MEP INTERIM REPORT
Evaluation of Cohort 1, Year 1

In September 1996, 95 schools (comprehensive, grant maintained and independent) in England and Wales took part in the first year of MEP with their Y10 cohort, involving about 500 teachers and 12,000 pupils. This report presents the main findings of the first year's evaluation, although further detailed analysis on the correlation between various factors will be undertaken with both this data and the data from the GCSE results for Cohort 1, enabling a more comprehensive evaluation to be undertaken and published later in the year.

This report focuses on the four main aspects of the evaluation:

1. value added data, showing progress in Y10,
2. analysis of the pupil questionnaires, given at the end of Y10,
3. analysis of the teacher questionnaires, given at the end of Y10,
4. observational and interview data obtained by CIMT.

1. Value Added Data
We encouraged all project schools to use Kassel Project tests at the beginning of Y10 and Y11 so that:

(i) we would have a measure of pupil progress in Y10,
(ii) we could compare this progress with the 'standardised' progress made by Y10 pupils in the Kassel Project.

Currently, we have received data from only about one third of our schools, although we do hope that this proportion will be greater for Cohort 2.

The data, though limited, are nevertheless very interesting. We computed each pupil's gain/loss over Y10 compared with Kassel Project pupils of similar ability and attainment at the start of Y10. The class average gain/loss and the school's overall gain/loss were also computed. The School Performance Indicators (PI's) are listed in Appendix 1. On the whole, they are positive and give us confidence that in most schools the project is working well and enhancing learning. The PI's were based only on the Potential and Number test results and as our questionnaire responses indicate considerable gains in algebra, it seems likely that the PI's are an underestimate of the total gains made during 1996/7.

It should be noted that even in the schools with an overall negative PI, there were classes which had positive PI's.

The schools with significant positive (or negative) PI's were given priority on our visits and our findings are reported in the final section.

2. Pupil Questionnaires
The results so far are summarised in Appendix 2, although not all the data has been inputted yet. However, the sample size is now large enough to make major changes unlikely.

The responses to the final questions gave us both satisfaction and hope for the future:
Has MEP succeeded in raising:

a) your level of understanding of basic concepts? YES 84%  NO 16%

b) your own expectations of what you can do? YES 75%  NO 25%

We were interested to see that maths lessons had actually changed (see A1), although we are concerned about the 6% who responded Not at all. There were also positive responses to the MEP whole-class teaching style (A2) and the responses to working at the board did show that most teachers were putting this recommendation at least partially into practice. There were, though, 15% of pupils who Never worked at the board.

The resources seem to have been a great success; for example in C1e, 38% of pupils thought that the Pupil Texts were much better than their previous books and another 37% a little better. They were particularly keen on the:

• worked examples
• clear explanations
• clear layout and setting out of working

in the Pupil Texts but did not like the uncertainty of not knowing whether the answer given at the back of the book was correct! They were also keen to have worked examples in the Practice Books.

It was interesting to see some pupils regularly took the Pupil Text home (about 30% - C1b) whereas a significant number (40%) Never did. This is when correlation with progress will give us some indication about the best use of the resources.

In the open questions, algebra was by far the most popular response to the question, Which part of your maths has improved most? (A10) – but note that it was also the most popular response to the following question, Which part of your maths still needs improving? (A11).

We were also pleased to note that most pupils have been working harder (D1) and gaining confidence in their mathematical ability (D5), although 69% thought that they could do better (D6) by working harder, concentrating more, going to more lessons and even getting a different brain!

One other aspect which deserves a mention is what happens when pupils are absent from a lesson (A12). Note that on average each pupil missed more than 5 lessons during the year and the majority responded with copied from a friend’s book (34%), caught up at home (11%) or asked a classmate (9%), while only 10% asked the teacher. These responses do not entirely tie up with the teachers’ responses to a similar question (see Section 3).

Overall, the responses were encouraging and most pupils seem to have a more positive attitude towards mathematics.

