
Mathematics Support Centres – the extent of current provision

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In 2001 a study was undertaken to gauge the extent to which universities were making additional mathematics support provision available in response to complaints of ill-preparedness amongst students for the demands of Higher Education courses. Since 2001 several other universities have developed support centres. There are now a number of national projects concerned with helping both teaching and support staff, and students themselves. In addition, two important reviews have highlighted the continuing urgent need to support students at the transition from school mathematics to university mathematics. It is therefore timely to review the national situation regarding Mathematics Support Centres. This article describes the outcomes of work done to update the 2001 study.

Background

In the face of a well-documented decline in the level of mathematical skills displayed by students on entry to university (see for example [1-5]) many Higher Education institutions have established some form of mathematics support centre. These centres offer learning support to students, which is additional to that provided by their routine teaching programme of lectures, tutorials, problem classes etc. Often the provision is aimed primarily at those who are not specialist mathematicians, although such students are unlikely to be barred from using the provision. In 2001 an LTSN-funded study was carried out to investigate how widespread is this kind of learning support provision, to identify elements of good practice in this provision, and to disseminate findings throughout the Higher Education community. Further details of this study can be found in [6,7] and the resulting *Good Practice* guide [8].

The 2001 study

In the 2001 study a total of 95 UK Higher Education Institutes replied to the basic question of whether they had some kind of mathematics support centre – this being regarded as an umbrella term encompassing a wide range of provision. Out of the 95 replies, 46 indicated that they offered mathematics support provision whilst 49 said they did not. The key element of this provision, which was identified most often by respondents, was the availability of one-to-one support. From the study it was possible to distil elements of good practice, and report upon those facilities and resources most favoured and most used by students.

Recent developments

That the mathematics problem in higher education is still a real, present and extensive challenge for educators has been highlighted in two recent high-level reviews. The Report of Sir Gareth Roberts [4], *Set for Success*, pays particular attention to the difficulties associated with mathematics at the school/university transition and recommends that the Government should fund universities to provide ‘entry support courses’ to bridge gaps between A level courses and degree courses. The Post-14 Mathematics Inquiry [5] draws attention to the inadequacies of the present GCSE/GCE Mathematics process and states, “in the short-term, the Inquiry believes that higher education has little option but to accommodate to the students emerging from the current GCE process”.

Since 2001 there have been a number of highly relevant national teaching and learning initiatives and funding has been made available through several projects. These have been aimed at providing mathematics support materials for staff and for students. For example, the LTSN MathsTEAM (<http://ltsn.mathstore.ac.uk/mathsteam/>) is a collaborative project between four subject centres (LTSN Maths, Stats & OR Network, LTSN Engineering, LTSN Physical Sciences and the UK Centre for Materials Education), which recently surveyed the growing number of initiatives directly associated with the mathematics problem. Three comprehensive collections have been published comprising over 60 case studies from universities around the UK on *Diagnostic Testing for Mathematics*, *Maths for Engineering and Science*, and *Maths Support for Students*. The last of these describes the growing network of support-based activities within institutions. These include maths learning support centres, drop-in centres, summer schools, computer-based and paper-based support and websites. It offers academics a chance to explore the growing diversity of support-based initiatives through examples of good practice found within Higher Education Institutions throughout the UK. Copies of these publications can be obtained from LTSN Subject Centres.

A Fund for the Development of Teaching and Learning Phase 4 (FDTL4) project *National Mathematics Support at the School/University Interface* is developing and disseminating support materials covering key topics in algebra, trigonometry, calculus and more. Resources include video-led tutorials distributed by CD/DVD, text linked to the videos - which can also be used independently, diagnostic testing and practice exercises. A pilot disc covering the algebra elements was evaluated in autumn 2003, and material on trigonometry and calculus should be available later in 2004. This project links with an LTSN-funded web-based resource **mathcentre**; this is a repository of resources, which can be used in mathematics support centres and by individual students. There is also a wealth of information for those interested in establishing or enhancing their own local provision. For example, pdf versions of the LTSN MathsTEAM case studies can be found on the **mathcentre** website (<http://www.mathcentre.ac.uk>).

Clearly, the mathematics problem has a high profile at the present time, there is widespread awareness of its consequences, and there is a wish that it should be addressed. Against this background, and with the ready availability of resources, expertise and networks of professionals, it is timely to review the situation so that we can establish the extent and location of provision.

