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Conjoint processing of text and visuals

Not later than secondary school, students are required to integrate text and visual pictorial information into coherent knowledge structures. This raises the question of how they integrate the two different sources of information and whether there are differences between students from different school types and grades. Within the framework of an integrated view of text and picture comprehension, empirical evidence for different strategies of conjoint processing of texts and pictures based on a series of experimental studies including analysis of eye movements and comprehension measures with different task complexity will be presented and discussed. Results suggest that text and pictures serve fundamentally different functions associated with different processing strategies in goal-directed knowledge acquisition. Texts are more likely to be used for coherence-oriented general processing. They guide the learner's conceptual analysis of the subject matter which results in a coherent semantic network and initial mental model. Pictures are used as scaffolds for the initial mental model construction. However, they are more likely to be used for task-driven selective processing serving as easily accessible visual representations on demand for item-specific mental model updates. Students from different tiers of schooling reveal different adaptability with regard to the requirements of combining text and graphic information. Practical suggestions for instructional design and for teaching are pointed out.

Biography

Wolfgang Schnotz is Professor of General and Educational Psychology emeritus at University of Koblenz-Landau. His focus in teaching is on cognitive psychology and instructional psychology. He also teaches language and cognition as well as visualization with a focus on new media.

Schnotz received his PhD from the Technical University Berlin. He held positions at University of Tübingen, University of Bielefeld, University of Vienna, and University of Jena. He is now the head of the Department of General and Educational Psychology, the head of the Multimedia Research Centre and the head of the (German-Science-Foundation supported) Graduate School on Teaching and Learning Processes at the University of Koblenz-Landau.

Wolfgang Schnotz was Chief Editor of the international journal Learning and Instruction, member of the International Reading Expert Group for PISA 2009 and is editorial board member of numerous journals. He has published widely in the field of reading and listening comprehension, learning from text, comprehension of graphics, learning with hypermedia and learning from animation. He runs currently various research projects on text-picture-integration skills and coherence formation from conflicting information funded by the German Science Foundation.

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Page 24