3. Teacher Questionnaire

Again, the evaluation was generally very positive. For example, the response to the last question:

In your opinion, has MEP succeeded in raising:

a) your own expectations of what your pupils can do? YES 69% NO 31%

b) your pupils’ level of (i) attainment YES 84%  NO 20%  
    (ii) understanding? YES 82%  NO 18%

does give us confidence that in most schools MEP is working well.
It was interesting to note that all but 6% of teachers thought that their teaching style had changed (indeed 30% by a lot!) (A1), although we would have liked to have seen even more mental work and more regular use made of pupils working at the board. We were disappointed that, as yet, sharing experiences was not taking place (over 50% had never been seen teaching or had the opportunity to see others teach). We hope that this will change in the future!

We also note that many teachers felt that there was either a lack of time to use the resources beyond the Pupil Texts and Practice Books or the resources were too difficult for their particular class. The Revision Tests also caused problems, with many teachers adapting or ‘picking and choosing’ questions rather than using the complete test.

Coming back to the problem of pupil absence, the main response to the question, If pupils were absent, what help were they given to catch up? were:

<table>
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<th>A8</th>
<th>Help given during breaks/lunchtimes</th>
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<tr>
<td></td>
<td>Individual help given</td>
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<td>Pupil copied from friend’s notes.</td>
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and these responses were somewhat at odds with the pupils’ responses, which seemed to imply that pupils relied mainly on help from classmates. This is a vital issue, not only because maths is a very linear subject but also because the MEP teaching philosophy makes the teacher’s role even more crucial.

Overall, though, the responses were encouraging and we are pleased that, despite some of the problems of implementation (e.g. too much to cover in the time, end of unit tests too difficult, etc.) a positive view dominated.

4. Observations and Interviews

Regretfully, one aspect of the evaluation, that of observing and discussing issues with pupils and staff, becomes of necessity a lower priority when deadlines for resources have to be met! However, we did manage to visit quite a number of our project schools and were heartened by the welcome we received.

As in the Kassel Project, this is undoubtedly the most enjoyable (and probably most important) part of the project. Although the development of resources has often seemed to dominate, we must keep reminding ourselves that it is the effectiveness of the teaching philosophy which is the most crucial aspect for analysis.

We have seen a range of teaching strategies in the variety of schools visited – many very close to what we were looking for and taking on board most of our recommendations, but others in which MEP has clearly made little impact – yes, MEP resources were being used but often only the text book and this being used in a conventional way.

We found on our visits that the value added data corresponded to how well or how fully the teaching philosophy was being implemented. This is reassuring but also worrying as there are many schools and/or classes which are not following our recommendations and their data will also be part of the overall evaluation of MEP. So we are keen to find out just how far the MEP teaching philosophy is being taken on board and what are the problems and difficulties hindering effective implementation.

Some of the issues which we feel are important aspects of the philosophy but which we did not always see being implemented effectively are:
• pace of lessons – often not varied enough and sometimes too slow (particularly when pupils were working at the board),
• interaction – the quality of the questions and your responses to pupils are crucial (asking vague questions can be unhelpful),
• activities – variety is so important (if every lesson follows the same structure then it soon becomes boring),
• mental work – still important with most sets in Y10 and Y11,
• whole class progression – working through exercises one by one, checking everyone’s progress and sharing mistakes with the whole class,
• clear objectives for each lesson and summarising the main points at the end.

The use of regular homework (after every lesson) has caused problems in some schools, with senior management not agreeing to the recommended policy. Heads of Department in those schools should keep pressing for this, as it is an important part of the MEP teaching philosophy.

One other issue that it is worth noting is the difficulties classes had when using calculators – partly because of the variety of types being used, partly because not every pupil remembers to bring one to school and no spares are available and partly due to pupils’ lack of understanding of how to use calculators effectively (e.g. use of the memory button and brackets). It would be so much easier if the school bought class sets (which could be sold to individuals) of the same calculator (with enough spares to ensure that every pupil has a calculator each when required). Then instruction from the teacher would be relevant to everyone!

It also became clear that whether or not a school is able to implement the MEP teaching philosophy effectively depends on its having:
• strong leadership from the Head of Maths,
• a united department, committed to the teaching philosophy.

