







CT434

Computer Supported Co-operative Work (CSCW)

Dr Antonella De Angeli (MSS/D15)
 Antonella.De-
 angeli@manchester.ac.uk






Ground rules



- To keep disturbance to your fellow students to a minimum
 - Arrive on time. If you are more than 15 minutes late, please wait until there is a break and copy the notes from a friend.
 - Make sure your mobile phone is switched off during the lecture!!!
 - Keep talking, whispering and other background noise to a minimum.
 - If there is something you don't understand, please interrupt me to ask if I could clarify.
 - If you want to make a general remark, then it may be better to wait until there is a natural break.

2006/07
CT434 CSCW: Intro and Group Work
2

Purpose

- Explain what is meant by communication and collaboration (C&C)
 - Describe main social processes underlying C&C
- Outline the range of CSCW systems and their characteristics developed to support C&C
- Consider how knowledge of C&C in the context of groups and organisations can improve the design of CSCW systems

2006/07
CT434 CSCW: Intro and Group Work
3

The University of Manchester
MANCHESTER 1824

What is CSCW?

The University of Manchester
MANCHESTER 1824

Paradigm shift

Collaboration between individuals and groups
without computer support

2006/07 CT434 CSCW: Intro and Group Work 5

The University of Manchester
MANCHESTER 1824

Paradigm shift

human-computer interaction is introduced
but human-human collaboration still required

2006/07 CT434 CSCW: Intro and Group Work 6

MANCHESTER 1924
The University of Manchester

Paradigm shift

becoming

2006/07 CT434 CSCW: Intro and Group Work 7

MANCHESTER 1924
The University of Manchester

Definitions of CSCW

- There does not exist a commonly agreed definition
 - Abstract definition
 - "CSCW is a generic term which combines the understanding of the way people work in groups with the enabling technologies of computer networking, and associated hardware, software and services."
 - Practical definition
 - "CSCW looks at how groups work and seeks to discover how technology (especially computers) can help them work more effectively as a group"
- More recently, CSCW knowledge has also been applied to non-work related computer-supported collaboration/communication activities
- On-line communities

2006/07 CT434 CSCW: Intro and Group Work 8

MANCHESTER 1924
The University of Manchester

1-1

Small group

Large societies

2006/07 CT434 CSCW: Intro and Group Work 9

The University of Manchester
MANCHESTER 1824

The Context

2006/07 CT434 CSCW: Intro and Group Work 10

The University of Manchester
MANCHESTER 1824

Organisations and Tasks

- Software design and development
 - Macro level cooperation between departments
 - Micro level cooperation between members of a group
 - Communities of practice
 - Open-source
- E-Science
 - Information sharing
 - Data analysis
 - Experiments planning
- Teaching environment
 - Transfer of information and skills (e-learning)
 - Between teacher and students
 - Between students
- Shared design of media and products
 - CAD/CAM
- Cooperation in healthcare (e.g. between doctors and nurses)
- Any other teamwork

2006/07 CT434 CSCW: Intro and Group Work 11

The University of Manchester
MANCHESTER 1824


People

- People with a range of skills
- People of all ages and cultures
- Rich people and poor people
- People in offices and people on the move

2006/07 CT434 CSCW: Intro and Group Work 12

The University of Manchester
MANCHESTER 1824

Technology



- The technology used for CSCW is called **GROUPWARE**
- Examples
 - Team-room - video

2006/07 CT434 CSCW: Intro and Group Work 13

The University of Manchester
MANCHESTER 1824

Communication

- ☺ For
 - Faster communication between individuals and groups
 - Easier to keep in touch with remote team members
 - Easier to avoid or repair misunderstandings
- ⚡ Against
 - People without the 'right' systems get excluded
 - Faster pace of life may cause more stress
 - "Work doesn't get done by talking about it"
 - More communication – Less thinking

2006/07 CT434 CSCW: Intro and Group Work 14

The University of Manchester
MANCHESTER 1824

Organisation


- ☺ For
 - Physical location of team members becomes less of a constraint
 - Easier to switch between tasks and roles
- ⚡ Against
 - Many changes may be difficult for staff
 - Less understanding of processes/roles

2006/07 CT434 CSCW: Intro and Group Work 15

MANCHESTER
1824
The University of Manchester

Group-work

- ☺ For
 - Best practice can be embedded in the tools
 - Easier to recruit appropriate team members
 - Reducing dependence on a single member's expertise
 - Organise work better
- ☹ Against
 - Reliance on technology (loss of control)
 - Reduction in creativity due to more protocols




