SLOT I.3: Paper presentation: Instructional design and Collaborative learning 13:00 – 14:20

Room: Aula Magna
Chair: Samuel Tobler

Source memory and collaborative learning: the role of group composition and conflicting information

Oktay Ülker and Daniel Bodemer

Source memory (SM), i.e., remembering the origin of information, is often analyzed in fields where the reliability of information must be assessed, like eyewitness testimony or advertising psychology. Paradigms used in these fields are rarely transferred into the learning sciences. We examined effects of group composition (partners with differing knowledge-levels vs. same knowledge-levels) and conflicting information (with conflict vs. without conflict) on SM and learning in a pseudo-collaborative learning scenario (128 participants). SM was analyzed with multinomial models, which allow estimations of SM unconfounded by guessing biases. Group composition and conflicting information did not influence learning, but they influenced SM: Participants better remembered which partner presented a piece of information in groups with differing knowledge-levels, especially the highly knowledgeable partner. SM was worse in a context with conflicting information. Our study demonstrates that SM-paradigms used in cognitive psychology could enrich the learning sciences by adding new perspectives to source-content links.

Students' Perceived Multidisciplinary Teamwork Skills: The Case of a Challenge-Based Learning Course

Canan Mesutoglu, Dürdane Dury Bayram-Jacobs, Annemieke Vennix and Birgit Pepin

While science and engineering students experience collaboration in multicultural teams, they frequently report improved understanding of how people from other disciplines think and act. Therefore, it is important to understand how students' skills develop to function in multidisciplinary teams. This mixed-methods research explored the changes in students' perceived multidisciplinary teamwork skills. Data was collected through a questionnaire and interviews. Findings collectively suggest perceived improvement in identifying one's own disciplinary contributions to the design decisions. The qualitative analysis also showed growth in recognizing the contributions of other discipline.

Mechanisms of Group Awareness Tool Design

Lenka Schnaubert

Group awareness (GA) is a pre-requisite for goal-oriented collaboration and thus often supported by respective tools that collect, transform and visualize GA information during CSCL. However, it is yet unclear how these tools need to be designed to best support learners. In an experimental study (N = 130), we thus systematically varied aspects of tool design and studied the effects on dyadic learning. Results show that generativity of GA-information collection affects quantity and quality of the assessed information and mental load. Simplifying the information by aggregating it negatively affects invested mental effort during collaboration and learning outcomes. Supporting between-learner comparability did not have an effect. GA-tool design is an important factor to be considered and systematic research is needed to provide recommendations for research and practice.

Teaching Biology with Narratives: Insights in Students' Understanding of Molecular Interactions

Samuel Tobler, Katja Köhler, Tanmay Sinha, Ernst Hafen and Manu Kapur

Using analogies in science education is a broadly acknowledged method to better convey abstract concepts, even though analogies can also lead to misconceptions if not used properly. Narratives instead could be helpful to tackle such misconceptions by inducing students' dissatisfactions with their explanations. To investigate the potential of narratives compared to expository texts on refuting misconceptions, we examined students' understanding of molecular interactions, focusing on the frequently reported "lock and key"-principle. Results indicate that narratives might be superior to expository texts to tackle misconceptions related to that principle. Implications and future work are discussed.