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Analyzing and stimulating strategy flexibility: The case of indirect addition

05/06   Dr Lieven Verschaffel, Centre for Instructional Psychology and Technology, University of Leuven

Symbolic subtraction problems of the type $a - b = ?$ can be flexibly or adaptively solved by various strategies, including the indirect addition strategy ("how much do I have to add to b to get at a?"). This seems especially the case when the difference between the two given numbers is (very) small, as in $51 - 49 = ?$ or $602 - 598 = ?$ Little research has been done on the flexible or adaptive use of the indirect addition strategy with multi-digit numbers. The research seminar will entail a summary of several recent and closely related studies done at our centre on this issue. These studies integrate cognitive-psychological and socio-constructivist perspectives on strategy change and strategy choice, and make use of various research methods (including the choice/no-choice method and the microgenetic method), and, as such, are representative for our theoretical and methodological approach of the issue of strategy flexibility or adaptivity. Taken as a whole, our studies reveal, on the one hand, that young adults tend to apply the indirect addition strategy quite frequently, efficiently, and adaptively to solve subtraction sums. On the other hand, our results show that elementary school children use this strategy remarkably rarely. I will end with a discussion of some broader theoretical, methodological, and educational implications of the studies being reviewed.

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