However, it should be emphasised that we have seen teaching which has been interesting, stimulating and even inspirational at times and we look forward to seeing even more gains with the second cohort currently completing Y10. We are also encouraged by the fact that many teachers have been quick to change their Y7–9 practice and indeed have found it easier to initiate a new teaching strategy with younger pupils.

Finally, although we have much still to learn about how best to implement the strategy most effectively, our initial evaluation is very encouraging and we look forward with both excitement and apprehension to the next stage.
APPENDIX 1

School Performance Indicators

*Cohort 1, Year 1*

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APPENDIX 2

Pupil Questionnaire Summary

Cohort 1, Year 1
**MEP: Secondary Demonstration Project**

**PUPIL EVALUATION**

*Cohort 1, Year 1*  
*1996–1997*

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**Name**  
[ ] Male/Female  
[ ] Date of Birth  

**MEP class**  
[ ] Route  

**Maths Teacher**  

**No. of Maths Lessons missed**  

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**A  LEARNING STYLE in LESSONS**

1. Have your maths lessons changed with the introduction of **MEP**?
   - Completely  
   - A lot  
   - A little  
   - Not at all  

2. Have you enjoyed the **MEP** whole-class teaching style?
   - Very much  
   - Sometimes  
   - Don't mind  
   - Not at all

3. How often did you take part in  
   (a) quick-fire mental practice?  
   (b) working out solutions on the board in front of the class?  
   (c) class discussions?  

4. If you thought of a different way of solving a problem did you tell the class?

5. If you made a mistake did you tell the class/teacher?

6. How often have you learned from the mistakes of others?

7. If you did not understand something did you let the class/teacher know?

8. Do you make more effort with your written work than before **MEP**?
   - A lot  
   - A little  
   - Much the same  
   - Not at all

9. How often do you try **not** to use a calculator for simple calculations?
   - Always  
   - Frequently  
   - Occasionally  
   - Never

10. Which part of your maths work has improved most over the year?

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**Algebra (10%), All of it (7%), Trig (7%), Equations (7%), Fractions (4%), Mental Skills (4%)**

11. Which part of your maths work still needs improving?

**Algebra (17%), Trig (11%), Equations (7%), Fractions (6%), All of it (5%), Timetables (4%)**

12. If you missed a maths lesson, how did you catch up? *(If no lessons were missed, write 'none missed'.)*

   - Copied from friend (34%), Caught up at home (11%), Asked teacher (10%), Asked classmate (9%), Did not catch up (9%)

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**B  ASSESSMENT**

1. How often have you missed doing the homework set?
   - Frequently  
   - Occasionally  
   - Rarely  
   - Never

2. How often is your homework marked by the teacher?
   - Every homework  
   - 1/week  
   - Never

3. How often is your classwork seen by the teacher?

4. How much revision do you do before a test?
   - A lot  
   - A little  
   - Not much  
   - None

5. How often have you been disappointed with your test results?

6. How often do you try to find out where you made your mistakes and do the questions again correctly?
C RESOURCES

1. Pupil Text
   (a) Do you take this book home?
   (b) How have you used the text?
   (c) Does this book explain the maths more clearly than your previous textbooks?
   (d) What do you like about the text?
   Worked examples (28%), Explains clearly (19%), Easy to understand (15%), Way it is set out (9%)
   (e) What do you dislike about the text?
   Answers in back sometimes wrong (20%), Nothing (15%)
   (f) Did you ever try the Just for Fun, Investigations, etc.?

2. Practice Book
   (a) Do you take this book home?
   (b) How do you use this book?
   (c) Do you ever do extra exercises just for the fun of it?
   (d) On the whole, how do you find the exercises?
   (e) How often do you make an effort to learn 'by heart' the Facts to Remember at the front of the book?

