Why CSCW?
Summer 2018

Outline

- What is CSCW
- Key trends over time
- Core Issues in CSCW

References

- https://www.interaction-design.org/encyclopedia/cscw_computer_supported_cooperative_work.html
- See also papers posted on GitHub! (Grudin, Bannon, Dourish)

"Almost everything we do depends on collaboration. Any system, process or technology involves collaboration. And, as a creature that is continually evolving and creating new ways of doing things, this means that the foundation, measures and methods of collaboration are also changing."

Together Works: The Ultimate Guide to Ecollaboration (Dr D Avery, J Hogan, R McIntyre)

From HCI to CSCW….

Computers and computation were expensive… focus was on technology

Shift towards HCI and interaction paradigms:

- electronic
- symbolic
- textual
- graphical

Initially integrated models on humans in design…

Shift to study how humans work and use technology:
"From Human Factors to Human Actors" (Dourish)

From HCI to CSCW

We need to exploit human skills and experiences

But we must also focus on “context”

- “settings in which action unfolds, how action is related to those settings” (Dourish)

Earliest CSCW researchers?

Douglas Engelbart (inventor of the mouse) – designed the NLS system from 1967!

Comprised of CRT displays, a mouse for each station and hypermedia versions of the laboratory's knowledge base

http://www.interaction-design.org/encyclopedia/cscw_computer_supported_cooperative_work.html

http://www.youtube.com/watch?v=XiJA7_Sw9aM

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Some definitions of CSCW

CSCW

is about groups of users – how to design systems to support their work *as a group* and how to understand the effect of technology on their work patterns.

Dix, Finlay, Abowd & Beale
Human Computer Interaction, 2nd Ed. Prentice Hall. 1998

is the study of the electronic workplace – an organization-wide system that integrates information processing and communication activities.

Ellis, Gibbs & Rein
Groupware: some issues and experiences, Comm ACM 34(1) 1991

CSCW – a multidisciplinary field

- Early researchers (Irene Grief, 1984) and others recognized the need to learn from
  - Anthropologists
  - Social scientists
  - Economists
  - Designers
  - Educators

CSCW Trends

From office automation to understanding collaborative work

- Early attempts to automate the office failed!

- Focus was on automating procedures, processes
- Rather than practice…

- Much office work involves "cultural" aspects as well as "informal" processes
- Originally automation automated the processes rather than supported the work and how it was done

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Emergence of Ethnography to study CSCW

- Used to study teams and organizations
- Famous example: studying photocopier use at Xerox Parc

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Software Trends: Groupware (1980's)

Software that supports group work

- Focus on algorithms and architectures fundamental to supporting group activities (e.g. collaborative text editing)

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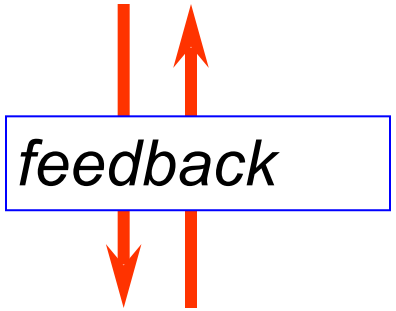
Groupware and CSCW

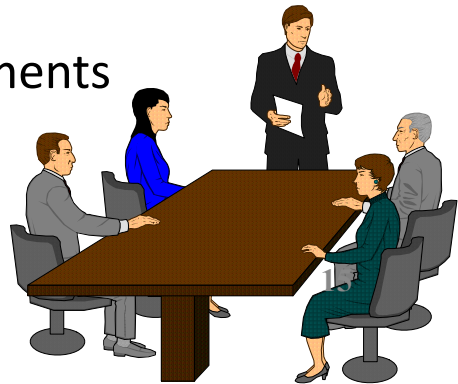
Groupware

- software that supports group work
- investigate algorithms & architectures fundamental to multi-user systems

