Equate!

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Equate! A new site for Web developers interested in online learning in mathematics and statistics.

Like many computing enthusiasts of my generation my interests in IT can be traced back to my childhood when I spent what many had told me were to be the best days of my life experimenting with the newly emerging notion of personal computers (in my case an Apple II+). This new technology was struggling in the early eighties to cope with what are now seemingly straightforward tasks and required a great deal of patience and discipline to program. Yet there was an atmosphere about computing in those days that enabled the ordinary user to participate in the expansion of this new technology (Apple for example routinely supplied detailed plans of the motherboard with every machine!). Like many hobbyists I took up this challenge and in my case succeeded in making a crude light pen for my machine from an old marker pen container and some simple electronics.

My hobby continued alongside my academic interests as a mathematician and over time evolved increasingly towards network programming. Following completion of my doctorate in mathematics I was employed by the mobile phone operator Vodafone as a mathematical analyst. Once again I found myself at the forefront of a new technology as I worked on advanced projects examining how best to design, develop and exploit emerging technologies in the mobile telephony market. This work included theoretical modelling of services to be offered under the third generation mobile network, UMTS, and the design and optimal use of network resources.

Now working as a lecturer in Operational Research at Middlesex University Business School I have brought with me some of my experience and applied it to the development of web based learning resources in mathematics and statistics. In many ways my story is not unique. I belong to a community of developers who have found themselves in similar roles at other educational institutions working to produce wonderfully creative and useful online materials. Many of these developers share with me concerns about how best to put new technologies to use and ask on what basis should we judge the educational merit of web based materials. These problems are likely to remain for some time yet particularly as more advanced technologies start to make their presence felt. In thinking about how the web has a role to play, however, I let myself be guided by some of the following principles:

- The objective is always to service the educational needs first and foremost. This implies that online resources should be judged in terms of their educational content over their technical merit. To take online assessment as an example it seems that the use multiple choice tests is widespread in web based materials. Clearly these are very simple tests to construct technically and are easily constructed using forms in HTML or PDF but under what conditions are they appropriate forms of assessment ?

- Every new technology must find its own unique form of expression. In the early days at least of any new technology there is a tendency to emulate what is already familiar. Making lecture notes available to read on the web, for example, is an attempt to recreate the existing learning environment through the computer screen and hardly represents an innovative use of technology. Presented with new opportunities we must be prepared to break our old habits, become

bold and radical and completely reinvent the delivery of learning. To do so requires not only a thorough understanding of new technologies but also a creative and proactive instinct towards them.

- Web technology is still in a very immature state. We must therefore balance the positive aspect of being in a position to influence the development alongside the negative aspect of unstable specifications and a volatile marketplace. We ought to accept this burden of leadership in order to help shape future policy to the benefit of education. I believe that we are only beginning to see the web revolution unfold and that in time we shall develop the sort of mature and considered applications that will shape future learning.

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For some time I have felt it necessary to offer a forum for developers interested in exploring ideas for creating materials for mathematical and statistical online learning. I am aware of a number of projects currently under way in the UK and elsewhere and of their impact on mathematics and statistics teaching. To help bring together interested parties I have launched a website called Equate! that can be found at the following URL: www.equate.org.uk/

Figure 1: Example of an Equate! web page

The contents of the equate website are divided into the following chapters: Technology, Resources, Articles, Forum and Links. To begin the technology links describe existing web based technologies. These are subdivided further into sections that link to material already on the web and will serve as a guide to the available technologies. Although useful for those unfamiliar with certain web technologies it is also intended as a road map for the more experienced traveller. Further links can be found on the extensive links pages.

The resources section of the website is intended for contributors who wish to make available samples of their own work. Presently a number of resources are being prepared for posting on the site and once these are on the site they may be downloaded for free (subject to the terms of the freeware licence). Advice for contributors on creating resources and how to ensure the validity of code for use on the web can be found on the contributors page. Contributors are also welcome to have a link to their own website rather than upload their material onto the equate site if that is their preference.

A chapter has also been reserved for articles on the use of web based technologies. These may contain the views, experiences or opinions of web developers and are intended to stimulate debate and discussion on the use of the web in mathematics and statistics. Details on how to submit your own article can be found on these pages.

Finally there is a forum in the form of a mailing list hosted by mailbase. The list will be used to make announcements concerning the equate site and other matters of interest to developers including publicity of relevant events.

Call for contributions

The success of equate.org.uk lies in the quality of material and of debate and this in turn relies on contributions from those with experiences and opinions to share about the online teaching of mathematics and statistics. Articles describing your own experiences or covering the use of a specific technology are welcome as are those on more general issues such as online assessment or your involvement in national or local initiatives. In a similar vein if you wish to illustrate your ideas by making available your own work then this too can be accommodated either by posting your material on equate or offering a link to your own website.

Needless to say it will take some time for equate to grow as a website as it begins to draw on the experiences of its' visitors and contributors. The value of having a forum for this sort of discussion, however, cannot be overstated given the already widespread interest in the use of the web. I see the role of the equate website therefore in enabling the exchange of materials and ideas, in making known to others progress that is being made and in forming essential collaborative links for future work and research and trust that it will prove to be a valuable resource to this community.