

Issues in Groupware Design

CSCW



CSCW Basics

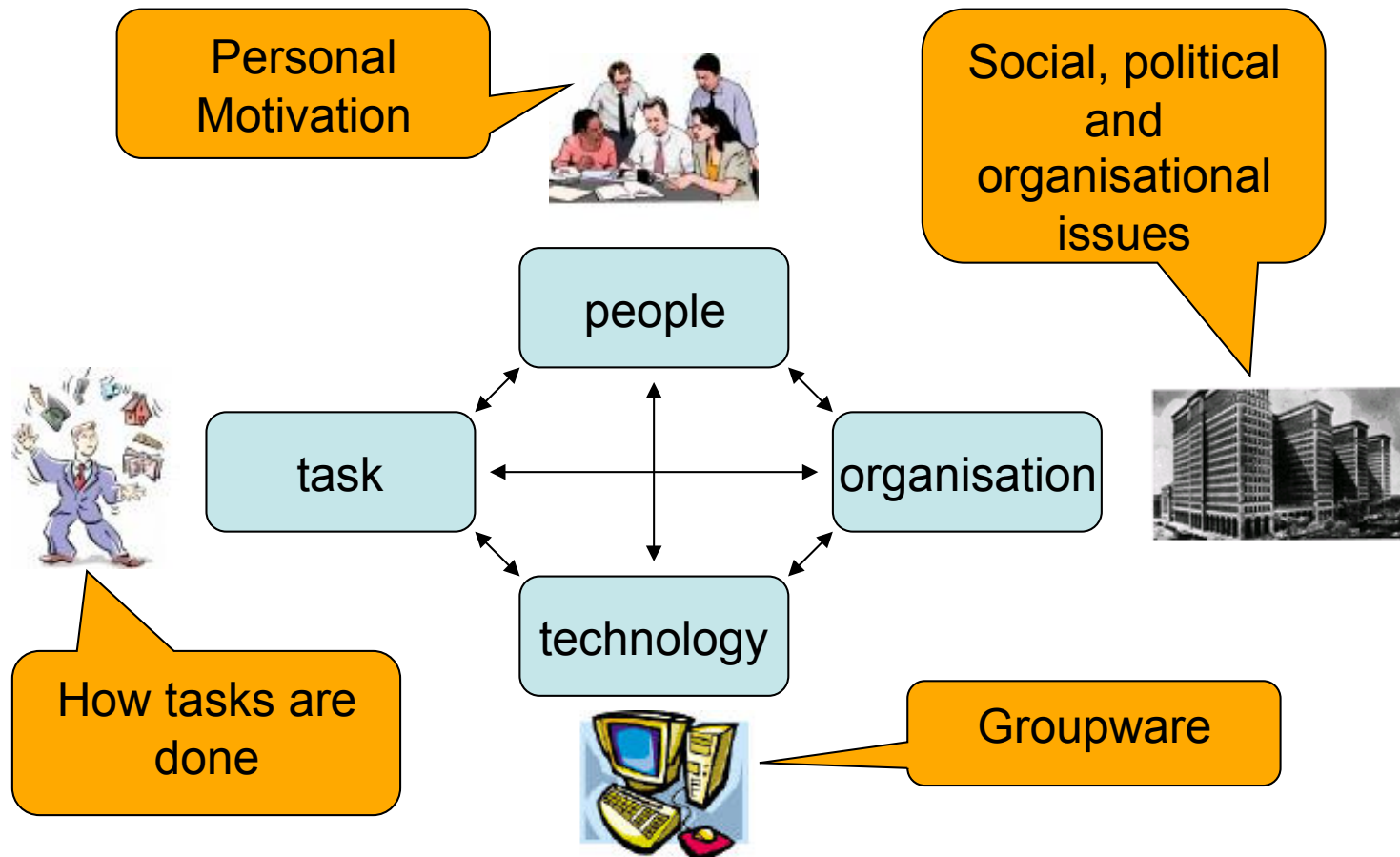
- Intro to Group Work
- **Intro to Groupware**
- **Design of Groupware**
- Evaluation of Groupware