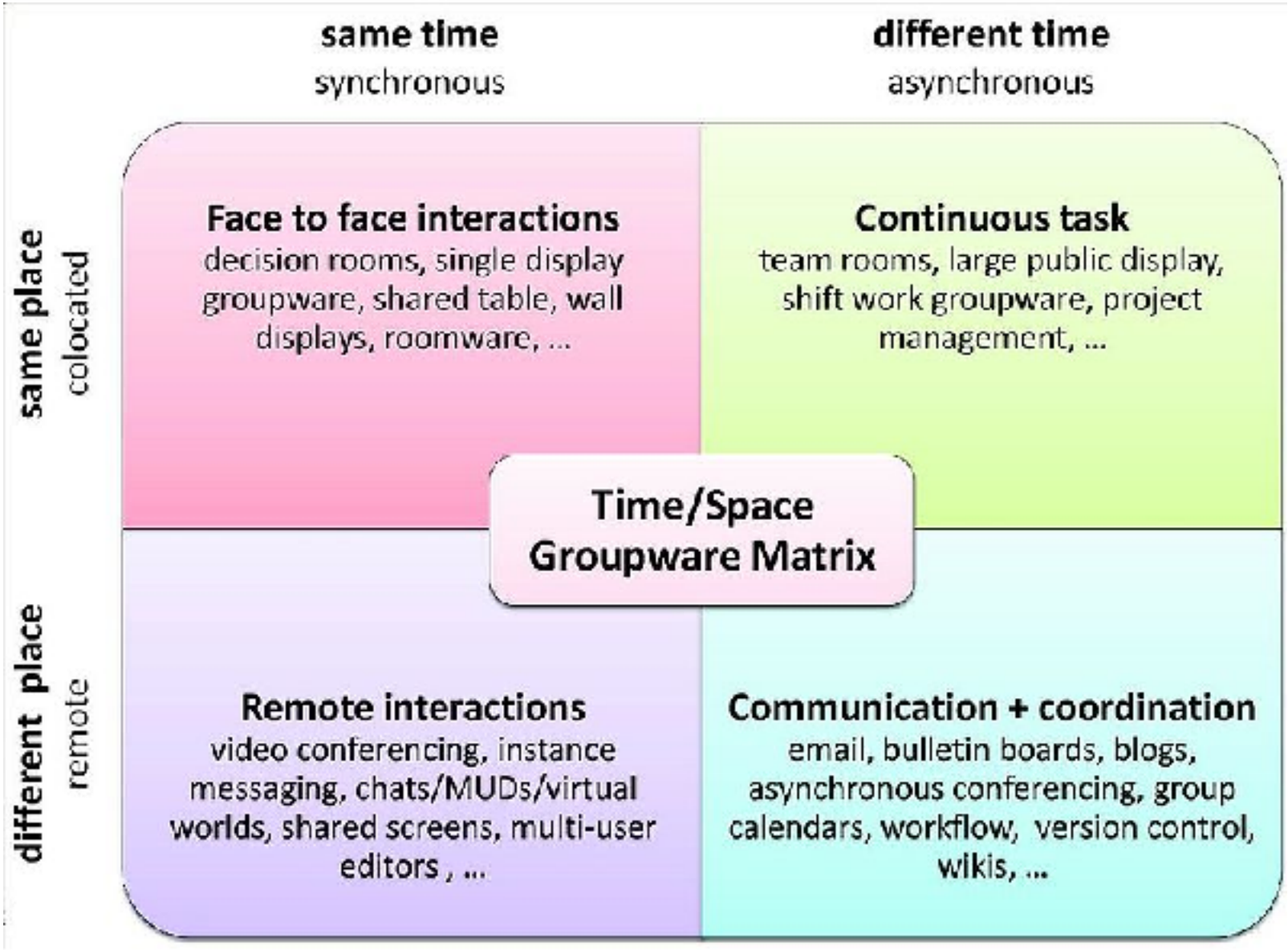


Computer Supported Cooperative Work (CSCW)

