

Assessment – an ATM position paper

We produced this paper about the impact of current assessment arrangements in English state schools on mathematics learning, using our own observations and also the evidence of colleagues who teach mathematics. While recognising that the increased use of national tests appears to have led to an improvement in mathematical learning, particularly in primary schools, we are concerned about some of the uses to which test results are put, for example their use in connection with league tables and performance management.

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Distortion of the curriculum

- Assessment through timed, written tests cannot, by its nature, adequately assess the problem-solving skills and mathematical thinking required by the *Using and Applying Mathematics* strand of the National Curriculum.
- Current modes of assessment assess only a small part of what is involved in being a good mathematician. QCA itself appears to admit this. Their guidance for identifying pupils gifted at mathematics states that ‘formal testing alone is insufficient as a basis for identification. It is often helpful for teachers to provide enrichment and extension activities and to observe pupil responses to challenging activities’.
- The present regime encourages the curriculum to be delivered so that pupils can do well in a test tomorrow rather than develop the skills to become lifelong learners.
- Teachers feel they have to ‘teach to the test’, because they have performance targets to meet, which may affect their pay.
- Schools feel that they have to play safe and manipulate the system in order to achieve good NC test results and good GCSE and AS/A2 grades, because of the importance attached to league tables.

Effect on teaching styles

- Teachers need courage, and encouragement, to teach in ways that will help learners to develop their ability to be independent and autonomous thinkers, who are able to tackle non-routine problems with confidence. Learners who have these qualities do not have them assessed in tests and examinations. Hence, there is no payoff for teachers whose performance is judged by the results of these tests and examinations.
- Schools are worried about their performance in KS tests, GCSE and AS/A2 exams, because of the significance attached to these results in judging the qualities of schools. Hence some school managers impose their own assessment arrangements, in addition to the official statutory ones, which restrict teachers’ opportunity to teach in more flexible ways. As the saying goes: the pig doesn’t get fatter by constantly weighing it.
- Teachers feel they have to get through the topics prescribed by the National Strategy frameworks or the GCSE/AS/A2 specifications. This means that they feel they have no time to find opportunities for learners to appreciate the ‘awe and wonder’ of mathematics or to find time to ‘stand and stare’.

Assessment for learning

In May 2002, QCA sent all schools a pamphlet produced by the Assessment Reform Group. You can download this pamphlet from www.assessment-reform-group.org.uk. The pamphlet describes assessment for learning as the process ‘of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to go and how best to get there’. Advice is offered to teachers about how they can incorporate the

principles of assessment for learning into their classroom practice. ATM would like the DfES and QCA to incorporate these principles into their policies. For example:

- ‘Most of what teachers and learners do in classrooms can be described as assessment’ [So why does the DfES and QCA give teacher assessment such low status?]
- ‘Teachers should be aware of the impact that comments, marks and grades can have on learners’ confidence and enthusiasm’ [And it is the DfES that has the most impact by imposing KS tests.]
- ‘Assessment that encourages learning fosters motivation by emphasising progress and achievement rather than failure.’ [Does the process of allocating KS levels and GCSE grades encourage learning?]
- ‘Motivation can be preserved and enhanced by assessment methods which protect the learner’s autonomy’ [So why not allow teachers to assess through portfolios of evidence?]

Paul Black and Dylan Wiliam have now produced two excellent pamphlets summarising their research findings, *Inside the black box* (1998) and *Working inside the Black Box* (2002). A third pamphlet, *Beyond the black box* (1999), has been produced by the Assessment Reform Group. You can find out more about these pamphlets on www.assessment-reform-group.org.uk. Some of the key points in the 2002 pamphlet are these:

- Formative assessment *can* improve performance in SATs and GCSEs.
- It is not a ‘bolt-on’ sequence of tactics, but has to be integrated into planning, teaching and learning.
- It is difficult for teachers to put the findings of the researchers into practice, because ‘they do not tell you what to do’.
- Here are some key strategies used by maths teachers involved in the research project:
 - sharing the objectives of the lesson with pupils
 - observing and listening to pupils (especially when working in groups)
 - questioning using open questions; inviting pupils to explore their ideas and reasoning
 - setting tasks which require pupils to use certain skills or apply ideas
 - asking pupils to communicate their thinking in a variety of ways
 - discussing words and how they are being used
 - involving pupils more in setting questions for themselves or others to solve
 - using ‘comments-only’ marking (no marks, levels or grades)
 - using peer assessment of written work
 - helping pupils understand marking criteria for GCSE coursework
 - trying out self-assessment techniques (traffic lights!)

Effect on learners

- Some recent research has indicated that the more children are tested and graded the less motivated they become.
- In recent research based at King’s College, London, pupils in Y6 expressed their bewilderment about the emphasis on tests by saying “We want to help each other, but we can’t now. It’s cheating.”
- We need to foster the kind of teaching in mathematics, as a result of which learners enjoy mathematics, understand its power, want to know more about it and, above all, feel confident about their ability to do mathematics. Further research on adults born in 1970 shows that their self-esteem and self-confidence at 10 was as important as their academic ability in predicting later achievement.
- There is anecdotal evidence (e.g. as reported in TES in May 2002) that pupils of all ages are now suffering from stress because of the KS tests and GCSE and AS/A2 examinations.

- Learners who are stressed are less willing to learn and find it more difficult to access the opportunities offered to them.

Recommendations

- Give a greater weight to the full range of assessment instruments, including teacher assessment and portfolios of evidence produced by the pupil.
- Reduce the amount of formal testing – it has been claimed that over the five-year period of KS3 and KS4 the equivalent of one year is taken up with testing or examining.
- If the principles of the 14-19 consultation document are followed through to their logical conclusion there is no need for formal assessment at 16.

Postscript

At recent meetings between the mathematics associations and QCA the suggestion has been put forward that just sampling a range of schools at the end of each key stage could provide DfES and QCA with sufficient evidence of national standards. If this was adopted it would have to lead to changes in the current uses made of data at LEA level.

ATM hopes you will discuss this idea with colleagues (bearing in mind that current systems for monitoring levels of achievement would have to change for schools, LEAs and DfES) and let us know your thoughts by emailing <mailto:barbaraball@atm.org.uk>.

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