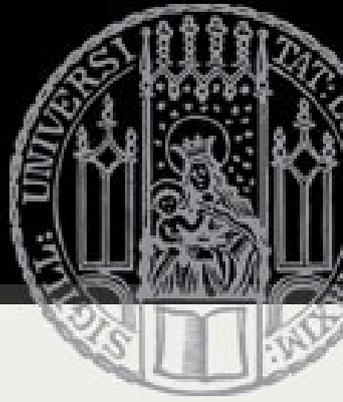




Proseminar SS11

“The Impact of Awareness and Privacy on Computer Supported Collaborative Learning”



Abstract

what is awareness?

awareness in CSCL

why do we need it, how do we get it?

the effect of awareness

what is privacy?

how to create privacy?

the interplay of privacy
and awareness

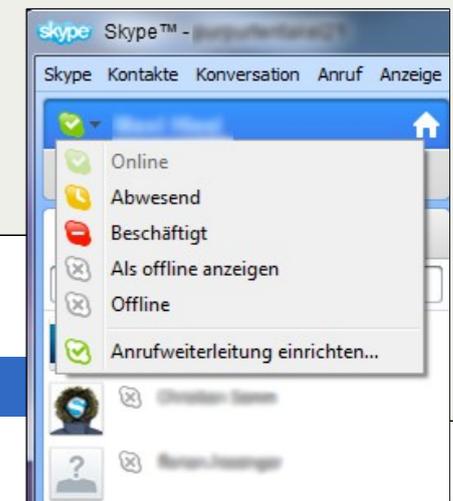
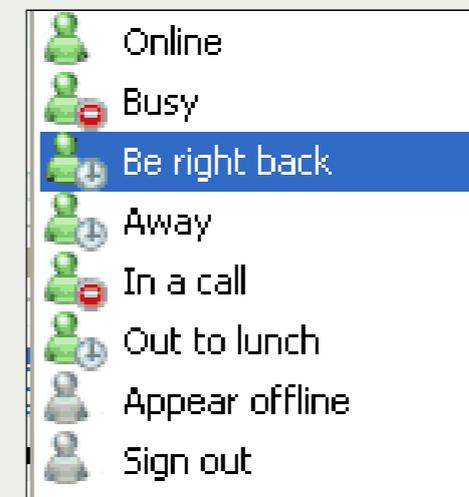
Awareness

„Consciousness and information of various aspects of the group and its members.“

→ e.g. awareness in the internet

→ two categories in computer science

- behavioral, provided by e.g. status icons or friendlist (facebook, skype,...)
- knowledge (=learning resources), provided by e.g. event service (Subversion Repository)





Group awareness in CSCL

Being informed about specific aspects of group members

three types of group awareness:

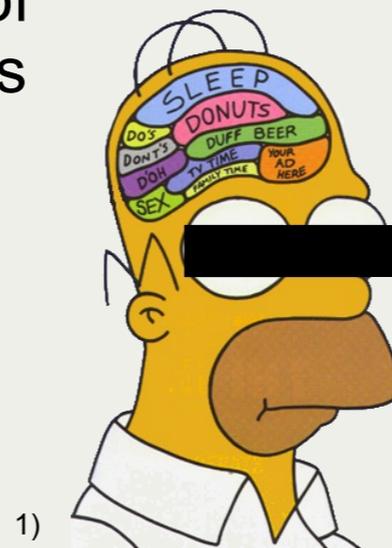
behavoiral awareness

→ Information about the learners' activities



cognitive awareness

→ Information about the knowledge of collaborators



1)

social awareness

→ Information about the functioning of the group as perceived by the members



1)
<http://eden-saga.com/en/32200-philosophy-thinking-descartes-leibnitz-castaneda-brain-materialism-mind-spirit-will.html>

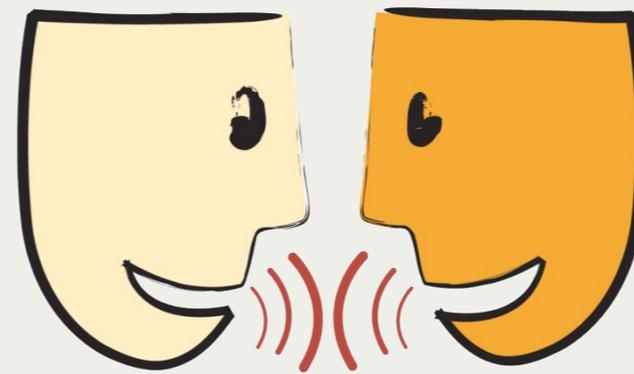
The need for awareness in CSCW

collaborating by means of computers is less effective than face-to-face collaborating, this is based on:

lack of interaction, coordination and communication
(e.g. long-distance learning, asynchronous learning)



