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Representations in spatial problem solving in the classroom.

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Observations of primary students solving spatio-mathematical problems provided data for categorising and interpreting their thinking processes. A model was developed relating students' cognitive processing and their responsiveness during problem solving. The roles of responsiveness, visual imagery, and selective attention are described. Concrete imagery, dynamic imagery, pattern imagery, and action imagery were used in the problem-solving processes of the students. Other visual processes such as disembedding of a part of a shape from the rest of a configuration, analysis, and checking were also important. These processes at times seemed to play a role in selective attention. Other aspects influencing attention included intention, expectation, prior experiences, and interactions with other people. Visualising faciliated, and often steered, the problem-solving processes by which students constructed meaning.

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