Study and Learning in the Australian University System

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"You cannot hope to build a better world without improving the individuals. To that end, each of us must work for his own improvement, and at the same time share a general responsibility for all humanity, our particular duty being to aid those to whom we think we can be most useful"
Marie Curie (1867 – 1934)

Author

Dario Toncich was born in Melbourne Australia in 1960 and graduated, with honours in Electrical Engineering, from the University of Melbourne in 1983. His industry based research led to a Master of Engineering (by Research) from SIT and a PhD from SUT. Since then, he has held industrial, academic and research leadership positions, and has been involved in numerous research and development programs.

Dr. Toncich has more than two decades of academic experience in the Australian university system in both "Group of 8" and "Post-1987" universities, in lecturing; coursework development; coursework management; research and research leadership; management and strategic planning. He has a broad understanding of the strengths and weaknesses of the university system, and the manner in which these impact upon students.

Dr. Toncich has authored and coauthored a number of research papers in his field. He has also contributed towards several federal reviews of university policy and funding. His views on the Australian university system have formed prominent feature articles in the national university newspaper (Campus Review), and his views on industry research and development have been cited in government reviews and editorialised in Business Review Weekly. Dr. Toncich has supervised 22 Doctoral and Master's (by research) candidates to successful completion, and has authored five books, including one on postgraduate research, which has been adopted by numerous universities and research institutes around the world as their training text for research students.

Acknowledgements

Complementary Texts (Further Reading)

"Key Factors in Postgraduate Research – A Guide for Students" is a text book that is a natural follow-on from this book, and is targeted at students undertaking postgraduate research programs with major theses, or postgraduate coursework programs with minor theses. The book is available on-line for download at: www.doctortee.net/textbooks.

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List of Acronyms/Abbreviations

ANTA	Australian National Training Authority
ANU	Australian National University
AQF	Australian Qualifications Framework
ARC	Australian Research Council
ATN	Australian Technology Network
AUQA	Australian Universities Quality Agency
AVCC	Australian Vice Chancellors Committee
BA	Bachelor of Arts
BEng	Bachelor of Engineering
BSc	Bachelor of Science
CAE	College of Advanced Education
CRC	Cooperative Research Centre
CSIRO	Commonwealth Scientific Industrial Research Organisation
CV	Curriculum Vitae
DBA	Doctor of Business Administration
DEST	Department of Education Science and Training
DEEWR	Department of Education Employment and Workplace Relations
DVC	Deputy Vice Chancellor
Go8	Group of Eight
HDR	Higher Degree (by Research)
HECS	Higher Education Contribution Scheme
IT	Information Technology
IT	Institute of Technology
ITS	Information Technology Services
MBA	Master of Business Administration
MEng	Master of Engineering
MPhil	Master of Philosophy
MSc	Master of Science
NHMRC	National Health and Medical Research Council
NIH	National Institute of Health
NSF	National Science Foundation
PD	Postdoctoral
PELS	Postgraduate Education Loans Scheme

List of Acronyms/Abbreviations (Continued)

PhD	Doctor of Philosophy
PVC	Pro Vice Chancellor
RHD	Research Higher Degree
RMIT	Royal Melbourne Institute of Technology
TAFE	Technical and Further Education
UA	Universities Australia
UNSW	University of New South Wales
UT	University of Technology
VC	Vice Chancellor
VET	Vocational Education and Training

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Introduction

and

Text Usage

Read this chapter if you would like the following issues addressed:

- What is the purpose of this book and who is the target audience?

- How can students use this book to improve their study and learning at university?

- How is this book structured and what is the best way to read it?

Aristotle once said that it is the mark of an educated mind to be able to entertain a thought without accepting it. There are, alas, very few places in the world that can provide humans with the ability and the freedom to entertain thoughts and to question them – a university is one of those places. To study in a university is therefore a luxury; a lifetime privilege, and a profound growing experience. To use this experience to learn to question the world, and even the universities that provide this gift, is a responsibility which is bequeathed to all those who choose to study in the university system.

The transition from secondary school learning to university education therefore provides a collection of rare opportunities in personal development and freedom.   In Australia, these opportunities are enhanced by a system of universities and learning that are well regarded in an international context. The challenge for those choosing to study in the Australian university system is how to best use what is offered, and how to help move the system forward for the next generation of students.

The purpose of this book is to provide an insight into the Australian university system, and how students can get the best out of it in terms of university/course selection; learning and professional career outcomes. Broadly, this book looks at:

(i)   How the university system is structured and designed to facilitate study and learning.

(ii)   The relative strengths and weaknesses of the system and how these impact upon students.

(iii)　How students can maximise their chances for positive learning and career outcomes while studying within the system.

This book is designed with a particular set of readers in mind, specifically:

• Students undertaking their final and penultimate years of secondary school study, and who are seeking to undertake a degree program within a university.

• Early year (undergraduate) university students who are already undertaking tertiary study in Australia.

• Parents and teachers (particularly secondary school careers advisors) who have an active interest in how study and careers are influenced by the Australian university system.

This book is not intended to provide a comparison guide to the various universities in Australia. There are already numerous publications that provide such rankings and comparisons. However, in this book, you will learn to understand the significance of the various university rankings; which of these are most important to you, and what level of credence to place upon them when selecting a university or course for study.

The question then arises as to why people should read this book, and how it will help students to improve their selection of university and course/study program – more importantly, how will it help students in their learning while they are at university?

To answer this question, one first needs to understand what it is that students feel they are leaving behind when they enter into a university undergraduate degree program. Many students feel that their final year of secondary study is pivotal to their future and career – a "*make or break*" period in their lives. To some extent this is true because this year tends to channel students into particular career paths – either trade, technical or professional. In reality, however, as far as degree students at university are concerned, the final year of secondary school is no more or less important than the first, second, third, fourth, fifth or sixth years of their university program. A success or failure in any one of these years can have the same dramatic consequences as a good or bad result in the final year of secondary school.

Another misconception that many students have in regard to their final year of secondary schooling is that it is the most difficult year of study that they will ever face. This is largely a myth, because most (if not all) university undergraduate programs are designed specifically to build upon subjects undertaken at secondary school, with each subsequent year of tertiary study designed to be more challenging and more demanding than the previous. To add to the difficulty, one also needs to remember that with each subsequent year of study, the natural filtering and attrition process ensures that competition amongst students is tougher, and the effects of results standardisation are lower.

Many students therefore find the transition from secondary school education to university study and learning quite challenging. To begin with, the environment is much bigger and more confusing; the classes are larger; the degree of independence is greater and, of

course, there are many more positive and negative lifestyle choices available when at university. This book will help to explain many of the issues that cause transition problems for students.

In general, most students who go through the Australian university system have a positive experience, and look back on their years of study with some fondness – for many, it is one of the most enjoyable periods of their lives. Perhaps more than in any other level or type of education, the university system enables students to make not only friends but colleagues who will, in many cases, remain with them for the rest of their lives.

Overall, Australia's universities tend to provide a comfortable learning environment; a good student lifestyle, and a credible level of education which is recognised internationally. The university system and its environment are, nevertheless, significantly different to that which is experienced by students at secondary school level, and one needs to understand the differences in order to improve one's chances of success in tertiary study.

If one had to summarise the fundamental difference between secondary school education and university level education, it would be in the expectations of learning and teaching. Universities are essentially designed to be places of learning, rather than places of teaching – this means that the undergraduate students are there to learn; the academic staff are there to learn, and the researchers are there to learn. Importantly, a key requirement for undergraduate students is to learn how to learn. In other words, to become independent of the teaching process. This involves a maturation of the thought process, and the resolve and independence required to move forward with the educational journey.

The concept of mutual learning within the university environment is not new.   In fact it is a concept that was first proposed by Wilhelm Freiherr von Humboldt, who was the person responsible for designing the first university which combined both teaching and research, the University of Berlin (1810). Specifically, von Humboldt observed, in relation to the difference between schools and universities, that:

"It is a further characteristic of higher institutions of learning that they treat all knowledge as a not yet wholly solved problem and are therefore never done with investigation and research. This in contrast to the schools, which take as their subject only the completed and agreed upon results of knowledge and teach these. This difference totally changes the relationship between teacher and student from what it was when the student still attended school. In the higher institutions, the teacher no longer exists for the sake of the student; both exist for the sake of learning."

Von Humboldt's statement stands as true in the 21st Century as it was in the 19th Century, and it also highlights the need for secondary students to make a commitment to a different kind of learning process to that which they have practised over 13 years of primary and secondary education. Not only is the learning process different, but the relationship between the students and lecturers is also different because the university environment is one in which both are ultimately students. The motto which most profoundly encapsulates the von Humboldt ideal is an expression originally attributed to Michaelangelo – that is, "*Ancora Imparo*", which is Latin for "I am still learning". There is no more concise description of the purpose of universities and their educational ethos. Indeed, the

"*Ancora Imparo*" motto has been adopted by one of Australia's universities (Monash) as part of its identity.

The educational ethos of universities, as simply encapsulated by *"Ancora Imparo"*, is one into which secondary school students must to grow to fully appreciate. A common situation with newcomers to the university experience is that they have worked extremely hard to get good secondary school results that enable them to enter into a degree program. Needless to say, they feel a degree of euphoria, relief and burnout when they fulfil their expectations and get into a chosen course after all their hard work, stress, anxiety and anticipation. It is therefore quite unsettling to realise, within the first few days of study, that all the hard work that was required at secondary school level is not the end of the learning journey but, rather, just the beginning of a new road.

As previously noted, the subjects at university are more difficult; the classmate competitors tend to be operating at a higher level; the support structures are fewer; and the feeling of being a "senior" at secondary school is rapidly replaced with the reality of being a "junior" at university. The feeling of being the smartest kid in the class is replaced with the feeling of being just another student amongst a group of smart students.

The university environment itself is also extremely confusing – even to those who have studied and worked within it for many years. There are all sorts of odd and pretentious sounding titles; pomp and ceremony; many different layers of management and administration; strangely compartmentalised functions divided into faculties, departments, schools, divisions, centres, institutes, and so on. Little wonder then that people can go through their entire degree

program without ever understanding what really goes on behind the scenes.

Even more confusing for undergraduates within the university system is the concept of research. After all, what is research really all about? How do we know whether it is good or bad? How does having "good" research within a particular university help an undergraduate student with his/her learning? How do we even know whether a university is good or bad? More importantly, are there really such things as good or bad universities? In this book we will examine all these issues.

For the most part, students choose a university and an undergraduate course for a number of reasons, including:

- An interest in achieving a specific career outcome.

- A specific interest in a particular area of study.

- A general interest in learning for the sake of learning.

- An interest in university life and the feel and look of a campus.

Many of the decisions that students make in regard to choosing a course and university are, for better or worse, guided by extensive university marketing campaigns, which target secondary schools; secondary school students and their parents. These campaigns, self-evidently, are designed to present only the best aspects of a university or course. Some of the university marketing is up-front and obvious – some of it, however, is subliminal and difficult to detect, particularly when students and families perceive universities to be institutions with purely altruistic motives. For

these reasons, it is important to understand how universities conduct their marketing so that students can learn to separate the rhetoric from the reality, and make decisions on matters of importance to them – rather than on the "smoke and mirrors" generated by marketing campaigns.

Once students get into universities, one of the biggest issues that causes concern for many is the quality of the learning and the lecturing – some of it is excellent; some good; some mediocre, and some appalling. How then is a student supposed to know if he/she is performing well solely because of his/her own personal abilities, or because of the university learning regime? Perhaps a student is performing poorly because the learning and lecturing processes in a particular course are substandard. In other words, are students learning because of their university, or despite it? In this book, we will examine this issue, and what can be done to improve poor lecturing and educational practices at university.

In the past, few people ever challenged the quality of lecturing or the quality of subjects in universities. It was just assumed that senior academic staff were indisputably correct and their opinions incontrovertible. Students today have a greater responsibility to challenge quality at every level – not only because it more directly affects the way that they perform and their potential future career prospects, but also because a failure to challenge shortcomings ingrains poor practices for the next generation of students that come through the system.

Many university students also manage to get through the entire system without questioning whether or not they got value for money from their tertiary education. All universities in Australia are

funded through various sources, and these include government grants; student fees; donations; industry grants, and so on. At the end of the learning process, regardless of where the funds come from, students should be confident that they have gotten a fair deal from their university in terms of learning – if they leave feeling slighted, then there are mechanisms available to ensure that action is taken to protect the interests of future students. Again, a failure to challenge poor practices creates problems for the next generation of students that come through the system. So, in this book, we will look at the issue of value for money.

The majority of students do not undertake university study for the sake of undertaking university study.   At the end of the university undergraduate learning process, therefore, students are faced with a number of options. The three most common options are:

- A career in business, community, industry, government or medicine.

- A research career within the industry, university, government or military sectors.

- Postgraduate/further study in career areas such as business or management.

In this book we will examine these three areas and see how undergraduate learning; the choice of courses, and the choice of university can affect these options.

In order to cover all these issues, and at the same time enable the reader to get quickly to the information that he/she requires, this book is written such that each chapter is largely independent of the

other chapters. Nevertheless, the chapters have been sequenced into a logical format that enables the reader to move through from one concept to the next logical concept in a natural progression. Hence, in order to use this text, you can either choose to read through the chapters that are most relevant to your requirements, or else read through the entire text from beginning to end.

If you are a secondary school student, or parent who is interested in what happens when your son or daughter enters university study, then you should probably read the entire book. This will give you an insight into the system, its benefits and its pitfalls, and perhaps provide you with the ability to remedy problems if and when they arise during your involvement with a university.

One thing that you may notice during the reading of this text is that there is no attempt here to simplistically present universities as altruistic and flawless pillars of knowledge. In this book, the negative attributes will be highlighted as strongly as the positive attributes. It is only by having this broad understanding of the positive and negative attributes of a university that one can make the best out of the learning process.

Another issue that you need to understand in the context of university study, and the recognition that the system is not perfect, is that there are ways of improving it. Although Australian universities are relatively recent phenomena in the global university context, even some of these are more than a century old. As a result of their longevity, universities need a constant spur to encourage them to change and adapt to modern practices and expectations. This is where undergraduate students need to actively make their

mark and leave their mark. When people study and learn within a university, they also have a responsibility to consider those that will follow on after them, and how their experience can be improved. Without this student driven impetus for change, universities inevitably stagnate and fall below societal expectations.

In looking at all these issues, and how they affect students, parents, and secondary school careers advisors, Table 1.1 shows the chapter contents of this book and the objectives of each chapter. This will enable people to determine the relevance of each chapter to their requirements. Essentially, if you are in the final year of secondary study or in the early years of university study then all chapters will be relevant to you.

