



National Research and Development Centre  
for adult literacy and numeracy

# Thinking Through Mathematics

A practical guide to establishing  
and managing the mathematics  
footprint in educational  
organisations

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# Maths4Life



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For further details see [ncetm.org.uk](http://ncetm.org.uk) and [maths4life.org](http://maths4life.org). The Maths4Life website will be live and maintained until the end of March 2008 when it will transfer to [ncetm.org.uk](http://ncetm.org.uk)

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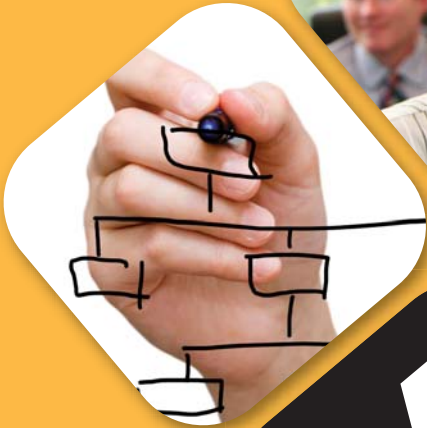
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## Thinking Through Mathematics

A practical guide to establishing and managing the mathematics footprint in educational organisations

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# Executive Summary

This report is aimed at all senior managers who are planning to improve mathematics achievement post-14 as part of a whole organisations approach<sup>1</sup>. Others such as teachers, teacher educators and policy makers will also find it useful.

## Background

Mathematics is recognised as being of utmost importance in ensuring that the UK has a highly skilled workforce at all levels<sup>2</sup>.

One of the aims of the 14 to 19 Education and Skills White Paper<sup>3</sup> is to ensure that every young person has a sound grounding in the basics of english and mathematics. For most organisations there are challenges ahead as they address the changes to the mathematics curriculum necessitated by the introduction of Functional Mathematics, the changes to GCSE and A level as well as the mathematical components of Specialised Diplomas<sup>4</sup>. Equally important are the requirements to meet national Skills for Life targets as well as implementing the recommendations on teaching and learning mathematics identified in the Smith report<sup>5</sup> as well as findings from OFSTED.

A priority for many educational organisations is to develop their workforce and increase the number of practitioners with real expertise in teaching mathematics, ultimately leading to an improvement in learners' achievement. Increasingly, CPD programmes need to support non-specialist teachers who are responsible for teaching mathematics where it is embedded in their own subjects, such as geography, business studies, health and

social care and engineering. Recent initiatives to support teaching and learning in mathematics have provided networks of Subject Learning Coaches (SLCs) with specialised training whose role is to support practitioners within their organisation<sup>6</sup>.

## Purpose

The *Thinking through Mathematics* project within Maths4Life<sup>7</sup> aims to improve teaching and learning in mathematics in three inter-related areas. Firstly by developing approaches and materials for use in the classroom; secondly by providing professional development to support this<sup>8</sup>; and thirdly by examining the organisational structures which might optimise the first two. This is a report on the third aspect of *Thinking through Mathematics*.

This part of *Thinking through Mathematics* explored the relationship between the structures and systems within a range of organisations and the opportunities available to influence, support and deliver CPD in mathematics.

## Methodology

Five colleges, representing small, medium and large multi-site organisations were invited to take part in a small scale study to

1 See <http://www.qia.org.uk/programmesandservices/skillsforlifedemonstrationproject.html>. NRDC has been commissioned to evaluate the KPMG Whole Organisation approach.

2 See *The Science, Technology, Engineering and Mathematics (STEM) programme report* at <http://www.dfes.gov.uk/hegateway/hereform/stem/programmereport.cfm>.

3 14-19 Education and Skills, DFES, 2005

4 See <http://www.dfes.gov.uk/14-19/index.cfm?sid=3&pid=224&ctype=None&ptype=Contents>

5 Making Mathematics Count: Report Of The Post-14 Mathematics Inquiry, DFES, 2004

6 see <http://www.lsneducation.org.uk/programmes/portal.aspx?ProgID=7>

7 Maths4Life was a Department for Education and Skills (DFES) funded programme, as part of Skills for Life, the national strategy for improving adult literacy and numeracy. The project aimed to stimulate a positive approach to teaching and learning in mathematics and numeracy in England, focusing on adults from Entry Level to Level 2.

8 *Thinking Through Mathematics*, the ring binder. DFES 2007

investigate how organisations could become aware of the extent of their ‘mathematics footprint’, and how practitioners involved in teaching mathematics were given support and training to improve their teaching. Each centre had in place a mathematics Subject Learning Coach.