Further comments on Pupil books
Practice Books need worked examples (15%), Books should be smaller (10%), Very good (8%), Ugly covers/colours too bright (8%)
Help with revision (8%)

D ATTITUDE

1. Have you worked harder in maths this year than in previous years?
   (a) A lot
   (b) A little
   (c) Much the same
   (d) Less hard

2. Do you look forward to your maths lessons?
   (a) Always
   (b) Most of time
   (c) Occasionally
   (d) Never

3. Do you arrive at the classroom on time?
   (a) Always
   (b) Most of time
   (c) Occasionally
   (d) Never

4. Do you ever do extra work on your own without being told to?
   (a) Often
   (b) Occasionally
   (c) Rarely
   (d) Never

5. Do you think you have gained confidence in maths this year?
   (a) A lot
   (b) A little
   (c) The same
   (d) Less confident

6. Do you think you could do better in maths?
   If Yes, how could you do better? If No, why not?

Revise more (23%), Work harder in class (15%), Concentrate more (14%), Listen more (5%)

E REACTIONS TO MEP

1. (a) How has MEP helped you most?
   (+) Understand more (24%), Explanations clear (10%), Confidence increased (8%), Worked Examples (7%)
   (b) Where do you have most difficulties?
   (-) Algebra (9%), Trig (6%), Homework (6%)

2. Has MEP succeeded in raising
   (a) your level of understanding of basic concepts? YES 84 NO 16
   (b) your own expectations of what you can do? YES 75 NO 25
APPENDIX 3

Teacher Questionnaire Summary

Cohort 1, Year 1
A TEACHING

1. Has your teaching style changed with the introduction of MEP?

2. How often did you use (a) whole-class interactive teaching?
   (b) group work?
   (c) individual work?

3. (a) How often did you set homework?
   (b) When did you go over the homework?
   (c) How often did you go over homework at the start of a lesson?
   (d) How often did you mark pupils' work?
   (e) How often did pupils mark their own work?

4. How often did you use mental practice?

5. How often did pupils come to front to work through solutions on board?

6. How often did pupils contribute to class discussions?

7. How often were lessons interrupted by disruptive pupils?

8. If pupils were absent, what help were they given to catch up?

   Help given during breaks/lunchtime (16%), Individual help (16%), Copy friend's notes (10%)

9. If you were absent, what arrangements were made for your class(es)?

   Work set in advance by absent teacher (58%), Never absent (9%), Lesson covered by: maths teacher (8%), other colleagues (8%), supply cover (6%)

10. (a) How often were your lessons observed by other colleagues?
    (b) How often did you observe the lessons of other colleagues?
    (c) Did you share problems/experiences of MEP with other colleagues?

   Frequently Occasionally Rarely Never

Comments on MEP Teaching Philosophy

Agree with philosophy (14%)
Interactive teaching more favourable (9%)
Improves standards (7%)
Should be introduced at lower end of school (5%)

Please draw a rough plan of your classroom below.
### B TEACHER SUPPORT

#### 1. Schemes of Work
- **(a)** State the order of Units taught until the present one.
- **(b)** Below each unit give the approx. time (in weeks) it took to cover the material.
- **(c)** State the order you would use when teaching the course again.

#### 2. Background Notes
- **(a)** How often did you read them?
- **(b)** If you read them, how often did you find them helpful?
- **(c)** Was there any information you expected to find that was missing?

#### 3. Lesson Plans
- **(a)** How often did you use them?
- **(b)** If used, did you find them (i) detailed enough? (ii) feasible in the time available?
- **(c)** If not used, why not?

#### 4. Activities
- **(a)** How many did you use?
- **(b)** If used, how many did you have to adapt?
- **(c)** If used, how often did you use them (i) with the whole-class? (ii) as individual worksheets?
- **(d)** If not used, why not?

#### 5. OH Slides
- **(a)** How often did you use them?
- **(b)** If used, how many did you have to adapt?
- **(c)** If used, how often did pupils come to the front to write on them?
- **(d)** If not used, why not?

#### 6. Mental Tests
- **(a)** How often did you use them?
- **(b)** If used, how often did you use them as (i) written tests? (ii) whole-class practice?
- **(c)** How often did you create your own mental activities?
- **(d)** If not used, why not?

#### 7. Revision Tests
- **(a)** How often did you use them?
- **(b)** If pupils did not do well in a test, did you make them do it again?
- **(c)** How often did you adapt the tests to suit your own needs?
- **(d)** If not used, why not?

