In the web we still delight

Ian Johnston and Mary Peat
UniServe Science, The University of Sydney
director.science@uniserve.edu.au

Background to this workshop

The use of the web in teaching in this country in any sort of formalized way in any more than a handful of departments is a very recent phenomenon indeed. This statement is based on the following observations.

(1) There have been some 40 CAUT teaching development grants awarded in each of the last 5 years. Many of these went to science departments and many, though not all, involved some form of information technology. The numbers which specifically involved the web are given by Table 1.

Year	Number of grants in the sciences	Number involving the web
1993	29	1
1994	28	1
1995	29	3
1996	18	2
1997	12	4

Table 1. Numbers of CAUT grants to science
departments for web-based activities

(2) Over the three years it has been in operation, UniServe Science has produced nine newsletters. The numbers of articles in these newsletters which describe teaching innovations on the web, written by Australian academics, are given by Table 2.

Year	Total number of articles	Number mentioning the web
1995	23	3
1996	20	2
1997	23	9

Table 2. Numbers of articles in *UniServe Science News*
which discussed the web in teaching

(3) Between 1995 and 1997, UniServe Science conducted a number of nationwide surveys. In 1995 all science departments in the country were surveyed (139 of a possible 207 responded). When asked whether they considered their use of IT in teaching was "significant", nearly 80% responded yes. The fraction that specifically mentioned that they used the web in their teaching was negligible.

In 1996 a much more thorough survey of physics departments was carried out, asking exactly what use they made of IT in their teaching. Of the 32 departments surveyed there was 100%

response rate, but only two mentioned use of the web — and then it was merely for "putting materials up" for students to access if they wished.

(4) UniServe Science has mounted two annual national workshops before this present one. The first, in April, 1996, featured "Dry Labs". Of six significant packages exhibited, none was web-based. In February, 1997 the subject was "Computer-based Assessment". Of 11 packages exhibited, only one used the web as the delivery platform.

When we first announced that the next topic was to concern itself with the World Wide Web, as many as 23 Australian academics offered projects mature enough to offer as hands-on exhibits; and of these 16 were showcased on the day and a description of each appears on the following pages.

Our interpretation of these figures uses the classification system which Shirley Alexander drew attention to in her keynote address (see page 5). Before 1997, the *innovators* amongst us, those 5–10% who are keen to try out new things and take risks, have been beavering away developing materials for the web. Round about 1997 some sort of watershed was passed and the next group, the *early adopters* who lead opinion in their home departments, entered the scene and are right now working on systems that will demonstrate workability to the ones after them, the *early majority*.

It seems to us therefore that the time was singularly appropriate to mount our third national workshop, "University Science Teaching and the Web".

What happened at the workshop

Following on the experiences of the past we planned from the start that we would not run parallel sessions. There seemed no point in asking people to come from all parts of the country and not be able to hear everyone they were interested in. So the workshop was spread over one-and-a-half days.

We decided early that there should be two keynote speakers, one to cover theoretical/pedagogical issues (Shirley Alexander from UTS and CUTSD), and one to talk about practical aspects of a comprehensive working system (Peter Lee from Murdoch University). There were twelve contributed papers, all describing courses or developments which had been in use for some time. The poster presentation is a good way to make known what you are doing before it is in anything like a final state, and it is a shame that there were not more of these. Perhaps next time will be better. The total number of those who attended was 85.

It was less than ideal that some 75% of the speakers and 59% of attendees should have come from the Sydney metropolitan region. We all know how tyrannous is distance in the planning of academic travel budgets, especially for matters related to teaching. Perhaps it will help if we advertise our next workshop sufficiently far in advance to enable those who want to come to start organizing finances early.

As is always the case with these workshops, the most successful feature was the sense of belonging that comes from being part of a nationwide community of university science teachers — the chance to meet others and talk in an informal atmosphere. As one person put it: "simply being able to discuss web problems with real users".

There were of course some small problems. Will we never see the end of technical hitches? And was it too much like a series of mini-lectures rather than a genuine hands-on experience? But by and large the problems seemed minor. Evaluations were overwhelmingly positive and we hope to see you all again.