By ‘mathematics footprint’ we mean the configuration of mathematics within the organisation, and how the different aspects are related. For example, some colleges have ‘academic’ mathematics (usually GCSE and A level) in one area, and Skills for Life in another. The mathematics in vocational areas can be relatively invisible.

An Organisational Analysis Questionnaire (see the Appendix of this report, or download from [www.ncetm.org.uk](http://www.ncetm.org.uk)) was developed to help centres gather the relevant information and identify their mathematics footprint. The findings from the case study centres and the emerging issues were explored by a group of managers and mathematics specialists at an expert seminar and are documented in the report.

### Findings

Initial consultation with case study centres found that most organisations had difficulty in identifying their ‘mathematics footprint’ and consequently were unable to develop a coherent strategic approach to improving teaching and learning in mathematics at every level including GCSE, A level, Key Skills, Skills for Life qualifications, Learning Support and mathematics embedded in other subjects

This project looked at current models of mathematics provision and organisation, and examined the strengths and weaknesses of each. The study found that in general whilst the vast majority of adult and post-14 learners study mathematics, the provision was fragmented, often did not have a voice at senior managerial level, and hence was not well represented when key curriculum management decisions were being made. It also found that the scale of mathematics provision was often hidden and underestimated, and the distinctive nature and

specific problems associated with teaching and learning mathematics were not appreciated.

Several case studies identified a gradual shift from mathematics on vocational courses being taught by expert mathematics teachers towards being taught by expert vocational teachers teaching mathematics using appropriate vocational contexts. This transition was most effective when mathematics specialists worked closely with their vocational colleagues sharing their expertise and knowledge about how mathematics is taught and learnt to devise a suitable learning programme

### Recommendations

In order to make improvements in mathematics achievement:

- senior management must have the full picture of the organisation’s mathematics provision, good practice and areas for development
- key decisions about the planning, development and management of mathematics should be taken at a senior management level and be informed by all the areas of mathematics provision
- everyone involved in teaching mathematics needs access to support, development and resources within a coherent structure.

### Action for senior managers

- Allocate responsibility at senior management level for championing mathematics. Strategic decisions relating to mathematics provision, organisation, and staff development need to be taken at senior management level.
- Use the Organisational Analysis Questionnaire to identify the organisation’s mathematics provision and to establish where management responsibilities lie for curriculum and staff development
- Use the information from the questionnaire to develop an action plan which articulates with the academic planning cycle, the Self Assessment Report, and the monitoring and evaluation process.

## 1

## Introduction

The *Thinking through Mathematics* project within Maths4Life<sup>9</sup> aims to improve teaching and learning in mathematics in three inter-related areas. Firstly by developing approaches and materials for use in the classroom; secondly by providing professional development to support this; and thirdly by examining the organisational structures which might optimise the first two.

This report addresses the latter of these aims, investigating ways in which organisations manage their provision of mathematics courses, with a focus on how teaching and learning and teachers and learners are supported. An *Organisational Analysis Questionnaire* (see the Appendix of this report, or download from [www.ncetm.org.uk](http://www.ncetm.org.uk)) was developed to assist organisations in making an audit of how mathematics provision is configured. This report summarises the findings from five case study colleges and an expert seminar. The case study colleges represented a cross section of small, medium and large multi site colleges offering different types of provision. The seminar brought together representatives from the case study colleges with personnel with cross-college responsibilities for mathematics and numeracy from nine other colleges. The seminar was used to discuss emerging findings and advise on the use of the *Organisational Analysis Questionnaire* and how this might possibly be better structured to support teachers and learners.

The first part of this report sets out some of the key findings and issues emerging from the project. The attempts made by some organisations to improve the teaching and learning of mathematics are highlighted, pointing to some important issues that all face in considering the organisation of the teaching and learning of all branches and levels of mathematics.

The final pages suggest ways in which the *Organisational Analysis Questionnaire* might be used by a range of personnel to investigate how the provision of mathematics is distributed, supported and organised across their institution.

<sup>9</sup> Maths4Life was a Department for Education and Skills (DfES) funded programme, as part of Skills for Life, the national strategy for improving adult literacy and numeracy. The project aimed to stimulate a positive approach to teaching and learning in mathematics and numeracy in England, focusing on adults from Entry Level to Level 2.

## 2

## The case studies

The study of mathematics and numeracy in different areas are seen as distinctive practices and organisational structures often ensure that there is a divided approach taken to their teaching and learning.

