

## Occasional Address to Graduates at Macquarie University

Don McNeil, 23 April 1998

Chancellor, members of the University, graduates, and guests. It is an honour and a pleasure for me to address this graduation ceremony, and share in the joy of you who are graduating, and in the admiration of your family and friends who are here today. Unlike other speakers on such occasions I'm not famous or distinguished. I'm just a professor who has studied and taught at universities from the time that I left school, mostly as Professor of Statistics at Macquarie. So I've chosen to talk about the role of a university education in this day and age, and how it has changed during this period. When I went to university just over 40 years ago only about five percent of my schoolmates came with me. In those days Australian universities were elitist places. Their functions were to train doctors, lawyers, engineers, and schoolteachers to satisfy society's needs, and to reproduce themselves by training research scholars. And for most students there were no fees.

Today, the proportion of the population going to university is close to one third. And as you well know, it now costs real money for university study. That's a dramatic change. It's a change that has been traumatic for both the students and the lecturers. Many lecturers of my vintage complain about lowering of standards. And when they pitch their lectures at what they consider to be the appropriate level, many students lose interest in learning. This happens a lot. So I'd like to examine the question of what universities are supposed to do in today's society.

Let's start with the assumption that the objective of a university is to promote higher learning among students. The questions that then arise are, first, what fields does this higher learning cover, second, who are these students, and third, how is learning in these fields best promoted. As society develops and continually refocuses its interests and goals, new areas of higher learning develop and some traditional ones decline. When I was a student neither management nor accounting were considered worthy of study at my university. You went to university to study arts or science, or a profession. In those days of wonder-drug cures for diseases, nuclear bombs, and space exploration, the best students did mathematics and the basic sciences.

Nowadays arts and science are less popular, but vast numbers want to study finance and business management. Finance is now very important, for obvious reasons. Using modern communications technology, companies that understand money markets profit at the expense of those that don't. These financial considerations outweigh all others. And these factors affect not just individual companies.

Look at what has happened to whole countries in East Asia. A university must not only respond to society's needs. It should anticipate these needs. Of course it's difficult to forecast what a future society will consider important. But universities should be prepared to take risks, because the benefit from a risk that pays off can far outweigh the loss from one that doesn't.

Consider choices made by the founding fathers here at Macquarie. Departments of French and German were set up. Languages like Mandarin Chinese and Bahasa Indonesia were considered too risky. With the benefit of hindsight, this was a bad choice. We missed an opportunity.

A chair of Actuarial Studies was established. No other university was prepared to take this risk at the time. The payoff from this bold decision has compensated many times for the lost languages opportunity.

I would like to see the administration at Macquarie make some more bold and risky decisions. Let's move on to the question of whom should universities cater to. Society has now determined that 30% of the population goes to university. University teachers prefer the smarter students. But the challenge for the modern academic is to teach the students on the other side of the distribution. Imagine the distribution of intellectual ability in the population as like a normal curve with IQ scores ranging from 50 to 150. If the top 30% of this population goes to university, and you divide their range of scores into two intervals of equal length, my first year students can deduce that 90% of university students have IQs in the lower half, and only 10% have IQs in the upper half. It's often said that we should be focusing on this top ten percent, because these high fliers will enable society to make great gains to everybody's benefit.

I reject this. There should be equality of opportunity to learn. Is it moral or ethical to provide the more gifted university students with opportunities to learn at the expense of the less gifted? I don't think so. So I've said that the objective of a university is to promote higher learning, and that it should develop programs of study that match and even anticipate society's needs, and not discriminate between students at different levels of ability. The remaining question is 'how can a university best promote this higher learning?' There is a lot of emphasis today on levels of achievement. Universities are ranked by how many top-level students they attract. The government is now proposing a skills test for graduates.

The problem with this emphasis on achievement is that different people have different levels of ability. Clever people can pass the test easily, perhaps without even going to university, while lesser mortals struggle. A more valid measure of a university's success is the extent to which its students increase their abilities. By this definition, a university that attracts the best students but doesn't enable them to learn more is a failure. On the contrary, I maintain that the best university is the one that enriches its students the most, irrespective of their initial levels of ability.

Nowadays the technology available to university teachers is pretty amazing, and can make even a subject like Statistics come alive. I'm talking about modern information and communications technologies. Consider this. Yesterday morning I was preparing this talk on my home computer. While doing this I received an e-mail message from my daughter in America. She'd read in the New York Times about a recent report by the Boyer Commission at New York University, on how undergraduate education should be changed in the United States. Within an hour I was able to access the whole report using the Worldwide Web.

Its first recommendation is that university teaching at first year level should be inquiry-based. Most of you graduating today will remember Stat 170, not necessarily with affection. In an attempt to make the course more interesting, this year we brought in inquiry-based learning in the tutorials. Believe it or not, this method of learning has actually made the course attractive to the students.

Well, perhaps that's going a bit far; let's just say that the students are finding Stat 170 less poisonous!

Inquiry-based teaching aims to solve particular problems, rather than starting with a general theory and applying this theory to solve the problems. If we also take advantage of the new technologies including the Worldwide Web, universities can effectively teach not just the 5% of the population they used to,

but the 30% they're now getting. Learning goes on all our life. The process doesn't stop after completing a university degree, or even a higher degree. Keep in touch. It's your university. It doesn't belong just to the academics and administrators. Don't rule out doing a higher degree at some time in the future.

Those of you graduating today feel rightly proud of what you have accomplished. But the degree you've been awarded today is just one important landmark in a learning process that should not stop until the end of your life.

Thank you very much.