The current investigation

The 2001 survey has now been updated with the following aims: to obtain a clearer picture of the current situation (March 2004); to attempt to gain a fuller data set than was possible in the original study; to consider the variation of provision across different sorts of Higher Education institution. The starting point was the database of material collected in 2001. However the current study, unlike the original, excludes Colleges of Further Education and focuses exclusively upon universities in the UK. From the websites of the Higher Education Funding Council for England (HEFCE), the Higher Education Funding Council for Wales (HEFCW), the Scottish Higher Education Funding Council (SHEFC) and the Department for Employment and Learning, Northern Ireland (DELNI) [9], 106 universities were selected.

For the purposes of this study we have classified these institutions into four categories; members of the so-called 'Russell Group' [10], the traditional universities ('Red Brick'), the pre-1992 universities ('old') and post-1992 universities ('new'), which are mainly the former polytechnics.

Where mathematics support centres do exist they can be found in various locations and in various guises. For example, some are based within Mathematics Departments; others are centrally located in a dedicated area, often within or close to the university library. Some mathematics support centres deal exclusively with mathematical problems whereas others form part of a larger study skills or student support centre. Some universities, which have support centres, do not have a Mathematics Department. Conversely some universities with Mathematics Departments do not have support centres. Some are based in other departments such as Engineering. Consequently, it is not at all obvious where to look or who to approach for information.

To determine whether each institution had a mathematics support centre their web sites were trawled to look for evidence of existence. In some cases information about centres is readily available and prominently displayed. We have found that in some institutions which do have centres it was particularly difficult to ascertain this from the website. We urge those responsible for support centres to recognise that students seeking help are quite likely to turn to the web, and so student support information should be prominently displayed.

Those universities, which did not display evidence of the existence of a support centre, were contacted

directly by email with a request for information. As stated above, it is not always obvious whom to contact, and we did have experience of two members of staff in the same institution and department where one claimed the existence of learning support and the other said the university had no such provision! For universities with a Mathematics Department the Head of Department was contacted. For those without a Mathematics Department we contacted Heads of Engineering, Heads of Business Schools, or Heads of Computing. Further information was sought from university central support staff (eg study skills tutors) where these could be identified. In the cases where we did not receive a response an email was sent to an alternative department; in some cases departments were contacted by telephone.

The up-to-date situation

From the survey of 106 universities, a response rate of 95.3% was obtained. The results of the survey are detailed in Table 1, with the universities categorised as ‘Russell Group’, ‘Red Brick’, ‘Old’ or ‘New’.

	Russell Group	Red Brick	Old	New	Total
Number	19	16	23	48	106
Have Learning Support	11	8	12	35	66
Do not have Learning Support	8	7	11	9	35
Did not respond	0	1	0	4	5

Table 1

Of the 106 universities in this study, 62.3% offer some form of learning support over and above that given by tutorials, personal tutor groups and problem classes. Where universities do offer support, it ranges from 2nd/3rd year undergraduates offering drop-in support for 1st year undergraduates at specified times, to fully staffed and resourced Learning Support Centres. Five of the universities contacted did not respond (4.7%) and 33.0% do not offer additional learning support.

Results of the survey by university category

1. Russell Group Universities

Number	19
Offers Learning Support	11
Does not have Learning Support	8
Did not respond	0

Responses were received from all the ‘Russell Group’ universities, with 57.9% of them offering learning support. The affirmative responses include one university offering support for basic maths only and another,

which currently offers peer-assisted learning but is about to open a Resource Centre. Three universities were found to be advertising mathematics support on their web sites. The number(s) providing each form of support are as follows:

Number	11
Learning Support/ Drop-in Centre	3
Support for 1st year undergraduates	3
Peer assisted/ Support by	
2nd - 3rd year undergraduates	2
Study Support for basic maths	1
Open Door + Problem Class	1
Form of support not determined	1

Of the universities, which do not have learning support, one stated, *“this is one area – the difficulty of the interface between school and university in mathematics – we are giving serious consideration to at present”* and another replied, *“the provision of learning support is under active consideration”*. Interestingly, one University, which did not offer learning support, split a first year mathematics modules into 3 sessions; these were timetabled in such a way as to allow the students, if they so wished, to attend all three sessions, thus repeating the material that had been covered.