### Mathematics provision

All organisations are involved with the provision of a wide range of courses that include elements of mathematics.

Provision might be categorised as one of five distinct types:

- Standard mathematics courses leading to qualifications such as GCSE and AS/A Level, Free Standing Mathematics Qualifications (FSMQs);
- Key Skills Application of Number;
- Skills for Life qualifications;
- Mathematics embedded in other subject such as geography, business studies, engineering or plumbing;
- Learning Support.

In this report we use the term ‘mathematics’ to include all study involving numeracy and/or mathematics.

Organisations are structured so that these five distinct types of provision are almost always in different spheres of influence both in terms of line management, and in geographical location. Overall provision of mathematics is therefore often disparate, militating against a common approach to teaching and learning in mathematics courses.

This is not seen by some as negative as it can ensure that courses are best tailored to the

needs of students. However, others point out that it does not serve progression through mathematics: the majority of those students who follow courses in mathematics may see their course as leading to a required qualification, successful attainment of which will signal the end of their study of mathematics.

### Organisational structures and management

Organisations catering for a wide range of learners with diverse needs and aspirations are acutely aware of the needs of the population of the locality they serve. Their organisational and management structures are often hard to describe and explain. This is true of the five case study colleges used to inform this report.

The next sections describe the findings from the case study colleges, based on their use of the Organisational Analysis Questionnaire (OAQ).

### Focusing on student volume

In terms of numbers of students involved in the study of mathematics courses across an organisation, often the vast majority are following courses leading to Skills for Life qualifications or (Key Skills) Application of Number. These mathematics courses are often not disaggregated from the overall “skills” package and consequently

**“What I would like to have in my college is a seamless progression right the way through from numeracy up to people doing our highest level [of mathematics], which would probably be A2.” College Principal**



mathematics often does not have a specific voice at managerial level. Senior managers, when organising managerial lines of responsibility and curriculum consultative mechanisms, may see these courses with relatively high student numbers as having

priority over academic courses such as A Level Mathematics, which, in many organisations, often have relatively few students. For these reasons, mathematics, despite being a subject that the majority of learners encounter in some form is not well

#### Case Study College 1

This relatively small general FE college has only a small number of 16-18 year olds with most schools in the area retaining many such students in their sixth forms. Vocational courses are the main provision with no A Level. GCSE mathematics and some maths within Access courses is situated within one program area whilst "Skills for Life" and AoN across the college is the responsibility of a different programme area using a small number of specialist maths staff. The only area of the college where maths is delivered by non-mathematicians is in Engineering where vocational specialists dealt with the mathematics themselves.

#### Case Study College 2

This is a very large general FE college spread over a number of sites situated in a large city serving an ethnically diverse population and about 80% of its students are over the age of 19. GCSE and A Level Maths provision is therefore a relatively small part of the overall maths / numeracy work of the college.

#### Case Study College 3

This large tertiary college is situated on several sites in a large city. Very few local schools have sixth forms so AS/A2 and GCSE courses are important parts of the college's provision although the number of students following these courses is only about one-tenth of those studying other numerate courses.

The Skills for Life team provides courses in Adult Numeracy and has overall responsibility for Application of Number. Mathematics in vocational courses is taught by members of vocational teams, with very little, if any, reference to mathematics specialists.

#### Case Study College 4

"Mathematics" and "numeracy" are situated in two separate departments of the college, with the Skills for Life team providing numeracy courses and support and the "academic" studies team providing GCSE and A/AS maths programmes. Mathematics in vocational courses is the responsibility of the relevant course team, who organise someone to teach mathematics for the necessary amount of time each week. There is no coordination of this provision

#### Case Study College 5

Maths / numeracy may be considered to be organised into two distinct types of provision: (i) Maths and Application of Number and (ii) Skills for Life. The organisational structure situates the former within an "academic" faculty where stand-alone mathematics courses (AS/A Level, GCSE, FSMQs) are delivered by a team working across other faculties when invited to do so. Much work has been carried out to integrate / embed AoN provision in these areas using FSMQs to assist with this. At present the team is building a good reputation but there is not a well formed strategic plan that encourages or supports this.

represented when key curriculum management decisions are being taken.

Senior management structures often focus on overarching themes, such as broad vocational/subject areas and support for adult returners to education via skills for life. This again results in a discipline such as mathematics, which while cutting across all areas of an organisation’s provision, is not represented in any significant way at any managerial level. This contrasts starkly with its position in schools where the Head of Mathematics is often a senior figure in the management structure.

