
Recent activities and plans for the near future

Since the last issue of *MSOR Connections* we have held two national workshops, and made a presentation at the University of Wales colloquium at Gregynog. We also exhibited poster material at the annual conferences of the Teaching Quality Enhancement Fund and the Institute for Learning and Teaching.

The fifth British Congress of Mathematical Education took place at Keele University from 5-7 July with the theme *Removing boundaries*. The conference was attended by about 120 delegates, with diverse interests in mathematical education ranging from infant to HE and FE, and teacher training. Three members of staff attended the conference from our Network and the session *A strategy for Enhancing Learning and Teaching in Mathematics, Statistics and OR in Higher Education* was given by Pam Bishop and Joe Kyle. Our presence was also enhanced by a poster presentation of our work with literature for delegates to browse during breaks. A full account of the Congress will be carried in a later issue.

On 11 July Ewan Crawford attended a meeting on Problem-Based Learning organised by the LTSN Generic Centre. This teaching approach is already used in some statistics courses, and Ewan administers a jsmail discussion list for those who are interested. A website has been set up at <http://heracles.coventry.ac.uk/pbl>, and all are invited to suggest papers and case studies for inclusion.

In the February issue we identified four key areas for development during the coming year, and here are updates on each.

Assessment - a workshop on Matching Assessment to Learning Mathematics and Statistics was held on 30 May in Birmingham (see report on p 29 in this issue). Our assessment consultant Cliff Beevers is also editing a series of monthly articles on computer-aided assessment. An index page and the first article can be found via <http://ltsn.mathstore.ac.uk/articles/maths-caa-series>

School/University interface - a briefing day on post 16 mathematics and statistics within Curriculum 2000 was held on 11 June at the Institute of Education in London (see special feature report on p32). This will be followed up by the publication of an information pack.

Staff development - our bid for a project to provide staff development opportunities for HE teachers of MSOR has been successful, making a further £50,000 available for our budget in 2001/2. The aim of the project is to enable those in the first few years of appointment to be better equipped for new teaching responsibilities at the same time as offering more experienced staff the opportunity to enhance their own portfolio of expertise.

Key outputs will take the form of written and electronic material that will help all HE teachers of MSOR to improve the learning experience of students, supplemented with a regular programme of supporting events. Using and implementing the new ideas and methods will provide avenues that can be assessed as valid CPD. Consultants will be recruited to carry out the project in collaboration with Network staff. Evaluators will also be recruited from the start of the project to undertake formative and summative evaluation. Full details at <http://ltsn.mathstore.ac.uk/bids/staffdev.PDF>

Service teaching - we have appointed Tony Croft of Loughborough University as a consultant for Applicable Mathematics. Additionally, our joint bid with LTSN Engineering and LTSN Materials for a project to address the dissemination of good practice in diagnostic testing and student support has been successful. This will draw on the recent and topical reports *Measuring the Mathematics Problem* and *Engineering Mathematics Matters* and other research in the area. Up to £115,000 is available under the heading Collaborating to Tackle the Engineering Mathematics Problem for the development of materials which will provide a faculty, department or individual wishing to consider implementing the recommendations of the above reports with enough information to make an informed decision. Full details at <http://ltsn.mathstore.ac.uk/bids/mmp2001.PDF>

A further bid for the production of teaching resource packs including real scenarios relating to taught topics was not successful on this occasion. However, there has been a follow up meeting on the Engineering Statistics



Tony Croft

materials described in our May issue, and on p 28 in this issue there is an update on progress from Clare Morris of the Cardiff Business School.

Learning and Teaching Projects

Last year we commissioned three projects in mathematics to commence in February 2001, and there are interim reports from each of these in this issue. There is also an invitation to bid for projects starting in November of this year, in mathematics and in operational research. The closing date for applications is 1 October.

A National Approach to Diagnostic Testing

Following a request from the IMA, LMS and HoDoMS we convened a meeting in June to discuss a national approach to diagnostic testing. Representatives from each of the above organisations, the RSS and our Network made presentations, and the results of a survey on the existing practice regarding diagnostic testing and student support were made available.

It was agreed that a national database of questions and the ability to set and sit tests online would save a great deal of time. Another approach would be to publish graded tests on a website, or a national database for constructing one's own tests. This would include questions of different types, so that people can for example choose a selection of multiple choice questions which could either be delivered over the web or printed out as OMR sheets. The main emphasis should always be on supporting students - a national test would need to be flexible enough to be applicable to a local situation and would need to be managed locally to ensure that students benefit from the exercise. Even if a range of tests is available for delivery and marking over the Web, confidentiality of student results to the institution will be important. This does not rule out the collection of national data, since this could be done on the basis of individual questions.

A report of the meeting is in preparation and will be discussed at meetings of each of the societies involved. It is likely that this will lead to applications for funding to support this kind of national approach.

Fund for the Development of Teaching and Learning

We were hoping in this issue to carry full details of Phase 4 of this major funding programme, which aims to stimulate developments in learning and teaching and to secure wide take-up and implementation of good practice. However, the invitation to bid will not now be announced until the autumn. We have been allocated additional funding to support the preparation of MSOR bids and encourage cross-departmental collaboration, and will be meeting with other LTSN Centres to discuss how this can best be done.

