Computer Supported co-operative Work (CSCW)

Revision Lecture

Learning Outcomes

- Revision & Consolidation of previous lectures
  - Summary
  - Reflection
  - Interaction
    - Your chance to ask questions

Lecture organisations

- Main topic review
  - Week 1: Group work
  - Week 2: Groupware
  - Week 3: Issues in Groupware Design
  - Week 4: Evaluation of Group-ware
  - Week 5: On-line communities
  - Week 6: Access grid
  - Week 7: Usability and Sociability
  - Week 8: Global communication
  - Week 9: Mobility
  - Week 10: Distance Learning
  - Week 11: Revision
- Exam example – last year exams

How to study?

- Revise handouts & your notes
- Required reading:
  - Preece J. (2000) Online communities: Designing Usability, Supporting Sociability. John Wiley & Sons.
  - Additional reading
    - Benyon D., Turner P. and Turner S. (2005) Designing Interactive Systems:– People, Activities, Contexts, Technologies. Pearson Education Limited – CSCW CHAPTER
    - Arrow H., McGrath, J.E., Berdhal, J.L, (2000) Small groups as complex systems. Sage Publications – CHAPTER 4
    - Dix A., Finlay J., Abowd G. D., Beal R. (2004) Human-Computer Interaction., Pearson Prentice Hall, Third Edition - CSCW CHAPTER
    - Suggested readings at the end of each unit
- Think-consolidate-critique
  - Interactive lectures – Access Grid experience – in class exercises
  - Invited speakers – Lotus + Distance Learning
  - Coursework – group experience – communication – cultural aspects
- Ask
  - If /after all this/ something is still unclear ask for clarification

Exam style

- 50% of final marks
- 3 out of 5 questions
  - 3 sub-questions
  - Text-work; application; critique
- Examples provided and discussed

The Context

people

task — organisation

technology

Definitions

1-1

Small group

Large societies

People

- Group → two or more individuals that influence each other
  - Interdependence-common identity and structure
  - Differences between personal and social identity
- Different types of groups
  - Group formation spaces

Group Formation Space

External

Circumstantial groups

Concocted groups

Emergent

Planned

Self-organised groups

Founded groups

Internal

Group work

Social Loafing
- – tendency of individuals to reduce their work effort in a group
- Diffusion of responsibility
  - – 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)
- Conflicts
  - – Resources, misunderstandings, cultural difference

- Combine a number of areas of expertise, competencies, view-points
- Split a large task up into smaller parts
- Individual members perform different roles
- Presence of others is emotionally arousing
- Group may motivates to think harder and more creatively than we do by ourselves
- Satisfy socio-emotional needs

Team Life-cycle

Phase 1 orientation		Phase 7 renewal
Phase 2 trust building		Phase 6 high performance
Phase 3 task/role clarification		Phase 5 implementation
	Phase 4 commitment	

→ Resolved problems
⇢ unresolved problems

Groupware

- 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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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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TIME

Synchronous

- Advantages
  - Sense of immediacy
  - Real time
  - Newcomers can learn easily
  - Good for brainstorming (generating tasks)
- Disadvantages
  - Must be on-line at specific time
  - No time to reflect
  - Several conversations may appear at the same time and messages can get inter-twined
  - May require special download and configurations
  - There is no log

Asynchronous

- Advantages
  - easy to use,
  - no special equipment needed,
  - time to reflect,
  - registration may create a feeling of community
  - useful in the consolidation of the results from brainstorming, ideas evaluation, intellective tasks, and judgement tasks
- Disadvantages
  - registration may discourage participation,
  - large number of posting may be overwhelming to users,
  - everything posted come to everybody,
  - context for responses have to be provided by including part of previous messages
  - Difficult to respond to a particular message in a digest

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Task taxonomy

- *Generating Tasks:* coming up with alternative solutions to a problem (as in brainstorming) or alternative options for action
- *Intellective Tasks:* solving problems with correct answers
- *Judgement Tasks:* deciding issues where there are no right answers
- *Negotiation Tasks:* resolving conflicts of interests or viewpoints

