
Something that worked for me...

Something that worked for me... is a developing new section containing short reviews and articles for you to quickly read *and contribute to*. The editors invite people who just have not the time for a long review or article. If you would like to contribute any "tips of the trade" which worked for you in teaching and would like to share your experience with the wider Maths, Stats & OR academic community, email the editors or complete the online form at: <http://ltsn.mathstore.ac.uk/feedback/submit/articleidea.htm>

Title: Using the student resource to write CAL material

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We have heard so much recently about freshers' mathematical skills on entry to university, changes to A-level and GCSE syllabuses and shortages of mathematics teachers that it is easy to get downhearted. Here I want to focus on what students can do, and to encourage others to play to their strengths. I am, of course, talking about an increasingly IT-literate student intake. If we are smart, we might be able to exploit their computing skills and teach them some mathematics on the way.

At low level, this can easily be done by putting students work up on the Web, see for example www.brunel.ac.uk/~mastmmg/ssguide/sshome.htm where various pieces of written work, such as sample CVs have been dropped into a Study Skills Guide. This could be extended by having a "solution of the week" posted on a web page or bulletin board.

At a higher level, especially for final year projects in CAL, things get much more interesting and very soon one starts talking mainly about mathematics, not the "techno" issues. This is particularly true if one uses pre-existing environments such as Question Mark's Perception or WebCT, thereby avoiding many of the difficulties associated with scripting or programming. One gets much further with the pedagogic material itself; rather than coding a few pages of material from scratch or writing a few notebooks for a symbolic manipulator, a student project can cover a whole topic area. With several students, one soon reaches a critical mass, where the material created is of value for other students, especially for level 1 and service courses. The main beneficiaries, however, are the final year students themselves; they often understand basic material for the first time ("I never understood that at level 1, but now I see it!") and this is helpful (to say the least!) for those intending to become teachers.

I have adopted this approach in developing *Mathletics* using QM Designer (now being translated and enhanced with QM Perception). After familiarising themselves with the software, students must identify the skills to be tested in each topic area, see "Setting objective tests in mathematics with QM Designer" Maths, Stats & OR,

LTSN Newsletter, 2000. This is a very formative exercise that establishes links and forces students to consider why the syllabus and curriculum is as it is. For the lecturer, there are two obvious benefits:

- a) you have an almost endless supply of projects! Since the material for each is different, each is uniquely the student's own work.
- b) you get a usable product. To date, *Mathletics* contains some 4500 questions spanning 175 skills areas (full details can be seen at <http://www.brunel.ac.uk/~mastmmg>)

Mathletics was widely used at Brunel last year, some 600 students taking over 23,000 tests. A particularly useful feature are the post GCSE and post A-level diagnostic tests that select their questions from the various skills question libraries.

Finally a word of caution; edit what students do very carefully before using it. Don't assume they will get even simple material unambiguously correct - it can cause damage if they don't. Editing many questions is tiring, even boring. Writing question descriptors directly in an appropriate syntax and checking the mathematics with a symbolic manipulator is helpful.

A free copy of *Mathletics* version 2.6.0 can be obtained by emailing me your postal address.

Something that worked for me...

Title: Running XLISP-STAT from PowerPoint
Author: Ewan Crawford, ewan@stats.gla.ac.uk

Assuming that XLISP-STAT is already installed on your computer: (if you wish to download it go to <http://stat.umn.edu/~luke/xls/xlsinfo/xlsinfo.html>)

1. Place the required .lsp files in c:\xliststat (don't use a subdirectory of this directory)

2. Make sure that the wxls32.ini file has the entry;
[xlist]
Libdir=c:\xliststat

This file will be in the c:\windows directory for Windows 95, 98 and ME, or the c:\winnt directory for Windows NT and 2000.

3. Open Powerpoint and place an image on a slide. For the example given here I've used screen capture of a regression module 'spin' downloaded from UCLA Statistics at

<http://ebook.stat.ucla.edu/textbook/demos/regression.phtml>

4. Click on the image with the right hand mouse button and choose 'Action settings'

5. Select 'Run program'

6. Enter the text;
c:\xliststat\wxls32.exe spin.lsp

(That is c:\xliststat\wxls32.exe module.lsp)

You can download my Powerpoint document from <http://www.ltsn.gla.ac.uk/articles/xlistpower.ppt>

XLISP-STAT and 'spin' must already be installed on your computer.

Have You Seen This?

Have You Seen This?... is a developing new section containing short reviews and articles for you to quickly read and contribute to. The editors invite people who just have not the time for a long review or article. If you would like to contribute on topics covering courseware, teaching, learning, assessment or any current topic affecting the Maths, Stats & OR academic community, email the editors or complete the on line form at <http://ltsn.mathstore.ac.uk/feedback/submit/articleidea.htm>

Title: **MathType 5**
Author: **Paul Topping, Design Science, Inc, pault@dessci.com**

MathType 5.0 for Windows is now available. One of its new features is the MathPage technology for converting Microsoft Word documents containing mathematics to good-looking and printing Web pages, using either MathML or GIF images for the equations and math symbols.

Here's how it works... As part of the MathType installation process, a "Convert to MathPage" command is added to Word. This command brings up a dialog that gives the user a choice between converting equations and math symbols into MathML or GIF images. The MathPage software then post-processes the page generated by Word's "Save as Web Page" command to implement MathPage's additional functionality.

MathPage's MathML output is compatible with WebEQ, Mozilla, IBM's Techexplorer, Amaya, and Internet Explorer enhanced by the forthcoming MathPlayer software.

Even if GIF images are generated, MathPage technology solves the usual problems encountered with GIF math -- equations and symbols are baseline-aligned and print beautifully. This is all achieved via multiple resolution GIFs being generated for each equation and symbol. JavaScript embedded in the page deals with selecting the proper GIF resolution, browser compatibility, baseline alignment, etc.

Visit <http://www.dessci.com> to view sample MathPage output and get a free 30-day evaluation of MathType.