



Center for
**LifeLong
Learning
& Design**

University of Colorado at Boulder

**Wisdom is not the product of schooling
but the lifelong attempt to acquire it.
- Albert Einstein**

Collaborative Learning

**Gerhard Fischer and Leysia Palen
Spring Semester 1999**

April 5, 1999

Ivan Illich: “Deschooling Society” (1972)

Chapter 6: “Learning Webs

- to conceive a different style of learning
- people are learning many things outside of schools
- **Illich’s objectives:**
 - we can depend on self-motivated learning instead of employing teachers’
 - to bribe or compel the student to find the time and the will to learn
 - we can provide the learner with new links to the world instead of continuing to funnel all educational programs through the teacher

Criteria for a Good Educational System

- provide all who want to learn with access to available resources at any time in their lives
- empower all who want to share what they know to find those who want to learn it from them
- furnish all who want to present an issue with the opportunity to make their challenge known

Four Approaches

- **reference services to educational objects**
 - Gamelan
 - Educational Object Economy (EOE)
 - Agentsheets Behavior Exchange
- **skill exchange**
 - who do I tell?
 - who do I ask?
- **peer-matching**
 - communities of practice
 - communities of interest
- **reference services to educators-at-large**
 - PHOAKS: <http://www.phoaks.com//index.html>
 - Experts Exchange: <http://www.experts-exchange.com/>

Collaborative Learning: From Users to Co-Developers

Examples of Decentralized, Evolvable Information Repositories

- **Gamelan**
 - content: Java applets (an evolving community repositories of knowledge)
 - users: Java developers
 - <http://www.gamelan.com>
- **Educational Object Economy**
 - content: Java objects designed specifically for education
 - users: teachers and developers interested in producing educational software
 - <http://www.eoe.org>
- **Netscape Communicator**
 - distributed development and centralized integration
 - <http://www.mozilla.org>
- **Cathedral and Bazaar**
 - Linux operating system
 - <http://earthspace.net/~esr/writings/cathedral-bazaar/cathedral-bazaar.html>

An Example: PHOAKS (People Helping One Another Know Stuff)

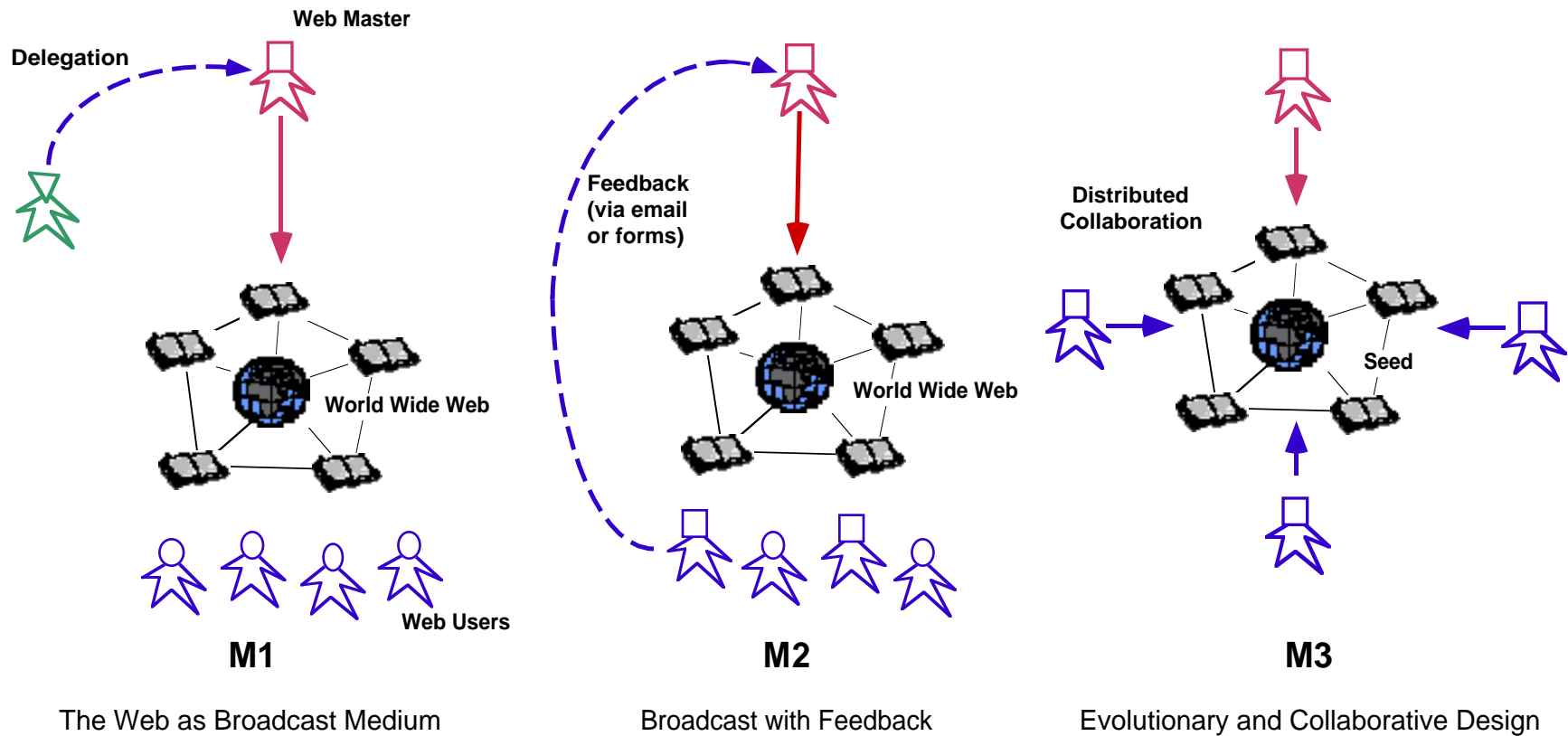
—
“Together we know it all”