#### 8. Practice Book Answers
- **(a)** Did you photocopy these for pupils to mark their own homework?
- **(b)** Did you allow pupils to mark their own work from a copy in class?
- **(c)** If used in another way, please specify.

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### Applications to outside world

- How to use resources

### Time scales unrealistic

- Use own lesson plans

### No overhead projector

- Not enough time

### Unsuitable for lower ability pupils

- Not enough time

### Selected questions used

- Too difficult

### Teacher marking

- Read out to class to check own answers
C PUPILS' BOOKS

1. Pupil Text
   (a) Did pupils have a book each? Yes . . . . . . shared . . . . . Teacher copy only
   (b) How often did pupils take the texts home? Every day 92
       Frequent 8
       Rarely 7
       Never 27
       Extension 42
   (c) How were the texts used? Classwork 53
       Homework 13
       Revision 24
       Extension 9
   (d) (i) Did you use the Just for Fun, Investigations, etc.? All of them
        Frequently 37
        Rarely 65
        Never 29
   (ii) If used, how did you use them? Whole class 27
        Individuals 6
        Extension 25
        Homework 10
   (iii) If not used, why not? Not enough time
        Too difficult

2. Practice Books
   (a) Did pupils have a book each? Yes . . . . . . sharing . . . . . Teacher copy only
   (b) Where were the books usually kept? At home 97
       In school 7
       Brought in for lessons 40
   (c) How were they used? Classwork 12
       Homework 55
       Revision 25
       Extension 8
   (d) If not used, why not? Enough material in Pupil Text

Further comments on MEP teacher/pupil material

Excellent resources (18%)
Comprehensive (7%)
Too difficult (7%)
Worked Examples needed in Practice Books (5%)

D REACTIONS TO MEP

1. Please give brief summary of any feedback you have had from parents.

   + Positive feedback
     Improving standards
     Stretching pupils
   
   - No feedback
     Too rushed
     No worked examples in Practice Books

2. Please give brief summary of any feedback you have had from pupils.

   + Clear, good text
     Enjoy maths more
     Confidence increased
     Sense of achievement
     Too much homework
     Not enough time
     Difficult

3. (a) How has MEP helped you most? (b) Which aspects have caused you most problems?

   + Lots of good examples/questions
     Wide range of materials
     Lesson plans
     Change in teaching style
     Insufficient time
     Less able pupils not coping
     Not enough easy exercises
     Checking homework

4. What further support would you like us to provide?

   Foundation / lower level materials and resources
   Key link questions identified.

5. In your opinion, has MEP succeeded in raising (a) your own expectations of what your pupils can do? YES 69 NO 31
   (b) your pupils' level of (i) attainment YES 80 NO 20
       (ii) understanding? YES 82 NO 18
E INFORMATION TECHNOLOGY

1. Graphics Calculators
   (a) How confident are you about using graphics calculators?
   (b) How many of your pupils have a graphics calculator of their own?
   (c) Since MEP, how often have you taught a lesson which required the use of graphics calculators?
   (d) Since MEP, how often have you taught a lesson about the effective use of graphics calculators?
   (e) In such lessons, how many different types of calculator were used?
   (f) In such lessons how many calculators were used?
   (g) In which MEP Units did you teach these lessons?
   (h) If you did not teach lessons involving graphics calculators, why not?

2. Computers
   (a) How confident are you about using computers?
   (b) Since MEP, how often have you taught a maths lesson which required the use of a computer?
   (c) If you taught such lessons how many computers were used?
   (d) In which MEP Units did you teach these lessons?
   (e) How often did you encounter technical problems?
   (f) How much do you think pupils gained from such lessons?
   (g) If you did not teach a lesson requiring a computer, why not?

3. Interactive Learning Systems (ILS)
   (a) How much experience have you had of ILS?
   (b) If used since MEP, how was it used?
   (c) Which MEP Units do you think benefited from the use of ILS?
   (d) If used, what do you think are the main benefits/drawbacks of ILS?

4. Internet
   (a) How much experience have you had of the internet?
   (b) If used, how often do you access the MEP web site?
   (c) Which pages have been of most use to you and your pupils?
   (d) What additions to the MEP web pages would you like us to make?