At the beginning of each chapter is a summary of the key issues that are addressed within the chapter. At the end of each chapter is a summary of key points that have been covered therein. These serve as a quick reference guide to the important issues, as they specifically relate to study and learning and students within the system.

Chapter	Title	Issues
2	The Australian University System	The current system; its history and funding
3	University Governance and Students	How does university governance affect undergraduate students?
4	Understanding University Marketing	How do I separate fact from marketing fiction? What are the major marketing tools and illusions that universities employ?
5	Selecting a University	How should I select a university? What factors should I consider, and will the selection of a university be critical to career success?
6	Life as an Undergraduate	What can I expect from the university as an undergraduate? What are the misconceptions?
7	Undergraduate Learning	What is expected from undergraduates at university? How can I develop independent study patterns and a mature approach to study?
8	When Learning Goes Wrong	What do I do when I run into difficulties because of the university, or because of changes in the way I view the world and my future in it?
9	Value for Money	Am I getting what I am paying for?
10	University Research	What is university research and how does it impact on undergraduate study?
11	The Professional Career After University	What do I do if I am seeking a professional career after university?
12	Postgraduate Study Options	What do I do if I wish to undertake postgraduate courses after graduation?
13	Summing Up	Putting the pieces together into a bigger picture.

Table 1.1 – Overview of Chapters and Contents

2

The

Australian

University System

Read this chapter if you would like the following issues addressed:

- Why do students need to understand the way Australia's universities are organised?

- How did the current system of universities in Australia evolve?

- How do Australia's universities compare in the international stakes?

- How do federal and state governments influence universities?

- How can students contribute to changing the system for the better?

2.1   Background

In order to get the best out of university studies, one needs to have a reasonable understanding of the way in which the Australian system of universities is organised, and how this impacts upon students and programs of study. Many students go through an entire degree program without ever grasping the structure, benefits and inadequacies of the system. However, to do so is to risk missing opportunities that may be available for improvement, and to leave a subsequent generation of students exposed to inadequacies or shortcomings that remain unaddressed.

When entering into university studies, every student needs to understand that the benefits they enjoy are generally the result of work from those who have gone before, and the difficulties and problems that they find may well have been overcome if the previous generation of students had sought to tackle them.

The good news about the Australian university system, for students, parents and secondary school teachers, is that they all own the system to some extent, and they have the opportunity; the right, and the responsibility to help ensure that it performs well and serves the needs of students and society. As a system of tertiary study, largely funded by tax-payers and students, the Australian system has mechanisms available to enable people from all areas of life to contribute to its direction, relevance and performance.

As you read further through this book you will come to understand that public contributions to the debate about universities are fundamental to augmenting the directions set by governments,

academics, researchers and public servants. Universities need to change and evolve with time and, without positive input from the public, there is a risk of stagnation or of vested interest groups skewing directions away from those that best serve society.

Needless to say, the most important contributions to university directions must come from the students themselves, who experience first-hand all of the inherent advantages and weaknesses of the system that currently exists. However, in order make use of what currently exists, and to contribute to positive changes, students need to come to terms with why and how the current system came to be as it is.

2.2 History

The first step in understanding the benefits and shortcomings of the existing system of universities comes from understanding its history and evolution.

The system of universities in Australia has come about as a result of a series of well-documented changes and reforms over the course of more than one and a half centuries. These have had mixed success but have, nevertheless, delivered an overall system which performs at a credible, if not outstanding, level by international standards.

To begin with, it needs to be understood that Australian universities are relatively new compared to those in Europe and North America. For example, the University of Bologna was

founded in the 11th Century (c1088) and is regarded as the oldest university in Europe. By comparison, Cambridge University was founded in the 13th Century and Harvard University was founded in the 17th Century.   Australia's oldest university (the University of Sydney) was founded in 1851, followed closely by the University of Melbourne in 1853.   So, Australia's oldest universities are some seven centuries younger than Europe's oldest, and two centuries younger than North America's oldest. In the university world, age often equates to prestige because the oldest universities were invariably home to the greatest scientists, philosophers and thinkers of their age.   When people think of scientific or philosophical or medical history, they often think of the universities that were home to those who brought about major changes to our society – for example, Isaac Newton is always linked with Cambridge University, and Cambridge is regarded as all the more prestigious because it was Isaac Newton's university.

Whether the prestige associated with that history translates into something more tangible, in terms of learning, is something more complex that we will explore in more detail as we go through this book.

One of the interesting features about universities, both in Australia and internationally, is that the older ones tend to predate their surrounding political systems and, in some cases, even the nations which currently support them.   In the Australian context, four of the nation's universities (Sydney, Melbourne, Adelaide and Tasmania) were founded prior to Australia's federation, and hence are a product of the various colonial governments of their time. Even though the remainder of those that were formed during the 20th

Century post-dated federation, all were founded on state based models under various state Acts – with one notable exception. That exception was the Australian National University (ANU) which was founded by a Federal Act of Parliament in 1946.

Table 2.1 shows the list of universities in Australia, as of 2007, in order of their formation. Note that many of the universities listed in Table 2.1 were originally founded as other types of educational organisations (typically technical colleges), long before being proclaimed as universities. It also needs to be noted that there are other tertiary organisations that could potentially be included in the list of Table 2.1 but they do not bear the actual title of university.

Year of Establishment as University	Year of Original Establishment	University	Notes
1851	1851	University of Sydney	Pre-Federation (Go8)
1853	1853	University of Melbourne	Pre-Federation (Go8)
1874	1874	University of Adelaide	Pre-Federation (Go8)
1890	1890	University of Tasmania	Pre-Federation
1909	1909	University of Queensland	(Go8)
1911	1911	University of Western Australia	(Go8)
1946	1946	Australian National University	Established by Act of Federal Parliament (Go8)
1949	1949	University of New South Wales	(Go8)
1954	1938	University of New England	Regional
1958	1958	Monash University	(Go8)
1964	1964	Macquarie University	
1965	1965	LaTrobe University	
1965	1965	University of Newcastle	Regional
1966	1966	Flinders University	

Table 2.1 Continued Over Leaf…

1970	1970	James Cook University	Regional
1971	1971	Griffith University	Regional
1973	1973	Murdoch University	Regional
1974	1974	Deakin University	Regional
1975	1951	University of Wollongong	Regional
1986	1900	Curtin University of Technology	
1988/ 2003	1974	Northern Territory University/ Charles Darwin University	Dawkins' Reforms
1988	1882	Queensland University of Technology	Dawkins' Reforms
1988	1965	University of Technology Sydney	Dawkins' Reforms
1989	1989	Bond University	Private University
1989	1989	University of Western Sydney	Dawkins' Reforms
1990	1990	Charles Sturt University	Dawkins' Reforms Regional University
1990	1967	University of Canberra	Dawkins' Reforms Regional University
1990	1990	University of Notre Dame	Dawkins' Reforms
1991	1850	Australian Catholic University	Dawkins' Reforms
1991	1902	Edith Cowen University	Dawkins' Reforms
1991	1991	University of South Australia	Dawkins' Reforms
1992	1967	Central Queensland University	Dawkins' Reforms Regional University
1992	1887	Royal Melbourne Institute of Technology University	Dawkins' Reforms
1992	1908	Swinburne University of Technology	Dawkins' Reforms
1992	1967	University of Southern Queensland	Dawkins' Reforms
1992	1916	Victoria University	Dawkins' Reforms
1994	1970	Southern Cross University	Regional University
1994	1871	University of Ballarat	Regional University
1999	1995	University of the Sunshine Coast	Regional University

Table 2.1 – Australian Universities as of 2007 (by Year of Establishment)

The evolution of universities in Australia, from 1851 until 1911, was relatively unremarkable, in the sense that it was associated with the formation of six founding universities in response to the development of the Australian colonies. The period from 1911 through to 1987 reflected strong, steady growth in student numbers

as a result of the growing nation; post-war activity, and increasing immigration. As Table 2.1 illustrates, many of the universities that were formed between 1911 and 1987 were in response to growing metropolitan areas and regional centres in Australia.

In 1911, there were only approximately 3,000 students enrolled in Australia's emerging universities – representing only 0.1% of the nation's population. These students generally either paid fees or received scholarships from various governments (generally the states as a legacy of the original founding Acts). The exception to this was the University of Western Australia which provided free tuition as a result of endowments. By the end of the Second World War, however, the Australian Government decided to fund university scholarships for ex-servicemen. The result was that by the late 1940s, the number of students in Australia's universities had risen to some 32,000. By the late 1950s, the number had again risen to some 50,000 students.

As a consequence of the strong growth in university student numbers, the Federal Government held an enquiry into universities in the late 1950s and discovered that they were severely under-funded. The initial solution was to provide a range of federal grants to the universities. As with all government grants, acceptance of funding meant that certain federally specified conditions had to be met, and this funding arrangement proved to be the first time the Federal Government had exerted influence (albeit limited) over the state enacted universities.

By the early 1960s, it became apparent that student numbers were continuing to rise, and a subsequent review of Australia's tertiary education system led to the Federal Government

rationalising tertiary education through the formation of a two-tier system of tertiary education, which was (then) referred to as a binary system. This was composed of:

- Universities.

- Colleges of Advanced Education (CAEs), including Institutes of Technology.

In addition to these, there existed a collection of technical schools and colleges which were, for all intents and purposes, considered to be secondary level education (i.e., alternatives to high schools) and, hence, not part of the tertiary system.

In essence, the universities were differentiated from the CAEs in terms of the sorts of degrees that they could offer, and the sorts of activities that they could undertake.   Universities could offer diplomas and degrees through to Doctoral level – they could also get government grants to conduct research. CAEs, on the other hand, had to focus on vocational education and, although permitted to offer certificates, diplomas and degrees up to Bachelor's level, were generally not permitted to offer research degrees at Master's or PhD level.

The binary system of tertiary education proved to be a reasonably good system that enabled a limited number of universities to focus upon research, and the remaining colleges of advanced education to focus on vocational and professional training. However, there were some flaws in the concept, not the least of which was the fact that an increasing percentage of the population wanted university undergraduate and postgraduate degree

programs. Notwithstanding these limitations, the binary system remained in place for a quarter of a century.

In the early 1970s, during the operation of the binary system of tertiary education, the (then) Federal Government abolished fees for universities and CAEs, which helped to cement the growth of the overall system. In abolishing all fees, however, the Federal Government had assumed full funding control of the tertiary education system. At this point, Australia's tertiary education system had two masters – the Federal Government, who imposed control through conditions placed on funding, and state governments who maintained legislative control by virtue of the various Acts of establishment.

2.3   Dawkins' Reforms

An interesting feature of Table 2.1 is that only 19 universities were created in Australia in the 136 year period from 1851 to 1987 and, in the period from 1987 to 1995, an additional 20 educational organisations were proclaimed as universities. In other words, in just over eight years, the number of universities in Australia more than doubled. This change was not an anomaly but, rather, part of a radical series of reforms introduced by the (then) Minister for Employment, Education and Training, John Dawkins, commencing in 1987 with the issuing of a "Green Paper" on reform (with implementation in the late 1980s and early 1990s). This change to the system was not a uniquely Australian phenomenon. In fact, many

developing countries were experiencing an increased demand for university education, and change was inevitable.

There were many factors that contributed to the perceived need for the Dawkins' reforms of the Australian higher education system. By the 1980s, enrolments in universities and CAEs were in excess of 400,000 (almost 3% of the population) – a tenfold increase over three decades, and a tripling in the decade from the 1970s to the 1980s. The ideal of tax-payers continuing to provide "free" tertiary education, given the scale of growth in this decade, was under stress. At the same time, it became apparent that the binary system of tertiary education was breaking down. CAEs had lobbied for (and succeeded in gaining) the right to offer postgraduate qualifications at Graduate Diploma, Master's and PhD level. Many CAEs had ramped up their research programs to include postdoctoral researchers, and had begun lobbying to have their staff recognised as professors. The CAEs also wanted access to Federal Government research funds.

As a precursor to the Dawkins' reforms, it needs to be noted that, in Victoria in 1974, the state government had decided, in a bold move, to convert the (then) Gordon Institute in Geelong into a university, which became known as Deakin. By the 1980s, other states were pursuing similar options with their CAEs.

For all of these reasons, combined with a growing demand for postgraduate qualifications, it became clear that the retention of the binary system was impractical, and that a unified national system of universities should be established.

The move to a unified national system of universities led to numerous mergers between CAEs, universities and other technical institutions in order to create the critical mass required for university status. One of the few CAEs that did not merge was the Swinburne Institute of Technology, which achieved university status in 1992 and continued to exist, in its own right, as one of the nation's smallest universities. Other, similar-sized, institutes of technology, such as Chisholm, were generally absorbed into chosen partner universities, such as Monash. The Footscray Institute of Technology combined with a few other educational elements to become the Victoria University of Technology (and, subsequently, the Victoria University). All of these entities formed the new generation of Australian universities (sometimes referred to as the "post-1987 universities").

2.4   The TAFE Sector

At the same time as radical changes were occurring in the university sector, the vocational education and training (VET) sector was also undergoing changes of its own. Originally initiated in the 19th Century, and largely based upon technical colleges offering secondary education alternatives, VET was primarily designed to provide males (commonly with existing employment or apprenticeship arrangements) with training in hard technology/trade areas for manufacturing, mining and construction industries. By the mid 1970s, however, it became apparent that society was changing – manufacturing was beginning to decline and

more females were entering the workforce.   High technology industries were emerging; new business models were forming, and it was apparent that the old colleges could not meet industry or societal demands into the future.

In 1974, the Kangan Report ("Needs in Technical and Further Education (TAFE)") planted the seeds for what would become the TAFE system in Australia.   In contrast to the university system, however, the TAFE system engendered some degree of formal cooperation from federal and state governments.   In 1992, these governments worked together to produce the Australian National Training Authority (ANTA) to support vocational education.   In the late 1990s, the Federal Government established a National Training Framework and, by 2005, it was decided to move ANTA under the auspices of the same federal department that was responsible for universities – the Department of Education, Science and Training (DEST) – subsequently known as the Department of Education Employment and Workplace Relations (DEEWR).

The TAFE system, like the old CAE system, had ambitions beyond its original charter, largely driven by changing demands from students and employers, who wanted more than trade certificate level training.   The notion of retaining TAFE as a secondary level of education was unrealistic, and its role in tertiary education was growing. By the late 1990s, the TAFE system wanted to have the opportunity to grant Bachelor's degrees, just like the universities. In 2002, TAFE colleges had indeed secured the right to offer degrees – and so the cycle of academic escalation continued through a new generation of technical colleges.