**Supporting mathematics in vocational courses**

The Key Skill Application of Number, whilst often challenging for both mathematics and vocational specialists, has provided the impetus for the development of good practice in integrating realistic applications of mathematics in courses.

College personnel at the project seminar suggested that the ideal is a gradual shift from mathematics on vocational courses being taught by expert mathematics teachers towards being taught by expert vocational teachers who can motivate learners by situating the learning of mathematics in appropriate contexts. To achieve this

transition, experiences in the case study colleges suggest that mathematics teachers need to work closely with their vocational colleagues to explore how mathematics is used in the vocational area and then use their expertise and knowledge about how mathematics is taught and learnt to devise a suitable learning programme.

**Developing a common approach to the teaching and learning of mathematics**

The Organisational Analysis Questionnaire can be used to allow an organisation to identify the range and extent of mathematics provision within the organisation. This is likely to be substantial and raises the question of how this can be supported and developed whilst recognising the distinctive cultures associated with the different types of provision. Some of the issues likely to arise are considered in the next section.

*College Managers point to the Key Skill of Application of Number as a recent example of a curriculum initiative that has been difficult to implement. They are therefore concerned about how they will manage forthcoming changes in mathematics / numeracy such as the introduction of functional mathematics.*

**Mathematics on vocational courses is taught by well-qualified and enthusiastic mathematicians**

**Maths teachers help vocational staff to design maths programmes in vocational area**

**Maths on vocational courses is taught in context by enthusiastic vocational staff**

**There is a clear recognition in the college that there are cultural differences between ‘academic’ mathematics and numeracy**

### **Supporting and developing staff**

Although organisational and managerial structures may not always be best positioned to support good practice in teaching and learning of mathematics, senior managers are often acutely aware of the general need to ensure high quality teaching leading to effective learning. Inspection is clearly an influential motivator in this regard. Experiences from this small scale study suggest that as well as the scale of mathematics provision often being hidden and consequently underestimated across an organisation the distinctive nature and specific problems associated with the learning of mathematics are often not appreciated.

### **Monitoring teaching**

Organisations have mechanisms in place for regular appraisal / evaluation of staff. Observation and feedback often focuses on particular teaching and learning issues that have been identified by management as being of importance. Whilst issues such as the active engagement of learners are important in all subjects, teacher development in mathematics might be better supported if feedback was more specifically targeted towards good practice in mathematics teaching as well as in teaching more generally. Several of the participants from case study centres expressed an interest in exploring more closely the links between appraisals, classroom observations (including peer observation), CPD and current thinking on teaching and learning of mathematics.

*The systematic observation of lessons, team meetings, results of student surveys, the analysis of success rates, etc. allow monitoring of the quality of teaching and learning of numeracy and mathematics and identifying potential improvements. This is not analysed systematically with regards to maths.*

Case Study College 3

*General teaching and learning is monitored by the college observation process by which trained observers look to identify what the college can offer in the way of support and development of teaching. Cross college issues (such as lesson planning) might be identified by this process and allow in-house training to be focussed appropriately.*

Case Study College 1

### **Subject Learning Coaches**

Mathematics Subject Learning Coaches (SLCs) are mathematics enthusiasts with a desire to see teaching and learning improved. They are committed to “spreading the word” and in particular developing the use of the Standards Unit<sup>10</sup> and *Thinking through Mathematics* materials and approaches.

However, their deployment and effectiveness is often left to chance. In some cases the SLC may be relatively junior leading to some difficulties in terms of establishing an appropriate status. In other cases the SLC may already have another established role, for example as a middle manager, or as an “Advanced Practitioner”, making their SLC role more readily visible and acceptable to other staff and understood by them.

*The Subject Learning Coach for mathematics in this college is, in effect, the head of mathematics but has no responsibility for numeracy and is at a relatively junior level being a lecturer with some remitted time.*

Case Study College 4

*The Subject Learning Coach is also the Application of Number coordinator (for which she has some remission from teaching). She is a relatively junior member of staff and has no time allocated to work with other members of staff in terms of developing their teaching. The role of SLC is unclear within the management structure and probably to members of staff.*

Case Study College 2

Senior managers need to consider how best to make the SLC role sustainable over the longer term.

Senior managers recognise that the mathematics / numeracy divide, particularly in their organisational structures, may not be helpful in allowing SLCs to work across mathematics / numeracy teaching in general. For these reasons it appears that the role of SLCs within a college therefore requires some attention by management.