Learning outcomes

- After attending this lecture and reading the additional literature you should be able to:
 - Explain the impact that groupware could have on individuals
 - Discuss how people, teams, organisations and technology determine the success of groupware design
 - Introduce the concept of awareness in a variety of forms
 - Recognise the characteristics of groupware technology that may enable team members to coordinate their activities

The impact on groupware

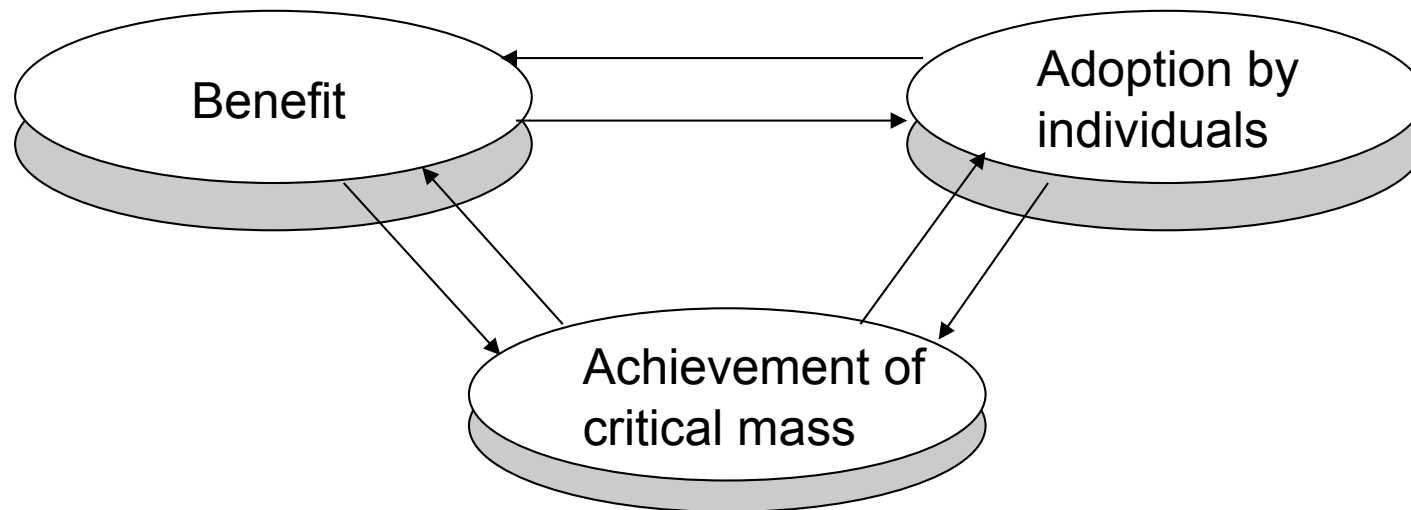


The Problem of Critical Mass

- No groupware technology will work unless a high percentage of team members use it
 - Access to technology?
 - Availability of technology?
 - Ability to use groupware technology?
- As a central coordination tool, ALL team members must be able to satisfy these conditions



The 'Vicious circle'



Personal Motivation

- Individual effort versus team benefit
 - There is always an individual cost to using groupware technology
 - Effort to use and effort to maintain
 - Automatic meeting scheduler
 - Benefit lag
 - Nobody expends effort needlessly
 - Prisoner's dilemma problem
 - Nobody wants to be the first, but somebody has to pioneer the use of the technology
- Design for the individual



Social and Political Issues

- Disruption of the social dynamics of groups
 - Violating social taboos
 - Ignorance of tacitly understood knowledge
 - Too rigid communication patterns ()
 - Challenging organisational politics
 - Decisions are not always rational
- Recognise the problem and avoid making assumptions
 - Investigate work place practices
 - User-participation in design



Organisational Issues

- Lack of support for exception handling and improvisation
 - There is a difference between the way things are supposed to work and how they actually work
 - Standard procedures may not be productive
 - Passive strike by ‘working to rule’
- Recognise that a lot of problem solving is *ad hoc*
 - People don’t like the rigidity of long term planning

Why do you think Email is such a successful tool?