The pursuit of higher academic standing, originally by CAEs, and subsequently TAFE, was not a pure ego-driven phenomenon. It actually reflected the increasing complexity of society and industry. The days of trades, such as stone-masonry, for example, had largely gone and had been replaced with new trades and technical areas, based upon technologies such as computer controlled production machinery, that required a higher level of academic understanding and study.

So it was, by virtue of technological and societal change, combined with government reforms, that by 2008 Australia had a tertiary system composed of some 40 universities and a large collection of TAFE colleges. Between them, these organizations could award various certificates, diplomas and degrees – the Australian Qualifications Framework (AQF) provided a structure that defined the actual awards that could be issued by the various tertiary institutions. In a broader sense, the end result of all the changes, however, was that the CAE colleges of old had become the universities of new; and the technical colleges of old had become the TAFE colleges of new. All these elements are now an integral part of Australian tertiary education.

2.5   Problems with Expansion

The Dawkins' reforms of the Australian university system were not without their shortcomings, despite having brought a number of advantages to tertiary education. One problem with the reforms was that there was an intrinsic presumption that the nation

could rapidly move from a society that had the intellectual capacity to staff 19 universities, to one that had the intellectual capacity to staff some 40 universities at the same level. Self-evidently, this was not the case, even though many CAEs had staff who were qualified to be university lecturers.

Another presumption made by the new "system" (although Dawkins himself never actually demanded it) was that 40 universities could potentially operate at the same international research levels as the 19 that had existed previously – this was again proven to be false, largely because the number of universities competing for federal research grants had increased from 19 to 40 but the research funding provided by government was not increased proportionately.   Over the two decades from 1987 to 2007, government expenditure on research and development had actually tripled but the post-1987 university system had effectively doubled in size and research ambition in only eight years.

By 2007, it was clear that the Dawkins' reforms, which originally sought to abolish the binary system of higher education and create a "unified national system" of universities had, in reality, created a new binary system, composed of universities and TAFE colleges. Even within the universities, there emerged another binary system of high research performance universities and low research performance universities – rich cousins and poor cousins. The harsh reality for many of the post-1987 universities was that it was simply not possible to ramp up levels of research to the extent where they could be competitive with the established universities in the field – particularly if the new universities were small and lacking research infrastructure. To make matters worse, with little or no new money

available from the Federal Government, some of the post-1987 universities had to make sacrifices in the quality of undergraduate education and infrastructure to fund their entry into the research arena.

The American Poet John Ciardi (who was renowned internationally for his translation of Dante's Divine Comedy and Inferno) once uncharitably summed up the relentless quest that colleges have to upwardly change their status in the following way:

"*A university is what a college becomes when the faculty loses interest in students.*"

Unfortunately, there is some truth in this observation because the transition from college to university signifies a dilution of interest in undergraduate learning to realise a combination of learning and research – in theory, research should improve the quality of learning but it does not always follow in practice that this is the case. In Australia, some of the technical colleges which subsequently became universities in fact proved the truth in Ciardi's observations – having been far better as technical colleges than they ever were subsequently as universities. Nevertheless, it was difficult to argue against the rising tide of interest in higher qualifications, and the need for educational organisations to provide opportunities for them.

The other fundamental problem with the Dawkins' reforms was that spreading research, which had previously been conducted by 19 universities, over 40 universities, had the effect of diluting the overall system. Newly established (post-1987) universities sought to poach staff from established universities and were prepared to offer higher level appointments to entice leaders. This created some

antipathy from established universities who felt that the new players were over-promoting under-qualified staff (whether this was a justified assumption or not). Even then, the research outcomes in the new universities, viewed at an international level, were mixed at best, purely because they were small in scale. At the same time, these new activities drew expertise away from traditional players who had previously had critical mass.

2.6   Performance of the Australian System of Universities

The university system, like many other systems, is composed of funding, infrastructure and expertise, and when these are either spread thinly, or used inefficiently, the system becomes stressed and does not perform as well as it otherwise might. By 2006, the Australian university system was showing signs of stress. In practice, it became evident that it was not possible to sustain a large number of players, all having similar undergraduate offerings, and all seeking to be research intensive. The duplication of resources and staffing was costly, and the consequences became apparent in performance.

In November of that year, the Melbourne Institute published a "discipline by discipline" review of Australia's universities, looking at factors such as student satisfaction, international standing, research publications, etc. Much of the data used in the survey was derived from the Federal Government's (i.e., DEST's) own official figures for that year, and some was derived from surveys. For each discipline, the review process awarded each university a score of

between zero and 100 to indicate a particular university's relative performance in that discipline – for example, a university might be awarded a score of 36.5 for engineering; 50.7 for business, and so on. The end result was a discipline by discipline profile of Australia's universities in both teaching and research. When the discipline performance figures were averaged out for each university, the stresses on the overall system became apparent.

Table 2.2 shows the Australian universities listed in descending order of student numbers. Next to the student numbers for each university are the total numbers of academic and research staff. Next to these is the average performance of each institution across all its stated disciplines (as derived from the 2006 Melbourne Institute Study).

University	Student Numbers In 2006	Academic & Research Staff Numbers in 2006	Average Performance Across Disciplines* %
Monash University	54824	2744	67.91
The University of Sydney	45848	2531	80.20
The University of Melbourne	43389	2747	91.14
RMIT University	4147	1059	29.96
Curtin University of Technology	39459	922	44.26
The University of New South Wales	38776	1971	65.09
Queensland University of Technology	38524	1157	39.93
The University of Queensland	37518	2781	67.49
Griffith University	35335	1174	30.31
Charles Sturt University	34147	586	25.20
University of South Australia	33410	967	32.84
Deakin University	33202	891	30.68

Table 2.2 Continued Over Leaf…

University of Western Sydney	32935	721	27. 60
University of Technology, Sydney	32712	875	31.75
Macquarie University	31126	845	34.45
La Trobe University	28317	1042	35.97
The University of Newcastle	25570	866	31.46
Central Queensland University	25305	395	25.04
University of Southern Queensland	25243	392	29.00
Edith Cowan University	23989	548	22.34
University of Wollongong	21875	699	32.55
Victoria University	20180	533	26.48
The University of Adelaide	19290	1326	36.74
The University of Western Australia	17761	1406	46.27
The University of New England	17482	505	29.98
University of Tasmania	17471	741	26.23
Swinburne University of Technology	17390	434	29.45
The Flinders University of South Australia	15418	702	25.83
James Cook University	15378	676	22.90
The Australian National University	14553	1910	77.02
Australian Catholic University	13967	372	N/A
Murdoch University	13917	504	30.80
Southern Cross University	13883	268	23.95
University of Canberra	10858	295	23.24
University of Ballarat	10430	163	24.05
University of the Sunshine Coast	5787	121	N/A
The University of Notre Dame Australia	5636	-	N/A
Charles Darwin University	5396	170	18.05
Bond University	4635	-	13.80
Total Student Numbers	*964,866*		

Table 2.2 – Australian Universities in Order of Total Student Numbers (2006) (Figures From DEST) and Relative Average Performance Across Disciplines (*Figures from Melbourne Institute 2006)

Figure 2.1 shows the Melbourne Institute average performance ratings for each Australian university plotted against the number of academic and research staff in that university (Appendix B contains a more detailed analysis of university performance).
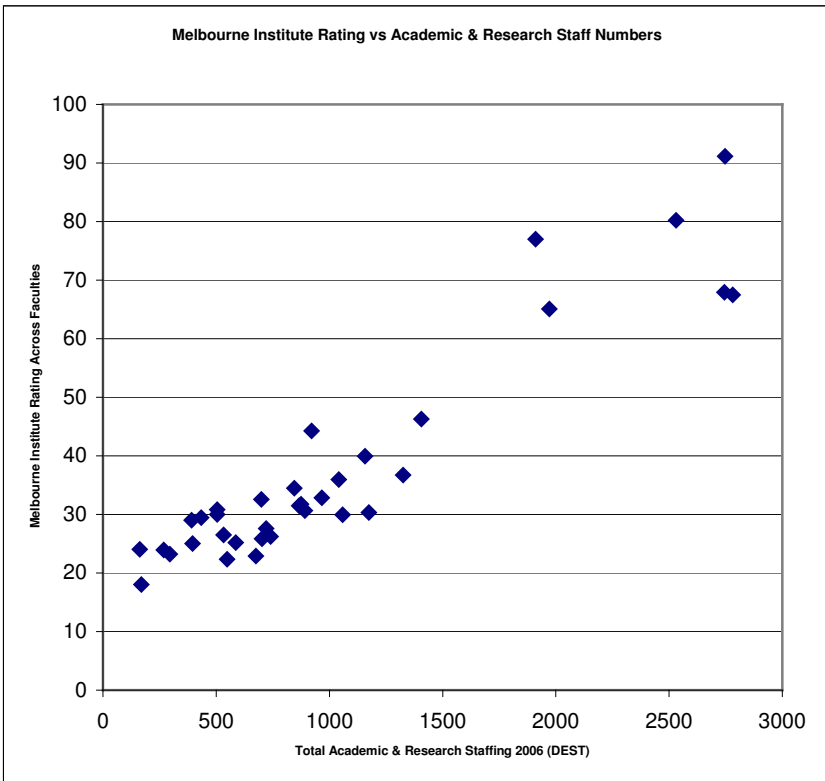

Figure 2.1 – Plot of University Performance vs Academic & Research Staffing

The trends from Table 2.2 and Figure 2.1 are relatively clear – the greater the actual number of academic and research staff in an Australian university, the better the overall performance of that university in terms of research and learning.   The number of academic and research staff in a university is generally dependent on the total number of students, so the trend is that universities with larger numbers of students tend to do better than those with smaller numbers.

In Australia in 2006, universities with over 1000 academic and research staff (or over 25,000 students) performed far better than their smaller counterparts – because they had larger funding (as a result of their larger student numbers) to better resource their undergraduate educational programs, and the ability to achieve critical mass in their research areas.

In the context of "bigger is better", consider also the relative positioning of Australian universities against world-leading universities, such as the University of California. Table 2.2 shows that Australia's largest university had only 2,781 academic and research staff in 2006. In the same year, the University of California had almost 40,000 full time equivalent staff over its ten campuses – most of its individual campuses had more than double the number of staff that could be found in Australia's largest universities   Not surprisingly then, the gap between Australian universities and world leaders is significant if, for no other reason, than sheer size.

The pattern of "bigger is better" is not, however, a universal phenomenon and, indeed, there are small universities in the United States that are regarded amongst the best in the world. However, these often have unique circumstances, such as large endowments, to

fund a critical mass in their chosen areas. These circumstances are not generally present in Australia.

The implications of the Melbourne Institute study will remain with the system for some years because they reflect the fact that better performance is achieved by larger academic and research staff numbers which are, in turn, achieved by greater student numbers. And, while the relative performance figures for each university can change from one year to another, the basic elements of critical mass, infrastructure and expertise can only change over many years or decades.

2.7   Ongoing Challenges and Reform

As the first decade of the 21st Century rolled on, it therefore became evident that Australia's system of universities was in a new state of flux. In 2006, the (then) Federal Education Minister signalled that the "one size fits all" approach to universities that had been the hallmark of the Dawkins' reforms was nearing an end. The (then) Federal Government signalled the possibility of an evolving system, composed of only perhaps a dozen comprehensive/mainstream universities, with the remainder focusing on a limited range of specialised areas. There were also prospects of new, commercial players being granted the right to call themselves universities.

In 2008, the incoming Federal Education Minister signalled yet another round of Federal reviews and reforms, scheduled to commence in 2010. This round of reviews was also focused on

developing unique attributes in each university to put an end to the "one size fits all" university approach.

Those universities that were either large in terms of staffing and student numbers, or strong in terms of research performance, clearly had a sustainable future in the mainstream. Those that were either small in student numbers or weak in research performance had a difficult road ahead, and faced competition from the encroaching TAFE sector, with its lower staffing costs and potential to offer professional degrees.

TAFE colleges, however, are not the only threat to the existing university system in Australia. The system also faces competition from international universities seeking to establish campuses in Australia, and from private specialist colleges that can offer fast-track degrees more efficiently – many, including some vice chancellors of existing universities, have argued that such private providers can also deliver educational programs more professionally than traditional universities.

2.8   Australian Universities in the International Marketplace

Australian universities were amongst the first and most successful players in the burgeoning educational markets in Asia in the late 1980s and 1990s. Because of their early entry into these markets, Australian universities picked up a disproportionately high share of the international fee-paying students. Export education became one of Australia's largest export earners. In a number of cases, Australian universities also chose to establish campuses in

Asia and, while a small number of these were successful, some succumbed to increasing local competition in the region.

The reality for Australian universities was that their initial successes in the Asian markets were not sustainable. The rapid economic growth of countries such as China and India, from developing nations into economic superpowers, was accompanied by a corresponding growth in new (and well equipped) universities in those countries. In addition to this, the large North American and European universities, who had significantly more "brand value" than Australian universities, had also recognised the benefits of establishing bases in Asia.

Many of the new universities in the emerging powerhouse economies dwarfed even the best Australian universities in terms of their infrastructure and facilities. The message from the changing Asian landscape was clear – the lucrative international student market was not a long term proposition for many of Australia's universities.

2.9 Current International Standing

Notwithstanding all the ups and downs of more than one and a half centuries of evolution, by 2008, there were in the order of a million students enrolled in Australia's system of universities – this represented almost 5% of the population, or a 50-fold increase from 1910. So, as the Iranian proverb goes, *"…the curs may bay but the caravan moves on…"*

For better or worse, the Dawkins' reforms of the Australian university system set the agenda for the current collection of universities, and have largely contributed to the nation's relative international standing in higher education and research.   This standing can perhaps best be summarised as credible in general, and good in parts. Keeping in mind the size and location of Australia as a country, this is no small achievement in its own right. As far as students are concerned, Australia's universities are internationally recognised as providing a reasonable quality of tertiary education, and many international professional bodies recognise Australian degrees as equivalent to those derived from European and North American universities.

In terms of international standing in research and academia, the Nobel Prize is universally regarded as one benchmark of excellence. In regard to Nobel Prizes, it is sometimes observed that Australia has been awarded more of these, per capita, than any other country (although the actual citizenship of various prize winners is often a subject of debate). Ironically, however, of the ten Nobel Prize winners that can arguably be attributed to Australia, only three received their awards while still actually affiliated with Australian universities or research institutes – these being Sir Frank Macfarlane Burnet at the Walter and Eliza Hall Institute (1960); Sir John Eccles at the Australian National University (1963), and Barry Marshall at the University of Western Australia (2005).