**Continuing professional development**

All case study colleges were able to point to recognised pockets of good practice within

parts of their mathematics provision. Equally staff often talked of needs they had identified for themselves and colleagues in terms of developing their own expertise, for example, in the use of new technologies. It is helpful if organisations recognise the distinctive nature of teaching mathematics and consider how organisational structures can support CPD to ensure the sharing of good practice in teaching mathematics.

*There is no forum at which all teachers of mathematics and numeracy can meet to discuss matters relating to teaching and learning.*

Case Study College 4

*The Level 4 teaching qualification is seen as one means of addressing CPD related to improving teaching and learning. Courses are run for staff who wish to work towards this qualification and improve their teaching skills: at least one group of lecturers from a particular vocational area has used this to develop their teaching as a team.*

Case Study College 2

**Identified good practice**

Team meetings that focus on teaching and learning issues




**Identified good practice**

In-house CPD focussing on teaching and learning for all maths/numeracy staff



**Identified good practice**

Support - (time, resources, encouragement) is given, enabling the Subject Learning Coach to spread good practice



### **Resourcing mathematics**

Evidence from different sources including the Standards Unit work highlights that if mathematics teachers are to teach effectively by actively engaging learners they need appropriate and well equipped rooms. The same argument can be advanced in support of using technology in mathematics. Teachers in the case study colleges suggest that this requires a change from current resourcing so that they can operate in what might be thought of as a mathematics laboratory with important equipment and resources easily available.

*A staff intranet can be used for the sharing of resources but these have mainly been supplied by the SLC: other staff have not been creative in developing similarly engaging materials.*

Case Study College 2

*The Standards Units materials are highly regarded by the subject learning coach but some maths teachers who only want to teach on academic programmes do not see the need to consider changing their teaching approaches. There is more openness towards considering different approaches to teaching by those staff working in the Skills for Life area.*

Case Study College 4

*There is no-one responsible for selecting and supplying appropriate resources for the teaching of maths/numeracy and there are no rooms dedicated to the teaching of mathematics. Rooms available have been recently equipped with interactive whiteboards: staff have not been trained in their use and are unaware of suitable software.*

Case Study College 1

### **Developing a positive attitude towards mathematics**

A number of case study colleges highlighted initiatives which they were undertaking that foster a more positive disposition towards mathematics by staff across their college. Mathematics courses for teaching and support staff, at all levels, have been seen as one way of signalling the importance of being well qualified in the subject.

## 3

## Using the Organisational Analysis Questionnaire (OAQ) in your organisation

### Why?

Mathematics is recognised as being of utmost importance in ensuring that the UK has a highly skilled workforce at all levels<sup>11</sup>. Consequently, and particularly as a result of the Smith Inquiry<sup>12</sup>, a number of reforms to post-14 mathematics education have been proposed and are under development. For example, functional mathematics will become an important part of the drive to ensure that future generations are better able to use mathematical skills as workers and effective citizens. As organisations consider how best to configure their provision of new courses, the *Organisational Analysis Questionnaire* allows managers and others to gain a more comprehensive understanding of their current provision and its organisation.

Case study colleges pointed to the fact that completing the questionnaire firstly highlighted the range and diversity of mathematics teaching and learning in their college, and allowed them to locate where this was taking place. The process also allowed practitioners and managers at all levels to identify good practice in the teaching of mathematics and reflect upon how this might be spread.

Results could feed in to a Self Assessment Report (SAR): in this case it may be that an organisation might like to adjust the electronic version of the questionnaire so it more easily fits with their SAR and processes of evaluation. Thought might also be given as to how action points arising from the questionnaire should feed into curriculum area development plans.

<sup>11</sup> See *The Science, Technology, Engineering and Mathematics (STEM) programme report* at <http://www.dfes.gov.uk/hgateway/hereform/stem/programmereport.cfm>.

<sup>12</sup> *Making Mathematics Count: Report Of The Post-14 Mathematics Inquiry*, DfES, 2004

“[SLCs] often the staff involved have been relatively junior ... they find it difficult, particularly in a big college to have the authority to move things forward... [therefore] what it does need is some direction and authority from a higher level...”

**By whom?**

Perhaps, because of the diversity and complexity of organisational and managerial structures, there is no one answer to this question. Case study colleges suggested it is

unlikely that one person will have access to the information needed. Whilst the process may be coordinated by an individual it would involve a number of personnel with different management responsibilities within the management structures.

