Research Bibliography:
Calculators (four function)

Keith Jones

This bibliography lists research that has investigated the use of four function calculators in the teaching and learning of mathematics. The bibliography is not intended to be exhaustive; rather it details some of the most relevant studies and reviews across the range of research that has been published.

Cole, C. & Newson, G. (1996), Primary Children’s Views on Using Calculators in School, Mathematics Education Review, 7, 42-49. Found that primary pupils are positive yet wary of calculators (and, in the latter case, even when their primary schools profess to be positive).


Groves, S. (1997), The Effect of Long-Term Calculator Use on Children’s Understanding of Number: Results from the ‘Calculators in Primary Mathematics’ Project, Proceedings of the 16th Biennial Conference of the Australian Association of Mathematics Teachers, 150-158. Evidence from large-scale project that found that children with long-term experience of using calculators performed better than children without such experience on a range of computational and estimation tasks and had better understanding of the number system.


Ruthven, K. (1995), Pupils’ Views of Number Work and Calculators. Educational Research, 37(3), 229-237. Found that secondary school student preferences for using/not using calculators was associated with both their degree of enjoyment of number work (and confidence in calculation) and their degree of scepticism about the legitimacy of calculators (or lack of confidence in using them). Primary schools had great influence on the formation of attitudes about calculators.

use of calculators was associated with higher performance (but note that the more able students were more likely to have calculators). Overall, the effects of calculator access were found to be small but detectable.

Confirms that when the statutory curriculum specifies the use of calculators, teachers will make use of them in teaching but that they feel that they need further professional development in order to use calculators most effectively in their teaching.

Other useful books and reports

Useful set of paper from a conference held in Houston, Texas, in May 1992.

A compendium of the six evaluation reports on the UK “Calculator-aware Number” curriculum project (known as CAN). Contains information on ways that primary schools might incorporate calculators into mathematics teaching.

School Curriculum and Assessment Authority (1997), The Use of Calculators at Key Stages 1-3. Hayes: SCAA.
Useful discussion paper that surveys calculator use in England. Contains an authoritative, but brief, review of research on calculator use.

An account of the work of the UK “Calculator-aware Number” curriculum project (known as CAN) which ran from 1986-1992.

Reviews research findings about the computational needs of children (in relation to mathematical understanding through mental and written computation and calculator use) and suggests what might be the curriculum implications.

Research Bibliographies

Every year hundreds of teachers engage in classroom-based research for a variety of purposes. As more and more opportunities arise for teachers to get support for engaging with research, MicroMath is devoting a section to a series of research bibliographies designed to provide details of the most pertinent research on using particular ICT applications in the teaching and learning of mathematics.

Sources of support for classroom-based research continue to change and, at the time of writing, a number of the sources listed in the last issue of MicroMath (vol 18, number 3; Autumn 2002), including the BECTa ICT Research Bursaries, are no longer available. The DfES Best Practice Research Scholarships (BPRS) scheme is also likely to change, although firm details are not yet available. It may be that the BPRS scheme becomes subsumed within plans currently being discussed for it to become the norm that all teachers complete a Master’s degree, to include a suitable research study, within five years of qualifying. MicroMath will endeavour to provide updated information as it is published.

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