Collaboration

• Goals of Cooperation
  – Focused partnerships
  – Lecture or demo
  – Conference
  – Structured word processor
  – Meeting and decision support
  – Electronic commerce
  – Tele-democracy
  – Collaboratories
  – Telepresence

Time/space matrix

<table>
<thead>
<tr>
<th>Same Place</th>
<th>Same Time (synchronous)</th>
<th>Different Times (asynchronous)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(co-located)</td>
<td>face to face (classrooms, meeting rooms)</td>
<td>asynchronous interaction (project scheduling, coordination tools)</td>
</tr>
<tr>
<td>Different Places</td>
<td>synchronous distributed (shared editors, video windows)</td>
<td>asynchronous distributed (email, listservs, conferences)</td>
</tr>
</tbody>
</table>
Asynchronous distributed interfaces:
Different place, different time

- Electronic mail:
  - can be too loosely structured
  - sometimes overwhelming
  - transient
  - tools
    - filtering
    - archiving
    - mailing lists
    - discussion groups
  - typically text-only, but increasingly includes other structured objects
    - graphics
    - sounds
    - animations
    - web pointers
    - video

Asynchronous distributed interfaces:
Different place, different time (cont.)

- Electronic mail (cont.):
  - In 2003, AOL reported 80% of email that entered its system was spam suppressed by filters
  - Online directories
  - Web services with E-mail
    - E.g. Hotmail, and Yahoo! Mail
  - Email on mobile devices
Asynchronous distributed interfaces: Different place, different time (cont.)

- Newsgroups, listservers, discussion boards, conferences, blogs, and wikis
  - Focused electronic discussions by group of people
  - Individual must subscribe to receive e-mail notices
  - May be moderated by a leader
  - May be post reflector
  - Server machine keeps searchable archives of past notes and subscriber list
  - USENET newsgroups
    - Each group dedicated (more or less) to one topic
    - Some noted as easy previous notes and related comments as they wish
  - Online conferences
    - In addition to历年 tools, may also include additional facilities
  - Wikis
    - Online directories of comments
    - Online directories of documents
  - Online magazines and newsletters
  - Web-log/blogs and wikis
Social Networks Research

Synchronous distributed interfaces:
Different place, same time

• **Synchronous distributed applications**
  - group editing
  - shared screens for customer assistance
  - give demonstrations simultaneously at multiple sites
  - allow sharing of information for various applications
  - interactive games

Synchronous distributed interfaces:
Different place, same time (cont.)

• **Conversational Interaction**
  - Two person
    • CHAT, Internet Relay Chat (IRC), and TALK
  - Texting and Instant Messaging
  - Problems
    • Cell phones: Small screen and lack of keyboard
    • Abbreviations not understood (LOL etc.)
Synchronous distributed interfaces: Different place, same time (cont.)

- **Multi-person conversation**
  - MOOs (multi-person chat)
  - Example
    - LambdaMoo at Xerox PARC, founded early 1990’s
    - [http://www.lambdamoo.info/](http://www.lambdamoo.info/)
  - Problems
    - Synchronizing action when visual display of other persons not available
    - Flamers
    - Other misbehavior

Synchronous distributed interfaces: Different place, same time (cont.)

- **MUDs and MMORPGs** (massively multiplayer online role-playing games)
  - Examples:
    - The Society  [www.societygame.com](http://www.societygame.com)
    - Industry Player  [www.industryplayer.com](http://www.industryplayer.com)
  - Problems
    - Game addiction

Women over 40 biggest online gamers!

- AOL survey Feb 10 2004
  - U.S. women over 40 spend nearly 50% more time each week playing online games than men and are more likely to play online games daily than men or teens
  - Of those women over 40 who had formed online friendships, more than 20% converted those virtual connections into real-life relationships
  - Prefer to play puzzle and word games
    - [games.yahoo.com](http://games.yahoo.com)
**Synchronous distributed interfaces: Different place, same time (cont.)**

- **Audio and video conferencing**
  - Videoconferencing problems
    - slow response times for entering and leaving session
    - distracting background audio
    - difficulty in determining who is speaking
    - inadequate lighting
    - difficulty in making eye contact
    - small image size
    - potential invasion of privacy
    - need for convenient turn taking
    - need for document sharing

**Synchronous distributed interfaces: Different place, same time (cont.)**

- **Audio and video conferencing (cont.)**
  - Issues of ownership and control
    - private and public workspaces
    - identity of participants
    - location of actions
    - care with updating
  - Whether audio or video conferencing is more appealing than chat, IM, and texting, or more effective than asynchronous text, depends on the goals and the task environment
    - For example, if it is impossible to travel to Paris for a seminar, a video conference might work even with the limitations

**Discussion: Online and networked communities**

- **Discussion: Online and networked communities**
  - Provide virtual community where f2f doesn’t exist
  - Distance education courses
  - Impact on offline communities
  - Group identity
    - Patient support groups
  - Need critical mass for synchronous (example: chat room)
  - Community policies & freedom of speech
  - Network communities can be controversial
    - hackers
    - hate groups
    - para-military groups
  - Reputation managers for online stores
Face-to-face interfaces:
Same place, same time

• Innovative approaches to work and learning include:
  – Shared display from lecturer workstation
  – Audience response units
  – Text or photo submission workstations
  – Brainstorming, voting, and ranking
  – Public spaces facilitate sharing
    • File sharing
    • Shared workspace
    • Group activities
    • Notification systems

• Colab and Liveboard
• SMART Board

– Sharing photos is very popular
Benefits of Face-to-face electronic meeting systems

- Parallel communication promotes broader input into the meeting process and reduces the chance that a few people dominate the meeting.
- Anonymity mitigates evaluation apprehension and conformance pressure, so that issues are discussed more candidly.
- The group memory constructed by participants enables them to pause and reflect on information and opinions of others during the meeting and serves as a permanent record of what occurred.
- Process structure helps focus the group on key issues and discourages irrelevant digressions and unproductive behaviors.
- Task support and structure provides information and approaches to analyze it.