- Think about the things that have determined the adoption of email
- What are the criteria that suggest that email is indeed a success?
 - Think about it for a few minutes
 - Then discuss these questions in small groups

Design principles

- Maximise Personal Acceptance
- Minimise requirements
- Minimise constraints
- Increase external integration

Maximise Personal Acceptance

- Add appealing features, but watch out that ‘bells and whistles’ do not take over
 - Increasing instant user-appeal
- Adopt “The Reflexive Perspective” of the person as a group
 - Different places of work
 - Different roles
- Recruit “Champions” and “Evangelists”
 - Promote the use of the system

Minimise Requirements

- Avoid dependence on user actions
 - Do not rely on users providing structured information
 - Use information that is available for free
 - Use header information in email to build an address book
 - Automation by introducing intelligent user agents
- Enable shifts of costs and benefits
 - The person getting the benefit will have to burden the cost
 - If the benefit shifts, the cost should also shift
 - May not be compatible with a hierarchical organisation structure

Minimise Constraints

- Be aware of the two level perspective of technology
 - What is possible?
 - How will it be used?
- Beware of rigid models and theories
 - Workflow tailoring
- Use open and unconstraint systems

Increase external integration

- Reduce transitions
 - Seamless transition between
 - Individual and group work
 - Phases of the group process
 - Work mode
 - Time
 - Video fusion (e.g., ClearBoard)
- Minimise dependence on structure and format
 - Use standardised formats
- Avoid dependence on implementation platform
 - Web-based tools and services

Awareness:

Common understanding:

- What's going on?
 - Activity/Workspace awareness
 - Synchronous
 - Asynchronous
 - Informal awareness
 - Who is around and what are they doing?
 - Group-structural awareness
 - Organisation/ Workflow etc.
 - Social awareness
 - giving group members information helpful for making sense of others' actions, such as background on team members' beliefs and knowledge'

Awareness mechanisms

- Involves knowing who is around, what is happening, and who is talking with whom
- Peripheral awareness
 - keeping an eye on things happening in the periphery of vision
 - Overhearing and overseeing - allows tracking of what others are doing without explicit cues

Designing technologies to support awareness

- Provide awareness of others who are in different locations
- Workspace awareness: “the up-to-the-moment understanding of another person’s interaction with the shared workspace” (Gutwin and Greenberg, 2002)
- Examples: ReactTable and Reflect Table

The Reactable experience



The Reflect Table



The Dynamo system



[http://www.informatics.sussex.ac.uk/
research/groups/interact/previousSite/
projects/Brignull-Dynamo.mov](http://www.informatics.sussex.ac.uk/research/groups/interact/previousSite/projects/Brignull-Dynamo.mov)