Issues raised at the workshop

As has become customary at UniServe Science workshops, the last session was devoted to an open-floor discussion of issues that had raised themselves during the two days. By and large these came down to a series of two-way choices.

(1) Add-on versus replacement?

In the current financial climate, many of us state, in public, that we are potentially saving money by using the web. Eventually what we produce can replace other more tedious, cost intensive forms of teaching. We might, for example, be able to reduce the number of lectures by relegating the pure passing-on of information to web delivery, and concentrate the attitudinal aspects of teaching into fewer, but more involving, face-to-face lectures.

However students do not seem to agree with that. They approve of what is being done on the web, but they only want it as an add-on. They are used to having personal contact with us all the time, and definitely believe that the only *real* teaching takes place in lectures.

We are going to have to grasp this nettle and look at completely new approaches to delivery of courses which the students will accept without our holding their hands. Economic pressures may determine the course we take. In this we can only be aware of the debate and be prepared to give advice to our senior management.

(2) Salvage the work versus re-invent it?

What worries many of us who have been interested in using IT in our teaching for some time is the fact that, as each new kind of technology comes along, all the good work we put into the last technology seems destined to be discarded. Furthermore the new generation of enthusiasts who are currently writing Java applets and the like, seem oblivious to many of the lessons we learned so painfully — things like the need for good screen layout and consistency of the user interface.

We saw a very good example in the area of biochemistry from Melbourne of how older CAL packages could be remodelled into a more modern delivery mode and the content (and concepts) salvaged. That was heartening. It makes no sense at all to waste the ideas and good points of a piece of work which has been proved successful. For one thing, re-using is cheaper than re-inventing. Even if, the second time round, a considerable amount of re-authoring needs to be done, the design, layout, navigation etc. can be the same and need not be thought out anew.

(3) Internal use versus external use

There are great pressures on those who put a lot of work into developing web materials (or any form of CAL software) to recoup the cost by making their materials commercially available. However there seems to be a fundamental difficulty.

Most of us make these materials, in the first instance, for use in our own teaching. It is only later that we consider whether we might sell them. That invariably brings difficulties with long-term servicing. Very few of the teaching development grants which enable us to do this work provide money for paying the on-going salary of someone who will give the kind of technical support that any piece of software inevitably needs. The message seems to be, if we go commercial we should do so from the outset.

(4) Cottage industry versus benevolent dictator

It has always been part of the ethos of university teaching that each teacher/lecturer is responsible for their own course. This has led, as many have pointed out, to a cottage industry approach to teaching, where developments are constructed afresh each time and there is little sense of the on-going accumulation of expertise. But as the technology becomes more powerful and our teaching efforts

spread far beyond our individual classrooms such determined amateurism cannot, surely, survive.

This workshop provided us with an example, from Murdoch University, of a tightly structured, faculty-wide template for putting complete courses on the web. It was quickly identified as the benevolent dictator model. In this model the talk is of niche markets being exploited. Whole subject areas are simply not taught if they are in competition with bigger universities.

It was clear from the audience reaction that many were unhappy with the dictator model, and its concomitant suggestion of a redefining of the role of a university. Yet there is no doubt that in the modern university we need to be much more careful about how we design and deliver courses, whatever the means. We do not easily operate comfortably in a business mode, but that is increasingly the way most universities are going. We are just going to have to adapt.

Conclusions from the workshop

Every time we run one of these workshops we end up agreeing that we must collaborate with one another more. But though we can point to a few examples where genuine collaboration is occurring, it is a very difficult path to follow.

This particular workshop threw that dilemma into even harsher relief. The web is still relatively new and the new generation of enthusiasts is just getting into stride. It seems inevitable that many of the materials of the last five or so years will be re-authored. And, truth to tell, it is a safe bet that, five years hence, they will have to be done again when the next wave of technology breaks. We can no longer kid ourselves that, if we put in a lot of hard work now, what we produce will last long enough for us to relax. It won't. Therefore we must take seriously the idea of sharing the workload.

We *must* learn to collaborate.