

TEACHING AND LEARNING NUMERACY: POLICY, PRACTICE AND EFFECTIVENESS

BERA NATIONAL EVENT REPORT

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The BERA national event relating to numeracy took place on Saturday February 26th, 2000 at the School of Education at the University of Exeter.

Although there is no BERA Special Interest Group (SIG) in mathematics education, a similar function is fulfilled by an independent organisation, the British Society for Research in Learning Mathematics (BSRLM). BSRLM is a vigorous group which has been in existence for nearly 20 years, and in embryo form for even longer. Recently BSRLM has begun to work more closely with BERA, for example by sponsoring symposia at the BERA Annual Conference.

It therefore made sense to organise the BERA National Event on Numeracy Research as an integral part of a BSRLM Day Conference; indeed by fitting it into an already planned conference we were able to arrange it earlier than would otherwise have been possible. It seemed important to time the conference early in the year 2000 not only because primary schools are in the middle of implementing the National Numeracy Strategy, but also because 2000 was agreed by UNESCO to be World Mathematics Year (a fact that has been carefully suppressed in the UK where the British Government have launched our own Maths Year 2000 as if it was merely another bright idea of New Labour).

The aim of the BERA National Event was to review British research in the area of numeracy and to discuss the implications of this both for professional practice and for future research agendas.

As organiser of the BERA event, and as a basis for the resulting research review to be published by BERA, I tried to identify some key aspects of research relating to numeracy, and then asked an expert in each area to provide a brief (< 1500 words) draft review of relevant UK research, outlining some key issues and findings, together with implications for practice. I was fortunate that every one of the people I approached agreed to undertake the task, in one case jointly with a colleague, and during the fortnight before the conference the papers steadily appeared on the BSRLM web-page.

It was hoped that posting the papers beforehand would help people attending the conference to become familiar with them in advance and thus be better able to

contribute constructively to the debate, although inevitably not all participants were able to access them and study them in time.

In theory the programme was as follows:

10.45-11.45

Learning numeracy concepts: Terezhina Nunes (Institute of Education) (45 minutes)

National numeracy policies: Margaret Brown (King's College London) (15 minutes)

11.45-1.15

Mental methods : Ian Thompson (University of Newcastle) (30 mins)

Recording and written algorithms: Julia Anghileri (Homerton College, Cambridge) (30 mins)

Effects of technology on curricula and classroom practice: Ken Ruthven (University of Cambridge) (30 mins)

2.15 - 3.15

Teaching and learning in the early years: Penny Munn (University of Strathclyde) (30 mins)

School numeracy in relation to home cultures: Guida de Abreu (University of Luton) (30 mins)

3.15-4.15

Teaching numeracy: Mike Askew (King's College London) (30 mins)

Initial and continuing professional development of teachers: Tony Brown and Olwen McNamara (Manchester Metropolitan University) (30 mins)

In the event the transport system did its best to sabotage the programme. Although the starting time had allowed for trains from most of the country to converge on Exeter, it could not have been anticipated that the engine of the Manchester train would catch fire on the final stretch of the journey! This meant that this and at least three trains queuing up behind it, including the London train, were each nearly an hour and a half late, which mean that there were a lot of frustrated maths education researchers stuck on board, especially some who had got up at 4.00am on a Saturday morning to get there! Richard Branson has a lot to answer for!

But luckily Terezhina and Ian stalwartly held the fort chairmanless until Julia, Ken and I arrived just after 12 o'clock, and the only casualty was my initial short input on policies, which was at least available in circulated copies.

The events were well-attended, with the audience varying between 40 and 80 researchers (depending on the strength of rival attractions in the BSRLM programme) and including researchers from Holland and Australia.

Perhaps unsurprisingly, recent government initiatives, including some aspects of the National Numeracy Strategy, came in for a hammering as being inconsistent with the research base. It is impossible to summarise each contribution, but some examples of controversial points which emerged were:

- the effect of shifting the focus of early years teaching to abstract ordinal counting rather than cardinal strategies relating to sets of objects;
- related to ordinal v. cardinal is the question of place-value or quantity value (e.g. at what stage should the 3 in 38 be identified as 3 tens rather than thirty?);
- the need for standard as opposed to effective calculating algorithms;
- the lack of convincing evidence that use of ICT is a positive factor in raising long-term standards;
- the possible reasons for poor performance of some ethnic minority groups;
- the fact that holistically based practices rooted in teachers' beliefs and/or cultures seem to be more salient than technical factors in relation to effective pedagogies;
- the effects of the reduction in the length of initial and inservice training.

Each reviewer in turn expressed their surprise at how little exclusively British research there was, and how much we relied on the USA in particular for most of our education research in primary mathematics. Some pointed out that computer-based literature searches in this area were a surprisingly blunt tool; in the end there was no substitute for personal knowledge and sitting in a library trawling through piles of journals!

It was clear that despite the attempts of Virgin trains the day successfully raised lots of issues. However it was also clear that I had been over-ambitious in trying to pack too much in; there was frustratingly just too little time both for each reviewer to identify key findings in their area and for a full discussion by the audience.

Nevertheless some additional sources were usefully identified and some contested interpretations were highlighted.

Hopefully, the BERA Event can be regarded as the launch rather than the end-point. It is clear that we have begun to identify an agenda both for debate and for research in various aspects of numeracy. It is convenient that the latter aspect will inform a conference of representatives of mathematical organisations and policy advisers being planned for October, with the brief of agreeing a coherent agenda for research in mathematics education. This also relates to Maths Year 2000, and is convened by the Committee of Professors in Mathematics Education.

Meanwhile we hope that everyone who has any interest in primary numeracy will read and consider the draft review sections, whether they attended the conference or whether they just download them from the BSRLM website at

<http://www.warwick.ac.uk/BSRLM/Exeter00/Exeter00.htm>

Authors will be revising drafts and constructive comments and suggestions for amendment are very welcome as long as they come to me by the end of April at the address below, preferably by e-mail (I will forward them to the authors if appropriate). The Review will be published by BERA as soon as we can get it out, and will also inform the new DfEE data base of educational research in the UK. The joint editors are Mike Askew and myself.

Meanwhile I am particularly grateful to the contributing authors who did all the hard work of reviewing, conceptualising and presenting the research, to the BSRLM Executive and especially to Candia Morgan and the local representatives who organised the day so efficiently, and to Dave Pratt who looked after the website with great promptness. Watch this space for the final product!

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