

ARBEITSGRUPPEN MEDIENINFORMATIK UND STATISTI ARBEITSGRUPPEN MEDIENINFORMATIK UND MENSCH-MASCHINE-INTERAKTION



Group Mirror

From Mirroring to Guiding

Rea Schmidt



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- 1. Problems and Aims
- 2. The Collaboration Management Cycle
- 3. Three types of tools
 - Mirroring tools
 - Meta- cognitive tools
 - Guiding systems



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Problems:

- Prior Knowledge
- Motivation
- Roles
- Language
- Behaviour
- Group dynamics



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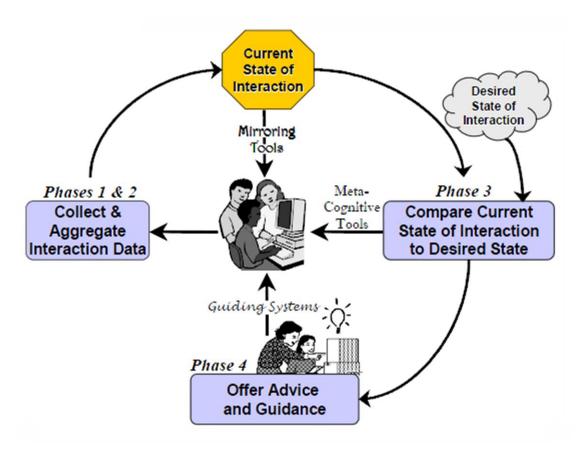


<u>Aims:</u>

- Understand, explain, and predict patterns of group behaviour
- Support group learning processes
- Determine how to structure the environment in which the collaboration takes place
- Regulate the student interaction during the learning activities

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Three types of tools

- **1. Mirroring tools**
 - Collect data
 - Reflect this information back to user
 - Responsibility for making decisions: User

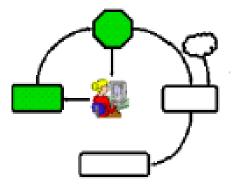


Figure 2. Mirroring tools



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Three types of tools

- 2. Meta- cognitive tools
 - Provides the referents needed by the learners or coaches to diagnose the interaction
 - Responsibility for making decisions: User

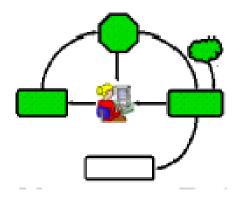


Figure 3. Meta- cognitive tools



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Three types of tools

- 3. Guiding tools
 - Perform all the phases in the collaboration management process
 - Propose remedial actions to help the learners
 - Information typically hidden
 - System uses information to make decision about how to moderate the group's interaction

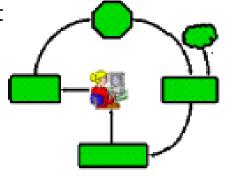


Figure 4. Guiding tools



IANS-INSTITUT FÜR MATHEMATIK, INFORMATIK UND STATISTIK INSTITUT FÜR INFORMATIK ITÄT ARBEITSGRUPPEN MEDIENINFORMATIK UND N MENSCH MASCHINE INTERAKTION



A REVIEW OF SYSTEMS THAT SUPPORT COLLABORATIVE LEARNING

21.06.2011



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Mirroring tools

Chat circles

- Running since 1999
- uses abstract shapes to convey

identity and activity



Figure 5. Chat circles



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Meta-cognitive tools

Jerman

- Solving a problem
 - Visualization
 - Chat
- Number of messages each student has sent

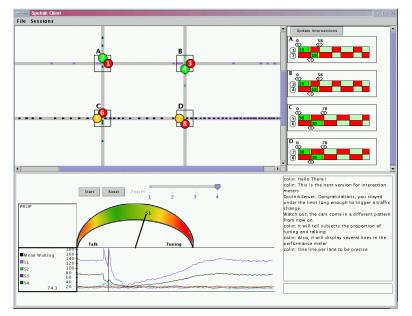
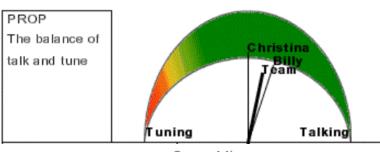


