An application of multiple correspondence analysis: quantification of problem solving categories used for a set of items at two occasions

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Abstract

Pupils' strategies for solving a set of long division problems at two occasions in Dutch primary schools were grouped in a number of categories, mainly according to the level of making multiples of the divisor to be taken from the dividend. These categorical data were quantified with multiple correspondence analysis (HOMALS) resulting in two relevant dimensions: use of schematization and use of number relations. Changes in strategy use were mapped onto both dimensions. These strategy developments depended on individual differences and school characteristics: pupils' prerequisite knowledge level and the type of textbook used.

References

Anghileri, J., Beishuizen, M., & Van Putten, K. (2002). From informal strategies to structured procedures: Mind the gap! Educational Studies in Mathematics, 49, 149-170.

Van Putten, C.M., Snijders, P.A., & Beishuizen, M. (2002). Progressieve mathematization of long division strategies in Dutch primary schools. Leiden University, Department of psychology. Manuscript submitted for publication.