- **PHOAKS:**
 - an experimental collaborative filtering site
 - help each other find appropriate and relevant web resources in a simple and timely manner.
- **how it works:**
 - People post their opinions of web resources in Usenet Netnews
 - Around the clock, PHOAKS reads, classifies, abstracts and tallies those opinions automatically
 - PHOAKS filters out most spurious and signature references
 - PHOAKS adds about 4,000 new opinions everyday

Experts Exchange — <http://www.experts-exchange.com/>

- Experts Exchange: they read Usenet news and try to match up people with questions with people who may have answers — the system seems like the logical extension to PHOAKS
- the system records who answers certain news questions and tries to point people to useful resources by linking them to appropriate experts
- it also allows for "experts" to provide authoritative answers to questions (Eric Scharff: I received automatic mail from them when my technical question posted to a newsgroup wasn't answered for a few days. The system pointed me to experts in the problem domain. — As it turns out, the "experts" couldn't answer my question either and I eventually solved it myself, but it seems like a good idea.)
- there is now motivation in the system by way of "points", and you earn points if the people who post questions like your answers.
- people post newsgroup questions and the system finds questions that don't get answers. They then make it to the experts exchange, where the system does some analysis to determine how difficult the question is. Experts have the option to be notified when possibly relevant questions enter the system and they can answer them.

Different Models of the World-Wide Web: From Broadcast to Collaboration Medium



A Research Agenda behind the EDC:

New Civic Discourses and Informed Participation

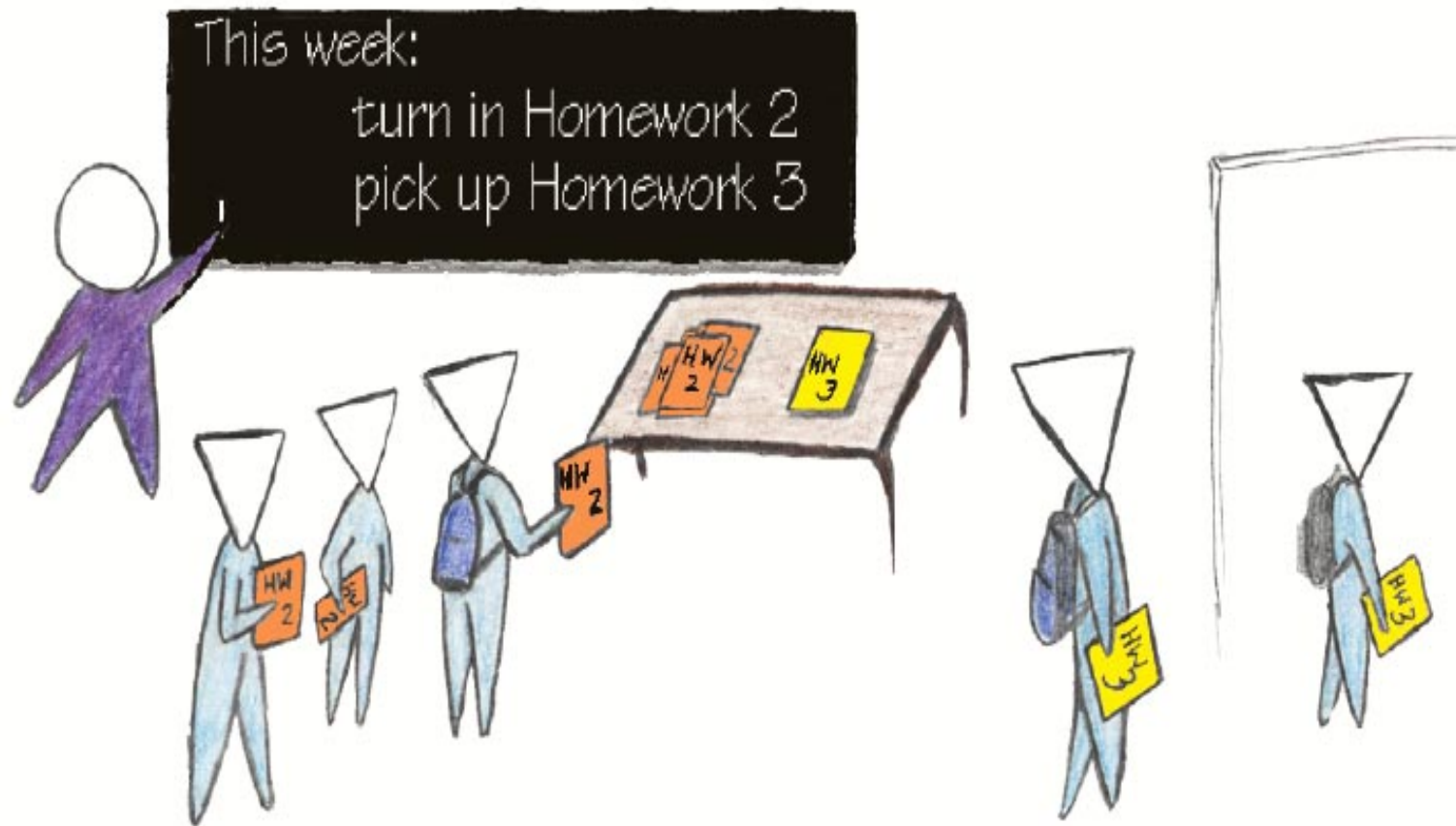
*“How can more than 261 million individual Americans define and reconcile their needs and aspirations with community values and the needs of the future? Our most important finding is the potential power of and growing desire for decision processes that promote direct and meaningful interaction involving people in decisions that affect them. **Americans want to take control of their lives**” (President’s Council on Sustainable Development, 1996, p.7).*

- new forms of civic discourse
- informed participation
 - we cannot really be informed unless we participate
 - we cannot really participate unless we are informed
- helping people help themselves

New Media for Learning: What are the Learning Theories behind Them?

- **from knowledge transfer to collaborative knowledge construction:** “a view of learning where omniscient teachers tell or show unknowing learners something is a greatly impoverished conception of learning and education”
- **a process model to support** to collaborative knowledge construction:
 - seeding, evolutionary growth, reseeding model
 - courses as seeds
- one of the major roles of new media is **not to deliver predigested information** to individuals, but to provide the opportunity and resources for social debate and discussion
- explore the **mutually constitutive relationship** of the individual and the social
- **teacher, learner = f{person} ----> teacher, learner = f{context}**
(see High Functionality Applications as an example for this claim)

