

Why CSCW?

Fall 2015

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.youtube.com/watch?v=XiJA7_Sw9aM



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

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

Emergence of Ethnography to study CSCW

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



Software Trends: Groupware (1980's)

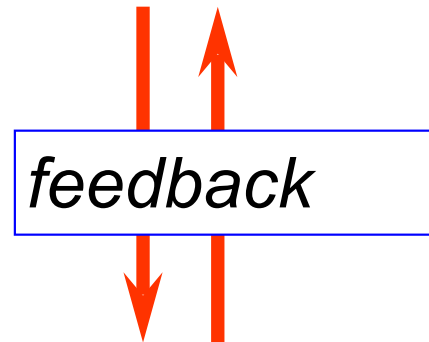
Software that supports group work

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

Groupware and CSCW

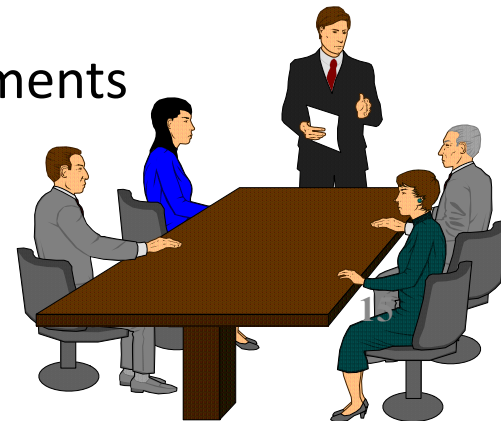
Groupware

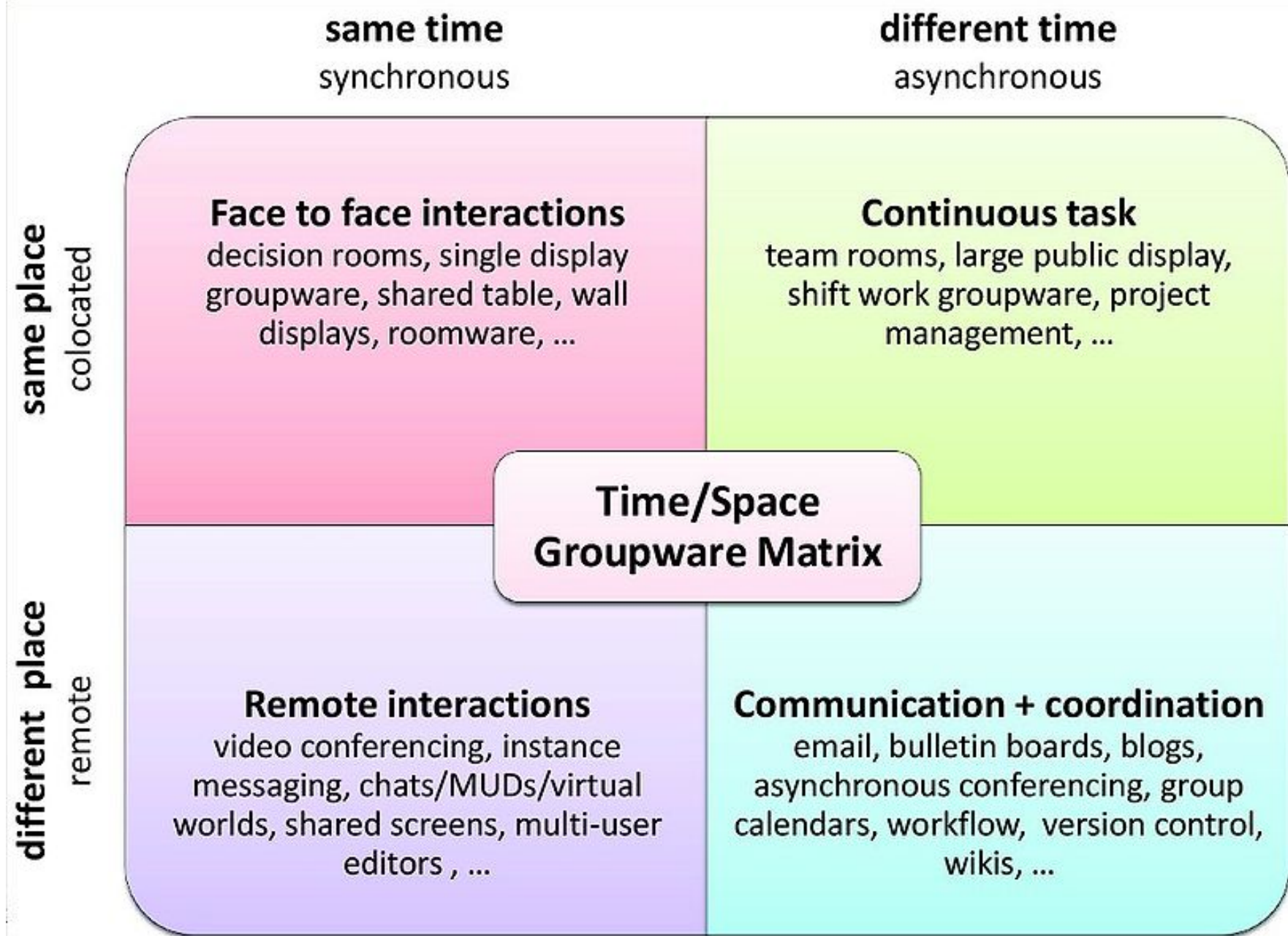
- software that supports group work
- investigate algorithms & architectures fundamental to multi-user systems



Computer Supported Cooperative Work (CSCW)

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





But...

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

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)

Space



Place



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)

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**



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)

Summary of trends...

Then	Now
<i>Groupware</i>	<i>CSCW</i>
<i>Email, video conferencing</i>	<i>Social media</i>
<i>Document management systems</i>	<i>Repositories with versions, wikis</i>
<i>Workflow management</i>	<i>Social networking, enterprise networking,</i>
<i>Automate a fiction</i>	<i>Ethnography</i>

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

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

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 Tuesday 2pm due to prepare for this lecture!