

OCCASIONAL ADDRESS

The Hon. Professor Barry Jones, AO

BA(Hons)(UTS), DipEd (Monash), LLB, MA (Melb), DLitt (ANU, UTS and W'gong),
DSc (Macquarie), DUniv (Sthn Cross), FAA, FAHA, FTSE, FASSA, FAICD
Professorial Fellow, The University of Melbourne

Delivered at the UTS graduation ceremony
for graduates from the Faculty of Science
Great Hall, City campus, Monday 5 May 2008, 10.30am

TACKLING 'WICKED' PROBLEMS IN AN AGE OF SUPERSPECIALISATION...

I congratulate all today's graduands and pay tribute not only to your own hard work, and that of your teachers, but to the support of your families, partners and friends. I shall return to you later.

In 1950, the year I began as an undergraduate at Melbourne University, Australia had only six universities and the total number of PhDs conferred, nation-wide, was eight. Now we have 38 universities and I note that UTS, at this ceremony, will be awarding 13 PhDs. That's a neat illustration of how far the tertiary education sector has come in less than sixty years — with UTS playing a very important role nationally.

I am honoured to have been invited to deliver an Occasional Address to you today. Back in July 1993 I gave a Festal Lecture here of such length that I feared I might never be invited to return.

There are three prevailing models in objectives for universities:

1. **Traditional model (intellectually detached):** Its aims are answering the 'Why?' questions. Self discovery, understanding, analysis, contributing to solving (world) problems. Philosophy, history, political science, physics, mathematics, literature, languages, creative arts.
2. **Traditional model (applied):** The historic professions — medicine, law, later engineering and teaching. Mixture of 'Why?' and 'How?' questions.
3. **Current model (credentialism):** Qualifications for the newer professions, advertising, accounting, administration, consulting, marketing, journalism, 'spin', moving product. Emphasis on the 'How?' questions. Overlaps with 'training'.

By 2007 many of Australia's 38 universities have become, either by choice or force of circumstances, increasingly instrumental and less speculative. In a market driven society, this is inevitable because — in the short term — the instrumental areas are where jobs are to be found.

Degrees that try to explain the meaning of life are currently at a discount in many universities (mercifully, not this one). Universities have less to spend proportionally for expanding knowledge, pushing back the frontiers of the unknown — the traditional areas of university concern: philosophy, history, geography, the classics, literature, music, physics, chemistry, mathematics, archaeology, anthropology, astronomy. Law, medicine and the life sciences are expanding, but marketing, management and IT courses are doing best of all — answering the 'How?' questions, not the 'Why?'

The distinction between 'traditional' and 'current' models goes back to the time of the ancient Athenians.

Education was divided into two categories, Pedagogy (one of my least favourite words) and Philosophy.

Pedagogy literally meant 'the education of slaves', and I encourage people addicted to the term to think about its origin next time they plan to use it. Pedagogy fits the model where a client organizes training to meet the client's needs. Obedience, conformity and controllability were among the desired goals. The outcomes were certain.

Philosophy, literally 'love of learning', was intended to encourage the pursuit of truth, wisdom and self-discovery, irrespective of where it led. Its goals were uncertain.

There must be room in our education for the abstract, the intangible, the spiritual, the aesthetic, the numinous. Are medicine, education, politics, philosophy, sport, research, aesthetics, literature, religion, music, and art, even the goals of disseminating knowledge, all to be regarded as 'business activities'? Perhaps they are. Where do values come in?

In Australia in 2007, Pedagogy is the overwhelmingly dominant model but in practice it inevitably leads to self-limitation.

I am usually uneasy about the increase in jargon and the deformation of language, especially in management-speak. However, I have been seduced by the simple appeal of the term 'wicked problems', 'wicked' as in 'wicked witch of the West', a coinage by two social planners at the University of California, Berkeley, Horst Rittel and Melvin Webber.

