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Concept maps for collaboration -- plans for an empirical study.

When solving problems, individuals often use external representations (sketches, diagrams, or plans). Helpful external representations serve as a memory aid, make use of spatial relationships, are easy to construct and easy to interpret. The main research question is: how should external representations be designed in order to optimally support collaborative (dyad) problem solving and learning? An external representation used by a pair of persons trying jointly to solve a problem should foster learning by a) providing insight into each other's perspective on the problem, b) promoting the mutual exchange of detailed explanations and c) overcoming to some extent the ambiguity of natural language.

An experimental design is proposed to explore how pairs of subjects and individual subjects make use of external representations in a learning task. Using concept maps as an external representation for conceptual knowledge, the first question adressed in this study will be if having subjects reading off prefabricated external representation is more effective for learning than having them construct their own external representations during problem solving. A second question is if there are any differences between collaborating pairs of subjects and subjects learning individually.