2006/07 CT434 CSCW: Intro and Group Work 16

MANCHESTER
1824
The University of Manchester

General Lecture Topics


- Part 1: Background
 - Week 1: Group work
 - Week 2: Groupware
 - Week 3: Issues in Groupware Design
 - Week 4: Issues in Groupware Evaluation
- Part 2: Sociability, mobility, on-line community
 - Invited speakers on e-learning



2006/07 CT434 CSCW: Intro and Group Work 17

MANCHESTER
1824
The University of Manchester

Assessment




- Coursework 30% of total
 - Individual activity
 - Group activity
- Exam 70% of total

2006/07 CT434 CSCW: Intro and Group Work 18

The University of Manchester
MANCHESTER 1824

Course-work


- Group-work:
 - evaluation of cultural differences on on-line self-presentation
 - Windows live spaces
- Deliverables
 - Individual analysis design, evaluation
 - Group report



2006/07 CT434 CSCW: Intro and Group Work 19

The University of Manchester
MANCHESTER 1824

Reading List



- Preece J. (2000) **Online communities: Designing Usability, Supporting Sociability.** John Wiley & Sons.
- Benyon D., Turner P. and Turner S. (2005) **Designing Interactive Systems:– People, Activities, Contexts, Technologies.** Pearson Education Limited
- Arrow H., McGrath, J.E., Berdhal, J.L, (2000) **Small groups as complex systems.** Sage Publications.
- **Borghoff, U.M., Schlichter, J. H. (2000). Computer-Supported Cooperative Work:** Introduction to Distributed Applications.


2006/07 CT434 CSCW: Intro and Group Work 20

The University of Manchester
MANCHESTER 1824

CSCW Basics

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


2006/07 CT434 CSCW: Intro and Group Work 21


MANCHESTER
 1824

Learning outcomes

- The Aims are to ...
 - introduce the importance of working in groups
 - explain the problems associated with group work
 - discuss the various stages in the team life-cycle


2006/07 CT434 CSCW: Intro and Group Work 22


MANCHESTER
 1824

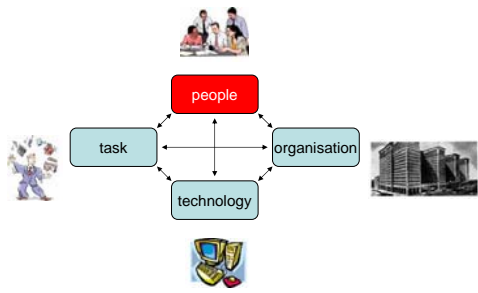
What is your experience of Group Work?

- Think about your experiences of working as part of a group
 - Write down particular benefits and drawbacks of group work that you have experience of

2006/07 CT434 CSCW: Intro and Group Work 23


MANCHESTER
 1824

The Context



```

      graph TD
        people[people] <--> task[task]
        people <--> organisation[organisation]
        people <--> technology[technology]
        task <--> organisation
        task <--> technology
        organisation <--> technology
      
```

2006/07 CT434 CSCW: Intro and Group Work 24

MANCHESTER 1824
The University of Manchester

What is a group

- Group → two or more individuals that influence each other in same way
- Group is a dynamic entity - different from the sum of its members
- Important features are:
 - Interdependence: group members need each other to reach common goal
 - Common identity: individual perceive themselves as belonging together
 - Structure: mixture of roles, hierarchies and bonds between group members

2006/07 CT434 CSCW: Intro and Group Work 25

MANCHESTER 1824
The University of Manchester

Social-identity theory

Tajfel & Turner, 1986

<p>Personal Identity Representation of the self in terms of the unique individual, different from relevant others</p>	<p>Social Identity Representation of the self according to social categories to which people identify - women vs. men; students vs. lecturers; Manchester United supporters vs.</p>
--	--

2006/07 CT434 CSCW: Intro and Group Work 26

MANCHESTER 1824
The University of Manchester

Group Formation Space

2006/07 CT434 CSCW: Intro and Group Work 27

MANCHESTER 1824
The University of Manchester

Group-formation space


- Framework to differentiate between groups based on the reason of the group
 - **Planned** groups are **deliberately** formed by the members themselves (founded group) or by an external authority (concocted group), usually for **some specific purpose or purposes**
 - **Emergent groups** form **spontaneously** as individuals find themselves repeatedly interacting with the same subset of individuals over time and settings. These groups may be **circumstantial** or **self-organised**.
- The framework helps predict the social norms regulating the group, their time-frame, etc.

2006/07 CT434 CSCW: Intro and Group Work 28

MANCHESTER 1824
The University of Manchester

Why work in groups?

