Evaluating Mathematics Pathways Project
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Interim Report - Executive Summary

Stage 3
January - April 2008

1. Executive Summary

This interim report is the second report from the EMP Project and arises from the evaluation activity of the EMP team during the short Stage 3: January to April 2008. All major aspects of the Stage 3 plan have been met. We have visited over fifty centres, several on more than one occasion, that are piloting various combinations of functional mathematics and GCSE qualifications. We have surveyed centres across the full range of qualifications and have also undertaken a detailed scrutiny process of a full suite of current GCSE, pilot GCSE and functional mathematics papers.

Although much progress has been made in developing these new mathematics qualifications there is still work to be done in clarifying the distinctive nature of each of the pathway components, and how these components fit together into coherent learning pathways for students. Of particular concern at this point in the evaluation process are functional mathematics and the two GCSE awards. Teachers are currently trying to understand how best to prepare students for these awards and the most appropriate stage at which to enter candidates.

Two important decisions (Recommendations 2 and 3) are yet to be made and could have considerable impact on how these mathematics pathways develop. We understand that work is progressing in this area but suggest that unless decisions are made fairly soon this could compromise the opportunity for ample developmental discussions to take place before giving awarding bodies the space to develop distinctive and effective qualifications.

***Recommendation 1*:**

Modelling of the *hurdle*, i.e. level 2 functional mathematics as a necessary precondition of access to 'good' grades at GCSE mathematics (and *additional* mathematics), needs to be given high priority following the June examinations.

Recommendation 2:

The intended qualification status of *additional* mathematics should be clarified, i.e. whether it can count as the mathematics grade in the 5A*-C count beyond the duration of the pilot. Although both GCSEs count for this performance measure during the pilot phase we anticipate that what happens when qualifications are rolled out will have an impact upon participation rates.

Recommendation 3:

Greater clarity would be helpful regarding government expectations for participation rates in *additional* mathematics as this has a direct bearing on Recommendation 4. Varying estimates from 'most or all' down to 50% have been suggested and this difference is significant for future learners and current pathway contractors, both in terms of their work with centres and in the design of qualifications.

Recommendation 4:

The purpose of *additional* mathematics should be clarified; particularly as in its present form it is not meeting its aims and objectives (see Section 4.3)

One of the EMP team's aims is to examine how mathematics pathways are emerging. Through our work in centres we have found that there is a significant potential discontinuity at 16, both in terms of student learning and in the ways that teachers of mathematics work together to ensure curricular and pedagogic coherence for students. We have so far only explored this from the 11-16 perspective but will shortly be working in colleges and sixth form centres and will be exploring how the relationships between 11-16 and post-16 centres might impact upon the development of pathways in students' mathematics learning.

Recommendation 5:

Good practice in KS4-post-16 liaison, particularly where teachers of mathematics are effectively collaborating regarding student progress and curricular and pedagogic coherence, needs to be identified and disseminated.

In order to make distinctive qualifications and successful learning pathways there is much to be done in the development of assessments. Following the scrutiny work undertaken in Stage 3 we made the following two recommendations:

Recommendation 6:

There needs to be urgent discussion about the nature of the design of the pilot qualifications so that each develops a more distinctive profile and better measures the mathematics that it sets out to assess. Such discussion should be informed by considering the likely experience of learners in working towards the assessment.

Recommendation 7:

Careful consideration is needed of how to better assess mathematical process skills. To ensure that learners are encouraged to cope with mathematical problem solving, in both real world and mathematical contexts, consideration should be given to introducing less highly structured assessment than is currently prevalent.

EMP Management Group

30th April 2008