- knowledge about the context of groupware design
- investigate individual/group/organizational requirements for multi-user systems



http://pages.cpsc.ucalgary.ca/~saul/781


same time
synchronous
different time
asynchronous
same place
colocated
different place
remote
Face to face interactions
decision rooms, single display groupware, shared table, wall displays, roomware, ...
Continuous task
team rooms, large public display, shift work groupware, project management, ...
Time/Space Groupware Matrix
Remote interactions
video conferencing, instance messaging, chats/MUDs/virtual worlds, shared screens, multi-user editors , ...
Communication + coordination
email, bulletin boards, blogs, asynchronous conferencing, group calendars, workflow, version control, wikis, ...

But…

Groupware term faded as shift towards organization-wide deployment and collaboration became commonly integrated in more applications (all software is now groupware?)

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Move from space to place

A space is where we put things

A place is where activities occur

Users, not designers, manage meaning

Users, not designers, manage coupling

(Dourish's design principles)

From http://www.dourish.com/embodied/

Space → Place

P. Dourish and V. Bellotti. Awareness and Coordination in Shared Workspaces. Proceedings of the ACM Conference on Computer-Supported Cooperative Work (CSCW'92).

Trends: Communication Media

- A lot of early research was on "computer-mediated communication", especially through email
  - Early days (early 80's) – didn't work so well
  - Not interoperable, confined to researchers

- Today there is also consideration of how communication occurs on other channels (discussion forums, blogs, Twitter, Stackoverflow etc)

http://www.interaction-design.org/encyclopedia/cscw_computer_supported_cooperative_work.html

Trends: Devices

- Early research focused on videoconferencing and tools for email
- Now consideration is shifted to broader technologies, including much more attention on mobile technologies

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Trends: Data

- Today — data about our context, activities, communication is everywhere and drives technological design

e.g., Quantified workplace

From Groups to Networks and communities

- Wide adoption of internet and social media led to a critical mass of participation: crowdsourcing and viral diffusion
- Network analysis, data mining, machine learning became prominent tools to study these phenomena
- Transparency led to many analyses in research (but some tools restrict studies, e.g. Facebook)

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Summary of trends…

Then	Now
Groupware	*CSCW*
Email, video conferencing	*Social media*
Document management systems	*Repositories with versions, wikis*
Workflow management	*Social networking, enterprise networking, location awareness*
Automate a fiction	*Ethnography*
Data poor	*Data rich*

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Core issues for CSCW?

Should consider…

- What is the difference between work created in seclusion as compared to work that is done cooperatively? (Bannon)
- What are the emergent work patterns?
- What is a group? Is it a fixed ensemble of people sharing the same "goal"? But shared is still murky! Is it "we"?
- A focus on "context"

  "settings in which action unfolds, how action is related to those settings" (Dourish)

Some key concepts…

- Articulating cooperative work
- Sharing an information space
- Adapting the technology to the organization and vice versa

Articulation Work

Consists of all tasks needed to coordinate a particular task, manage subtasks, recover from errors and assemble resources

Can't always predict what is needed – continually need to negotiate and renegotiate

Shouldn't "automate a fiction"

But one person's articulation work may be another person's work

Social psychology

McGrath's framework for categorizing team behaviours:

Easily overlooked

	Production	Group well-being	Member support
Inception	Production demand and opportunity	Interaction demand and opportunity	Inclusion demand and opportunity
Problem-solving	Technical problem solving	Role network definition	Position and status achievements
Conflict resolution	Policy resolution	Power and payoff distribution	Contribution and payoff distribution
Execution	Performance	Interaction	Participation

Principle focus of attention

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Takeaway: productivity is hard to measure! And may not be reliable!

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Takeaway: Collaborative technology now plays a central role rather than an added-on feature

Up Next?

Theories and models…

- Distributed Cognition
- Awareness
- Distance Matters

- Readings and blog posts by next Wednesday May 16th 2pm due to prepare for this lecture!