- Combine a number of areas of expertise, competencies, view-points
 - Mistakes are more likely to be detected
- Split a large task up into smaller parts
 - Global 24-hour software development
- Individual members perform different roles
 - 'Shaper': derives objectives, sets priorities
 - 'Leader': Organises who does what
 - 'Strategist': Generates ideas and seeks ways of solving problems
 - 'Motivator': Injects enthusiasm and motivation
- Presence of others is emotionally arousing
- Group may motivate to think harder and more creatively than we do by ourselves
- Satisfy socio-emotional needs




2006/07 CT434 CSCW: Intro and Group Work 29

MANCHESTER 1824
The University of Manchester

Why not to work in group?


- Social Loafing
 - tendency of individual group members to reduce their work effort as groups increase in size
- Diffusion of responsibility
 - The belief that the presence of others makes one less responsible for the events that occur in that situation
- De-individuation
 - Loss of a sense of individuality and a consequent weakening of social norms and constraints
- Group-polarisation
 - The group tend to enhance shared pre-existing views (more extreme attitudes, opinion)

2006/07 CT434 CSCW: Intro and Group Work 30


MANCHESTER
 1824

What makes a successful team?

- Team members ...
 - are engaged in a common task
 - work towards a common goal
 - interact with a shared environment
 - share and exchange information
 - strive towards a common understanding and awareness
 - take responsibility of their individual actions



2006/07 CT434 CSCW: Intro and Group Work 31



MANCHESTER
 1824

Conflict

- Conflict arises due to:
 - Differences in beliefs, values, interests
 - Scarcity of resources such as money, time, power
 - Rivalries between people and groups
 - Pressure to avoid failure



2006/07 CT434 CSCW: Intro and Group Work 32


MANCHESTER
 1824

Co-located versus Distributed

- Distributed teams can be from different cultures, very large
- Problems:
 - Dispersion
 - Coordination breakdown
 - Loss of communication richness
 - Loss of Teamness

2006/07 CT434 CSCW: Intro and Group Work 33

MANCHESTER 1924
The University of Manchester

Dynamics of Creation

```

    graph TD
      P1[Phase 1 orientation] --> P2[Phase 2 trust building]
      P2 --> P3[Phase 3 task/role clarification]
      P3 --> P4[Phase 4 commitment]
      P2 -.-> P1
      P3 -.-> P2
      P4 -.-> P3
  
```

→ Resolved problems
- - -> unresolved problems

2006/07 CT434 CSCW: Intro and Group Work 34

MANCHESTER 1924
The University of Manchester

Creation of a Team

- Orientation:
 - Discuss the overall goal of the team
 - What is the purpose of the team?
- Trust building:
 - Integration of the individuals into the team
 - What is expected of me?
 - Who are my direct contacts?
- Task/role clarification:
 - Agree upon the tasks and roles in the team
 - Make sure everyone has the same expectations of the tasks and roles.
- Commitment:
 - Sort out responsibilities and dependencies
 - Decide on task structure and assignment of resources

2006/07 CT434 CSCW: Intro and Group Work 35

MANCHESTER 1924
The University of Manchester


Team Life-cycle

```

    graph TD
      P1[Phase 1 orientation] --> P2[Phase 2 trust building]
      P2 --> P3[Phase 3 task/role clarification]
      P3 --> P4[Phase 4 commitment]
      P4 --> P5[Phase 5 implementation]
      P5 --> P6[Phase 6 high performance]
      P6 --> P7[Phase 7 renewal]
      P7 -.-> P1
      P2 -.-> P1
      P3 -.-> P2
      P4 -.-> P3
      P5 -.-> P4
      P6 -.-> P5
      P7 -.-> P6
  
```


→ Resolved problems
- - -> unresolved problems

2006/07 CT434 CSCW: Intro and Group Work 36



MANCHESTER
 1824

Consolidation of a Team

- **Implementation**
 - Assign individual tasks to team members
 - Temporal and causal dependencies must be taken into consideration
- **High performance**
 - Team members get on with the execution of their tasks
- **Renewal**
 - Team members get less motivated and a new cycle in the life of the team is initiated
 - The goals of a team may shift
 - The structure and roles of a team may change




2006/07 CT434 CSCW: Intro and Group Work 37


MANCHESTER
 1824

Further Reading

- Uwe Borghoff and Johann Schlichter – Computer Supported Cooperative Work
 - Chapter 2 / chapter 3
- Arrow: chapter 4



2006/07 CT434 CSCW: Intro and Group Work 38
