

Web Based Support

Coventry University's Mathematics Support Centre's Website

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Abstract

The Mathematics Support Centre at Coventry University (originally known as the BP Maths Centre) was established in 1991. The Centre aims to provide early identification of problems and on-going support for individual students. This is achieved through use of diagnostic testing, the provision of a wide range of resources and the availability of one-to-one assistance on drop-in basis. The Centre's website was launched in September 2000 to:

- extend the support provision to students who did not find it easy to visit the Centre (e.g. part-time students);
- provide access to a range of resources at times when the Centre is closed;
- deliver new support activities such as online practice tests and email questions.

The Execution

The Mathematics Support Centre at Coventry University (originally known as the BP Maths Centre) was established in 1991 with a grant from BP's Engineering Education Fund. The original aim of the Centre was to offer support in mathematics to engineering undergraduates through the early identification of problems and the provision of on-going help. This was to be achieved through the use of initial diagnostic testing and the availability of one-to-one assistance on a drop-in basis.

Initially the Centre had a full-time manager who oversaw the development of the service provided by the Centre. However, when the BP funding and subsequent short-term University funding ended, management of the Centre was taken over by the current Director as one of his many duties as a lecturer within the Mathematics Subject Group. The Centre continued to provide valued support to a range of students and was frequently praised by external organisations such as Professional Body Accreditation Panels and QAA Subject Review teams.

When the University published its Teaching and Learning Strategy in 1999, the work of the Centre was recognised and it was specifically mentioned as a key agent of student support. This led to the University providing funding for the work of the Centre. This funding allowed the Centre to employ a Mathematics Tutor to be responsible for the day-to-day operation of the Centre and to carry out new initiatives to enhance the support provided.

One of the new initiatives implemented by the Mathematics Tutor was the development of the Centre's website. This was launched in September 2000. Originally the site contained pages giving basic information about the Centre such as its location, opening hours, a description of the support available, a range of downloadable handouts, a number of self assessment practice tests and a facility to email questions to the Mathematics Tutor. Since then the resources on the website have been expanded, primarily in range (more handouts and

more on-line tests have been made available) and also in scope. For example, originally there was one on-line test per topic; this has now been extended so that questions are randomly selected from a bank so that a student can take a practice test more than once and be given different questions each time. In addition, a number of short 'multi-media' presentations of basic topics (such as multiplying out brackets and solving linear equations) have been added. These presentations consist of user controlled multi-step animated demonstrations of an activity with a sound commentary at each step.

What Support Was Needed?

The financial support provided initially by BP was beneficial in starting the Centre. When this funding ending the Centre operated successfully for a number of years essentially through the goodwill of lecturers who gave an hour or two each week to staff the Centre. The central funding the Centre now receives has made initiatives like the website possible.

Development of the website has required technical support which has been provided by one of the School of Mathematical and Information Sciences Development Officers. The Mathematics Tutor provides the content and the Development Officer uploads it to the website. Most of this is routine website maintenance, however the Development Officer has implemented the on-line practice tests by writing a number of PERL scripts to randomly generate the tests from a bank of questions and to process the students' answers giving feedback when the answers are incorrect.

The multi-media presentations were produced in association with the University's Teaching and Learning Support Unit who provided expertise in the use of Flash. Training in the use of Flash is shortly to be provided within the School and, following this, the capability will exist within the School to develop more of these items.

The Barriers and The Enablers

There are two main barriers to the success of the website:

- knowledge of its existence;
- motivation to use it.

The first barrier is addressed by a widespread publicity campaign during induction week. When the website was first launched, the Centre hosted an open afternoon just prior to induction week to which all academic staff were invited. In addition to the general invitation issued to all staff, individual invitations were sent to course tutors from courses with substantial mathematical, statistical or quantitative methods elements. As part of their induction week programmes, many students visit the Centre. During this visit they are given a short talk about the support the Centre provides (which includes reference to the website) and they are given a formula sheet which states the Centre's opening hours and gives the website URL. The University has adopted the virtual learning environment WebCT. Every module has its own WebCT web containing a number of standard items and a number of customisable ones. One of the standard items is a set of links to generic learning resources such as the library's website. One of these links is to the Centre's website.

The second barrier of student motivation is considerably more difficult to overcome. From monitoring usage statistics, it appears that the on-line practice examples are highly valued by the students. For this reason, considerable effort has been devoted to expanding the range of topics covered by these tests and increasing the size of the question banks so that students can take more than one practice test on a given topic.

Evidence of Success

The primary evidence of success is the number of hits the site receives. These statistics indicate a general upward trend (although there is some variation throughout the year) in the amount that the website is used. No formal mechanisms have been used for gaining student feedback about the website although it is planned to make an on-line questionnaire available.

How Can Other Academics Reproduce This?

The website is only one part of the wide ranging support provided by Coventry University Mathematics Support Centre. Whilst setting up a website to make resources available electronically is reasonably straightforward, if this is done in isolation it may not provide a great deal of benefit to students. The website needs to be part of a larger support provision.

A significant amount of time is required to develop resources to be delivered by the website. Institutions may already have some handouts available in hardcopy form and these can be delivered over the web if electronic versions of them exist. The provision of online practice tests requires the time of an academic member of staff to develop suitable questions and then technical support to develop the infrastructure to deliver them over the web.

Quality Assurance

There is no formal quality assurance of the Centre website. The Centre itself is subject to occasional monitoring by the University and is scrutinised by outside organisations such as the QAA and a range of professional bodies. Colleagues from other institutions have commented on the website following demonstrations at conferences and workshops both in the UK and abroad.

Other Recommendations

Given the current pressures on academic staff time it is essential that duplication of effort is avoided. One way of doing this is through the sharing of resources. Access to the resources of the Centre's website will be given to other institutions if mutually beneficial arrangements can be made. Anyone interested in exploring possibilities in this regard should contact the author (preferably by email: d.lawson@coventry.ac.uk).

Reference

A Web-Site for a Mathematics Support Centre. In *Technology in Mathematics Teaching*, M. Borovcnik, M. & Kautschitsch, H., (Eds.). Vienna, Austria: hpt & oebv, Lawson, D. A., Reed, J., & Tyrrell, S. E., (2002).