→ providing group members with context information is a crucial element to ensure an efficient collaboration



Formation of awareness in CSCCL

1. Awareness can be generated by **awareness tools**
2. Awareness can be generated as a **natural product** of collaboration:

direct information

group members explicitly provide
context information
e.g. to a program/other members



indirect information

by monitoring, has to be interpreted
e.g. group discussions



Limitation of information generating

- amount of information can vary according to rate of interaction
- potential misinterpretation
- harder to accomplish in asynchronous communication

→ tools to support establishing awareness



www.hermes-press.com/misinterpretation2.jp

The handling and impact of awareness information on CSCCL

the presentation of awareness information should be:

- easy to understand, adequate visualization
- good comparability, tacit guidance

impact on the collaboration process and outcome:

collaborative level



- cognitive: convergence of knowledge in a group increases
- coordination of activities
- increasing interaction
- team performance
- team effectiveness

individual level



- behavioral: adapting his behavior (e.g. participation)
- social: adjusting his social behavior (e.g. being friendlier)
- better learning outcomes

impact depends on: type of information, way and frequency it is collected and presented



Privacy

„A person's right to control access to his or her personal information.“

- importance of privacy
- to be unaffected, undisturbed by others
- natural effort for privacy

e.g. in the internet, at home,
while working in groups



<http://www.apfelnews.eu/2010/11/20/google-street-view-mit-dem-iphone/>

1) <http://www.sony.de/biz/product/nvmpzcameras/snc-rx550p-wce/overview>

Inhalte auf Facebook teilen
Diese Einstellungen bestimmen, wer sehen kann, was du teilst.

	Alle	Freunde von Freunden	Nur Freunde
Status, Fotos und Beiträge			•
Biografie und Lieblingszitate			•
Familie und Beziehungen			•
Fotos und Videos, in denen du markiert wurdest			•



Privacy in CSCL/CSCW

common groupware for supporting CSCW mostly consists of two types of working space: private and shared working space (e.g. subversion repository)

