

## **MATHEMATICS EDUCATION AND POLICY**

### **WORKING GROUP REPORT**

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*This was the initial exploratory meeting of a Working Group on policy issues in mathematics education. Colleagues studying/researching the effects of the numeracy strategy, SATs, OfStEd, TTA policies, the Smith Report participated in discussing the implications of DfES and TTA policy for pupils, teachers, parents and schools. The aim of this first session was to gain an overview of what people are doing and also to begin to identify what research needs doing by the maths education research community regarding policy and mathematics. Each participant outlined their research and/or interests relating to policy, as well as identifying what they thought we should consider as a community. Following a short presentation there was further raising of, and discussion around, key issues relating to mathematics education and policy.*

#### **RATIONALE**

This working group developed due to a concern about a perceived gap in mathematics education research literature in the area of policy. In recent decades the a raft of governments mandates and advice has sought to alter the landscape of school mathematics (Noyes, 2004), sometimes in subtle ways and at other times in far more dramatic fashion. This group convened to consider what we know about the impact of these policy shifts and what research might need to be carried out to further evaluate the impact on learners of mathematics. A number of starting questions were posed in this first session:

- How will mathematics education be shaped by the education, political and economic fields in the next 10 years?
- How will/might the mathematics education research community contribute to policy and/or policy thinking, whether through subject pedagogy, social and critical perspectives, curriculum theory, etc.
- What theoretical resources might be brought to bear on policy issues in mathematics education?
- What research needs doing and how can we better disseminate this to ensure high impact?

#### **DISCUSSION**

A large part of the working group session was dedicated to the sharing of research interests, intentions and concerns related to the theme. These are summarised below and will inform the agenda for further meetings of the working group:

- How does policy get made and changed?
- Need for research on retention, career patterns, overseas teachers
- Minimising effect of policy
- How do different discourses, official and unofficial, help people to make sense of what's going on in maths classrooms?
- How do primary teachers in training process the National Numeracy Strategy?
- Project nature of Government policy and how they (projects!) die, i.e. short-termism
- How do teachers make sense of themselves and children?
- A sense of powerlessness.
- The 3-tier GCSE and its effects.
- Textbooks published by exam boards
- Thinking and practice of beginning maths/science teachers
- Effects of regulation.

These interests are predictably diverse and one of the aims of the group will be to identify areas in which useful research and dissemination might be carried out. What we mean by policy research is also varied and although all of the above are policy-related for some the relation is close and for others it is more distant.

### **A MATHEMATICS EDUCATION POLICY TRAJECTORY**

Following the participant contributions Andy Noyes offered one very abbreviated view of mathematics education policy in the last twenty five years (although it was pointed out by one participant that the discipline does have a pre-Cockcroft history!) Any attempt to do this kind of policy trajectory analysis in this setting would of course omit important factors in the development of the subject but nonetheless this kind of work is useful in trying to theorise how we come to have the current curriculum form with its associated assessment and resource paraphernalia. A summary of key policy pointers could look as follows:

#### **1980s**

- Cockcroft Report (1982)
- Education Reform Act (1988)
- National Curriculum – evolving/levelled/hierarchical

#### **1990s**

- A decade of testing: Ofsted/SATS/league tables/government targets
- International comparisons – TIMSS (1995, 1999)
- National Numeracy Project and Strategy

- Key Skills: numeracy (as part of a neo-conservative back-to-basics agenda)
- Basic Skills Agency Report (Bynner and Parsons, 1997)
- Claimed ‘improvements’ in numeracy (Brown, Askew, Baker, Denvir, and Millett, 1998)
- Standardisation of ITE

## **2000s**

- Frameworks and Strategies: further pedagogic prescription
- Curriculum 2000: impact upon mathematics options, attrition and outcomes
- Further TIMSS (2003) and PISA (2000, 2003)
- Smith Report:
  1. “shortfall of specialist mathematics teachers”
  2. “failure of current curriculum, assessment and qualifications framework...to meet the needs of many learners and to satisfy the requirements and expectations of employers and higher education institutions”
  3. “lack of resources, infrastructure and a sustained CPD culture...”
- Tomlinson... “functional mathematics”
- Mathematics ‘Champion’ and national centre
- Ongoing enrolment issues at AS/A2 and degree level.
- Ongoing under-recruitment to maths ITE courses.

A more systematic sociological policy trajectory analysis would probably be useful at this current time when there are considerable concerns about mathematics education. For us these concerns include

- The powerful role of mathematics as gatekeeper, e.g. the impact of the new diploma that repositions maths as a potential barrier to future success
- Teaching practices that recreate hierarchies along lines of class, race, gender, etc.
- The nature of mathematics curriculum, pedagogy and assessment and how these create, exacerbate or ameliorate the problems in mathematics education.

## **LOOKING AHEAD**

The group decided that it would be worthwhile proceeding in future BSRLM conferences and was particularly interested in considering how we might better disseminate the research that is already in existence.

## **REFERENCES**

Brown, M., Askew, M., Baker, D., Denvir, H., & Millett, A. (1998). Is the National

Numeracy Strategy Research-Based? *British Journal of Curriculum Studies*, 46(4), 362-385.

Bynner, J., & Parsons, S. (1997). *Does Numeracy Matter? Evidence from the National Child Development Study on the Impact of Poor Numeracy on Adult Life*. London: Basic Skills Agency.

Noyes, A. (2004). Learning Landscapes. *British Educational Research Journal*, 30(1), 27-41.