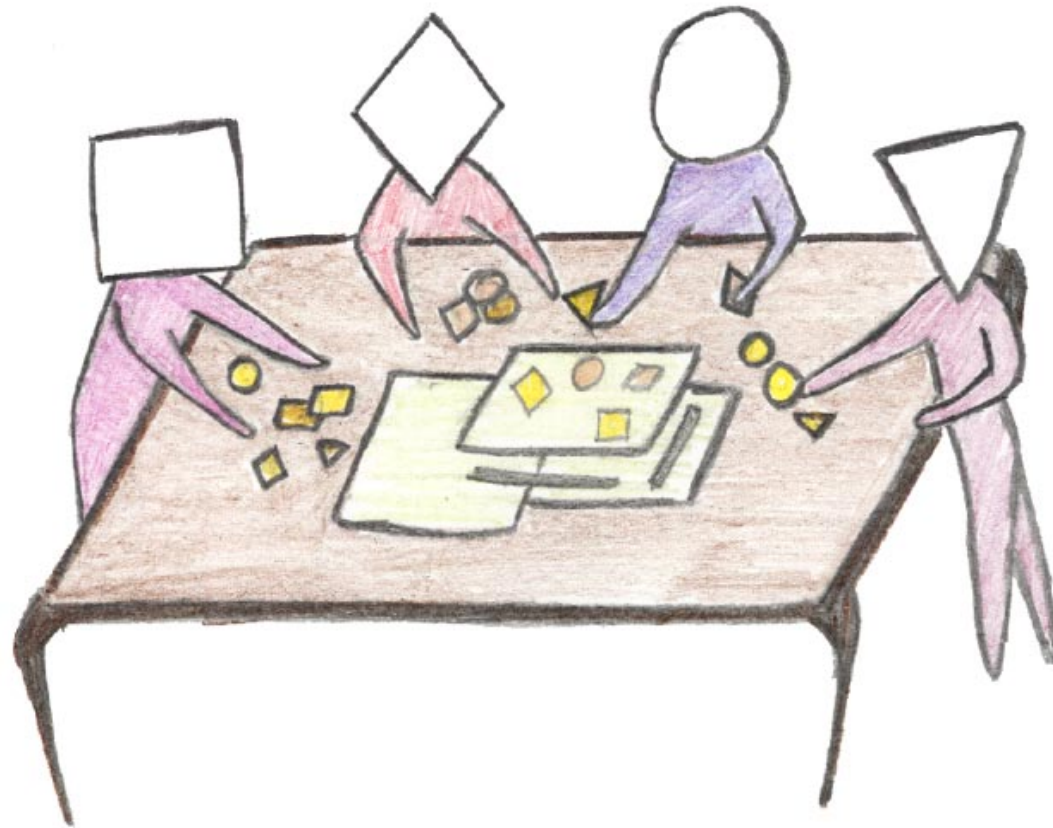
Passive Learning — The Teacher as the “Sage on the Stage”



Self-Directed Learning —The Teacher as "the Guide on the Side"



EDC — Learning is More Than Being Taught: Collaborative Knowledge Construction Using Externalizations to “think-with” and to “talk about”



Some References about Collaborative Learning

- Brown, J. S., Duguid, P., & Haviland, S. (1994) "Toward Informed Participation: Six Scenarios in Search of Democracy in the Information Age," *The Aspen Institute Quarterly*, 6(4), pp. 49-73.
- Illich, I. (1971) *Deschooling Society*, Harper and Row, New York.
- Koschmann, T. D. (Ed.) (1996) *CSCL: Theory and Practice of an Emerging Paradigm*, Lawrence Erlbaum Associates, Mahwah, NJ.
- Bereiter, C. & Scardamalia, M. (1996) "Rethinking Learning." In D. R. Olson & N. Torrance (Eds.), *The Handbook of Education and Human Development: New Model of Learning, Teaching, and Schooling*, Blackwell Publishers, Cambridge, MA, pp. 485-513.
- Collins, A. M., Brown, J. S., & Newman, S. E. (1989) "Cognitive Apprenticeship: Teaching the Crafts of Reading, Writing, and Mathematics." In L. B. Resnick (Ed.) *Knowing, Learning, and Instruction*, Lawrence Erlbaum Associates, Hillsdale, NJ, pp. 453-494.
- **a conference:** Computer Support for Collaborative Learning'99
 - - <http://learninglab.stanford.edu/CSCL99>
 - - Stanford University, Stanford California USA on December 12-15, 1999