Personal Reflections on Interactive Multimedia in the Nineties

Rob Capon, The University of Melbourne

The following observations are drawn from over a decade championing educational multimedia at The University of Melbourne.

Since taking up an academic appointment in the School of Chemistry at The University of Melbourne in 1988 I have been a passionate advocate for the use of electronic technology in undergraduate teaching: electronic lecture presentations; animations; interactive computer based tutorials; and more. For want of a better term all these techniques might be broadly classified as interactive multimedia. Not wishing to claim technological foresight, I was extremely fortunate to be in the right place at the right time. Desktop computing capable of multimedia delivery was coming of age, and The University of Melbourne possessed a corporate vision that clearly identified a role for interactive multimedia. To support this vision the University established an Interactive Multimedia Learning Unit (IMLU) charged with enabling the effective use of multimedia technology in the educational arena. Those of us with even a modest interest or ability were readily captured (intellectually if not physically) and benefited immensely. As might be expected this was not always a smooth road. Being pioneers in the uptake of an evolving technology it is not surprising that mistakes were made, and with hindsight different strategies might have achieved our goals more directly.

Quite apart from technical challenges, one hurdle to overcome was the conservative culture so prevalent in academia. In time and with some effort even those who clung with an almost religious fervor to the “chalk and talk” methods of the fifties have come to accept the paradigm shift. This success should not be underestimated and warrants some elaboration. “Chalk and talk” has been the dominant vehicle for delivering education (certainly in the sciences) for many decades. It is a stable and mature technology, easily mastered, that empowers academics as they leak out knowledge at a comforting pace. By contrast interactive multimedia in all its guises is a rapidly evolving and challenging tool. Academics need to constantly acquire skills and explore new and improved techniques. This can be very demanding, especially in an era where academic workload is at an all time high. That the move away from “chalk and talk” became so pervasive is testimony to the power of interactive multimedia to inspire staff and students, as well as the ability of more adventurous colleagues in demonstrating how to benefit from these tools in a very practical sense. It has also been greatly assisted by the University adopting an aggressive commissioning of state-of-the-art infrastructure and the provision of staff training and grants to support curriculum development. As a result, faculties, departments and staff across the university have widely embraced the use of interactive multimedia (which now is often redefined to mean the Web). Of course the challenge is not over, as the technology evolves so must staff skills, as well as upgrades to hardware and software resources. One of the less expected aspects of this technological shift (at least for me) has been
the emergence of a new culture of educational professionalism. Many of my colleagues feel empowered to query their teaching outcomes, and to improve these outcomes by augmenting and upgrading their teaching styles with interactive multimedia.

In 1998 I had the good fortune to be awarded a Universitas 21 Fellowship, in recognition of my contribution to teaching and scholarship. This fellowship enabled me to travel in 1999 to Canada, UK and Europe, to meet academic staff, and talk on interactive multimedia (and the Web). I was of course very keen to compare notes and see how others overcome many of the same challenges we had encountered during the last decade. Not surprisingly the uptake of interactive multimedia was variable across different institutions and countries, and yet the challenges were very familiar – access to funds, training and time, professional recognition, and more. For those institutions slow to embrace interactive multimedia the concern most frequently raised was “Where do we start?”. Despite a decade of experience I was uncomfortable making specific recommendations, in that in many respects I still perceive our own efforts as merely a beginning – albeit a somewhat more advanced beginning compared to some. In order to arrive at possible starting strategies it is worthwhile reflecting on how we arrived at our current transit point.

In the early 1990s the impact of interactive multimedia on mainstream education was largely limited to courses taught by a handful of enthusiasts. Hardware was expensive and barely up to the task, limited in processing power, RAM, hard disk space and effective networking. Likewise, such authoring software as was available was expensive, labour intensive, and required significant training to attain competency (assuming you could get past all the bugs). Even if educational software was created the mechanisms for ensuring student access were limited. The Internet, CD-ROMs (players and burners) and even student ownership of reasonable computers were all several years away. In this climate enthusiasts were typically discipline based academics, such as a chemist, zoologist, botanist or physicist, operating largely on their own and with modest if any professional recognition. Faced with all the challenges of teaching, administration and research, these individuals assumed the added burden of fledgling multimedia developer. Enormous commitments of time and energy resulted in, at least by today’s standards, modest advances. As oppressive as the process sounds, these were heady days and student feedback was a powerful driving force.