private space

- depository for private working objects
- private memory

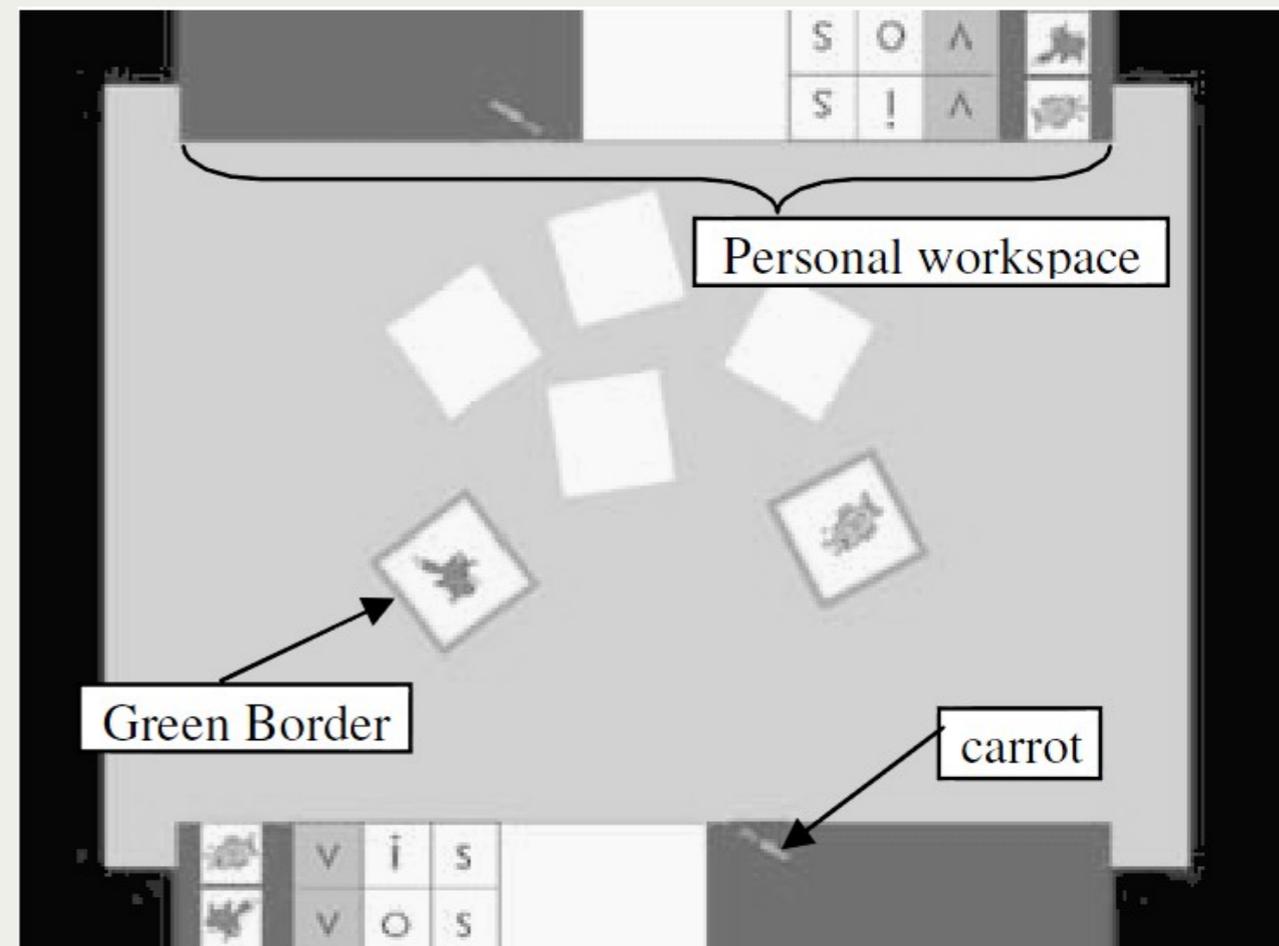
shared space

- dialogue support objects
- collaborative working support
- collaborative memory

Example for privacy in CSCL

CSCL application called ReadIt:

- shared area in the middle
- private workspace is associated with each player
- used to provide individual feedback
- reflects individual status
- displays personal achievement



Source: R.J.W Sluis (2004), Read-It: Five-to-seven-year-old children learn to read in a tabletop environment.



Need for privacy and its problems

always a conflict between privacy and awareness

awareness of the group vs. privacy of the individual:

- awareness important for group interaction
- more information we receive -> greater chance to disturb our work
- privacy important for individual tasks
- creates more comfortable working atmosphere
- possible approach: reciprocity

=> **balance between privacy and awareness leads to efficient collaboration**



sources

- [1] Tanja Engelmann, Jessica Dehler, Daniel Bodemer and Jürgen Buder, Knowledge awareness in CSCL: A psychological perspective (2009)
- [2] Daniel Bodemer and Jessica Dehler, Group awareness in CSCL environments (2010)
- [3] Chris Phielix, Frans J. Prins and Paul A. Kirschner, Awareness of group performance in a CSCL-environment: Effects of peer feedback and reflection (2009)
- [4] Mirweis Sangin, Gaëlle Molinari, Marc-Antoine Nüssli and Pierre Dillenbourg, Facilitating peer knowledge modeling: Effects of a knowledge awareness tool on collaborative learning outcomes and processes (2010)
- [5] Mirweis Sangin , Gaëlle Molinari , Marc-Antoine Nüssli and Pierre Dillenbourg, Knowing What the Peer Knows: The Differential Effect of Knowledge Awareness on Collaborative Learning Performance of Asymmetric Pairs
- [6] Hiroaki Ogata, Yoneo Yano, International Journal of Artificial Intelligence in Education (2000), Combining Knowledge Awareness and Information Filtering in an Open-ended Collaborative Learning Environment
- [7] Scott E. Hudson and Ian Smith, Techniques for Addressing Fundamental Privacy and Disruption Tradeoffs in Awareness Support Systems
- [8] Patrick Jermann¹, Amy Soller², and Martin Muehlenbrock ³, From Mirroring to Guiding: A Review of State of the Art Technology for Supporting Collaborative Learning
- [9] Toshio Okamoto, Mizue Kayama and Alexandra Cristea, Proposal of a Collaborative Learning Standardization (2001)