universities leads high schools to implement online course requirements (ex., Michigan State School Board)



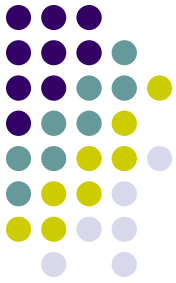
Society-wide changes affect teaching and e-learning

- Mobility, connectivity, convergence and affordability
 - E-learners become M-Learners
 - Low cost devices and connection fees drive anywhere connection and then drive 'mobile learning'
- Changing student base
 - Technology literate younger students
 - Place-bound adult learners needing upgraded knowledge
- Globalization
 - Multi-site, multi-cultural participation
- Online searching and retrieval
- Participatory Culture
 - Web 2.0 applications: blogging, tweeting, GIS, crowdsourcing



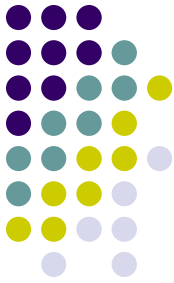
Effects Emanating from e-learning

- Dual learning of subject and technology
 - Triple learning if we add gaining skill in new learning practices
- Third shift (Kramarae, 2001)
 - Adding learning onto work and home shifts
- Latent tie structuring (Haythornthwaite, 2005)
 - E-learning co-presence lays groundwork for current relationships, and potentially for future collaborations
- Transformation of relationships
 - Redefinition of teacher-learner, student-student learning relationship, 'learner-leader model' (Montague, 2006)



Conclusion: Using IT history and Social Informatics to Inform E-learning

- Teaching and learning practices – whether online or off
 - Co-evolve with technology
 - Take from and feed into practices in the embedding organizational, institutional, and societal contexts
- E-learning implementation and developments demonstrate parallels with earlier trends in ICTs
- The *social informatics* approach provides an excellent foundation on which to explore and anticipate the changes driving, accompanying, and emanating from e-learning initiatives, and to build a foundation of ***educational / e-learning informatics***



E-learning Informatics

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