By the mid 1990s a curious transition took place. The development of educational multimedia had become more technically challenging, as the hardware and software became ever more powerful. While the software was more refined and included a number of noteworthy authoring environments (MacroMind Director, AuthorWare etc.), because it could do so much more, the training requirement was even higher. Academics masquerading as amateur programmers simply could not compete. At the same time programming educational multimedia became respectable. Multimedia units sprang up in many faculties, staffed by a new generation of educational programmers dedicated to interactive multimedia development. Traditional academics based in departments could feed ideas and content into these units, and depending on a range of factors may or may not see their ideas translated into useful resources. This period saw a shift of multimedia development from those who would implement it, academics, to those for whom the development process was almost an end in itself, programmers. Given the need for specialist technical skills this shift was inevitable, but the dislocation served to disengage departments from control over interactive media critical to their teaching obligations. For example, a lecturer faced with a course starting on Monday could not accept programming delays of even a day, let alone weeks or months, and programmers with little appreciation of the pressures of student contact could not understand why their completed resources, six months late, were not implemented. Of course there were exceptions, and some departments went so far as to employ their own programmers, under the direct control of academics (but that’s another story).

With the start of the new millennium the pendulum has swung back. Software tools capable of creating interactive multimedia are designed by skilled programmers to be used by academics. These authoring environments require a modest effort to master and yet
empower the user to create potent and effective teaching resources. **Discipline based experts (academics) are now capable of creating interactive multimedia on a routine basis.** The Web has emerged as an extremely powerful delivery medium for course material, and more. Perhaps most exciting of all, many of the multimedia based productivity tools used in scientific research have merged with the educational resources. The use of computers in society is rapidly assuming a holistic state, as they become routine tools with which to create and communicate knowledge – as they should.

The future for interactive multimedia (whatever that comes to mean) is very exciting. As one of those hardy soles who persevered to deliver electronic lectures in HyperCard off a Mac LC a decade ago, I look forward to applying my new supercomputer G4 Mac to the task of courseware development and delivery in the years ahead.

**No longer the exclusive domain of enthusiasts or programmers, all academics are empowered as never before to be imaginative, innovative, creative and even provocative, not only in what they teach but how they teach.**

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**Virtual Field Trips: Maximising the Learning Experience**

**Patrice Rey,** Department of Earth Science  
Monash University  
prey@mail.earth.monash.edu.au

The Victorian Institute of Earth and Planetary Sciences (VIEPS) is a cooperative affiliation between La Trobe University, Monash University and The University of Melbourne. Students enrolling in Honours and Master programmes in any of the three member universities can choose within a portfolio of more than 40 VIEPS short courses.

*Granite Geology* is a 5-day VIEPS course which includes a 1-day field trip to Wilsons Promontory. This course is supported by a booklet and a virtual field trip, both available on the Web. The course familiarises students with the processes that control the generation, the segregation and the transport of granitic melts in the continental crust. Particular attention is given to the relationships between the mode of emplacement of granitic bodies and the characteristics of the regional finite strain field.

In this context, the virtual field trip (*Granites at Wilsons Promontory* at [http://www.earth.monash.edu.au/~prey/FieldTrips/WilsonsProm/wilsonsprom.html](http://www.earth.monash.edu.au/~prey/FieldTrips/WilsonsProm/wilsonsprom.html)) was designed to be a self-explanatory unit dedicated to a large audience, from the general public to post-graduate students, in Australia and overseas. This virtual field trip offers a colourful complement to the booklet related to this course, and improves the quality of its illustration. But this is not its only purpose.

We all have the tendency to illustrate our courses with slides that are carefully selected for their readability. We forget sometimes that those “textbook” slides often do not represent the field reality. In the field, students are exposed to outcrops that are often “noisy” and therefore less easy to understand and interpret. At the end of a day in the field, students are often overwhelmed by the profusion of confusing images. It is therefore important to help them to filter this information, and extract the useful signals from the background noise.

The main aim of this virtual field trip is therefore to provide students with the opportunity to “virtually” go back to the field and have a second look at a selected number of outcrops. It also gives them the opportunity to complete their field notes and sketches, and improve their field book by using printed versions of the photographs displayed on the web site. Virtual field trips will never replace the “real thing”, but they certainly can help to maximise the learning experience.

Other field trips have been developed to cover a magmatic shear zone in the Eastern Kimberleys (Western Australia) and an eclogite facies shear zone in Holsnoy (Norway). They are available at [http://www.earth.monash.edu.au/~prey/FieldTrips/Trips.html](http://www.earth.monash.edu.au/~prey/FieldTrips/Trips.html)