To give some comparison with other world famous institutions, 32 Nobel Prize winners received their awards while affiliated with the University of California, and 31 received their Nobel Prizes while affiliated with Harvard University. This gives

some insight into the enormity of the international competition in terms of universities, and to the role of Australia as a relatively small player in a very large field with many renowned institutions. Fundamentally, the gap between Australia's best universities and the world's best universities is significant, even though a few Australian universities are regularly ranked amongst the top 100 universities in the world.

Even when Australian researchers perform well at their own universities, there is therefore a natural attraction for them towards institutions that are either historically associated with research excellence, or are located at the centre of a region known for academic/intellectual prowess (such as Boston Massachusetts). Once researchers can demonstrate a high level of international standing, the funding opportunities in North America and Europe are significantly greater. So, even though Australia has a proven capacity to produce some of the world's great intellects and researchers from within its university ranks, Australian universities do not generally benefit greatly from their presence after they become successful.

Successive governments have attempted to thwart the outflow of high calibre researchers from Australia by offering large salary incentives through fellowships. The problem, however, is that it is not simply salaries that attract international researchers, but a collection of factors including infrastructure, technical support, research grants, access to high technology industry partners, and so on. For these reasons, Australian universities are at a disadvantage compared to those in parts of Europe and North America.

The key point that we can learn from this history is that governments tend to make many decisions about the number, composition and funding of universities in Australia but, in the international context, many of these decisions do not have a significant impact because the nation remains a small player in the academic arena. In other words, it is one thing for governments to re-label former technical colleges as universities, or to merge various institutions into new universities but quite another to tackle the creation of an internationally regarded university, that can compete with the likes of a Cambridge or Harvard – this is a process that can take many decades or even centuries – if it can occur at all.

There is an oft repeated anecdote about a visitor to Cambridge University who asks one of the gardeners how they got the lawns so green and lush. The gardener replies that all they did was plant the seeds; roll the lawn; water it, and tend to it for six centuries. This parable profoundly summarises the difficulty of building a university – governments and benefactors plant the seeds; vice chancellors tend to them but, in the final analysis, it is the centuries of culture and tradition that define the lushness of the end product. That culture and tradition is largely built upon the students who attend the university, and the subsequent contribution that they make to society. Some academics have even referred to their graduates as the "academic tree" of their university, and measure the success of their university and its research by the success of their academic tree.

The world's most successful universities tend to be those that have the most successful students in various facets of science, business, medicine, philosophy or society. This creates a positive

cycle that tends to attract the best students from all over the world, who then often go on to be successful graduates, and so on.

The message that comes to us from this history and evolution of Australian universities is significant. Students need to be aware that, from time to time, and for various reasons (both altruistic and expedient), governments choose to change universities; their funding, and their directions – but, in the final analysis, the actual real change that takes place in terms of learning and international impact is often minimal. Universities, learning and research change at a very slow pace, and this pace is defined by the culture of the university and the calibre of the students – and, ultimately, what those students achieve after they graduate and then feed back into the system.

2.10   The Role of Federal and State Governments

One may then well ask what relevance state or federal control of universities have to the students who study in them here in Australia. The answer is that they do have significance. Firstly, because all Australian universities receive a portion of their funding from the Australian Federal Government and, secondly, because legislative control of nearly all Australian universities resides with respective state governments. This means that the roles of the two layers of government are somewhat complex when it comes to control of universities.

In simple terms, the relationship between state and federal governments in the context of university control comes down to the

old adage, "*he who pays the piper calls the tune*".   Universities are governed by various Acts of Establishment (largely state) which provide a broad framework for how they should operate. Universities are legally bound to abide by the provisions of the relevant Act under which they are established. Beyond the Act, and in keeping with it, universities all have a large array of internal policies and procedures that provide a frame of reference for all staff, and thereby enable the university as an entity to abide by the law; to provide integrity, impartiality, fairness and equity in its dealings with students, staff and other stakeholders. Universities also have a wide range of legal contracts with external organisations, including government departments, industry, staff, and so on. Universities are also bound by numerous other forms of government legislation encompassing issues such as industrial relations; occupational health and safety; equity, etc. Some of this legislation is state based and some is federal.

The Federal Government, as the entity who essentially "pays the piper" is the one which, in practice, exerts the greatest amount of control over the system. In essence, by creating funding models for universities that encourage particular types of behaviour and attributes, and discourage others, it is the Federal Government that influences how universities behave in the short term.   The relationship between universities and state governments is somewhat more abstract even though it is the state governments that generally have legislative control over the respective universities. In practical terms, the situation is very awkward in the sense that it would be pointless, for example, in having a state government enact legislation which forces a university to be disadvantaged under the

Federal Government funding model, to the extent that it would have to close. However, the converse situation may arise where a state government could assist with legislative changes that improve the performance of universities and enable them to attract more Federal Government funding.

University leaders are generally aware of the complexities of the arrangements that exist between the Federal Government and various state governments. This is exacerbated when the Federal Government and a particular state government are from different political parties, with differing views on tertiary education, which is often the case.

State governments are generally represented on university councils, which are the governing bodies (elected and appointed) to which the chief executive officers (vice chancellors) report. The Federal Government generally communicates its intentions to universities via policy releases and, more importantly, through the complex formulae which are used to determine the funds provided to a given university in a particular year.

2.11   University Administration and Research Funding

The Federal Government department that administers universities is called the Department of Education Employment and Workplace Relations (DEEWR) **–** this Department has had numerous titles over the decades, reflecting a variety of changing roles and political leaders (most recently it was known as the Department of Education, Science and Training or DEST). However, it is the

Department of Innovation, Industry, Science and Research (DIISR) that currently administers funds, on behalf of the Federal Government, which are provided to universities to undertake research. These are administered through the Australian Research Council (ARC). Medical research funding for universities is currently administered by the National Health and Medical Research Council (NHMRC) which is within the portfolio of the Commonwealth Department of Health and Ageing.

The two research granting agencies (ARC and NHMRC) are typical of the arrangements that are in place in many countries under various, different titles. In general, medical research is given special priority in terms of research funding, over and above all other areas which are collectively funded through the ARC. The special consideration given to funding of medical research (through a special body such as the NHMRC) is common practice in many countries. In the United States, for example, there are analogous entities to the ARC and NHMRC called the National Science Foundation (NSF) and the National Institute of Health (NIH). The separation of university research funding into "medical research" and "everything else" probably doesn't make a great deal of sense in the modern world, where science, technology and medicine are all interrelated, but it has historical precedent and is generally rationalised by national and strategic priorities in health.

The two types of research funding also help to explain why many universities seek to have medicine as a core area of their faculty composition – not only is medicine regarded as a prestige discipline, but it also enables universities to dip into a much larger research funding pool at a federal level.

2.12 University Lobby Groups

Australia's universities have their own lobby group which liaises with the Federal Government in the interests of universities as a whole, rather than just for the benefit of a single institution. This lobby group is called Universities Australia (UA) – formerly the Australian Vice Chancellors Committee (AVCC). All Australian universities are represented therein. Although governments are not bound by the machinations of UA, the fact that it represents a consensus view of all universities tends to give it more credibility with governments than would be accorded to an individual university.

Some of Australia's universities have also formed their own special interest groups to represent particular vested interests. For example, the "Group of 8" (Go8) is a lobby group that represents the vested interests of five of the original six founding universities of Australia, plus Monash, ANU and the University of New South Wales. Another collective group is the Australian Technology Network (ATN) which represents the vested interests of a selection of technological universities.

In practice, the UA, Go8 and ATN tend to deliver compromise positions, based upon committee decisions, to various governments. It would therefore be unlikely that any of these entities would be the source of radical reform for the system. As a general rule, these entities are associated with lobbying for more funding, or for requesting the preferential treatment of one vested lobby group over another.

As far as undergraduate students are concerned, most will not be directly influenced (or affected) by the various research funding schemes or by the various university lobby groups, so these may be of little more than passing interest.   However, undergraduate students are directly affected by changes in Federal Government policy in regard to funding education. The policies that are put in place by the Federal Government translate directly into how much it costs to get a university education; what proportion of the cost will be carried by the students and the tax-payers. Over and above Federal Government policy, universities are given some latitude in what fees they can charge and how these can be charged.

2.13   Funding of Student Places

In 1989, the Federal Government introduced a system of payments for university education known as the Higher Education Contribution Scheme or HECS.   Essentially, under the scheme, university students pay a fraction of the total cost of their education, with the remainder funded by tax-payers through the Federal Government. The payments for the cost fraction incurred by the students can either be paid up-front, or after graduation, when a threshold income limit is exceeded. There are three major benefits of the HECS system. The first is that students do not require a large sum of money up-front to undertake a university degree.   The second is that because they have a financial responsibility associated with their course, they take it much more seriously than if it were provided at no cost. The third is that students who do not derive a

professional benefit from their degree (i.e., never exceed the threshold income for repayment) do not end up being disadvantaged by a debt burden (although they may incur a debt that needs to be paid from their estate).

In fact, the HECS system received broad support after its introduction, and even the (then) Opposition embraced it when they came into government in 1996. It has therefore remained in place ever since. The HECS system is often cited in educational forums around the world as an equitable means of funding university study.

Some universities find the HECS system somewhat restrictive because it does not provide sufficient latitude for them to charge whatever they see fit for courses. For this reason, universities have lobbied the Federal Government to give them the opportunity to charge full fees for undergraduate courses. As a general rule, in Australia, full fees can be charged for all postgraduate course places but, in the context of undergraduate places, universities need to fill all their government allocated HECS places before they are permitted to offer additional places at full fee.

The demand for full-fee undergraduate courses in Australia is relatively limited because it essentially requires students to pay several times the amount that they would pay for an equivalent HECS place in the system (the full cost of which is subsidised by tax-payers). Hence, there is no incentive for students to opt for full fees unless they are unable to achieve the academic target required for a HECS funded place.

In 2006, the first university in Australia to endeavour to break away from a pure HECS funding model was the University of

Melbourne, which introduced the so-called Melbourne Model, with the first year of implementation in 2008. The objective of the Melbourne Model was to divide professional courses into two parts – a generic undergraduate degree program, which could be undertaken through HECS funding, and a postgraduate professional degree (in, say, engineering or law) which had to be funded through full fees (for which students could apply for "fee help"). The University was also provided with HECS places to enable students undertaking the "professional" Master's programs to still have access to the traditional HECS system.

The Melbourne Model was based upon the emerging "Bologna Model" in Europe, whose objective was to broaden undergraduate education and move specialisation into the postgraduate arena. As an adaptation of the Bologna Model, the Melbourne Model provides a much broader approach to undergraduate education but also significantly increases the cost burden and duration of a professional degree. With each additional year of education required for a professional qualification, graduates forego a year of income, so the costs of such an approach are considerable, notwithstanding that there may be longer term professional benefits from a broader undergraduate study program.

In 2007, the Federal Government also relaxed the conditions under which universities could charge full fees for undergraduate education. This, too, provided a departure from the traditional HECS funding arrangement, with the objective being to increase the total funding available to universities and, thereby, improve the ability to offer places. Again, full fees for undergraduate education

tend to be more attractive to international students who cannot make use of the leveraged funding arrangement provided by HECS.

Fees are not the only issues that are influenced by Federal Government policy and which impact directly upon students. Other issues, such as provision of supporting services, living allowances, infrastructure funding for buildings, laboratories, etc. can also be affected by federal decisions.

2.14   Feedback Mechanisms for University Students

In general, annual learning and teaching performance surveys, published by the Federal Government, indicate that the majority of university students in Australia are satisfied with their undergraduate courses and learning. Of those who aren't, the bulk of these seek some form of redress through internal university mechanisms, and very few generally contact the government or its public service departments. However, the practice of students bringing items of concern directly to the attention of the appropriate federal or state minister can have positive benefits for successor students who may otherwise have to endure unresolved issues.

In general, when students are at university, they will have some sense (if not a direct accounting) of how well they believe their course is resourced relative to their fees, and how well they believe the university serves their educational and support needs. They will also have direct experience in whether or not they have been treated fairly, or whether the university's standards of learning meet employer expectations, or match those of colleagues in other

universities.   When expectations and reality don't match, then students do have a range of options which they should consider exercising in terms of either improving their lot or the lot of those who follow in their footsteps.

Unlike secondary schools, universities do not have the equivalent of a "parents group" which represents independently the views of a people whose only vested interest is in the education of their children. In universities, the various governing and managing bodies all have vested interests external to the educational process – whether these interests be personal careers, political biases, etc. It is therefore incumbent upon the students themselves to act as the independent voice that brings about changes when shortcomings are uncovered.

As with other forms of complaint and redress, the best place to start is closest to the source of the problem – in the case of university students, for small problems, this can be through tutors; lecturers; heads of department; deans, and so on. Universities generally also undertake subject and course exit surveys to determine whether or not these are serving student requirements or delivering the required outcomes – the surveys provide one useful forum for feedback, but there are others.

In looking at the sorts of problems that are faced at university, it also becomes important for students to learn to separate out their individual academic performance from the behaviour of the university, or the fees that it imposes.

Universities are obliged to maintain academic performance standards and, clearly, from time to time, students need to accept

that they haven't performed as well as they could, for a number of reasons. If those reasons relate to the way in which the university has delivered or resourced the course; the quality of lecturing, and so on, then students have a legitimate reason to voice their concerns.

On the other hand, the fact that students have paid fees for a course does not entitle them to an easy journey or a guaranteed degree – sometimes, academics have an important role in challenging students and taking them outside of their comfort zones as part of the learning process. Students also need to understand that one of the reasons they pay for a tertiary education is so that when they receive a degree, it represents a standard, and a level of quality that the students have attained – this would be rendered completely worthless if all students were either passed or given high grades when they had not achieved that standard. So, in trying to improve the system as a whole, students need to consider whether their issues are personal or caused by the system before they look at getting some form of redress.

In seeking redress, students also need to understand the limitations of those from whom redress is being sought. The larger and more systemic the problems, the further up the ladder they need to be referred. If, for example, it becomes clear that a program is run in a substandard building which needs to be upgraded, then clearly this is a matter that needs to be referred, at the very least, to the university chancellery and not to a young demonstrator, tutor or lecturer who has neither budget nor authority.