Notification systems

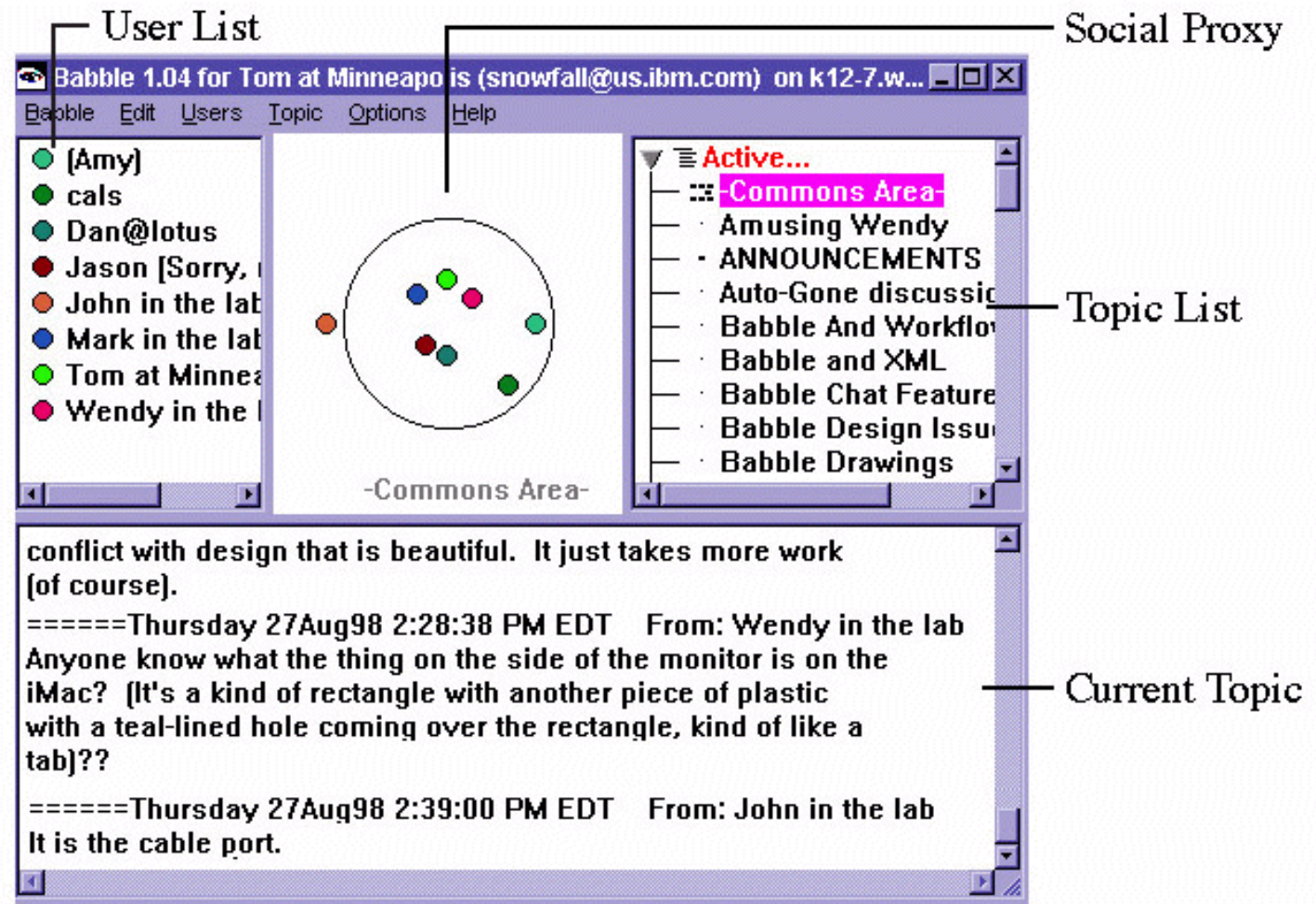
- Users notify others as opposed to being constantly monitored – implicit notification
- Provide information about shared objects and progress of collaborative tasks
 - example: Babble

Babble (IBM, Erickson et al, 1999)

Circle with marbles represents people taking part in conversation in a chatroom

Those in the middle are doing the most chatting

Those towards the outside are less active in the conversation



Lifelogging

- Lifelogging
 - recording everything in one's life and sharing
- Micro-chatting
 - beyond twittering and chatroulette?

Reflexivity

Life logging should support reflexive thinking about themselves

Objective: create artifacts supporting awareness on themselves and their own life.