The MSOR discipline will be in competition with 12 others for FDTL Phase 4 funding. Although up to £250,000 could be available to stimulate developments in teaching and learning in your department, bids must address the priorities of our discipline and be of the highest quality. We would encourage you to contact us if you are looking for bidding partners. The following advice, adapted from HEFCE's National Co-ordination Team website, may be useful.

- Keep up to date with the FDTL section on our Web site (see below) which includes *Key priorities/needs for the disciplines of Mathematics, Statistics and Operational Research*, a document based on the QAA Subject Overview Report for our discipline
- Look at the QAA reports for all MSOR departments in England and Northern Ireland which are available either on the QAA site www.qaa.ac.uk/revreps/subjrev/bysubname.htm or in searchable form at www.ltsn.gla.ac.uk/qaa/index.stm
- Think about the following questions - if you could answer "yes" to most of them, you may well have a starter for a project.
Is there something in the Report for your Department which shows you have a strength in this area?
Is this something that you and your colleagues could usefully develop further in collaboration with staff from other HEIs?
Is this development in line with the vision and targets contained in your learning and teaching strategy?
Would you enjoy disseminating your ideas to other colleagues nationally?
- Network with colleagues elsewhere in England and Northern Ireland who have similar interests. Consortium bids allow far more sharing of the development of ideas and wider dissemination of those ideas.
- Visit your Educational Development Unit and ask about the support they might be able to give you in bid development, in carrying out the project and in dissemination of the ideas generated by your project.
- Talk to project teams who are currently carrying out FDTL3 and FDTL2 projects, or talk to someone who can reflect on the whole experience – perhaps someone from an FDTL1 project team whose project has completed and whose results are now widely disseminated.

We will keep in touch with FDTL developments and will publish the latest information on our Web pages at <http://ltsn.mathstore.ac.uk/FDTL>

Consultation on benchmarking statement

On 16 July the QAA sent out its Circular CL20/01 announcing a consultation on draft benchmark statements for 26 disciplines including Mathematics, Statistics and Operational Research which are now on the QAA website at <http://www.qaa.ac.uk/crntwork/benchmark/phase2consult.htm>

These statements were drafted by committees within each discipline, and the committee for our discipline was chaired by Professor Chris Robson. He has recently written to us pointing out the importance of responses from the mathematical community during the official consultation period which ends on 16 November. Here is an edited extract from that letter - we would particularly emphasise the final paragraph. **All of us need to ensure that the response from our institution reflects the views of the mathematics, statistics and operational research groups as well as more general, and possibly different, views from other interests within the institution.**

To those organizations which responded to the recent informal consultation by the benchmarking group for the area of Mathematics, Statistics and Operational Research.

First let me thank you again for your help. The overall comments made to us were almost uniformly positive about the general tone of the draft and very supportive of most of the details. The specific suggestions for possible improvements were perceptive and useful. Although we have not followed all the suggestions, nevertheless we have incorporated several by making changes, mainly very small, in the document. The point made most frequently concerned the situation regarding the MMath. We have reworded the ending of the section in question to indicate that the precise status of this degree in relation to the new Qualifications Framework is under current discussion, and that the benchmark document does not claim to include it, although it is naturally of relevance.

The timetable now is as follows. The draft has been given to QAA. They will prepare it in their house style, releasing it on Monday July 16, 2001. They will circulate copies to universities, to bodies such as yours, to some other concerned bodies (e.g. employers, engineers, accountants etc) and place it on the web. There will then be a consultation period lasting until November 16, 2001. The responses will be collated and summarized by early December. The existing benchmarking group will produce a final revision based on these comments by 8 Feb, 2002. The official document will then be published by QAA on 1 March, 2002.

Can I please ask for your help once again. We earnestly hope you will respond to the formal consultation. Please bear in mind that the informal consultation was by the benchmarking group and did not involve QAA. In the formal consultation there will be responses from those outside the mathematics, statistics and operational research community and they will have different perspectives from us. Points in the draft that we view as helpful may appear contentious to some of them. In that case it would be helpful to have visible support from our community when dealing with the final revision. So, please make sure your response indicates support for what you view as positive as well as indicating those features which you feel could be improved.

I would also ask you to urge our colleagues in university departments to ensure that the response from their institution reflects the views of the mathematics, statistics and operational research groups as well as more general, and possibly different, views from other interests within the institution.

Chris Robson, June 2001

Learning and Teaching Projects

Projects in Mathematics

The LTSN Maths, Stats & OR Network offers funding for a limited number of projects investigating learning and teaching in mathematics to commence in November 2001. The Network particularly encourages proposals addressing one the of the following topics:

Encouraging Independent Learning - what exactly is independent learning and how do we recognise it? Are there effective mechanisms for achieving this much quoted goal?

Effective On-line Learning - there is much already written on on-line delivery, but is there evidence based support for on-line interactive media promoting learning and understanding?