*OAQ – B8 How would you currently rate cross-college collaboration in teaching mathematics / numeracy?*

*OAQ – C1 Is there an overall cross college mathematics / numeracy coordinator?*

*OAQ – C3a Is there a forum in which the teaching of mathematics / numeracy is discussed by teachers / lecturers?*

*OAQ - G1 Please identify any links that mathematics / numeracy teachers / lecturers have with colleagues in other local colleges or schools.*

*OAQ – E1 Are resources for all mathematics classes the responsibility of an individual / group / unit within the college?*

*OAQ – Fb1 Describe briefly your short / medium term plans as a mathematics subject learning coach working inside your college*

*OAQ – D1 How is the quality of teaching and learning of mathematics / numeracy currently monitored in your college?*

*OAQ – C2 Is staffing / timetabling / planning of all mathematics / numeracy provision the responsibility of an individual / group / unit within the college?*

*OAQ – D5 Has your college recently (within the past year) considered / reviewed cross-college provision of mathematics / numeracy teaching & learning?*

**“Academic” maths teaching is contracting – this is evidenced by the reduction in the number of teachers...**

A recommendation for managing the OAQ process is for a senior manager with responsibility for quality to coordinate input from a number of key personnel such as:

- mathematics / Skills for Life coordinator(s);
- appropriate Heads of Schools / Director(s) / Assistant Directors;
- SLCs, Advanced Practitioners and other expert classroom practitioners

The process of involving a range of such personnel will raise awareness of important issues relating to teaching and learning mathematics and the perhaps unique position the subject has in the education of a wide range of learners

**For whom?**

It is important that the questionnaire is seen as having two main audiences:

- (i) those responsible for auditing current practice and planning quality improvement, such as senior managers and governors
- (ii) all staff in raising their awareness of important issues related to improving quality of teaching and learning of mathematics at all levels.

**Using the Organisational Analysis Questionnaire strategically**

There needs to be a clear purpose or reason for using the *Organisational Analysis Questionnaire*. Before its use senior managers need to think how the information it provides will be used:

- What will happen as a result? Will it inform the organisation’s policy on teaching and learning in mathematics?
- Will the information feed into the academic planning cycle and the Self Assessment Report?
- Will the use of the questionnaire feed into current evaluation processes?
- Will the timing of its use fit into existing evaluation and development planning cycles?
- Will the findings from the questionnaire influence resource allocation to support the teaching of mathematics?
- How will the information improve CPD in mathematics, increase the numbers of practitioners with real expertise in teaching mathematics and ultimately improve learners’ achievement?

**“in the vocational programmes there is actually quite a lot of maths but it is hidden in there”**



## 4

## Summary

Mathematics has an important role to play in the studies of many students across a diverse range of courses. Current and forthcoming Government initiatives focus on improving students' participation, experience and performance in these courses at all levels. Central to the success of these initiatives are the organisational structures and cultures into which they are launched.

This project suggests that key personnel including senior managers, will benefit from gaining a clearer picture of their own institution's organisational structure, identifying all areas where students are involved in learning mathematics and how its teaching is currently coordinated, supported and developed.

To assist with this an *Organisational Analysis Questionnaire* has been developed. It is recommended that this is used as part of existing evaluation processes to inform strategic developmental planning.

The key challenge that needs to be considered is how to ensure that good practice in teaching mathematics can be shared across the wide and diverse range of courses involved. In considering this, thought needs to be given to:

- coordination and managerial roles and structures
- deployment and status of support and development personnel such as Subject Learning Coaches and advanced practitioners
- the diverse backgrounds of staff involved including mathematics and vocational and other subject specialists
- the resources, rooming and accommodation that support the active engagement of learners of mathematics.

**“The process of doing the audit made one aware of how diverse and large the area of maths / numeracy is”**

**“you may have a vocational tutor who is nervous of teaching the maths themselves”**

**“a lot will depend on how colleges enhance the status of subject learning coaches”**

# Appendix: The Organisational Analysis Questionnaire (OAQ)

## SECTION A: BACKGROUND

College
Your name
Direct telephone no.:
Email:
Address

Please tick any boxes that describe your position/role within your college

Senior manager	<input type="checkbox"/>	Full time	<input type="checkbox"/>
Curriculum manager	<input type="checkbox"/>	Part time	<input type="checkbox"/>
Head of mathematics	<input type="checkbox"/>	Permanent contract	<input type="checkbox"/>
Head of numeracy	<input type="checkbox"/>	Temporary/ fixed term contract	<input type="checkbox"/>
Head / Manager of Skills for Life	<input type="checkbox"/>		
Key Skills teacher / lecturer	<input type="checkbox"/>		
Cross college mathematics / numeracy coordinator	<input type="checkbox"/>		
Mathematics teacher / lecturer	<input type="checkbox"/>		
Numeracy teacher / lecturer	<input type="checkbox"/>		
Subject Learning Coach	<input type="checkbox"/>		
Other – please specify	<input type="checkbox"/>		