Personal Information Management is about tools supporting self management: it is about habits and their consequences on people

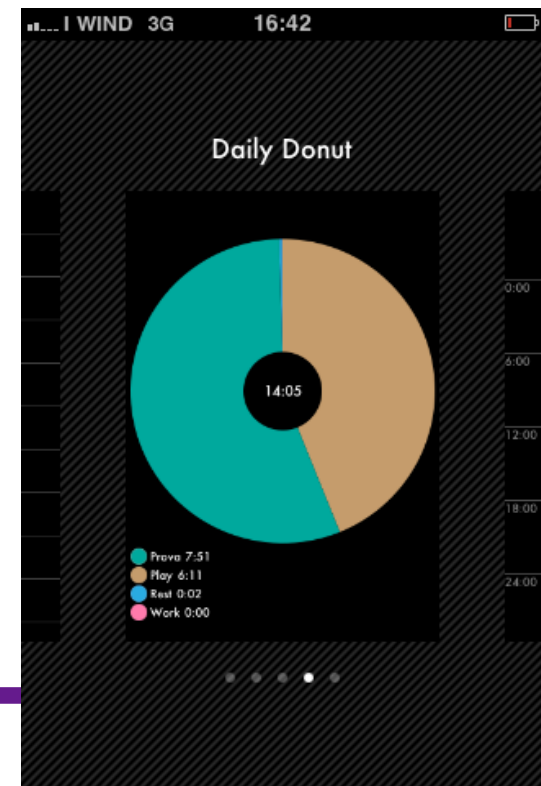
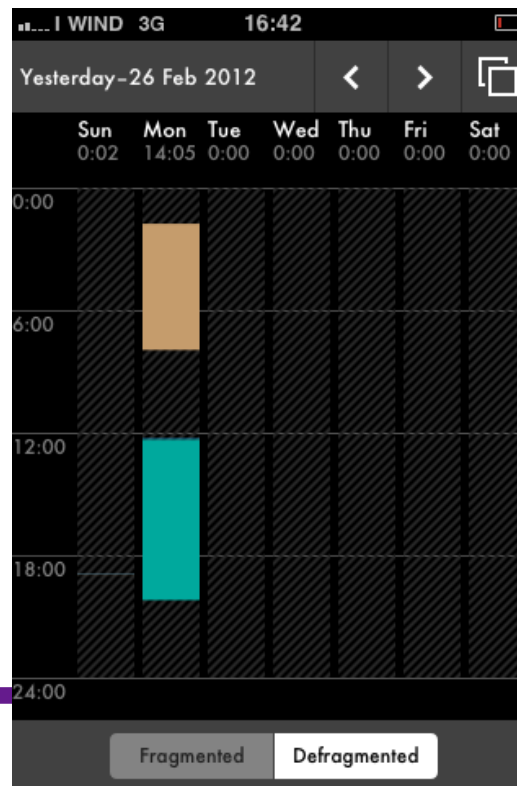
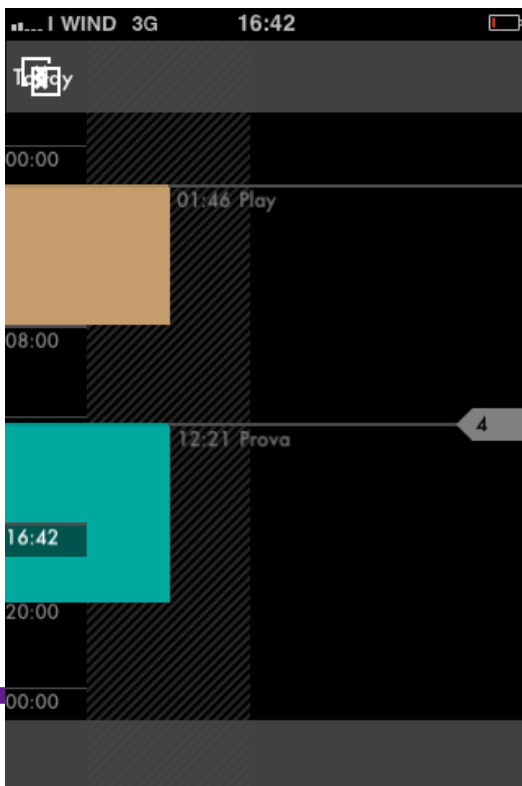
Our role: providing artifacts to make people let them know themselves.

supports for their reflexive thinking about routines and about what people are doing and where they are going toward. E.g. “The Reflective Practitioner (Shon, 1987), Human Reflexivity and Social Mobility (Archer, 2007).