The Traditional Lecture - features prominently throughout the QAA reports. It also attracts much critical comment. How can it be used to best effect and how can one overcome the problems and pitfalls?

Projects - are an increasing feature on the undergraduate landscape. Can they be effective and efficient for a large cohort? Are

there ground rules for the good management of projects across the MSOR spectrum?

Other well-argued proposals will be considered, but preference will be given to applications that address the topics listed above.

Informal enquiries about mathematics projects can be made to Dr J Kyle, tel 0121 414 6604, email j.kyle@bham.ac.uk

Projects in Operational Research

The LTSN Maths, Stats & OR Network offers funding for a limited number of projects investigating learning and teaching in operational research to commence in November 2001. Issues to be addressed might include a review of existing practice and syllabi for undergraduate OR courses and modules and the identification of common issues which might form the basis of useful workshops for OR lecturers and appropriate resources for dissemination.

Informal enquiries about operational research projects can be made to Professor Adrian Bowman, tel 0141 330 4046, email adrian@stats.gla.ac.uk

Up to £5000 is available for any one project, and collaborative applications are welcome. Successful applicants will be notified in October 2001. Applications, on no more than four sides of A4, should be sent by **Monday 1 October 2001** to the LTSN Maths, Stats & OR Network at the University of Birmingham, Edgbaston, Birmingham, B15 2TT

Project descriptions will be expected to:

- * summarise the aims, timescale and expected outcomes of the project;
- * have relevance to a wide cross-section of the practitioners in the disciplines;
- * include plans showing collaboration with the Network in the dissemination of the results of the project.

Maths, Stats & OR Network Evaluators

As part of the establishment of the LTSN Maths, Stats & OR Network we are required to develop a system of evaluating our performance and how we may be influencing developments in Learning and Teaching in our discipline. The Network has decided to establish regional Evaluators to review our activities. The six Evaluators are; for Scotland, John O'Connor from St Andrews; from Northern Ireland Sally McClean at Ulster; for the Midlands Johnston Anderson from Nottingham; from Wales Ian Martin, at Glamorgan; from North of England Kit Dodson, UMIST and for the South of England John Silvester from King's. The Evaluators will be considering various aspects of our activities, including:

- The efficiency and effectiveness of services delivered to individuals and Institutions
- The impact on practice at a departmental level
- The extent to which network activity facilitates dissemination of existing good practice in Learning and Teaching
- The extent to which Network activities facilitates the emergence of new and effective pedagogic practice and learning technology

The six Evaluators will visit a small number of university departments in each year as well as being in contact with the departmental contacts at the universities in their region. They will also meet together on an annual basis to discuss the impact the Network is having on developments in Teaching and Learning of Mathematics, Statistics and Operational Research. The first meeting of the Evaluators together with members of the Executive and Advisory Committee will take place on 13 August 2001.

John Blake, Director, LTSN Maths, Stats & OR Network

MSOR Announcements

Mathwright

Some of you may be interested in the new Java version of Mathwright which will make its debut at the end of this month at the MAA/NSF Project WELCOME website. Our authors (and our student readers) can create displayed mathematical expressions fairly easily with an intuitive keyboard interface (no metalanguage, no tables of special expressions). To create an exponent, you simply press "^" in the editor and it knows what to do -- even to resize the exponents if they are nested several levels. To create an integral, you simply type "int()" and so on. These expressions are active and editable, and the edited expressions can be read and used for later computation by the system. Authors usually tie these Math Edit fields to other objects (data tables, graph windows, etc.) through simple scripts created in our MathScript language.

Until this Summer, Mathwright has only been available as a downloadable application. In fact, you may check out some of our 154 WorkBooks at www.mathwright.com (The New Mathwright Library and Cafe). The new 32-bit Java version of Mathwright plays these books in MSIE browsers (version 4 or higher). More ambitious web authors might like to take a look at the Math Edit plugin, which is an ActiveX Control that enables anyone

The New Mathwright Library and Cafe

The **Mathwright Library** is a free collection of interactive mathematics and science books that you bring to your own desktop from the web, and then read at your leisure. Once you join the Library and download our **new Library Player 2000**, which operates the books on your computer, you may come here whenever you like to add to the private collection on your own computer, or to discuss ideas with other visitors to the library.

If you have never seen Mathwright before, you are welcome to take it for a test drive. You may be surprised to see how mathematics comes to life in our WorkBooks!

The Cafe is our meeting room where we explore the art that blends mathematics and science with computers and magic.

Welcome, students, teachers, home schoolers, and all who prize mathematics! Have a cup of Java, relax and enjoy!

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to place mathematical text, ordinary text, and/or pictures on their own web pages. The advantage of authoring in Mathwright to place the text on a web page, within the context of mathematics scripting language and a variety of display objects (2 and 3D graph windows, and so on) is obvious. The text is active and responsive, and so it provides a rich experience for the learner.

Please feel free to visit the Library to see what others have done, and are doing. If what you see looks interesting, *respond with questions from the site*, and we will try to answer them.