When problems are not addressed at university level, students need to exercise their rights and influence as would any other members of the public. Many students are intimidated at the

concept of writing directly to a federal or state minister but they needn't be. In the first place, ministers for education have a responsibility to listen to stakeholders; take their concerns into consideration, and act on them professionally as they see fit. In the second place, when ministers receive numerous, similar complaints they are able to investigate patterns of behaviour which can be corrected by changes to government policy or departmental procedures. So, formal complaints can help reshape the future of the university system and they are important.

It may also be that students do not actually have a complaint about a particular university but, rather, an idea for how the operation of the university can be improved through changes to government policy. Again, there is merit in students writing directly to the relevant minister, whose staff will ensure the correspondence is acknowledged and considered appropriately. A reticence of students to directly contact ministers will almost certainly ensure a lack of government willingness to change the system, regardless of which party is in power – indifference from students can lead to indifference from governments because the message doesn't get through that change is required.

A good means of voicing concerns or ideas for improvement of the university system is through local members of parliament. A local member can take even a verbal complaint or idea and forward it on to the relevant minister in order to get a reply. Sometimes this has more influence than a letter sent directly to a minister.

As can be gleaned from the content of this chapter, when it comes to universities and regulation, there is a very real issue as to which level of government to address concerns. In general, when it

comes to the sorts of problems faced by students in terms of university teaching performance, facilities, supporting services and amenities, etc., the appropriate forum is through the Federal Government – either by direct correspondence with the Minister for Education or indirectly through contact with a local member of parliament.

In some cases, students may face issues that relate to the statutes and procedures employed within a university – this is a far less likely scenario but may occur if students, say, are dissatisfied with a result, or with the fairness of the system, and have exhausted all internal means of getting the issue resolved. In these instances, it would be sensible to correspond with the relevant state minister for education.

Generally, each state also has a State Ombudsman and a Federal Ombudsman whose role is to ensure that the relevant government agencies are behaving in a proper and fair manner with respect to stakeholders. There may be instances where students have serious concerns about irregular or unethical practices within the university that need to be addressed independently of the internal university mechanisms. In these cases, students can refer the matter to the State Ombudsman if their university is founded under a state Act of Parliament, or the Federal Ombudsman if their university is founded under a Federal Act of Parliament.

2.15   A Positive Overall Picture

Notwithstanding the fact that, from time to time, students do have complaints and difficulties with the Australian university system, the message and the experience, overall, for students in Australian universities is a positive one. The nation's universities have a credible reputation in the international university world, and the majority of those who participate in the system are satisfied with the outcomes that it delivers. Most students value their experience at university, and the colleagues and friends that they gain as a result of the overall experience.

The challenge for those entering the system is to never accept that it is as good as it can be – and to work hard to make the system better, through active participation not just in learning but also in generating ideas for how the system should change and adapt, and how problems can be resolved.

Chapter 2 Summary:

(i)   *Australia's university system has a history of evolution spanning more than one and a half centuries but is relatively modern compared with the system in Europe and North America*

(ii)   *Australia's university system is a small but credible player in the international arena.*

(iii)   *Australia's universities are largely enabled under State Acts of Parliament but because funding is derived from the Federal Government, federal issues tend to be those that dominate university directions.*

(iv)   *Australia's universities currently face a number of challenges as a result of the large number of universities attempting to be research intensive – they are currently in a state of flux and there will be greater differentiation between universities in any new system, with a limited number of comprehensive/mainstream universities and the remainder more specialised.*

(v)   *In general, the relative, overall teaching and research performance of an Australian university is dependent upon the number of academic and research staff within that university, rather than other factors, such as its age or history.*

(vi)   *Under the current system, in addition to normal feedback paths within their own universities, students have various mechanisms for voicing concerns or ideas for improving the system through federal and state ministers or local members of parliament.*

3

University Governance and Students

Read this chapter if you would like the following issues addressed:

- How are universities organised in terms of governance and management?

- How do governance and management affect students?

- What should students do if they are not satisfied with issues that relate to university governance and management?

Universities can be very daunting places to outsiders and to newcomers, so it is not surprising that many students feel a little overwhelmed when they first arrive as undergraduates. The good part about being overwhelmed is that this presents many opportunities for exploration of interesting buildings, sports facilities, laboratories and libraries. However, some students are so intimidated by the scale and size of the major university campuses that they instead opt for the more cosy environment of the smaller universities, just to avoid contending with the scale of the larger ones.

It isn't just the size of university campuses that can be intimidating.   It is also the nature of the university governance/management system that is confusing, even to those who have been in the system for some years. Much of what exists has been handed down from decades or centuries ago, with a collection of adaptations and patches to improve its relevance to the modern world. So, universities can also be very strange places, where state-of-the-art computers sometimes have to live in a 19th Century sandstone building that was designed to house students writing on slate boards.   The management structures are little different – modern financial management and student records systems sometimes have to be superimposed on top of an organisational structure and attitudes that have been handed down from 14th Century traditions.

In this chapter, we therefore seek to demystify the way in which universities are structured and governed, and how this impacts upon the students who have to study within. Specifically,

we will examine the core elements that are common to most, if not all, Australian universities. These are:

- The University Council.

- University Divisions.

- The Chancellery.

- The Academic Board and its Committees.

- The Committee of Convocation.

- The Faculties and Deans.

- Departments and Schools.

- Research Institutes and Centres.

- Corporate Services and Administration.

- Academic staff – Professors, Readers, Associate Professors, Senior Lecturers, Lecturers, Postdoctoral Researchers, Tutors and Demonstrators.

Australian universities have similar, but not identical, structures and there is no single model that encompasses all of them. The specifics of the model that exists in any one university are a function of the Act of Establishment under which a university was created, combined with the managerial necessities and historical "hand-me-downs" that led to the final organisational structure.

To simplify our discussions, we will look at a generalised university structure, which embodies the core elements that in exist in almost all Australian universities.

Figure 3.1 is a block diagram that shows how all the major academic elements of the university fit together in a broad sense, with respect to the undergraduate student. In addition to these, like any other organisation that provides services on a large scale, there are all the corporate elements that enable the university to function in an administrative sense.   These are shown in Figure 3.2.   In Australian universities, there are typically almost as many administrative staff as there are academic staff, reflecting the significant cost burden imposed by corporate activities. The specific titles of departments and various boards and committees vary from university to university but generally exist in one form or another throughout the Australian system.

Looking first at the academic side of the university in Figure 3.1, the key feature that becomes apparent is that there exist both executive bodies and elected bodies. In the Australian university system, the executive is represented by the chancellery and the elected bodies are the university council and its committees and boards. The arrangement is notionally designed to protect the public interest and prevent individuals, including the vice chancellor (VC), from making decisions based upon personal, vested or career interests and imposing these upon the university. In essence then, the VC is appointed as the chief executive officer (CEO) of the university, and is held to account by the council.
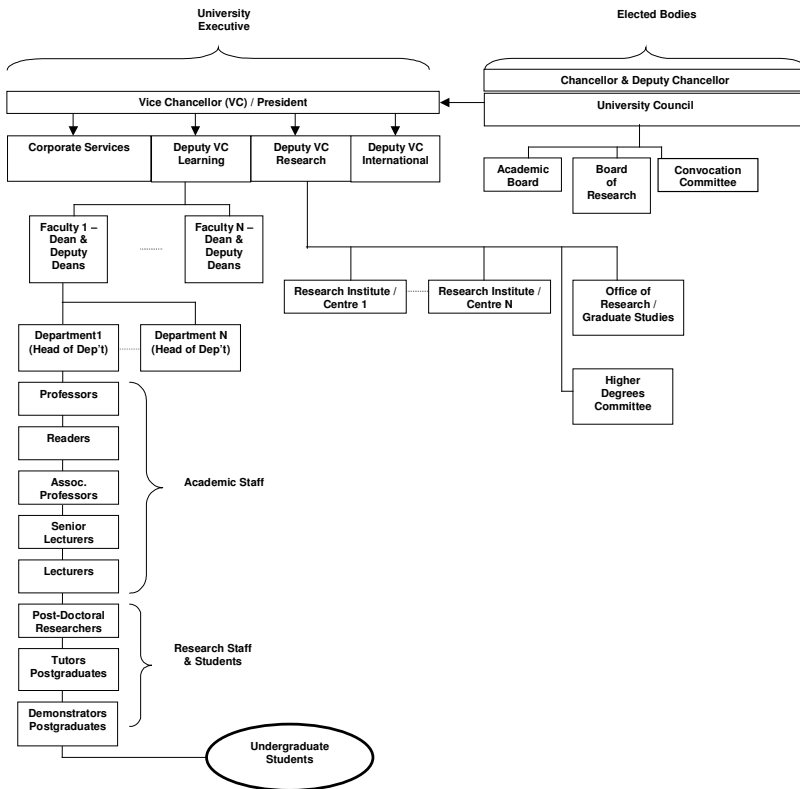
Figure 3.1 – Basic Academic Elements of a Typical Australian University and Their Relationship to Undergraduate Students
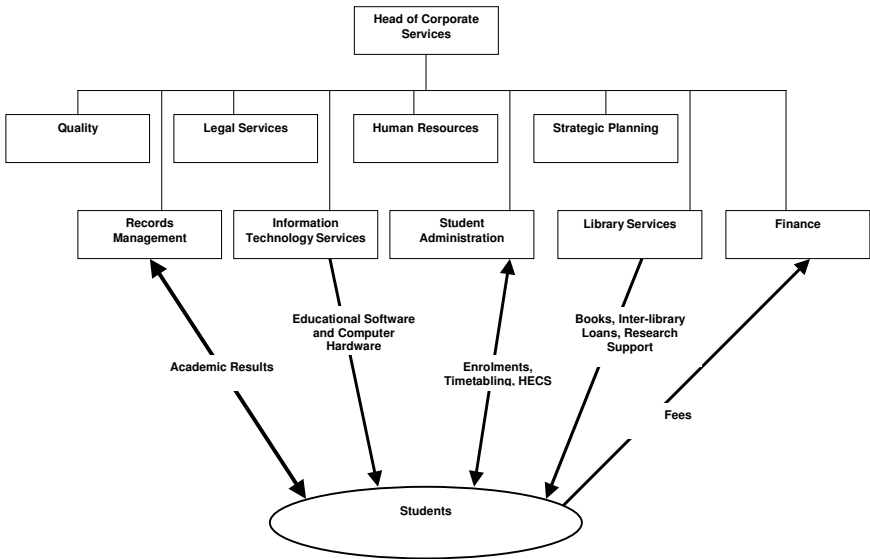
Figure 3.2 – Typical Corporate Services and Their Relationship to Undergraduate Students

In looking more closely at Figure 3.1, we can now explore the roles of each of the various academic elements that make up the core education and research functions of the university. Specifically:

(i)   The University Council

The council is the governing body of the university and its role in all Australian universities is enshrined in the Act

that establishes each particular university. A university council is a high-level decision making body, generally focusing on major decisions that affect the image and ethos of the university. A university council is typically composed of members appointed by the relevant government (either state or federal depending on the Act of Establishment); members representing various interests in the university (e.g., academic or administrative staff, and student representatives); and numerous others, as specified in the university's Act of Establishment. Ultimately, all major strategic decisions relating to the function of a university need to be considered and approved by council, although vice chancellors generally have discretion on operational matters. In other words, a university council delegates some of its authority to the vice chancellor in order to make day to day decision making practical.

The members of a university council normally undertake their roles on a voluntary basis, although in some universities they are paid a fee for their participation in council meetings. For this reason, and because many council members have careers outside the university, they clearly do not have time to delve into all the operational issues that take place within the university – hence, a university council needs to rely upon reports and recommendations from chancellery, as well as those from the elected boards and committees that report back to council on a regular basis.

It is generally the case that a university council needs to receive feedback on issues that relate to education, research

conduct and performance, and these come back through other elected/representative committees such as the academic board or board of research. It is also the case in some universities, particularly the older ones, that council likes to receive feedback from former stakeholders in the university – in other words, those who have graduated from the university and generally have careers elsewhere. In such instances, the university has what is referred to as a "committee of convocation" which is established to provide feedback to council from alumnists who maintain a general interest in the directions of the university.

Another committee which is generally formed to provide independent feedback to council is the "finance committee" of the university – the objective of such a committee is to provide an independent check on university funds and cash-flow. In some cases, university turnover is well in excess of a billion dollars per annum (even smaller universities turn over several hundred million dollars per annum) so there need to be multiple checks on financial processes – the council has an important role here as the last internal bastion of accountability for financial management. The chancellery and finance committee of a university also have an external accountability to auditors in government – typically, the auditor general.

As far as undergraduate students are concerned, it is worth noting that most universities have a student representative present at the highest level of decision making in the university.   Hence, when there are issues that

undergraduate students wish to bring to the attention of the university, and when these are strategic in nature, then there is opportunity for students to approach the student representative on council to have these considered. Students need to learn to use their representatives on council to ensure that their voices are heard on matters of relevance to them.

(ii) *University Divisions*

Although not shown in Figure 3.1, it is sometimes the case that universities divide their operations across campuses or across a range of educational entities. For example, some universities inherit a smaller tertiary institution and wish to preserve its identity and existing system of rules and procedures, without changing those of the parent university. Another example would be when a university establishes an off-shore campus and wishes to maintain it as a discrete unit. Sometimes this occurs so that different rules can be followed in line with the local regulations where the off-shore campus is established, or in case the operation goes bankrupt or otherwise damages the main university's brand value. In these instances, the university generally creates a "division" which allows the sub-entity to report back to chancellery and to council as though it were a separate organisation – then if the division is closed or disestablished, there is no need to change the broader structure of the university.

The notion of university divisions does not generally impact upon undergraduate students unless they are

undertaking studies in a division which falls outside the mainstream of the university – for example, at an international campus. In such a case, it may be that students are bound by a different set of rules or academic standards than would apply to the central university.