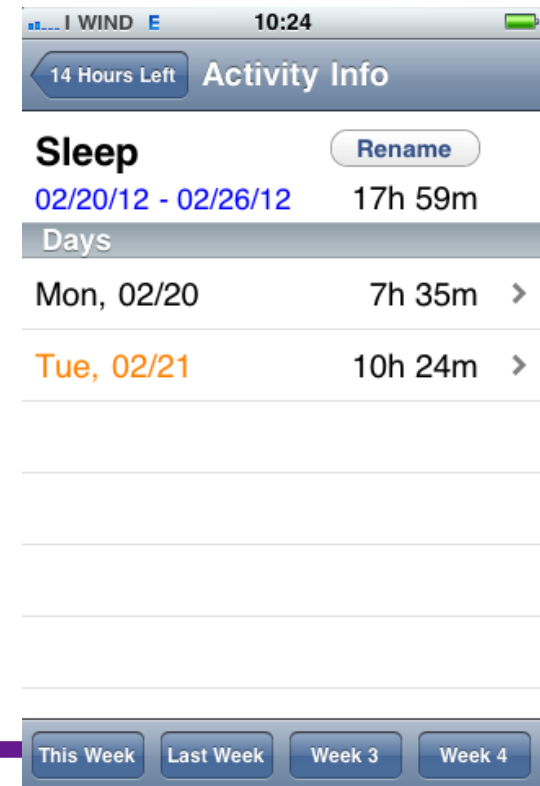
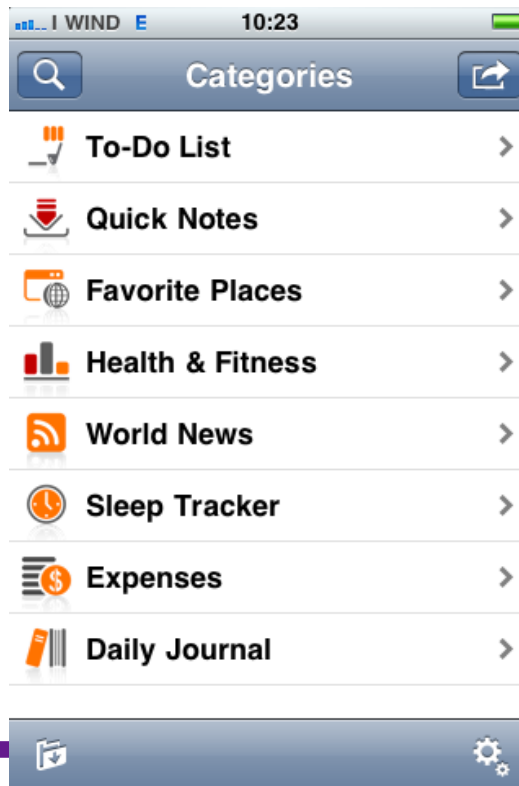
Time management

Allow people to track activities and have graphs to compare and share
Some applications have social networks updating people on others' current activities

Can be based on self report or on chronometers



Time management can keep track of the most different activities....





USER NAME:

PASSWORD:

Sign in

(REMEMBER ME ON THIS COMPUTER)

HELLO...

DAYTUM HELPS YOU COLLECT, CATEGORIZE AND COMMUNICATE YOUR EVERYDAY DATA.

START USING DAYTUM

BEGIN COLLECTING AND EXPLORING YOUR DATA TO REVEAL THE BIGGER PICTURE. [LEARN MORE...](#)

CREATE YOUR ACCOUNT

Submit Email

WHO USES DAYTUM?