**SECTION B: MATHEMATICS / NUMERACY WITHIN YOUR COLLEGE**

**B1 Please identify all mathematics / numeracy provision in your college**

	✓	Faculty / programme area responsible	Approx no of students	Comments
Key Skills Application of Number				
Skills for Life / Numeracy				
GCSE				
GCE AS / A Level Mathematics				
GCE AS/A Level Further Mathematics				
GCE AS Use of Mathematics				
Free Standing Maths Qualifications (FSMQs)				
Access maths <small>(please give some details in comments column)</small>				
Maths in vocational programmes (eg Engineering) <small>(please give some details in comments column)</small>				
Learning Support / drop in workshop <small>(please give some details in comments column)</small>				
Work based learning provision				
On-line provision such as Learndirect				
Other <small>(please give some details in comments column)</small>				

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**B2** In the space below please draw an organisational structure diagram indicating where all mathematics / numeracy provision as described above is located in your college structure.

---

**B3** Who, if anyone, in your organisation has overall day-to-day responsibility for the Key Skill Application of Number? Where in the organisational structure are they situated?

---

**B4** Who, if anyone, in your organisation has overall day-to-day responsibility for Skills for Life (Adult Numeracy qualifications)? Where in the organisational structure are they situated?

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**B5** Who, if anyone, in your organisation has overall day-to-day responsibility for GCE AS / A Level qualifications? Where in the organisational structure are they situated?

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**B6** Who, if anyone, in your organisation has overall day-to-day responsibility for 'other' mathematics (e.g. GCSE, vocational, Access)? Please give a brief description of range of courses and where in the organisational structure are they situated?

**B7 Please indicate the likely range of mathematics courses taught by a typical maths teacher. (You might like to indicate the likely workload of a number of members of staff)**

**B8 How would you currently rate cross-college collaboration in teaching mathematics / numeracy? (please circle number)**

very effective ← → ineffective			
1	2	3	4

**SECTION C: CROSS COLLEGE IMPLEMENTATION AND PLANNING**

**C1**

YES	NO	DON'T KNOW

C1a Is there ONE overall cross college mathematics and numeracy coordinator?

C1b Is there a college mathematics coordinator?

C1c Is there a college numeracy coordinator?

**C2**

YES	NO	DON'T KNOW

C2a Is staffing / timetabling / planning of all mathematics / numeracy provision the responsibility of an individual / group / unit within the college?

If you have answered no or don't know please go to Question C3

C2b Whose responsibility is this?

**C3**

YES	NO	DON'T KNOW

C3a Is there a forum in which the teaching of mathematics / numeracy is discussed by teachers / lecturers?

If you have answered no or don't know please go to Section D

C3b What is this forum?

C3c How often does this forum meet?

C3d Who attends?

C3e Please identify up to three areas of teaching mathematics / numeracy that have recently been discussed in this forum

C3f How do you rate the effectiveness of this forum in influencing teaching and learning of mathematics / numeracy (please circle)

very effective ← → ineffective			
1	2	3	4

**C4**

YES	NO
-----	----

C4a Have you recently (this academic year) attended any CPD / in-service training organised in your college that has focused on improving teaching / learning of mathematics / numeracy/key skills

--	--

If you have answered no please go to Section D

C4b Please give a brief description of the event(s) or activity

C4c How do you rate the effectiveness of this CPD / in-service training (please circle)

very effective ← → ineffective			
1	2	3	4

**SECTION D – QUALITY**

This section should only be completed if you are a senior manager in your college

If you are not a senior manager please go to Section E.

**D1 How is the quality of teaching and learning of mathematics / numeracy currently monitored in your college?**

**D2 How are potential improvements in teaching & learning of mathematics / numeracy identified in your college?**

**D3**

D3a Has there been any CPD / in-service training organised in your college that has focused on improving teaching / learning of mathematics / numeracy/key skills

YES	NO
<input type="checkbox"/>	<input type="checkbox"/>

If you have answered no please go to Question D4

D3b Please give a brief description of the event(s) or activity

D3c How do you rate the effectiveness of this CPD / in-service training

very effective ←		→ ineffective	
1	2	3	4
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**D4 Please give details of any current or planned initiatives that will improve teaching and learning of any aspect(s) of mathematics / numeracy in your college.**

**D5**

Has your college recently (within the past year) considered / reviewed cross-college provision of mathematics / numeracy teaching & learning?