2. Red Brick Universities

Number	16
Offers Learning Support	8
Does not have Learning Support	7
Did not respond	1

Learning Support is offered by 50% of the Red Brick Universities, the nil response accounts for 6.2% of this category.

The support on offer ranged from dedicated learning support centres to lecturers being timetabled as available for one-to-one support for about 7hrs per week spread over 4 days. Only one university was found to be advertising mathematics support on its web site. The number(s) providing each form of support are as follows:

Number	8
Learning Support/ Drop-in Centre	3
Help Desk	2
Once weekly drop-in	1
One-to-one support by lecturers	1
Skills programme for 1st year undergraduates	1

Of the universities not offering Learning Support, one stated, *“it is not needed”* and another replied, *“we are primarily a liberal arts institution”*. Two other responses

were “we would like to develop a Learning Resource Centre/drop-in centre in the future, depending on the resources which become available” and “there is definitely a need to offer many of our students additional help”.

3. Old Universities

Number	23
Offers Learning Support	12
Does not have Learning Support	11
Did not respond	0

Responses were received from all the ‘Old’ universities, with 52.2% of them offering learning support.

One university advertised Maths drop-in sessions on its web site, however this facility is no longer offered.

The support on offer ranged from dedicated learning support centres to postgraduates employed as student support assistants. Seven universities were found to be advertising mathematics support on their web sites. The number(s) providing each form of support are as follows:

Number	12
Learning Support/ Drop-in Centre	7
Maths Clinic-two days per week	1
Twice weekly drop-in	2
Learning Support Tutor primarily for students with maths modules	1
Student Support Assistants	1

Of the universities not offering Learning Support, one used to have a drop-in centre but it has now closed. One university replied, “drop-in sessions for 1-2 hours per week are about to be introduced” and another stated, “we are looking to implement peer support up to GCSE level”. Another University relies on a local Community College, where, for a nominal fee, students can attend the college drop-in workshop.

4. New Universities

Number	48
Offers Learning Support	35
Does not have Learning Support	9
Did not respond	4

Learning Support is offered by 72.9% of the New Universities, included in this figure is one university that offers basic Maths support and another offering support with numeracy, the nil responses account for 8.3% of this category. Nineteen universities were found to be advertising mathematics support on their web sites. The number(s) providing each form of

support are as follows:

Number	35
Learning Support/ Drop-in Centre	25
Maths Clinic-Drop in with limited hours	4
Numeracy Support	3
Learning Support Tutor	2
Postgraduate Support	1

One university, which currently offers a mathematics surgery in the form of drop-in sessions of around 10 hours per week is considering the provision of a learning support centre for mathematics and statistics but has not yet gained central funding to provide such a resource.

Of the universities not offering learning support, at least one does not have any mathematics courses and another no longer has mathematics modules. Of the remaining universities not offering learning support, one stated “a properly managed and permanent mathematics clinic should be offered, given the weak mathematical backgrounds of many of our students, however the problem is how to fund such a service”. Another replied “has been requested but there is a resource issue” and a third commented “none planned but we are aware of the need”.

Conclusion

Our current survey has found that 62.3% of the universities contacted have some form of learning support, 33.0% do not offer this facility and 4.7% are undetermined.

Additionally, 9 universities are about to open, would like to have or recognize a need for Mathematics Learning Support. For staff who would like some form of learning support in their institution, there is now a wealth of material available on-line, via CD/DVD and in paper form. This material will enable some form of mathematics support area to be opened within a short time scale.

We would urge those with mathematics support provision to ensure that there is adequate information, readily accessible, on the institution website which will encourage students to take advantage of what is on offer.

Many of the existing support centres have agreed that links to their websites can be made from the staff area of **mathcentre** site (<http://www.mathcentre.ac.uk>), and so by visiting this site interested readers can explore the variety of facilities, resources etc on offer in these institutions.

The situation is fluid, and whilst every effort has been made to ensure that our data is accurate, we know there is some fuzziness at the edges regarding what actually constitutes a support centre. Therefore it is possible that there may be some variation between the true figures and the ones reported here. Nevertheless we believe we are reporting a largely accurate picture of the current state of mathematics support in universities within the UK.

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