(iii)   The Chancellery

Chancellery is the core executive/management element of the university and has responsibility for all academic and corporate/administrative matters. Chancellery has a number of components, as shown in Figure 3.3. In this diagram it is clear that chancellery has a management or executive component, and a ceremonial/official component. The chancellor and deputy chancellor of a university are typically not employees of the university, and are there to lead the university council. They also have a role as the official signatories for the degrees and diplomas conferred by the university. In practice, it is the chancellor or his deputy who approve the conferring of awards. A chancellor typically also presides over graduation in a ceremonial role.
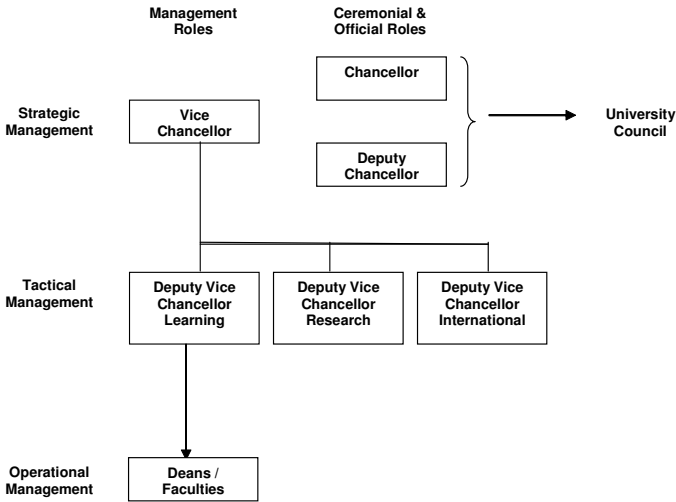
Figure 3.3 – Overview of Chancellery

The major component of university operations, both academic and corporate/administrative, are led by the vice chancellor, who is the CEO of the university. The VC is sometimes also given the title of university president in line with North American nomenclature. The VC's role is in strategic leadership. That is, setting the future academic and administrative directions of the university. Typically, a VC may be involved in the development of plans and strategies to move the university forward and position it competitively over the period of the upcoming decade. In practice, a VC is the human face of the university that is put forward in government and media. The VC also has a role in lobbying the

Federal Government for funding, and gets involved in some of the day to day activities of the university (particularly resolution of disputes and other matters that cannot be remedied at a lower level) – however, his/her role is generally concerned with longer term issues.

Once the VC decides upon a particular direction and objectives for a university over the long term, it is clearly necessary to have plans in place to achieve those objectives. These are the "tactics" that are used to convert ideas into something that can be implemented. This role generally falls upon the deputy vice chancellors (DVCs) of the university. In most universities there are at least three DVCs (in learning, research and international) but some universities have more, to cover other areas of interest.   In some cases, where universities have divisions, a DVC can be appointed specifically to run a particular division – such as an offshore campus.

It is also the case that in some universities, tactical management positions are covered by pro-vice chancellors (PVCs). The difference between the title of DVC and PVC is somewhat blurred and ambiguous but it is normally the practice that a DVC is the more senior of the two – perhaps because of a larger portfolio under management.

The DVCs (or PVCs) pass their tactical plans out of chancellery and down to the various deans that run university faculties.   The deans then have an operational management role in the university – in other words, they have to translate tactical ideas into operational practice by making "day to day"

management decisions – which courses to run; how to staff courses, which subjects to run, and so on.

In summary, therefore, the VC's role is to set the big picture for the university and to sell it to the stakeholders so that the organisation as a whole is seen to be moving in the same direction. The role of the DVCs is to take the big picture and convert it into a collection of enabling plans that explain how the big picture will come about. The role of the deans is then to organise day to day operations at faculty level so that all the staff have short term (e.g., one to three year) targets and directions that help to achieve the tactical plans.

As far as undergraduate students are concerned, the role of the VC is such that the "buck" stops at his/her office – so, if there are any problems that arise that cannot be resolved elsewhere, it is the role of the VC, as the chief executive of the university, to intervene and find a path forward. As a general rule, contacting a VC to resolve a problem would be an action of last resort, after having dealt with academics, administrative staff, heads of department, the relevant dean and/or DVC. Clearly, with universities having between 10,000 and 60,000 students, it would not be possible for a VC to deal with all issues personally.

As a basic principle of good management, if an issue is brought to the attention of the VC prior to having passed through the lower level resolution mechanisms, then it would be the role of the VC's assistants to direct the issue downwards, for clarification or investigation, before submitting it for consideration by the VC.

(iv)   The Academic Board and its Committees

The most important function of a university is education, and so its integrity and quality need to be ensured through a range of mechanisms. The first of these is the normal process of management through chancellery and the faculties. The second is through an elected board which is representative of educational functions across the university – this is typically referred to as the academic board of the university.   An academic board, as its name implies, is composed of statutory and elected members with a specific interest in maintaining academic standards and propriety. These may include deans; professors; heads of departments; heads of research institutes; student and staff representatives, and sometimes industry representatives.

Although not a widely visible component of the university system, the academic board is arguably the most important elected body in the university. Its role is to monitor and challenge the operations of the executive in regard to educational matters, and to monitor educational standards and courses developed by various departments, faculties and institutes.   The academic board of a university can have numerous subcommittees and sometimes other boards. For example, the higher degrees committee (HDC) of a university (which is responsible for regulating postgraduate research degrees) may report to the academic board. The board of research in a university, which is responsible for monitoring strategic research directions and relative performance may

also report to academic board (although in some universities, the board of research can also report directly to council).

In general, although an academic board has student representatives, most undergraduate students have no requirement to deal directly with it. The reason being that an academic board does not generally concern itself with issues related to specific students but, rather, to issues related to overall student performance. There may be incidents, however, where a large group of students (i.e., a class) feels that their academic progress has been impeded or damaged by some phenomenon which can be remedied at academic board level. Another example that may be of interest to an academic board is where students feel that the quality of a course or subject is poor and needs to be rectified. In these instances, students can have the issue raised through their representatives on the academic board. Alternatively, they can take the matter directly to their student representative on the university council.

(v)   The Committee of Convocation

Some universities, particularly the long established ones, maintain what is referred to as a committee of convocation. Essentially, this is a committee that is composed of former graduates of the university who have an interest in providing an input to the directions of the university. Typically, the committee could be composed of industrialists, practising lawyers and medical professionals, professional

engineers and scientists, and so on. The objective of such a committee is to bring to the attention of the university the views of the broader community as they relate to education and research. A committee of convocation would normally report back to the university council.

In some universities, the committee of convocation has a member enshrined in the faculty board of each faculty in the university. This enables the committee to get a firsthand understanding of what happens within faculties, and to report to council impressions of how this relates to the outside world.

Students generally have little to do with the committee of convocation until after they graduate.

(vi)   The Faculties and Deans

The faculties of a university are the largest units of learning and research that relate to particular disciplines – for example, medicine, law, engineering, economics, arts, etc.

The head of a faculty is normally referred to as the dean, and a dean, like a VC, has deputies to assist in the operational requirements of the faculty. Typically, faculties have deputy deans for education, research and internationalisation. Some have additional deputies for industry interaction, and so on. In addition to the dean and deputy deans, faculties generally have a collection of administrative staff who deal with day to day requirements, as they pertain specifically to the faculty. For example, faculties have administrative staff who are

involved in issues related to undergraduate courses, examinations, etc.

In the context of the university, the role of the dean is largely an operational one – generally concerned with short/medium term issues related to students and research currently within the system. However, some faculties are quite complex entities, particularly in the case of areas such as medicine, engineering and law. In these cases, faculties not only have to undertake teaching and research activities, but also have to interact with outside entities, such as teaching hospitals, industry and the judicial/court system.

Within a faculty, there are a number of basic activities. The most important of these relates to the education and learning processes associated with undergraduate students. Even a small/medium faculty in Australia can have several thousand undergraduate students, whose learning, examination and day to day issues need to be dealt with. In addition to undergraduate learning, a faculty is also responsible for research – this means that the faculty has to deal with Master's and PhD candidates, and also postdoctoral researchers. Faculties also have to contend with visiting academics who are conducting research.

In the context of research, much of the funding is derived from the Federal Government through competitive research grants, so a faculty needs to monitor its performance in winning and managing such grants. Faculties may also have consulting, contract research and other arrangements in

place with outside partners (such as industry) and these relationships also need to be managed.

In general, a faculty is composed of a number of functional groups or departments, in order to make it easier to manage.   For example, in engineering, a faculty would be composed of smaller departmental groups, such as Civil Engineering, Chemical Engineering, Electrical Engineering and Mechanical Engineering. Some faculties also have other functional groups, such as research centres or research institutes.   All of these groups and departments are given some degree of autonomy and budget, but all are ultimately the responsibility of the dean and deputy deans.

In the context of undergraduate students, the bulk of their dealings with a university are either through their department, within the faculty, or with the faculty management.   These entities generally have mechanisms available to support and advise students, and mechanisms to enable students to dispute issues of unfairness, and so on. In general, it would be unusual for issues relating to individual students to become so severe that they need to be taken outside a faculty for resolution but, if such issues arise, students should not be deterred from moving up the organisational ladder to voice concerns.

(vii)   *Departments and Schools*

Departments and schools, within faculties, are normally established around specific disciplines – for example, dentistry

or chemical engineering or physics. They also tend to be established around specific undergraduate teaching programs – for example a Bachelor of Science in Physics, or a Bachelor of Engineering (Chemical). In practice the terms "department" and "school" appear to be used interchangeably although it is often the case that the term "school" is used to denote a larger version of a department (i.e., mini-faculty) that operates several disciplines – for example, "The School of Business and Accounting".

Typically, a department or school generally operates one or two undergraduate courses; perhaps a postgraduate course, and some postgraduate and professional research activities. All of these are normally confined to a limited band of expertise. The academic staff and researchers within a department or school are then recruited in line with the requirements of the activities.

(viii) Research Institutes and Centres

For various reasons, including concentration of research effort; marketing; government research funding, etc., universities sometimes create research centres or institutes whose purpose is to conduct research and train postgraduate researchers, rather than to educate undergraduates. A centre is generally a small group of researchers and academics (say up to ten) who have an interest in a specific field. Many centres are not physical entities with their own buildings and staff – rather, they are a collection of departmental academics

and researchers who work in an area of common interest. Research institutes, on the other hand, tend to be larger organisations, sometimes with their own buildings and their own research and administrative staff.

Smaller centres and institutes tend to be operated by (and within) departments and faculties. In some cases, notably the Walter and Eliza Hall Institute in Melbourne, the entity is so large that it even sits outside a normal university structure.

There is no hard and fast formula that specifies what a centre or research institute actually is – each university has procedures and protocols which define what these terms actually mean within their organisation.

Undergraduate students generally don't interact with centres or institutes in their early years of study. However, as they progress through their courses, and become more specialised, the centres and institutes become more important to their learning. In the final year of their undergraduate studies, many students undertake research for minor and major theses by working with researchers in affiliated centres and institutes.

(ix)   *Corporate Services and Administration*

One of the single largest cost (overhead) areas of a modern university pertains to corporate services and administration. There are many departments and structures that fit into this area, and they provide services such as finance

and accounting; student records management; student enrolment management; quality processes; information technology; library and educational software; printing; examination services; timetabling; student support services; facilities maintenance, and so on.

Each university has its own way of structuring corporate and administrative services but, in simple terms, some of these are centralised (e.g., finance, student records management), and some are distributed through faculties and departments (student enrolments, timetabling, etc.). The degree to which centralisation or distribution of these supporting systems occurs depends on how a particular university best sees service delivery taking place.

Most undergraduate students will end up dealing with various administrative facets of the university at some stage – commencing with enrolments and timetabling; through to course and subject advice; right through to organising collection of their degree and attendance at their own graduation ceremony.

(x) *Academic staff – Professors, Readers, Associate Professors, Senior Lecturers, Lecturers, Postdoctoral Researchers, Tutors and Demonstrators*

Universities have a wide range of academic positions, and most, if not all, of these interact with undergraduate students at some stage of their study.

At the top end of the academic scale is the professor. A professor is supposed to be an internationally recognised figure in research and learning. In more recent years, the term professor also carries with it a requirement that the incumbent is able to generate sufficient external funds to support a team of researchers – so, in practice, a professor is also a manager of research, rather than a pure researcher.

Traditional universities preserve the title of "reader", which refers to a person who (as the name implies) is a scholar of renown in a particular field of research.   In some universities, the term reader carries with it more prestige than the term professor because a reader is generally unsullied by the requirement to be a financial and people manager.   A reader then is the classic scholar and educator.

An associate professor is generally a person of national prominence in a particular field.   Essentially, an associate professor has a similar set of duties to a professor, except that there is an expectation that the scale of research in which an associate professor is involve would be smaller than that of a full professor.

Senior lecturers and lecturers are the staff that undergraduate students will see most frequently within the university system.   They form the core of undergraduate lecturing and study and, in most departments, would contitute the major component of the academic staffing. Compared to professors, readers and associate professors, senior lecturers and lecturers have a lower proportion of their time spent on

research and a higher proportion of their time spent on education, particularly at undergraduate level.

Postdoctoral researchers, as their title implies, are researchers who have completed a PhD and are undertaking research in a particular field. Generally, postdoctoral researchers are funded by specific grants held by professors and associate professors, and so are contract staff, generally remaining with a university for only a few years before either moving on or being inducted into lectureships or senior lectureships. Postdoctoral researchers sometimes give lectures in their fields of specialisation, so undergraduate students tend to encounter them in their later years of study, rather than in the early ones.

Traditional universities tend to employ academics to be full-time tutors – in other words, people devoted to supporting undergraduate students. In general, tutors tend to be of a similar age to undergraduate students, and the objective is to provide a personal mentor relationship to support students. Many undergraduate students naturally bond with their colleagues as soon as they enter into the university system but, for those who don't, the relationship between a tutor and an undergraduate student can be an important one. Unlike senior academics, tutors are less intimidating; can be more sympathetic; more in line with student thought processes and problems, and so on.

The majority of tutors and laboratory demonstrators in universities are not, however, full-time staff. These positions are usually sessional (part-time) positions that are given to

postgraduate research students who are undertaking Master's or PhD studies at the university. As such, the bulk of tutors and demonstrators are only marginally older than the undergraduate students that they support, and so they can offer a much more personable face to the university. Many undergraduate students enjoy the experience of having demonstrators and tutors both as colleagues and as mentors. The relationship is more akin to a friendship than to a formal master/apprentice hierarchy.

Undergraduate students should make use of all levels of academic staff during their studies but, in particular, should seek to get as much support as possible from tutors and demonstrators, where they can feel uninhibited in terms of asking questions and describing problems that they are having with their studies.

Having witnessed how sophisticated the university governance system is in Australia, one may well conclude that it is very robust and difficult to distort. However, this is not the case. The governance systems in Australian universities are actually very fragile and, in the absence of checks and balances, are susceptible to distortion from senior officeholders, so vigilance is required to avoid degradation of the system.

The weak point in the governance of Australian universities is in the way in which university councils are constituted. In principle, the composition of university councils, as described in (i) above, is

very well considered and sound, and provides a complete representation of the various facets and stakeholders of the university. In practice, however, it is difficult for modern councils to be entirely objective and independent, and to challenge the executive – which is a key factor in avoiding distortion of the system.

