

## **Subject Specialism: Consultation**

### **Response of the Association of Teachers of Mathematics**

#### **Preamble**

As a member of the Subject Associations Working Group (SAWG) we have already contributed to that response. Here we make our own response as The Association of Teachers of Mathematics. Many of the following comments consider issues in the teaching and learning of mathematics.

1. Teacher professionalism and the role of subject specialism
  - a. The Association of Teachers of Mathematics fully concurs with paragraphs 1, 2 and of the consultation document that teachers who are passionate about their subject are more likely to fire the interest and enthusiasm of learners. However, in mathematics in particular, such teachers are in short supply. A recent report (1) indicates that 15% of secondary mathematics lessons are taught by teachers with 'weak' or 'nil' mathematics qualifications. [The comparable figure for 1996 is 9% (DfES, 2002)]. The same report said that only 37% of the appointments made in 2001-2002 by the 228 schools in the survey were perceived to be 'good' appointments.
  - b. Members of subject associations are enthusiasts for the subject and spend time engaged in the subject outside their teaching commitments. For many subjects this is a common activity – history teachers often read and discuss history with others – it is seen as a usual interest. The exploration and discussion of mathematics is not seen in the same light and is not always engaged in by teachers of mathematics beyond their departments. If the teaching of mathematics is to be enriched and developed this position needs to be challenged and changed.
2. Subject specialism and the quality of teaching in schools
  - a. Teachers who engage with mathematics and not solely with its algorithmic application are in a stronger position to inspire and develop the learner. As an aside, the current ATM chair of the Association's general council has spent several weeks over a number of years observing the teaching of mathematics in Hungary. His research indicates that teachers in that country are successful, in part at least, because their teaching is rooted in a joy of a subject that is untainted by any sense of utility or concern with application. In short, there is no curricular ambiguity in that country, only a curriculum rooted in the uniqueness that is mathematics and mathematical problem solving. Nowhere in the National Curriculum for mathematics in England is there an explicit statement concerning the unique knowledge-generation that is mathematics.
  - b. It is the knowledge generation and the engagement of learners in mathematics and problem-solving that is currently so seldom seen in many mathematics lessons.

- c. The aims of the Association of Teachers of Mathematics and its guiding principles focus on the learning of mathematics and the understanding of how people learn mathematics. This is an important feature. Able and enthusiastic mathematicians who understand the many ways in which people approach and learn mathematics are naturally the best mathematics teachers. There are some able mathematics graduates currently teaching mathematics who do not engage with the subject and who have not unpicked how people learn mathematics. Likewise there are some teachers teaching mathematics who have excellent pedagogy – they understand how people learn mathematics – often because they are still learning themselves – but lack a sufficiently deep understanding of mathematics. These two groups of teachers need defined and supported opportunities to develop their knowledge and understanding of both mathematics and its learning.

### 3. Existing sources of support for subject specialism

- a. The Association of Teachers of Mathematics recognises the efforts, to address the needs of mathematics, that have been made through the National Numeracy Strategy and the Mathematics Strand of the Key Stage 3 National Strategy. However we are concerned that, through individual and collective interpretation of the frameworks, many of the important links in mathematics have been lost.
- b. This disconnection has been exacerbated by some of the other published materials that are used indiscriminately in some mathematics lessons.

### 4. The development of subject specialism

- a. ATM welcomes the commitment to a National Centre for Excellence in Mathematics. Whilst we recognise that mathematics is central to the future of economic success and underpins progress in science, engineering etc we would be reluctant to endorse any centre that does not promote mathematics and its learning for its own sake. It is that fascination for and in mathematics that ensures learners make progress. If the fascination and enjoyment is lost then students will disengage and will not be able to use their mathematics in other fields of study should they so wish.
- b. The National Centre should draw together, coordinate and extend current support and development for mathematics and quality assure mathematics continuing professional development.

### 5. The role of subject associations.

- a. The following is premised on a belief that learning is a collaborative activity. In particular, the nature of mathematics and the need for learners to discuss, challenge and have challenged their thinking is an essential component of the learning process. Subject Associations like the ATM provide the means by which colleagues can work together in a variety of ways.
- b. Subject Associations clearly have an important role to play in the development of teachers' professional knowledge. To focus on subject knowledge independently of pedagogic we believe is naïve and the strengths

of an association like the ATM lies in its members' well developed and integrated subject and pedagogic knowledge. One means by which subject associations might support teachers' development in this area is through consultancy; within their ranks they include much of the expertise that could inform the thinking of bodies such as the National Centre for Excellence.

- c. Subject Associations provide the means by which colleagues can come together in informal and unrestricted ways. They allow for the sharing of ideas and resources and offer their members opportunities to reflect on practice in ways that current models of in-service, which are focused on specific imperatives, can not. They allow for individuals to exercise choice in respect of what they may do and when they might do it. Many subject associations operate a branch network and in such activity much worthwhile, but autonomously constructed, professional development takes place. Our view is that support given to subject associations would enable them to develop such models further.
- d. The role, and the professional skills, of the advanced skills teacher (AST) could be significantly enhanced if they were to be encouraged to work with Subject Associations, where much warranted practice and expertise lies. It strikes us as bizarre that, to the best of our knowledge, a substantial proportion of mathematics ASTs do not belong to either of the mathematics-focused Subject Associations.
- e. We are aware, as an association, that too many teachers of mathematics are neither members of a Subject Association or willing engagers with mathematics beyond the confines of their day-to-day professional activity. It is our view that membership of a Subject Association should be compulsory for all teachers but that payment for membership should lie with the employer. In such a way, they will have an implicit, and hopefully, explicit exposure to the activities and opportunities that such membership entails.
- f. Subject Associations, as they do already in some areas, can support the work of local education authorities by providing specific expertise where it is needed. Current models of LEA in-service provision, frequently driven by imperatives outside the remit of the development of subject knowledge and pedagogic expertise, too rarely offer colleagues opportunities for extended engagement with mathematics itself and the pedagogic implications of their learning. Subject Associations are able to provide the expertise, the models of working and the personnel necessary for such work.

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Association of Teachers of Mathematics  
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