

ON THE RELATIONSHIP BETWEEN EXPLORATORY  
ACTIVITIES AND METACOGNITION

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## A B S T R A C T

The basic mechanisms of metacognition are examined within a framework that considers motivation and cognition as integrated constructs. The role of exploration in this process is emphasized. The conceptualizations of metacognition and exploration adopted in the study are discussed and their assessment problems and developmental questions considered in the light of studies reviewed. An approach to exploration as a behavioural system is proposed. A series of three cross-sectional pilot studies with sample sizes, respectively, of 20, 54 and 37 subjects were carried out with children 4.8 to 6.4 years of age and these are described in detail. The aim of these studies was to select measures for the assessment of metacognition and exploration as well as for the assessment of their level of relationship. Further issues, such as the replicability of results of previous studies and manageability in the school setting were taken into account for the final selection of tasks. Various methodological issues involving longitudinal designs are theoretically examined. The procedures for the description and explanation of change are emphasized. The exploratory nature of the longitudinal study involving 30 subjects seen at three different occasions is set out in full. An analysis of the descriptive characteristics of the longitudinal sample as well as of the three control cross-sectional samples involved in the study set the features for

the central analysis of the longitudinal sample that is carried out at two levels. At the descriptive level, ANOVA repeated measures and correlational analyses plus qualitative analyses are implemented. At the explanatory level, the relationship between selected exploratory activity measures and metacognitive measures is analysed with the LISREL VI (Jöreskog and Sörborn, 1986) package of software that is employed to assess a path-analysis model. The main results are: different types of exploration change in different ways; change occurs in the understanding of mental states; conceptual exploration tasks, 01] the first occasion of the longitudinal study, predict metacognitive performance 01] the two subsequent occasions; manipulatory exploration has a weak and unstable predictive pattern for metacognitive tasks; exploratory activities, in general, loose their predictive power for metacognitive tasks with time. The two major conclusions drawn from the study are: 1) that the importance of exploratory activities for metacognition lie in the preschool years; 2) that they help with the development of metacognitive knowledge rather than with executive control processes, such as monitoring.