

Study Advice Services incorporating the Mathematical Advice and Co-ordination Service at The University of Hull

Don Maskell ■ Study Advice Services ■ University of Hull

Abstract

Mathematical Advice and Co-ordination Service (MACS) was established in 1995 within the Faculty of Mathematics to support students within their studies at the University and to help prepare them to go into the world. Funding was made available for an initial period of 3 years and was then continued on a year-to-year basis. The emphasis has changed over the years and most of the work is now linked to students' current problems but also includes help for those facing employers' tests at interview. The University accepted that the concept of student support offered in Mathematics needed to be extended into other areas and, through The Higher Education Funding Council for England (HEFCE), established the Student Advice Service (SAS). The SAS is now a permanent feature of the University serving any member of the student body (and indeed staff) who might benefit from what it offers. The remainder of this case study considers only the mathematical part of the SAS, though many of the comments apply to the other areas of the SAS (Academic English, Study Skills and ICT).

The Execution

In 1993, in response to concerns about the levels of mathematical competence and understanding which students brought with them to their degree courses, the University set up a working party to consider the problem. It was recommended that many of the problems outlined by various departments could be addressed through a university-wide co-ordination of mathematics provision utilising the expertise and experience that exists and using the Mathematics Department as a base. The service was called the Mathematics Advisory and Co-ordination Service (MACS) and officially started in September 1995, with the appointment of its first co-ordinator, an experienced teacher in both FE and HE who did a lot of hard work to get MACS established. His appointment was to work 0.6 with MACS and 0.4 in the Mathematics Department. He was supported by a part-time lecturer who had been involved in the Numeracy Centre and who ran a course each year "Number from an Adult Viewpoint".

It was intended that MACS would include support of students (as is now provided) along with advice to departments on content and delivery of the mathematical content of courses and also to run Free Elective Modules on Life Skills such as "Statistics for Life" etc. Only one of the modules attracted sufficient students to make it viable (Graphical Interpretation of Data), the others were dropped after 3 years. The intention to give "advice to departments" has had some limited success in mathematics and engineering but most departments see it as interference!

In 1998 it was realised that we needed to expand the provision of Student Support to other areas. In January 2001 the Study Advice Services (SAS) started and MACS became part of it.

What Support Was Needed?

The Service was initially managed by an experienced university lecturer who with experience of school teaching, assisted by a lecturer who had developed the Numeracy Centre, both of whom had experience of dealing with 'problems in maths' at many levels. The management was taken on by a teacher with a wide experience of teaching pupils/students of all ages from 11+ and at all levels from Remedial to A level Further Mathematics. No training was offered and, indeed, it is difficult to see how training could be given. The main requirement for the tutor is to be able to recognise different methods used and to pare away the layers of a problem until the, often deep seated, underlying difficulty can be found. This is something that comes from experience rather than training. The second tutor has considerable experience in dealing with numeracy (with adults), with employers' tests and other areas of Mathematics.

The Barriers

There have been two main barriers over the years. The first is the (natural) reluctance of many students to seek help and as a consequence many students have come along when it is almost too late! Attempts to get to groups of students felt to be 'at risk' were not always successful. Usually it was the mature students who came for help, often followed by others.

The second barrier is a suspicion on the part of staff who view the activities of the service as being somehow threatening. Some gave the impression that their students had had no trouble in the past so there could be no reason why they were having trouble now. After considerable, almost secretive, work this barrier has fallen in some areas. Lecturers have realised that their students don't come with the same mathematical content as 10 years ago as the syllabuses have changed. Two lecturers have actually given me copies of their notes for me to comment on!

The Enablers

Since the SAS started the service has grown considerably as one member has the responsibility for liaison. This has enabled the service to advertise in faculties and departments. Contacts through the Student Counselling Service and through the Students Union prove invaluable. As a result the numbers coming for help have grown and it would not be possible for the mathematics tutor to cover all the responsibilities originally intended.

Evidence of Success

One source of evidence is the statistical records we keep. In mathematics, in the first semester (semester 2 of 2000-2001) we had 179 student-visits. This does not mean 179 individuals as each visit is counted – realistically we probably saw about 80/90 students. We also worked with 202 students in “workshops” – this may mean a department-organised group or a group of students getting together and asking for a group session, where a group may mean anything from 3 to 7 or 8. In semester 1 of 2001-2002 we had 144 student-visits and 397 students in “workshops”. We have been represented, and interviewed for, a number of TQA assessments with complimentary comments being recorded in the final reports. We receive written comments from students and also many students come back to see us to thank us for ‘getting them through their exams.’ Others have admitted that we were the last resort before quitting their degree course and the University. The SAS is seen as a major factor in ensuring a high retention of students.

How Can Other Academics Reproduce This?

The simple answer is “with difficulty” unless they have the financial backing of the University and the support of major users of mathematics. There are many lecturers decrying the mathematical ability of their students but unless they band together to make serious provision for support within their own institution very little will happen. It will take the vision of one or two dedicated ‘teachers’ of mathematics and may need a department/faculty to offer initial funding to start the ball rolling. Once the beneficial effects of retention, more students succeeding and more student satisfaction are recognised then funds will be found from somewhere.

Quality Assurance

This has always been a problem. We have tried different ways of getting critical feedback including inviting students to attend informal chat sessions led by someone other than a tutor, email random shots, asking students to fill in a comment sheet etc. On the whole the only response has been from those satisfied with the service who have said kind things and, because it’s worked for them, have had no criticisms.

Other Recommendations

- The Centre is not the only place where students get help and it is essential that there is sufficient communication between the agencies involved to maximise the support without confusing the issues.
- The use of Graduate Teaching Assistants (GTAs) to run Tutorial sessions is good for most GTAs and most students but they do need some insight into the problems met by students. On the whole for some undergraduates the GTAs are “too good at Mathematics”! They cannot understand the problems the undergraduates face, it’s ‘obvious’ to them. In some cases they are not aware of different techniques in tackling a mathematical problem (i.e. there are at least 4 ways of doing simultaneous equations and some overseas students are taught the determinant method!).
- Language is one of the problems that appears quite often, when lecturers who are not native English speakers are teaching students who are also not native English speakers. The support and advice of ‘experts’ in EFL can be useful here along with Language Institutes.
- Confidentiality – we aim to provide a confidential service. Because of the physical situation of our desk this is not always easy but we do take students to a more private location when necessary. The main problem arises when you get a large number of students coming along for help who are all taking the same module. They do tend to talk about why they believe they have the problems and blame the lecturer! In some cases it appears that they are correct, though it’s important that you never show that you agree with them. In other cases it is possible to show them that the problem is elsewhere, including not covering the topic before coming to University, or not learning it properly!
- It should be possible to feed information back to lecturers (or departments) when there does appear to be a problem with the module content or a lack of realisation on the part of the department that both GCSE and A level Mathematics has changed over the past 10 years! This can be done if confidentiality is not compromised.
- Most of the problems dealt with are up to the A level Further Maths of 10 years ago. Some problems are beyond that and, unless the tutor knows the topics or is willing to do some learning, the advice has to be “go and see your lecturer” – this is often not what the students wants to hear! In practice it is often not too difficult to work through the student’s notes and, by explaining what’s going on, learn something new. It is surprising just how often mistakes are found in notes which the student may suspect but lack the confidence to change.
- It is hard but very enjoyable work. If anyone is thinking of doing it then they should get together with one or two others and try and get something started. It will be of benefit to the students, the subject areas and the Institution and, probably the best selling line, it retains students and so saves money in the end!