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The 'Vicious circle'

Personal Motivation
Cost
Design for the individual
Prisoner dilemma

Benefit

Adoption by individuals

Achievement of critical mass

Design principles

- Maximise Personal Acceptance
- Minimise Requirements
- Minimise Constraints
- Increase external integration

Awareness

- What's going on?
  - Activity/Workspace awareness
    - Synchronous
    - Asynchronous
  - Informal awareness
    - Who is around and what are they doing?
  - Group-structural awareness
    - Organisation/ Workflow etc.
  - Social awareness
    - giving group members information helpful for making sense of others' actions, such as background on team members belief and knowledge'
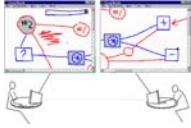
WYSIWIS

- What You See Is What I See:
  - Consistent presentation of shared information
    - Strict form
      - Scroll wars
      - Window wars
    - Relaxed forms
      - Separation of workspaces
      - Personalised layouts and views
      - Time divergence
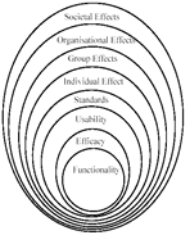
What to evaluate?

1. Does it work? *(functionality)*
2. Does it work well enough? *(efficacy)*
3. Is it workable with? *(usability)*
4. Does it follow the *standards* laid down by various bodies? (*standards*)
5. What does it do to those who work with it? *(individual effect)*
6. What does it do to their work? *(group effects)*
7. What does it do to those they work with and for? *(organisational effects)*
8. What does it do to the world beyond work? *(societal effects)*

Societal Effects
Organisational Effects
Group Effects
Individual Effect
Standards
Usability
Efficacy
Functionality

When to evaluate?

- Concept evaluation
  - Analyse potential impact of new socio-technical system on the basis of scenarios
  - Before implementation -> requirements (four principles of groupware design)
- Prototype evaluation
  - Test if the applications function as they were planned and whether user-interfaces are usable
  - During implementation -> grounded design decisions
- Operational evaluation
  - Evaluate impact of technology on work setting: communication, social interaction, quality of work and organisational efficiency
  - After implementation -> adoption knowledge & requirements for new technology

How to evaluate?

- **Inspection methods**: evaluators 'inspect' an interface according to a set of criteria
  - Heuristics (HCI)
- **User observations**: evaluators observe users performing tasks within a semi-controlled setting
  - User testing (HCI)
  - Laboratory experiments (cognitive/social psychology)
- **Verbal methods**: evaluators ask users their opinion
  - Interviews, Questionnaires, Focus Groups and Customer Feedback (social psychology & marketing)
- **Field studies**: evaluators study people interacting within their world
  - Ethnography (HCI)
  - Conversation Analysis and Interaction Analysis (Ethnomethodology)
  - Breakdown Analysis (Breakdown Analysis)

On-line communities

- have a **purpose** are supported by **technology** and are guided by **policies**
  - **Where** does the community exist?; **Why** does it exist?; **How** does it exist?; **What** is its history?
- **Technical + Social definition**
  - On-line communities are social congregations of individuals which meets and Interact on the Internet.
  - Members have a shared goal, interest, need or activity which provides the primary reasons for belonging to the community.
  - Members engage in repeated active participation and there may be strong emotional ties between participants.
  - Members have access to shared resources and there are policies for determining access to those resources.
  - There is a shared context of social conventions, language and protocols.

Support evolving community

Design Usability
interaction dialogue
Navigation
Registration forms
Feedback
Representations of users
Message format
Archives

Plan Sociability
Policies for:
Membership
Codes of conduct
Security
Privacy
Copyright
Free speech
Moderators