An inherent weakness in the constitution of councils is that few members of a university council actually have a formal, vested interest in the betterment of the university, even though councillors in general, and in good faith, seek to have their university develop and improve in stature. There is technically no formal loss or penalty applied to councillors if the executive or university fail to perform or, in the worst case, the university ceases to exist altogether. In other words, for some councillors, there are no personal ramifications to decisions made by council. This is quite a different situation to industry, where the board members of a company potentially lose money (or fail to make a profit) if the company they steer does not perform – in other words, every decision ultimately has a personal ramification.

The members of council who do have formal, vested interests in the betterment of the university are the representatives of the legislating government that controls the university; the academic and administrative staff representatives, and the student representatives.

The government representatives on council are a genuine vested interest group, albeit with political allegiances. Nevertheless, they can assert, on council, issues of relevance to the elected government of the day. The fact that these representatives are not employees of the university means that they can speak

independently of the executive and, if necessary, in contradiction to it.

The academic and administrative staff representatives on council are also genuine vested interest groups whose future is tied in with the betterment of the university. In particular, academic staff representatives on council are pivotal to ensuring the integrity of the university, and raising issues that directly impact upon learning and research. However, in modern university practice, it is difficult (if not entirely impractical) for such representatives to voice their views independently and without prejudice.

In the past, when academic staff were tenured for life, they could express their views in the knowledge that there were no adverse consequences to be had for expressing them. However, as the nature of tenure eroded with modern business employment practices, it led to a fundamental change in the nature of university governance. After the abolition of tenure, the academic staff on council, who had a responsibility to question the university executive, and bring to light issues that could sometimes be unfavourable to the executive, had become, in practice, direct employees of the executive. In some cases, the academic staff on council were on limited term contracts that could only be renewed by the executive.

The issue of university council independence goes back to the difficulty of superimposing modern practices onto a system whose core elements were founded centuries ago. The net result of retaining a traditional council structure, which does not take into consideration the elimination of tenure, has been the creation of a system where checks and balances on the executive have been

diminished. A number of the major university failures of the 1990s and early 21ˢᵗ Century have, in fact, been formally attributed to the lack of oversight provided by councils over the executive arm of the university.

In older universities, it was also the case that the majority of councillors were alumni of the university, and therefore had a genuine personal interest in its success. In a modern university, however, it is altogether possible to have the majority (or even entirety) of the council composed of people who have never studied at that university – in other words, to have an organisation run by people who have neither emotional, political nor financial attachment to its future.

It is therefore at council level that students have their most important role to play, in ensuring the integrity of the executive, and in making sure that accurate operational information is received by the council. When people study in Australian universities, they need to understand that the student representatives on council are not merely token elements – in the modern university governance system, they have been bequeathed an important role in challenging the executive and its performance.   This is fundamental to maintaining the integrity of the Australian university system and to preserving educational values. Students,   as   individuals   or   in groups, should consider playing an active role in debate in the council by contacting their student representative, and ensuring that issues of importance are heard at the highest level of the university. It is here, more than at any other level, that students can leave a legacy for their successors by improving upon what exists, and ensuring that what is important is not lost, eroded or distorted.

Chapter 3 Summary:

(i)   Each Australian university has governance in accordance with its Act of Establishment

(ii)   The Act of Establishment specifies that the university is run by a combination of an executive body (chancellery) and an elected body (council) – each of these has its own sub-levels and committees.

(iii)   Chancellery is composed of an executive/management group and a ceremonial/official group. The executive group runs all aspects of the university, including educational, research and corporate functions.

(iv)   The VC is responsible for strategy; the DVCs for tactics and the faculty deans for operational level management of the system

(v)   Most undergraduate students will interact with the system through their department or faculty.

(vi)   Undergraduate students have an important role to play in ensuring the integrity of the system by active participation in (or contribution to) the university council.

4

Understanding University Marketing

Read this chapter if you would like the following issues addressed:

- What basic marketing techniques do universities employ to win over students, their parents and careers advisors?

- How can students learn to separate the marketing rhetoric from reality?

The 19th Century American educator, Horace Mann, once observed that:

"Character is what God and the angels know of us; reputation is what men and women think of us..."

Universities, like many organisations that are operated by humans, tend to be built upon reputations. In universities, it is the reputation of both the organisation and the individuals within that are perceived to be paramount when it comes to selling the ideal of tertiary education to students and their parents, and even to the secondary school career advisors that influence them.

Understanding university marketing is an important step towards discerning character from reputation, in the context of selecting a university and, more importantly, in understanding how reputation influences the characteristics of those within the university. University marketing is therefore, in a nutshell, all about influencing what "*men and women think*".

Australian students are fortunate in having a reasonable standard of universities, across the board, and generally these organisations employ marketing approaches which are both ethical and fair. So, while the choice of university and course is often difficult, students can have some reassurance in the fact that Australian universities have a fundamental level of integrity in their promotional methods.

As with most other forms of marketing, however, universities endeavour to sell the "sizzle" rather than the "sausage" – in other words, to create a tantalising message that resonates with the inner

ambitions and values of individuals, in order to lead them towards an emotive decision, rather than to simply present data that enables those individuals to decide clinically upon a course of action based upon facts.

Those who have studied the vast array of promotional literature, produced by various universities around the world, rapidly discover that there are many words and phrases that appear over and over, regardless of the university. These include:

- Internationally renowned ("…a world leader…").

- Award winning.

- Prestigious.

- Excellence.

- Proud history.

- Superb facilities.

- Leadership.

- Collegiate atmosphere.

- Career oriented.

- Tradition.

- Exciting new learning models.

- Flexible learning.

In order to understand why such phrases are used, one needs to understand the perceived magnitude of the decision associated with the choice of a university. Many people, quite reasonably, assume that the choice of a university can have lifelong implications

for their careers and standing in the community.   In the case of prestigious universities, some alumni even consider their *alma mater* as part of their professional and personal identity (e.g., *"…I was a Yale man…"* or *"…I was a Cambridge man…"*).   So, in choosing a university, many people also feel that they are choosing a part of their future persona and therefore want something more intangible than just a degree.   University marketing departments are acutely aware of the significance of this issue and take it into account in their campaigns.   For this reason, they devote a significant proportion of their marketing to selling the sizzle of prestige, tradition, history, and so on.   This type of emotive marketing is targeted directly at the emotive heart and value set of secondary school students and their parents.   In the case of prestigious secondary schools, the marketing is also targeted directly at the positioning of those schools, by creating the link between "high-end" secondary education and "high-end" tertiary education.

One obvious question that should arise after reading a collection of such words and phrases is that, even if a university has all these attributes, what do they really mean for an individual student who studies there?   In practice, few people ever ask such a fundamentally important question after reading the sizzle words. Largely, this is because those words can be interpreted in any number of ways to support or reinforce a predetermined decision that is being acted upon – to make people feel good and confident about a particular university.

Some of the more sophisticated university marketing campaigns also recognise that, as with selling cars, it is important to provide reinforcement advertising to those who have already

purchased the product. The idea is that if those people are made content about their purchase then they will tell others to do the same because their taste, intelligence and decision making abilities have been confirmed by the reinforcement marketing. In university marketing, telling parents, who studied at a particular university 20 years earlier, that they had made the correct decision, because their university still has prestige and status, means that there is a higher likelihood that they will impose the same decision upon their children.

In reality, however, does it actually matter whether a university has "tradition" if its current practice is poor? Does it matter if a university is "internationally renowned" if the particular course that is being considered is known to be badly operated by local standards? Does it really matter if a university has "a proud history" if the present isn't very good? These are all questions that people need to ask after having ingested the promotional material. In this chapter, we will therefore seek to address the various forms of marketing that are in place and what sort of questions need to be asked in response. It is only by addressing these issues that students and their parents can select the most appropriate university, free from the hyperbolae and rhetoric that are designed to dilute the fundamental issues.

It also needs to be noted, at this point, that there is nothing intrinsically wrong with universities promoting their wares any more than any other organisations – after all, they have legitimate products and need to provide information about themselves in creative ways that attract the interest of potential customers. The downside to this, however, is that in zealously promoting the sizzle

rather than the sausage, there will inevitably be occasions on which students mistakenly buy into the sizzle, rather than delving into the substance. A resulting, ill-founded decision can then be difficult to remedy. So, the old adage of *caveat emptor* (buyer beware) applies as much to selecting universities as it does to buying toasters or microwave ovens – because the core marketing tactics that are in play are similar.

The most common example of universities selling the sizzle rather than the sausage appears in areas such as science, engineering and architecture, where potential students are bombarded with glamorous images of spacecraft, sky-scraper buildings; nuclear reactors, and so on. While these are genuine representations of the possibilities open to professionals in the field, the reality may be that the undergraduate course is primarily a mathematics and physics based course with a large element of analytical study required. The moral is to consider and dream of the sizzle by all means, but also seek to uncover the practical reality of what is actually offered in order to avoid making an inappropriate decision – in other words, accept the marketing for what it is.

As a starting point for examining the marketing of universities and courses, and keeping in mind the sorts of words (as listed above) that frequently appear in promotional materials, we can summarise the basic tools that are applied as follows:

- Confidence building tools (reinforcement) – reputation, history, prestige, excellence, international standing.

- Brand building tools – where the name of the organisation is promoted to the extent that it represents

something more than just a scholastic environment with opportunities for learning.

- Product suite tools – the collection and scope of courses and subjects on offer.

- Differentiation tools – new learning models, unusual courses and subjects, flexibility in courses, etc.

- Lifestyle tools – campus, location, sports facilities, surrounding attractions.

- Supporting structure tools – facilities, laboratories, computer support, services.

- Career tools – employability of graduates; the sizzle of the career itself (glamour fields and jobs).

- Industry link tools – relevance of the educational programs to university industrial partners.

- Research link tools – the connection between the university and cutting edge ideas and learning.

These tools are then applied in a range of different ways in order to get the message to the target audiences (secondary school students, parents and careers advisors). The basic vehicles for applying the marketing tools include:

(i)   Internet/university websites/popular culture websites.

(ii) Mass media – television/radio.

(iii) Mass media – newsprint.

(iv) Open days.

(v)   University printed promotional literature.

(vi)   University guides / handbooks / data.

Table 4.1 is a matrix that indicates the sort of marketing tools that are typically associated with the various types of marketing vehicles.

Vehicle ⇨ Tool ⇩	Internet	Radio/ Television	Newsprint	Open Days	University Brochures	University Guides/ Data
Confidence		■	■		■	
Brand	■	■	■		■	
Product Suite	■			■		■
Differentiation	■		■	■	■	■
Lifestyle	■			■	■	
Supporting Structure				■	■	
Career					■	■
Industry Links					■	■
Research Links	■			■	■	■

Table 4.1 – University Marketing Tools and Vehicles

Although by no means definitive, Table 4.1 provides an overview of the various vehicles used to apply the common marketing tools. Some key points to note are that the mass media outlets (newspaper, television and radio), having the broadest

audience, are generally reserved for "big picture" marketing, including the university's brand and confidence/reinforcement strategies. Self-evidently, promoting to the broadest audience is the most costly way of getting a message out, so the message needs to be simple and clear. The more specialised the audience, however, the more detailed the information – for example, university course guides and handbooks have the most specific audience and, subsequently, the highest level of information density. In these vehicles, there is generally less content related to the big picture issues of confidence and brand.

Needless to say, regardless of which marketing vehicle is being employed, or which tool is being used to promote a university, the information that is provided still needs to be viewed as promotional in nature – in other words, an interpretation of reality rather than a complete depiction of it – the unpleasant or unattractive parts of the "complete reality" are generally missing. The elements that are required to convert the interpretation of reality into the complete depiction are ones that need to be filled in by those selecting universities or courses. Hence, for the remainder of this chapter, we look at the various marketing vehicles that are in use, and what issues need further investigation by prospective students, before making a final selection of their university.

(i) Internet/University Websites/Popular Culture Websites

The marketing departments in universities, like those in many other commercial organisations, have recognised the potential benefits of using the Internet as a marketing tool.

The most obvious embodiment of this is in the form of the university website. This is a recognition that many people use the Internet as a primary source of information.   A quick search of Internet sites for universities around Australia, and indeed the world, highlights the fact that they are all relatively similar. Typically, the home page provides some confidence building or brand building images and slogans, coupled with some changing news items to keep people coming back to the site.

From the perspective of students, the university website generally provides the fastest and most convenient path to the most comprehensive information – in particular, serving to provide an overview of the university; the facilities; the reputation; the courses on offer (and the subjects that they contain).   Typically, in studying a particular university's website with the prospect of undertaking courses, a potential student should look at elements such as:

- The overall course offerings of the university – does the university appear to have strengths in the area that is being considered?

- The faculty/department that is offering the course – how many students are enrolled in the faculty?   How many academic staff are in the faculty or specific departments?

- The qualifications of the faculty/department staff – for example, if a department is offering (say) a Bachelor of Civil Engineering degree, then how

many of the academic, teaching or research staff actually have such a qualification? This is an important point because it is sometimes the case that departmental staff qualifications do not match up with what the staff are supposed to be teaching.

- Does the faculty have a reputation in the field? Does it undertake research in the area of interest? Does the faculty have links with various industries, hospitals or government departments relevant to the field?

- What specific subjects are included in the course/s under consideration? What do the subject syllabi look like? Do the syllabi match up to the marketing rhetoric? In other words, is the university selling the dream of designing spacecraft, or healing the sick, and delivering the reality of a collection of mathematics, physics, chemistry and biology subjects?

- What sort of projects do undergraduate students in the faculty undertake as part of their studies? On some university websites, undergraduate student projects are presented and give some indication of the nature of the work that goes on.

- What do the graduates say about the courses that they have taken? Sometimes websites feature testimonials from graduates who have studied a

particular course and then gone on to personal success.

In addition to their websites, universities have also recognised the power of free cyberspace applications that can be used to promote their wares – particularly popular culture websites that are in use by the audience demographic to which the universities would like to appeal. For example, modern video sharing websites are frequently used to provide marketing information about universities. Sometimes universities create "stage-managed" videos that are designed to show university or course life, as though the videos were created independently by the students themselves – some vigilance is therefore required to separate genuine student videos from subliminal advertising inserted by universities.