YES	NO
<input type="checkbox"/>	<input type="checkbox"/>

If you have answered no please go to Section E

Please describe briefly the process and outcome of this review

Please go to section E

**SECTION E RESOURCES**

**E1**

E1a Are resources for all mathematics / numeracy classes the responsibility of an individual / group / unit within the college?

YES	NO	DON'T KNOW
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you have answered no or don't know please go to Question E2

E1b Whose responsibility is this?

**E2 How much use does the college make of IT within mathematics teaching?**

IT application	How often used	Area making most use of this	Area making least use of this	Notes / examples of good practice
Interactive whiteboard				
data projector				
computers on an individual basis				
computers with small groups				
individual learning software				
software for teaching whole groups				
spreadsheets				
geometry software				
graph plotting software				
Diagnostic testing				

Key 1 - used often 2 - Used sometimes 3 - Used Rarely 4 - Used Never



**E2 Describe where IT is used most effectively within mathematics teaching at the college provide two or three examples where possible**

**E4**

YES	NO	DON'T KNOW
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E4a Are there dedicated rooms for mathematics?

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If you have answered no or don't know please go to Section F

E4b If answer to E3a is YES , How many mathematics teaching rooms are there?

**SECTION FA: MATHEMATICS SUBJECT LEARNING COACH – COLLEGE RESPONSE**

**Fa1a**

YES	NO	DON'T KNOW
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Is there a college Subject Learning Coach for mathematics?

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If you have answered no please go to Section G

**Fa1b**

YES	NO	DON'T KNOW
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Fa1c Is there more than one Subject Learning Coach for mathematics in your college?

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If you have answered no please go to Question Fa2

How many Subject Learning Coaches are there in your college?

**Fa2** Please indicate how the position(s) of Subject Learning Coach(es) was filled (e.g. selected by management, volunteered, open recruitment process, etc).

**Fa3** Please indicate what you perceive the main role of a Subject Learning Coach to be.

**Fa3** Please identify any ways in which the Subject Learning Coach (es) has worked with colleagues.

**SECTION FB MATHEMATICS SUBJECT LEARNING COACH – SLC RESPONSE**

This section should only be completed if you are a mathematics Subject Learning Coach

If you are not a mathematics Subject Learning Coach please go to Section G.

**Fb1** Please describe briefly your short / medium term plans as a mathematics Subject Learning Coach working inside your college

**Fb2** Please describe briefly your short / medium term plans as a mathematics Subject Learning Coach working outside your college.

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**Fb1** Please describe briefly any long term aims you may have as a mathematics Subject Learning Coach.

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**Fb4** Please describe briefly how you plan to promote collaboration between teachers of mathematics within your college.

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**Fb5** If there is more than one Subject Learning Coach in your college please describe any ways in which you currently work together.

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**Fb6** If there is more than one Subject Learning Coach in your college please describe any ways in which you plan to work together in the future.

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**Fb7** Please identify any ways in which the college is supporting you in your role as a mathematics Subject Learning Coach.

**Fb8** Please identify any ways in which the college could better support you in your role as a mathematics Subject Learning Coach.

**Fb9** Please identify any ways in which outside agencies are supporting you in your role as a mathematics Subject Learning Coach.

**SECTION G: WORKING WITH OUTSIDE AGENCIES / NETWORKS**

**G1** Please identify any links that mathematics / numeracy teachers / lecturers have with colleagues in other local colleges or schools.

**G2** Please identify any external (to the college) agencies / networks that mathematics / numeracy lecturers work with to improve teaching and learning.

For each agency / network complete a separate block below.

1
Name of agency / network
Who attends?
Brief description of activity

How do you rate the effectiveness of this agency / network?(please circle)

very effective ← → ineffective

1    2    3    4

2

Name of agency / network
Who attends?
Brief description of activity

How do you rate the effectiveness of this agency / network?(please circle)

very effective ← → ineffective  
1    2    3    4

3

Name of agency / network
Who attends?
Brief description of activity

How do you rate the effectiveness of this agency / network?(please circle)

very effective ← → ineffective  
1    2    3    4

**SECTION H: OTHER**

Please use the space below for any further comments you wish to make about the development of teaching and learning of mathematics / numeracy in your college.





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