Figure 6. Jerman



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Guiding tools

COLER Workspace

Private Problem Individual Individually workspace • Description Workspace Collaborate to produce Entity- Relationship model • My Work Area: TransporteValeriaStandard Problema del transporte urbano Feedback to the student New Open Print Copy Paste y Relation ٠ Suggestions للملك El municipio de Monterrey ha adquirido todas las líneas de camiones para implantar un servicio muy eficiente de camiones urbanos, controlado por about diffrences R Data Modeling el municipio. Usted ha sido asignado para construir el modelo de datos se ofrece (diagrama Entidad-Relación) que soportará a este servicio tomando en 🤳 PUNTO-DE-CONTROL Change Problem ER Help Our Groupwork Area: TranporteGrupoStandard New Open Print Copy Paste Entity Relation Star Wars Feedback eammates from **Opinion Area** Cristal Opinion NOT OK Ruben Coach Total Agree Disagree ask/take pencil Coach: (Priv) Holal :) Bienvenidos a todos a esta se: 📥 Shared Group Ruben Coach: (Priv) Hola Valeria. Me da gusto que participe Valeria: Que opinan de agregar la relacion RUTA+VI. Workspace Ruben:OK, Yo estoy de acuerdo -Figure 7. COLER Chat Area



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Guiding tools

HabiPro

• System includes a simulated peer agent that detects off-topics word

in the students utterance

😸 Cuestionario (Juan)	🗟 CHAT (Juan)
PROBLEM 3	Archivo Conexion Ayuda
Find the mistake in this program	
<pre>boolean b; b = false; System.out.println("b es " + b); b = true; if (b) System.out.println("Esta sentencia no se ejec System.out.println("10>9 es " + (10 > 9));)//del main } // de la clase</pre>	Alumno3 > do you understand the arrays? Aurora > Did you watch the football match yesterday? Alumno3 > we can have a look at the clues Juan > yes, I watched the match Alumno3 > I have found the solution III, the mistake is the ; Aurora> Yes, you are right, write the solution
WRITE YOUR ANSWER	Alumno3
Check	Aurora Juan
ANSWER 2 ANSWER 3	
b es false Agree ; Agree Disagree Disagree V Check V Check	2

Figure 8. HabiPro



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Mirroring tools

System	Input data	Output	Expected function
Chat Circles (Donath, Karahalios & Viegas,1999)	Dialog in an unstructured virtual space	Graphical visualization	On-line social awareness

Meta-cognitive tools

System	Input data	Output	Expected function
Jermann (2004)	Chat and problemsolving actions	Graphical visualization	Teachers: Analyze interaction Students: Self regulation

Guiding tools

System	Input data	Output	Expected function
COLER, (Constantin o González et al., 2002)	Shared and private actions, dialog	Coach	On-line feedback of participation & workspace differences
HabiPro, Vizcaino (2001)	Shared workspace actions, student preferences dialog	Coach	Detection of off-topic interaction & on-line guidance to students



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Figure 1. Collaboration Managment Cycle

AMY SOLLER, ALEJANDRA MARTÍNEZ MONÉS, PATRICK JERMANN & MARTIN MUEHLENBROCK (2008): From Mirroring to Guiding: A Review of State of the Art Technology for Supporting Collaborative Learning, University of Oslo. S.4

Figure 2. Mirroring tools

AMY SOLLER, ALEJANDRA MARTÍNEZ MONÉS, PATRICK JERMANN & MARTIN MUEHLENBROCK (2008): From Mirroring to Guiding: A Review of State of the Art Technology for Supporting Collaborative Learning, University of Oslo. S.7

Figure 3. Meta- cognitive tools

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Figure 4. Guiding tools

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Figure 6. Jerman

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Figure 7. COLER

AMY SOLLER, ALEJANDRA MARTÍNEZ MONÉS, PATRICK JERMANN & MARTIN MUEHLENBROCK (2008): From Mirroring to Guiding: A Review of State of the Art Technology for Supporting Collaborative Learning, University of Oslo. S.25

Figure 5. Chat circles

http://alumni.media.mit.edu/~fviegas/projects/chatcircles/ (16.06.2011)



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Sources

AMY SOLLER, ALEJANDRA MARTÍNEZ MONÉS, PATRICK JERMANN & MARTIN MUEHLENBROCK (2008); From Mirroring to Guiding: A Review of State of the Art Technology for Supporting Collaborative Learning, University of Oslo http://www.uio.no/studier/emner/matnat/ifi/TOOL5100/v08/leseliste/F10/

PIEREE DILLENBOURG & FRANK FISCHER (2007): Basics of Computer-Supported Collaborative Learning. Zeitschrift für Berufs- und Wirtschaftspädagogik. 21, pp. 111-130.

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James C. Lester, Rosa M. Vicari (2004): Intelligent Tutor Systems, 7th International Conference, ITS 2004. Springer Verlag



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Vielen Dank für eure Aufmerksamkeit!