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 what groupware is
  - Recognise examples of groupware and
  - Use a taxonomy for categorising groupware applications

The Context

Familiar Examples

- Electronic Communication
  - Email
  - Instant messaging
    - ICQ, Windows Messenger
  - Electronic chat
    - In chat rooms on the Web
    - Netmeeting
  - Discussion lists
  - Forums

Not so Familiar Examples

- Electronic Whiteboards
  - Mimio ------------------------→
- Shared file spaces
  - ftp
  - Shared databases (Lotus Notes)
- Workflow and work management systems
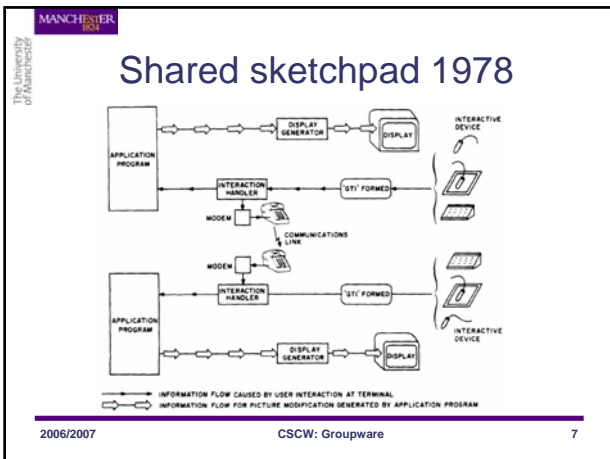 - Open diaries (MS Exchange)
  - Work schedules

In the beginning

- Douglas Engelbart and colleagues at Augmented Research Centre of Stanford Research Institute
  - Multimedia access to a networked computer system
    - The first mouse
    - Hypertext
    - Multiple Windows
    - On-screen video conferencing
  - Video available for viewing on http://sloan.stanford.edu/MouseSite/1968Demo.html

Shared sketchpad 1978

Timeline

- Mid-1960's: Engelbart's AUGMENT
- Early 1970's: Electronic mail, audio and video teleconferencing
- 1978: Sawchuck et al.: Shared sketchpad
- 1982: 'Groupware' coined (Johnson-Lenzes) and decision support systems
- 1984: Greif and Cashman coin 'Computer Supported Cooperative Work'
- 1988 – Present: POW!

Space-Time Matrix

	SAME TIME	DIFFERENT TIME
SAME PLACE	Whiteboards, projectors Recording devices	Messages, documents Shared data stores
DIFFERENT PLACE	Telephone Videoconferencing Shared workspaces	Mail Shared data stores

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What groupware have you used?

- Think about your experiences with groupware.
  - What groupware have you used?
  - In which categories do these fall?
- What would you say were particularly good or bad experiences?
  - As an individual
  - From a Team perspective

Definition

- Groupware is a generic term for specialized computer aids that are designed for use by collaborative work groups…Groupware can involve software, hardware, services and group process support.
  - Groupware provides an interface to a shared environment.
  - Provides synergistic mechanisms for coordinating each user's actions with respect to the rest of the group and the system.
  - In contrast to individual data processing, with groupware **collaboration / cooperation/communication** are important issues.

What should groupware do?

- **Provide communication between group members**
- Collaboration
  - Provide organisation and common understanding of the work processes and other people
    - Awareness support
  - Support decision making and problem solving

Synchronous computer-mediated communication

- Conversations are supported in real-time through voice and/or typing and/or video
  - One-to-one?
    - Over the phone – G3 mobile phones
    - Instant messaging (IM)
    - CVE
    - Web chat
  - One-to-many?
    - Video link/Speaker phone
    - Web chat (Netmeeting) – **CT434 mailing list**
    - CVE
  - Many-to-one?
    - "class feedback"
    - Portholes
  - Many-to-many?
    - Video Conference between sites (Hypermirror)

Collaborative virtual environments

The rooftop garden in BowieWorld, a Collaborative Virtual environment (CVE), supported by Worlds.com. Users take part by "dressing up" as an avatar. There are 100s of avatars to choose from, including penguins and real persons. Once an avatar has entered a world they can explore it and chat to other avatars.

Source: www.worlds.com/bowie

Second life

- A virtual world with a separate economy
  - Virtual cities with shops, jobs
  - Spaces and bodies are bought for money
  - Virtual University – Red light district
- http://secondlife.com/

Hypermirror (Morikawa and Maesako)

– allows people to feel as if they are in the same virtual place even though in physically different spaces

1) People in different places are superimposed on the same screen to make them appear as if in same space

(woman in white sweater is in a different room to the other three)

Creating personal space in Hypermirror

2) Two in this room are invading the 'virtual' personal space of the other person by appearing to be physically on top of them

3) Two in the room move apart to allow person in other space more 'virtual' personal space

Everyone happy?

No, when the two people start talking to each other, the person standing virtually between them feels awkward

Beware: strange things may happen!!

Asynchronous Communication

- Communication takes place remotely at different times
- Email, newsgroups, computer conferencing, IBM Babble
- Benefits include:
  - Read any place any time
  - Flexible as to how to deal with it
  - Powerful, can send to many people
  - Can make saying things easier
- Problems include:
  - FLAMING!!!
  - Spamming
  - Message overload
  - False expectations as to when people will reply

Babble (IBM)

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.

Model of Groupware: Part 1

Email
IM
Video

Bulletin board
News groups

- Computer mediated communication
  - Peer-to-peer
  - Through shared space

What should groupware do?

- Provide communication between group members
- Collaboration
  - Coordinate and control shared objects
  - Provide organisation and common understanding of the work processes and other people
  - Support decision making and problem solving

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- Video Arms

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Shared Objects

- Collaborative editors
  - Asynchronous
    - MSWord
  - Synchronous
    - Synchronous Asynchronous Structured Shared Editor (Sasse)
    - Shared Whiteboard (Clearboard)
    - Has to deal with problems of concurrency

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Clearboard (Ishii et al, 1993)

– ClearBoard - transparent board that shows other person's facial expression on your board as you draw

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Portholes (Xerox PARC)

Regularly updated digitized images of people in their offices appeared on everyone's desktop machines throughout day and night

Workflow management/ coordination systems

- Form based systems
  - Model the dataflow within organisations
- Calendar systems
  - Contingency checking
- Workflow systems
  - Automate business process
  - Automatically implement policies and best practice

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Decision Making

- Business Intelligence Tools
- Multi-Dimensional Analysis
- Data Mining
- Information Visualisation
  - Spotfire

Spotfire Decision Support
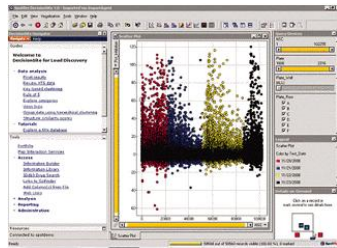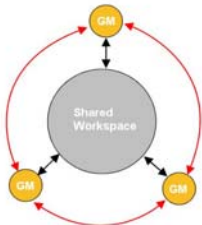
Model of Groupware: Part 2

- Coordination of shared workspace
  - Concurrency
  - Security/Access
  - Organisation
  - Awareness

Further Reading

- Preece et al. – Interaction Design, Chapter 4
- Borghoff & Schlichter, pp. 87- 150
- ACM Proceedings of the CSCW conference (through ACM Digital library)