Flexibility Is All

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The background to this workshop

At an address to the National Press Club in Canberra on 25 February of this year, Professor John Niland, the Vice-Chancellor of The University of New South Wales, drew attention to the serious degree to which student interest in science in this country has fallen off in recent decades[i]. He expressed particular concern that the numbers enrolling in physics and chemistry have grown at only 60% of the rate at which total enrolments have increased; and that in mathematics the growth rate is negative. He argues that there needs to be a revolution in university science teaching to emphasize communication skills and cross-disciplinary awareness, and to start doing collaborative and cross-campus teaching via the Internet or multimedia delivery. And all this must be achieved with increasingly limited resources because there is bound to be further "streamlining" of departments. He went on to recommend, *inter alia*, that universities start thinking seriously about **flexible learning**.

Flexible learning covers a broad range of meanings. It implies more than simply designing more packages that will give students more choice, although that is part of it. It includes rethinking teaching structures to expose students to materials they would otherwise not meet, or that teachers can interact with students in ways they couldn't use before. It includes paying attention to teaching effectiveness, without ignoring questions of cost efficiency. And above all it includes the possibility of collaborative teaching at all levels, across departments and across universities.

We at **UniServe Science** have been overseeing the place that IT plays in university science teaching for four years now, and it seems to us that its use is subtly changing. There seems to be less emphasis on individual software packages, and more on teaching *structures*. What developmental work there is around the country seems more and more to be directed towards organizing whole courses by IT means, particularly on the web. We don't think this is a long term effect. We believe that in a few years, when universities have become comfortable with the idea of using the web as a flexible teaching and learning environment for their students, developers will again start working on individual packages to be integrated into these new structures. But it certainly means that, right now, it is singularly appropriate to have run a workshop devoted to "Tools for Flexible Learning".

What happened at the workshop

The keynote address was given by Dr Roy Lundin, from the Queensland University of Technology. He drew attention to the idea that Flexible Teaching and Learning (FTL) is, as yet, an unrealized idealization, and there are several directions in which it might go, the most extreme being the "virtualization" of the university itself. Whatever does happen, there can be no doubt that the role of the teacher will change. It seems pretty clear that in the end we will become *learning managers*. His message was that we had better start preparing ourselves for that. His paper appears on page 3 of these proceedings.

In the second morning session we had presentations featuring three particular *tools* for organizing and delivering learning packages. Simon Housego, from the University of Technology, Sydney, demonstrated **TopClass**. He emphasized that learning design was very important in its utilization, though it was not primarily intended for delivery of courses. Nevertheless some 12,000 individual

students make use of it in that institution. A similar system, **WebCT**, was demonstrated by Stephen Sheely, from the University of Western Sydney Hawkesbury. He described it as a "VW rather than a Mercedes", but had many good things to say about its user-friendly interface. Different from both of these — a "billy cart, not even a VW" — was **WebTeach**, developed entirely at The University of New South Wales, and demonstrated by Lindsay Hewson. He emphasized that it really was just a bulletin board, but one about which much careful thought had been given. The outcome was a quite remarkable array of classification of teacher/student messages.

There followed a panel discussion, in which these three were compared and contrasted; and out of this emerged a pretty clear picture that each system has its own niche. There were things each could do that the others could not. An outline of the above demonstrations and this discussion is given on page 10. It is hoped that anyone thinking about putting their courses on the web will find the exchanges enlightening.

In the afternoon there were nine contributed papers, not necessarily devoted to technological *tools*, but underlining the point that flexible learning means more that just the technology associated with the web. It can encompass group learning, laboratory kits, role playing, videoconferencing and many others. If there was any single message that emerged, it was that we are all still struggling with what to do with the web in our teaching.

Issues raised at the workshop

As has become tradition at our workshops, the last session was devoted to a completely informal discussion, with contributions from anyone who cares to make one. Much of what was said can be collected under two main headings.

Future directions
We agreed that a sensible way for us all to go is towards more flexibility in our teaching and our students' learning, at least in the near future. The demand in the workforce for continual upgrading of skills and in the community for lifelong learning can only increase. The days are long since gone when all, or even most, of our students were straight out of high school, intending to be practising scientists. At the same time we need to share materials we prepare as we strive to introduce this flexibility, and reduce the duplication of effort that still exists. As we concluded at earlier workshops UniServe Science is an ideal group to facilitate this, but it has to be <u>driven</u> from higher up the academic ladder. What we all, as a group, need to do is to start lobbying deans, vice-chancellors and the like.

The virtual university?
There is no doubt that the more flexible university must come, with its benefits of access and equity. Social cultures are changing and people demand more flexibility in everything they do. And this includes education. But whether this newly flexible institution will be virtual, existing only in cyberspace is not so clear. As our keynote speaker pointed out, several of the much-touted American virtual universities opened to vastly fewer enrolments than they expected. Perhaps what we should remember is that people like to be together. It is part of our *homo sapiens* nature. So we do not see the ultimate goal as a virtual university, but rather as a mixture of face-to-face *and* virtual learning experiences that suit individuals' needs. Should we deliberately steer our own course towards the setting up of consortia?

[1]Professor Niland's speech is reproduced in *The Australian and New Zealand Physicist*, **35**(4), 1998, 165–174.