EECE 571W

Week 2:
Social Networks and Group Work

History: Grudin

- "Office Automation"
  - Failed experiment
  - Never understood requirements
  - Effect of technology on groups and vice versa was ignored
  - What Engelbart calls "co-evolution"

CSCW & Groupware

- CSCW *(post 1984)*
  - Learn from other disciplines:
    - Economics
    - Social psychology
    - Anthropology
    - Organizational behaviour
    - Education
  - *CSCW* = field of research
  - *Groupware* = technology

Groupware Typology

		Time		
		Same	*Different & predictable*	*Different & unpredictable*
Place	*Same*	Meeting facilitation	Work shifts	Team rooms
	Different & predictable	Video-conferencing	Email	Collaborative writing
	Different & unpredictable	Interactive multicast	Computer bboards	Workflow

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Grudin's Eight Challenges

1. Disparity in work & benefit
2. Critical mass and Prisoner's dilemma
3. Disruption of social processes
4. Exception handling
5. Unobtrusive accessibility
6. Difficulty of evaluation
7. Failure of intuition
8. The adoption process

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1. Disparity in Work & Benefit

- Systems are designed to benefit one group of users and require effort from a different group
  - E.g. management vs. office workers

- *Unless those required to do the work to make a system work get direct benefit from so doing, the system will fail.*

2. Critical mass and Prisoner's Dilemma problems

- Systems designed to be useful only if "everyone" uses them
  - Little incentive for early adopters
  - One or two defectors can derail effort

- *Design systems so that both individuals and groups benefit*

3. Disruption of Social Processes

- Groupware systems can violate taboos, disrupt chains of command, or demotivate critical users
  - Social structures vary greatly from group to group
- *Need to understand deployment environments and develop systems with very flexible configuration and patterns of use*

4. Exception Handling

- Most *actual* work is in handling exceptional situations but groupware systems tend to make handling these difficult or impossible

- *Avoid over-automation of processes in favour of flexibility and creativity. Understand how work is actually done.*

5. Unobtrusive Accessibility

- Often group-oriented tasks are used infrequently, so difficult for users to remember how to access and exploit them
- *Need to be based on transparent and "explorable" interfaces where groupware features don't interfere with individual work*

6. Difficulty of Evaluation

- Hard to learn from experience because benefits of groupware are hard to quantify and decompose

- *Need better, more qualitative, ways of understanding impact and effects of groupware systems*

7. Failure of Intuition

- Typical developers unable to predict effects of multi-user capabilities. Intuitions built around single-user applications

- *Need to understand sociology and psychology of group work in design process and have better understanding of relationship between group and individual work*

8. The Adoption Process

- Means of introducing new technologies is critical to their success but often ignored
  - Especially critical for groupware because of Challenge #2: Critical Mass
- *Take "tool" and "organizational" inertia as given factors and develop deployment strategies that respect them*

Social Network

Group of people with common interest who regularly communicate and share information
Share:
  - Common knowledge
  - Communication paths
  - History and plans
Vary by above factors +
  - Physical distribution
  - Scale

Community Types

Communities of Place
  - Common location
Communities of Purpose
  - Common goals
Communities of Interest
  - Common topic of attention
Communities of Practice
  - Common skills and problems

Cultural communities
  - Common cultural and social background
Communities of Status
  - Common standing in larger communities
Communities of Method
  - Common methodology
Learning communities
  - Common learning objectives

Community of Place

Shared:
- Location
- Political structures
- Needs (services etc.)

- Traditional definition of community
- Sociology and anthropology

Community of Purpose

Shared:
- Goals

- Exist at many scales (e.g. organizations)
- Often called "teams"
- Focus of groupware technology
- Organizational behaviour & MIS

Cultural Community

Share:
- History
- Social structures and relationships

- Religion, language and ethnicity
- Sense of common destiny
- Tend to be exclusionary and xenophobic

Community of Interest

Share:
– Topic of interest

- Hobbyists, clubs etc.
- Membership by choice
- Typically passionate and motivated

Community of Practice

Shared:
– Problem domain
– Set of skills

- E.g. Professional organization, standards body, or experts within organizations
- Etienne Wenger coined term
- Focus on sharing skills and experiences

Community of Status

Share:
– Standing within other communities

- Unions, student and faculty associations
- May exist within or across enclosing communities
- Membership is very fluid

Community of Method

- Share:
  - Means of accomplishing tasks

- E.g. Functional vs. Structural Anthropologists, qualitative vs. quantitative researchers
- Kind of Community of Practice
- Often divisive force within other communities

Learning Community

Share:
  - Topic of interest
  - Learning objectives

- E.g. class, university department, …
- Kind of comm. of *purpose*, *interest* and *status*
- Tension between collective and competitive goals

Cooperation vs. Collaboration

- Relationships between people with common interests and goals

Cooperation:
  - Active non-interference with others goals
Collaboration:
  - Common work toward common goals

Community vs. Technology

- If a community is supported by *computer-mediated communication* then what must the CMC look like?
- How do the needs of the different kinds of communities match with particular CMC technologies?
- What is the effect of CMC on the communities?

CSSNs

Computer-Supported Social Networks
  - Computer technology to support social networks
  - "Wellman, Salaff etc. (1996)"
- Only three aspects
  - Virtual community
  - CSCW
  - Telework

Kinds of Support Provided

- Exchange of information
  - Sharing common knowledge
  - Planning and decision making
  - Events and schedules
- Social and personal
  - Sense of community membership
  - Emotional support

Relationships

- Specialized ties
  - Limited, special purpose relationships
- Strong ties
  - Long-term friendships and common destiny
- Weak ties
  - Identity and stability less important
- Stressful ties
  - Defined by potential or actual conflict

CSCW Observations

"Ackerman (2000)"

- Incentives are critical
- Social activity is fluid and nuanced
- Goals vary within communities
- Presence is important
- Visibility enhances communication
- Social norms are actively negotiated
- Co-evolution is a fact

"Grudin (1994)"

- Work vs. benefit
- Disruption of social processes
- Critical mass
- Exception handling
- Unobtrusive accessibility
- Difficulty of evaluation
- Failure of intuition
- The adoption process

Social/Technological Gap: P3P Example

- Users want to control sharing with a combination of recipient and data to be shared
  - "Wicked Problem" – ill-defined and intractable
  - User interface problems come from fluidity of relationships and users' lack of explicitlness of the implications of those relationships

Approaches

1. Treat CSCW as a "science of the artificial"
   - Adopt co-evolution strategy
2. Adopt palliative approaches
   - Ideological, Political and Educational
3. Find tractable approximations
   - Simplify "wicked" problems and manage complexity
4. Agree on guiding questions

Guiding questions

- When can computation system ignore need for nuance and context?
- How and when can computer systems make up for loss of nuance and context?
- Can we systematize understanding of benefits and losses of the approximate solutions?
- What types of future research will narrow gaps between technical possibility and peoples expectations?
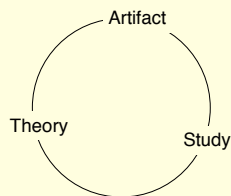
Co-Evolution

- Technology affects community
- Community should affect technology
- Both must be treated as dynamic and responsive
- Change in both should be studied and managed

Artifact

Theory　　　Study