Assess community needs

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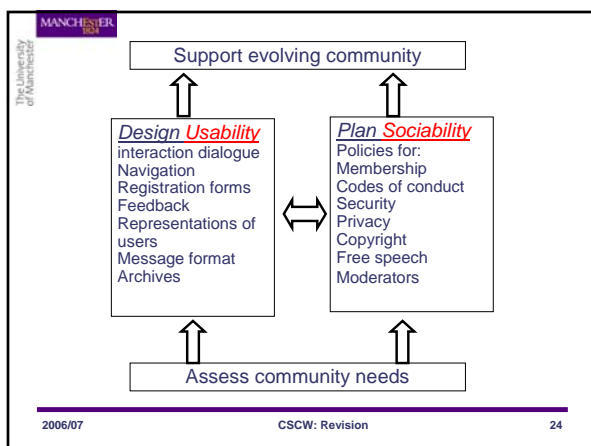
Community-centered development approach

1. Assessing community needs and analysing user tasks: requirements analysis
2. Selecting technology and planning sociability: community needs are mapped to technology. Sociability is planned at this level.
3. Designing implementing and testing prototypes: in this stage the overall conceptual design is planned. Communication tools are incorporated within web-pages in an iterative design.
4. Refining and tuning sociability and usability: usability and sociability testing
5. Welcoming and nurturing the community: this stage involves seeding the community.

Culture & the internet

- Global medium: but its users and designer have different backgrounds, live in different environments, and belong to different cultures.
- Different styles of communication can lead to misunderstandings and problems
  - Standards for writing time, dates, addresses, and numbers can also cause confusion
  - Differences in symbols, colors, and metaphors.
  - Style of writing may be considered friendly in one culture and offensive in another
- Awareness of cultural values is fundamental for the success of e-business
- 2 models to understand cultural differences
  - Hofstede cultural values
  - Independent / interdependent self

Cultural differences

- Hofstede's cultural value dimensions
- Power distance
  - the extent to which the members of a society accept inequality in power
- Individualism vs. collectivism
  - Individualistic cultures consider individuals as core of the social structure and expect individuals to look after themselves. Collective cultures stress the importance of groups and expect members of a group to support each other
- Masculinity vs. femininity
  - Masculinity stands for a society where gender roles are clearly distinct (e.g. men are competitive and tough; women are caring and social orientated). Femininity stands for a society where social gender roles overlap
- Uncertainty avoidance
  - the extent to which a society feels uncomfortable with unknown situations, ambiguity and uncertainty
- Long vs. short term orientation
  - Long-term orientation encourages virtues oriented towards future rewards. Short-term orientation promotes virtues related to rewards at the present time.

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Self-construal: Markus and Kitayama

Table 1
Summary of Key Differences Between an Independent and an Interdependent Construal of Self

Feature compared	Independent	Interdependent
Definition	Separate from social context	Connected with social context
Structure	Bounded, unitary, stable	Flexible, variable
Important features	Internal, private (abilities, thoughts, feelings)	External, public (statuses, roles, relationships)
Tasks	Be unique	Belong, fit-in
	Express self	Occupy one's proper place
	Realize internal attributes	Engage in appropriate action
	Promote own goals	Promote others' goals
	Be direct; "say what's on your mind"	Be indirect; "read other's mind"
Role of others	*Self-evaluation:* others important for social comparison, reflected appraisal	*Self-definition:* relationships with others in specific contexts define the self
Basis of self-esteem*	Ability to express self, validate internal attributes	Ability to adjust, restrain self, maintain harmony with social context

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Mobility

- Lack of
  - Communication
  - contact and teamness
  - Up-to-date information
  - Knowledge sharing

Performance

High

Central workers

Mobile workers

Low

Less ──────→ More

Use of Mobile Technology

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Loss of Predictability

- Device capabilities
  - Small low-resolution monochrome screens
  - Limited processing power
  - Limited battery life
  - Clumsy input mechanisms
- Network conditions
  - Low-bandwidth variable connectivity
  - Unpredictable connections that may break up frequently
- Context
  - Location
  - Environmental conditions
  - Attention

- Device capabilities
  - Service discovery (Bluetooth)
  - Device aware services
    - Content selection/transformation Modality selection (Text to Voice)
- Network conditions
  - Anticipating information needs
  - Server emulation
  - Backup
  - Synchronisation
- Context
  - GPS, sensor technology
  - Zone markers

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Course-work feedback

- Group meetings -
  - Book your slot by e-mail
  - First come first served!!!