[RYAN](#) USES DAYTUM

3502.5 BIKE M



[BUDTZY](#): (LESS 1
ADDED 1.0 COFFEE




An issue of Privacy

Basic Directory Information

To help real-world friends find you, some basic information is always open to everyone. We suggest also setting basics like hometown and interests to everyone so friends can use those to connect with you. [View settings](#)

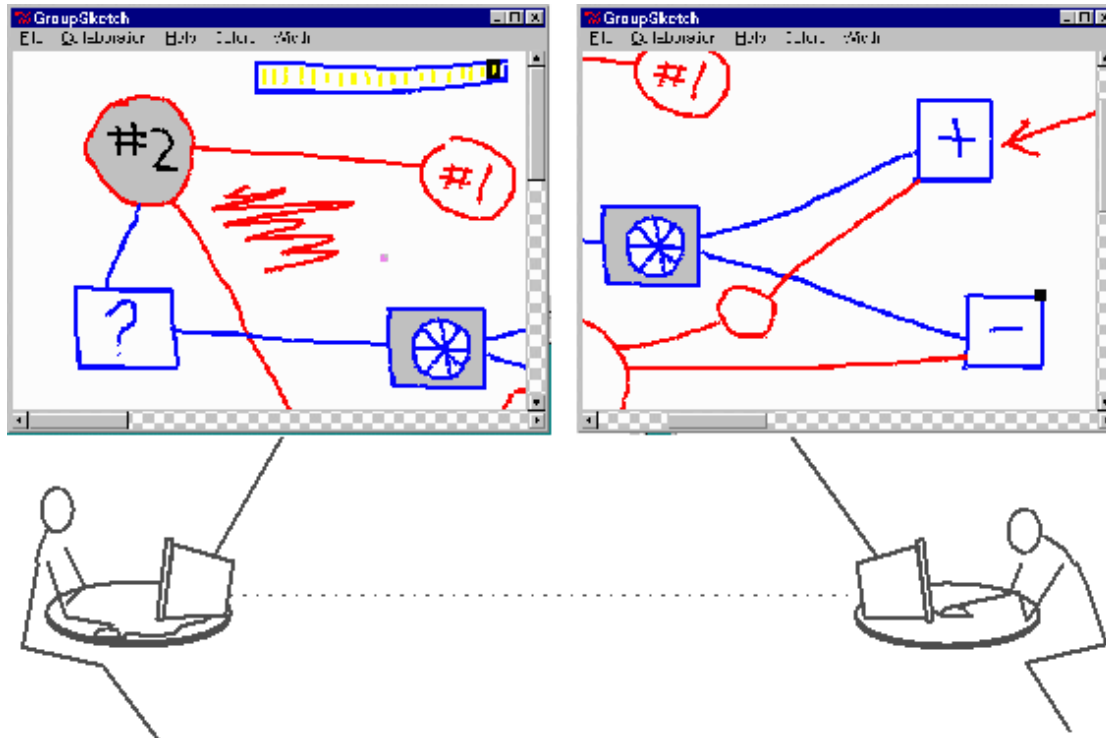
Sharing on Facebook

	Everyone	Friends of friends	Friends only	Other
Everyone				
Friends of friends				
Friends only				
Recommended				
Custom 				
My status, photos, and posts	<input type="checkbox"/>			
Bio and favorite quotations	<input type="checkbox"/>			
Family and relationships	<input type="checkbox"/>			
Photos and videos I'm tagged in		<input type="checkbox"/>		
Religious and political views		<input type="checkbox"/>		
Birthday		<input type="checkbox"/>		
Can comment on posts			<input type="checkbox"/>	
Email addresses and IM			<input type="checkbox"/>	
Phone numbers and address			<input type="checkbox"/>	
Why are these settings recommended?				
Customise settings				Apply These Settings

Synchronous Activities:

- What You See Is What I See: WYSIWIS
 - Consistent presentation of shared information
 - Strict form
 - Scroll wars
 - Window wars
 - Relaxed forms (WYSIWITYS)
 - Separation of workspaces
 - Personalised layouts and views
 - Time divergence

Relaxed WYSIWIS



In relaxed-WYSIWIS systems like this one, the awareness problem is particularly severe. Any information about where the other person is working or what they are doing can only be gathered through laborious verbal communication.

Further Reading

- Jonathan Grudin – Eight Challenges for Developers
- Andy Cockburn and Steve Jones – Four Principles of Groupware Design