They defined 'wicked problems' as being messy, circular or aggressive, in contrast to relatively simple or tame problems in, say, mathematics or chess.

They argued that 'wicked problems have incomplete, contradictory, and changing requirements; and solutions to them are often difficult to recognize as such because of complex interdependencies. While attempting to solve a wicked problem, the solution of one of its aspects may reveal or create other, even more complex, problems'.

Rittel and Webber's formulation of wicked problems specifies ten characteristics, perhaps best considered in the context of social policy planning. These are:

There is no definitive formulation of a wicked problem.

Wicked problems have no stopping rule.

Solutions to wicked problems are not true-or-false, but better or worse.

There is no immediate and no ultimate test of a solution to a wicked problem.

Every solution to a wicked problem is a 'one-shot operation'; because there is no opportunity to learn by trial-and-error, every attempt counts significantly.

Wicked problems do not have an enumerable (or an exhaustively describable) set of potential solutions, nor is there a well-described set of permissible operations that may be incorporated into the plan.

Every wicked problem is essentially unique.

Every wicked problem can be considered to be a symptom of another problem.

The existence of a discrepancy representing a wicked problem can be explained in numerous ways. The choice of explanation determines the nature of the problem's resolution.

The planner has no right to be wrong (planners are liable for the consequences of the actions they generate).

Contemporary example of 'wicked problems' are global warming, terrorism, HIV-AIDS, nuclear energy and waste management, drug dependence and trafficking, gambling, public v. private transport, pandemics.

The complexity of wicked problems is a challenge to linear thinking, reductionism and much professional education.

I accept that some insoluble problems are beyond human capacity, such as defining the meaning of life, no matter how assiduously we pursue it.

When universities are increasingly devoted to superspecialisation, it may make it far harder for them to assist in providing multi-disciplinary solutions to wicked or intractable problems. 'Global warming', to take a current fraught example, involves extraordinary complexity because of the interaction of so many disciplines:

Political Science, Economics, Education, Ethics, Meteorology, Physics, Chemistry, Mathematics, Botany, Biology, Ecology, Marine Science, Geology, Glaciology, Earth Sciences, Agricultural Science, Water Management, Demography, Epidemiology, Medicine, Public Health, Engineering, Management, Information Technology, Telecommunications, Risk Analysis, Disaster Management.

I have listed twenty-seven disciplines as being involved, but this is probably a gross underestimate.

Some of these disciplines are represented in the graduands receiving higher degrees at this ceremony

We grow biofuels in Borneo to reduce CO² omissions, but destroy the habitat of the orang-utang; we adopt torture as an permissible operating technique in the war on terrorism, but compromise the value systems that we claim to live by; we prohibit access to gaming by problem gamblers but reduce the contribution gambling revenue makes to hospital funding; we prohibit the importation of the products of child labour and destroy the viability of families; and so on...

If global warming is seen as a moral problem, certain outcomes follow, but if the problem is regarded as being solvable by a technological fix, such as carbon sequestration, then a completely different set of priorities will be pursued.

Bridging the gap between evidence and values is of critical importance, but at present we seem to be gazing into a chasm.

The Australian Government's Climate Change Review is being conducted by a distinguished economist, Professor Ross Garnaut. We await his findings with keen interest. Is it fair to assume that the central theme of his report will be economic? Would the report have a different emphasis if it was commissioned from and written by a diplomat (Ross Garnaut has been one of them too), a moral philosopher, a meteorologist or a university Vice-Chancellor? I suspect so, but don't want to jump to conclusions.

I congratulate you on your long, hard achievement, encourage you to think of public good as well as private benefit, urge you to become active citizens, promote the welfare of individuals, communities and the great globe itself. I wish you well. You will never forget your time at UTS.

I close with an observation by Mahatma Gandhi. He wrote: 'Live as if you were going to die tomorrow. Learn as if you were to live forever'.

I commend those words to you.