



McLean Fearnett Jackson

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University Challenge

The frenetic pace of change in the IT world makes it hard for universities and other tertiary institutions to keep pace, writes Beverley Head.

Every three months, Professor Duane Varan visits the US. Every three months, he finds a "whole new universe" has emerged. All very exciting, but the skills needed to build and maintain that new universe move just as fast.

Traditionally, it's taken universities about eight years to recognise the need for a new curriculum, define, debate and implement it. In Duane Varan's world, that means 32 new universes.

"In the ICT industry we are talking about a very fast-paced, constantly changing environment. Unlike some disciplines, it doesn't take long to fall behind in ICT," warns Varan, the director of Murdoch University's interactive TV research institute, in Perth.

What Varan identifies is the nexus between higher education's capabilities and industry's needs. The only solution, he says, is to create more meaningful linkages between industry and universities, and to foster a more collaborative approach to research.

Australia's IT Skills Hub - the joint initiative between the National Office for the Information Economy and the federal Department for Education, Science and Training - liaises with universities to attempt to broker closer industry relationships, while the Australian Information Industry Association (AIIA) works with TAFEs to ensure that curriculums satisfy industry needs without sacrificing intellectual rigour.

Michel Hedley, national manager of the AIIA's IT workforce policy, says there are signs that universities are reviewing their IT curriculums more frequently. Certainly the need for review is accepted, although fraught with problems. As Alice Watkins, director of industry liaison at the faculty of IT at the University of Technology Sydney (UTS), says: "Technology and industry are both moving fast, often in unpredictable ways; today's hot must-have technology may rapidly become yesterday's frozen dinosaur."

Watkins says the theoretical components of an undergraduate course, however, should provide the foundation for longer-term advanced learning and practice, which will sustain whatever the current fad may be.

Professor Ron Weber, dean of the faculty of IT at Melbourne's Monash University, one of the largest IT faculties in the world, says that a well-designed university curriculum will balance the fundamental concepts, principles and theory with exposure to current technologies and industry-based learning programs to "illustrate the principles and make them (students) marketable".

While Weber acknowledges that it is difficult to make dramatic changes in the curriculum - partly because of the students already in a pipeline and the prohibitive costs of



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running two curriculums simultaneously - there is a constant requirement for review. Consequently, change to the curriculum tends to be by increments, which can allow more regular changes to be made.

Brian Donovan, chief executive of the IT Skills Hub, says another issue universities are slowly coming to terms with is the need to develop undergraduates' understanding of business and the interpersonal skills that they will need on entering the workforce. Donovan says some universities - Swinburne, Monash and UTS being examples - are starting to bring business and technology skills together "but it's patchy", he says.

"We need a more concerted effort," Donovan says.

Mike Vallender, a serial technology entrepreneur who listed investor website HotCopper in the dotcom boom and is now CEO of Windlab Systems, says that better business understanding and a passion for lifelong learning are prerequisites for success. "Anyone doing undergraduate studies now who thinks that one discipline will get them to the top of the tree is in for a rude shock," he says.

"At the CEO level you can't be one-dimensional, you need to be able to talk law with your lawyers, finance with your finance guys, marketing with the marketing department, and IT with the IT team."

Vallender doesn't have a degree. He left school and home at the end of year 10 and got a job stacking wood at a timber mill. His interest in technology emerged in his teens after working behind the counter in an electronic games store. Without a formal education to back him, Vallender credits a series of workplace mentors and a broad network of business associates for his largely on-the-job training.

He is a great advocate of lifelong and broad learning.

"If you're hard-core IT, then don't rely on the education system you're in to turn you into a superstar performer. If you want to program, start programming, if you want to create computer games, then write computer games."

Even so, if you want to become a member of the Australian Computer Society, you'll still have to complete your course, as the ACS won't accept new members without a university degree. But even the ACS recognises that IT on its own won't be enough in the future, and its national president, Edward Mandla, predicts there will be a much greater demand for double majors.

It's happening already, says Michel Hedley, pointing to existing university courses twinning IT with medicine, business or architecture. For the purists there remain the straight technology courses, but even then there is a wide spread; at Swinburne University of Technology, for example, students can sign up for a Bachelor of Applied Science (computing), Bachelor of Applied Science (computer science and software engineering), Bachelor of Engineering (telecommunications and internet technologies), Bachelor of Information Systems, four separate Bachelor of Multimedia courses, Bachelor of Software Engineering and a Bachelor of Design (multimedia design).

As if that wasn't enough choice, other education facilities are reviewing their curriculums and qualifications.

Viewed traditionally as the poor cousin to the IT university graduate is the TAFE-trained individual. Unable to secure membership to the ACS, hard-pushed to find work except in



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small business or regional centres, and yet well able to design and program information systems, TAFE graduates find the going tough.

Peter McLean, a principal of specialist recruitment agency McLean Kerrigan Jackson, who was a TAFE teacher in the 1960s and 1970s, says TAFE graduates still find their best opportunities in regional areas.

"In Sydney, they are going up against a graduate, a kid with gravitas, with the best tailoring, and I'm sure they'll want them to do Toastmasters soon - it's all about presentation," says McLean.

Partly as a reaction to the prejudice towards TAFE diplomas, NSW TAFE is looking to launch an associate degree next year.

Barry Peddle, acting director of the Sydney Institute of TAFE, has been working with several universities and industry associations, including the AIIA, to create the new course. The associate degree, which will be piloted initially with overseas students, should be launched in the middle of next year. It will be comparable, says Peddle, with the two-year university courses offered in the US.

Peddle says that TAFE is now negotiating to ensure students who complete the associate degree and then want to move on to a university course, can secure significant credits for the work already covered. A degree of determination is costly. Debbie Timmins, 30, started work as a part-time sales assistant at Target when she was 17. She married young and graduated from Target to the assembly line at Mitsubishi in Adelaide. It was there that she had her first taste of computers, and it was sweet.

She opted for a career switch and took herself off to TAFE, where she secured a diploma in IT. Armed with 40 distinctions and eight credits, Timmins went looking for work.

"Because of my grades I thought I could get any job, but I came down with a bump. I approached a number of defence companies and was told that without a degree they would not hire me as a programmer. I was offered a job as an office assistant, which I found a bit insulting. But no one would take me seriously without a degree," says Timmins.

Market Monitor research this year by the IT Skills Hub has found that, although a degree is not a prerequisite for a career in IT, "the ICT market has a preference for graduate developers/programmers and support roles". So Timmins went back to study - this time at South Australia's Flinders University, where she works towards a Bachelor of IT.

With two degree subjects to complete, and a debt burden about \$35,000, Timmins expects to graduate by the end of the year.

So does she feel better equipped now than she was with the TAFE diploma? Having the diploma allowed her to cut one of the three years from the degree course, but the first year at university was largely a repeat of what she had already learnt at TAFE. "Well, I've learnt Java. University is more about the theory, and my theory has probably improved. At TAFE it's very practical and I felt as though I had achieved more. I had a much larger portfolio to show. Also, the cost (of university) is pretty frightening."



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There have also been high personal costs. Timmins and her husband separated a year ago, in part due to her increased focus on study.

Timmins, though, sees the degree and its costs as an investment in her future. Now working as a casual programmer at Solar Optical, she believes that while the TAFE diploma equipped her with the practical skills that she will need as a programmer, the determination she has shown in going back and getting her degree will stand her in good stead with employers in the future.

"But right now I'd rather have the experiences than the examinations," she says.