(ii)   *Mass Media – Television/Radio*

Mass media advertising seemingly has the simplest message being sold by a university. However, it is a message to which much marketing thought has been given and is potentially the least (genuinely) informative marketing employed by universities. Generally the message is confidence or brand building in nature – so, radio and television advertising focuses on the "dream". Sometimes the dream is little more than a slogan that is designed to evoke some emotion in potential students. Most Australian universities employ a slogan that has been developed in conjunction with their marketing departments and

consultants. The slogans all have the same form, typically two to four emotive words that appear to mean something more than they actually do or, perhaps, just to inspire – "Dare to Dream", "Passion and Knowledge", "The Future Today", etc. These either endeavour to sell vision, aspiration, history, prestige, tradition, or even the notion that the university is "state-of-the-art" in education. Perhaps the dream is some completely new learning paradigm with fancy sounding titles – "dynamic learning", "pro-active learning", "experiential learning", and so on. In other words, the allure of learning without the burden of hard work and study.

Sometimes, radio and television advertising goes even further and attempts to sell the dream of what happens after studying at the particular university – healing the sick and curing disease; solving world poverty; fixing the environment, etc. Essentially the dream is tailored to whatever big issues are perceived (by marketers) to be of importance to potential students at the time – for example, the environment; global warming, etc. Make no mistake, university marketers and their consultants spend significant sums of money on market research and focus groups to determine exactly which emotive buttons to push with students and their parents.

For this reason, students seeking to select a university and a course should avoid reading too much significance into the mass media message of a university, as it carries little more weight or relevance than that employed to sell commodity products in a supermarket. The primary role of the mass media message is reassurance and confidence *("…if you pick*

our university, then you're making   the right choice because…").
The best advice that can be given to students (and their
parents), who are evaluating potential universities,   is to
ignore the mass media messages altogether because they tend
to be highly manipulative and add nothing to the serious
issues of university and course selection.

Some mass media messages in regard to possible
university study areas don't actually emanate from the
universities themselves. These are the sorts of messages that
come through the mass media and which have a significant
impact upon those seeking to select various university courses.
In particular, these emanate from popular culture television
shows and movies – the two most obvious examples being
legal and medical dramas.   These tend to provide very
glamorised and exciting perspectives of various professions,
generally omitting the mundane and repetitive elements that
are the mainstay of those who actually work in real-world
versions of those jobs. For example, legal dramas focus on
large scale cases involving murders or corporate litigations
when, in reality, many legal professionals spend their lives on
repetitive issues such as disputes over neighbourhood fence
lines or payments over car repairs. Medical dramas focus on
exotic diseases where medicos use their skills to revive good-
looking young patients, when the bulk of real medical work is
in mundane complaints and degenerative disorders of older
patients that simply don't improve regardless of the treatment.

These fiction-based messages, being constant, consistent
and subliminal, have an impact on the sorts of courses and

careers that people choose. More importantly, because the professions chosen for mass media are ones which make a good base for fictional human drama, the bulk of other professions never get a screening – so there is the biased and superficial (fictional) representation of the professional world that needs to be taken into account. Students need to consider whether they are making a choice based on a glamorised image or reality. In the modern media, there are unlikely to be television shows or movies which showcase the talents of economists or biochemists or accountants or actuaries or mechanical engineers or linguists or statisticians, and so on. Yet these sorts of careers may, in reality, provide a more interesting life choice for some students than those that have been chosen for fictional media dramatisation.

The important lesson here is that those who are seeking careers in areas that are glamorised through fictional media should first consider consulting actual practitioners in the field – or perhaps even gaining work experience in the area while in secondary school. This sort of advice and experience is invaluable and could save students from making poor career choices, leaving them to find careers that are of genuine interest.

(iii) *Mass Media – Newsprint*

Originally a mainstay of university marketing, newsprint has diminished in relative importance because of

the advent of the Internet.   Nevertheless, it is still used by universities around the world for a number of reasons:

- Brand reinforcement

- Getting succinct messages to a mass audience in a short space of time (e.g., "*Open Day is on Sunday August 12th*")

- Direct selling of products – for example, a university may be offering places in a particular program/course.

- Lift-out magazines or newsletters that glamorise a university; course or research far more than is justified by the reality.

In general, it is unlikely that students will use newsprint marketing to make life-changing decisions about the courses that they will undertake so, apart from its direct selling value, the real impact here comes from the brand reinforcement message and the "sloganism" *("Dare to Dream…Ranked as one of the top 100 universities in the world…")*

(iv)   Open Days

One of the most significant elements in university marketing, and one which potential students should take most seriously, is the traditional university "open day". The nature of open days has changed as students have become more sophisticated, and as students come armed with their own preliminary information derived from the Internet and other

sources. Nevertheless, open days provide an opportunity for students to experience the campus; to view laboratories; to speak with academic and administrative staff; to look at research projects, and other major facilities in the university.

Originally, open days were operated essentially as fairs in which the doors of the universities were, as the event-name suggests, "opened" and outsiders could walk around. However, many of the university staff that are on hand during the current generation of open days are acutely aware of the fact that students are street-smart, and want answers to specific questions and concerns. This means that to get the best out of an open day, secondary students generally need to do some preparatory work – at the very least to identify a limited range of courses they may wish to focus upon in terms of acquiring more information.

For many secondary school students, the preparatory work for open days can be undertaken in Year 11, with the serious visits taking place in Year 12. In Year 11, students can get a general feel for the various university campuses and, perhaps, decide whether or not they would like to spend four to six years of their lives in them – students should have some degree of comfort and affinity for the campus as much as for the courses and university.

Another, not to be overlooked, feature of open days is that they physically present the challenge for students to actually get to a particular campus. The physical location of a campus; public transport; parking; residential accommodation, etc. are all significant, practical issues in the lives of university

students, and they do need to be considered. If, in the final analysis, a student elects to go to a university that requires two hours of daily travel, then this will have a significant impact on lifestyle, study and learning, compared to one that is within short walking distance.   The availability and the cost of parking, on and around a campus, is also a significant issue and can contribute to the cost of education. It also needs to be remembered that open days are generally held on weekends, so, in assessing practical issues such as traffic impact on travel time, and the availability of parking, one has to consider that the weekday situation may present far more challenges in terms of time limitations, etc.

At a higher level, open days have particular importance to those students who intend to take courses that require significant laboratory and technical infrastructure. Open days provide the opportunity to compare universities in terms of their equipment and laboratories.   From an undergraduate perspective, determining whether or not universities have adequate laboratories to genuinely operate the courses for which they are charging fees is quite difficult – how is one supposed to determine what is required when one doesn't know what is required?

As a starting point for the open day evaluation of infrastructure, students need to note that there are different types of laboratories that exist within universities.   Firstly, there are the research laboratories, which most students will never use as undergraduates. Research infrastructure in these laboratories can exist in the form of large machines or facilities

which are designed for use by a limited number of people (academic staff; research staff and postgraduate research students). Typically, an undergraduate student may only use these for specialist projects in the latter years of his/her degree program – sometimes, such equipment is used for demonstration purposes in undergraduate programs but not for experimental work.

The type of infrastructure that undergraduates will use most often is designed specifically for a large volume of students. In other words, laboratories are composed of many benches and contain many sets of the same equipment in order to allow numerous students to undertake experimental work at the same time.

In the context of students who wish to undertake a degree program in an area that requires development of "hands-on" experimental skills, the issue of laboratories and technical support is, arguably, of far greater importance than the brand or prestige of the university that is offering the program. Ironically, because undergraduate laboratories and their technical support staffing are also one of the highest cost components in the university system, it is here where universities attempt to cut costs, to the detriment of the students. Cost cutting is usually manifested in a number of forms, including the replacement of physical laboratories with computer simulation; minimisation of technical staffing; the replacement of professional apparatus with student experimental "kits", and so on. These are the warning signals that students should look out for during their open day visits.

During open days, many universities endeavour to reinforce the sizzle and only allow students to have access to the research laboratories, which contain glamorous, high-cost equipment. For this reason, students wishing to undertake undergraduate programs in areas such as science, medicine, engineering, etc., need to look past the sizzle and ask to view the substance. The following questions need to be asked by students wishing to undertake courses that require practical laboratory work:

- Excluding computer laboratories and simulation laboratories, how many actual laboratories does the university have that are specifically designed for undergraduate work in the course I would like to do?

- Do the undergraduate laboratories contain real-world equipment or only student experimental kits?

- How many hours per week in each year of the course are devoted to hands-on laboratory work?

- How many sets of equipment are available for each laboratory, and how many students are allocated to each set of equipment during laboratory sessions?

- How many laboratory technicians does the department/faculty have that are dedicated to supporting undergraduate programs?

- Can you please show us some typical undergraduate laboratories and provide us with written examples of some typical undergraduate laboratory experiments?

The answers to the above questions, when compiled and compared across the range of universities that are being considered, should have a significant impact on the final selection of a university. If the staff presenting at open days cannot answer these questions, students (and/or their parents) should contact their secondary school careers advisors and have them formally contact the relevant faculties and get these issues addressed.

The undergraduate development of hands-on skills and systematic experimentation techniques is critical to many university courses. The moral here is to use the open day experience to ensure that the university has a genuine commitment to the programs that are being offered, and that this is manifested in high quality laboratories.

Another open day benefit is that it offers the opportunity for potential students to talk with current undergraduate students to determine their feelings about the program. This provides a good "from the horses mouth" account of the actual nature of the study. Typical questions to ask current students may include:

- What sort of things were you looking for in the course before you came to this university, and has

the course subsequently lived up to your expectations?

• Do you have friends/colleagues at other universities in similar courses and, if so, do you know if their experiences are better or worse than yours?

• What are the things that you most like about the course and what aspects do you most dislike?

• If you had the opportunity to start over, would you still select this university and course or do you think you might make a different selection?

These sorts of questions will ultimately provide you with far more insight into the university and the course than the smoke and mirrors of brochures, television advertising and handbooks. Of course, one also needs to be aware that, by definition, the students who generally participate in open days (as volunteers) are those that are most favourably disposed to the university and the course. More valuable information/insight might be obtained from those that commenced the course and ultimately transferred to other universities or dropped out altogether. It may therefore be useful to ask students presenting at open day whether they have any colleagues who were dissatisfied and whether it would be possible to talk to them.

(v)   *University Printed Promotional Literature*

To the extent that a brochure for a car or a television set is a representation of the actual car or television set, so too, one can assume, the printed promotional material for a university is to some extent a representation of the university. Of course it is not the total representation but, rather, a collection of positive attributes that have to be scrutinised in the context of advertising.

Generally, printed promotional material about a university tends to focus on the "feel good" aspects of the university – prestige, longevity, stability, etc. Quite often, universities will expend large sums of money on the printed material so that it has a certain visual attribute; so that the paper has a feel of quality, and so on. This form of marketing is largely to sell the brand and the sizzle rather than the substance. From a prospective student's point of view, it is one of the least useful sources of information in regard to university selection – other than, perhaps, to provide a broad overview of the university.

(vi)   *University Guides and Data*

There are various guides available that compare and rank the attributes of Australian universities. These provide a very useful source of information, if for no other reason than because they tend to be independent of the universities. Most secondary students seeking to select university courses will invariably refer to university comparison guides as a starting

point in selecting a university.   Typically, guides provide information relating to student satisfaction; teaching quality; research quality; reputation, campus quality, and so on.   In ranking the various attributes of universities, such guides provide a hotel-style star ranking, typically between one and five.

The only downside to university guides is that, like all other forms of measurement, they tend to impact upon the quantities being measured.   All Australian universities are acutely aware of the impact that university guides have on the selection of courses and universities.   For this reason, universities try to focus their strategies on ensuring that they perform well on the measurement criteria that are employed. There is nothing wrong with this in the sense that if universities consciously decide to improve student satisfaction, for example, then they are achieving a positive outcome.   The only disadvantage of the process is that sometimes universities seek to only remedy the parameters that relate to the ranking, at the expense of a more genuine approach to improving, say, student satisfaction.

One potential pitfall of ranking schemes, which follows from this, is that they tend to encourage systems in universities that are favourable to student perceptions rather than to the long term interests of the students. For example, it may be that students prefer undertaking computer simulation laboratory type work rather than actual laboratory work using professional equipment.   A university that panders to students' short term preferences may perform better in a

university guide than one that recognises that students may not like laboratory work but need to do it anyway in the interests of their professional development.

Another pitfall example which arises from time to time in university comparison guides relates to class sizes. Some universities operate undergraduate lectures with 400-500 students, while others have smaller lectures of 100-200 students. In a university ranking guide, the students who are subjected to larger lecture group sizes may feel that they are receiving a poorer education than those who are in smaller classes. The reality, however, may be that the larger class sizes enable the university to provide better infrastructure in areas such as libraries, laboratories, computing, campus facilities, etc. It may also be that the university operating the larger class sizes provides more small-size tutorials to compensate for the larger classes. The moral is that it is not always evident to students, while they are undergraduates, what is in their best interests – sometimes this only becomes apparent years after they graduate. Another common example of this is where universities offer challenging subjects at a higher level, which require more effort and sometimes provide fewer rewards in terms of high marks. Again, in the short term, students may feel disadvantaged but, years after graduation, in retrospect, they may grow to appreciate the significance of a more challenging environment.

Nevertheless, even with the inherent disadvantages of a ranking system, a university comparison guide is an important starting point in understanding what is on offer and how

various universities compare overall. There is a significant amount of groundwork that is undertaken by those who prepare such guides, and this spares students and their parents the arduous task of finding the individual pieces of information and compiling them.

In addition to all these conventional marketing vehicles, many universities also have two additional elements that they proffer to attract students:

- Cocktail Courses.

- Fad Degrees.

Cocktail courses are those that include double degrees (e.g., Bachelor of Commerce and Law; Bachelor of Engineering and Computer Science) as well as combined Bachelors and Master's degrees. In Australia, these tend to be very popular with students because they create an impression of greater flexibility in the professional world. In reality, universities heavily promote such programs for the simple reason that they increase revenues by up to 20% with only marginal increases in costs. While the educational merits of cocktail programs are somewhat debateable, the potential career benefit for graduates is that if they can't get a job with Degree "A" then they may be able to get one with Degree "B" – alternatively, a graduate may find, after several years of study, that they are not interested in Profession "A" but would rather pursue Profession "B". The practical reality of cocktail degrees is that,

despite earning two qualifications, a graduate is often seen as a genuine professional in "A" and someone with only a basic grounding in "B".

On top of the limited educational value of cocktail degrees, one also has to consider that they cost graduates, at the very least, an additional year of professional earnings, over and above the cost of the degree itself. Even if a cocktail degree provided a starting salary bonus over a single degree, it could take more than a decade to recover the loss of the additional year's salary. Over and above this, one has to consider that a graduate with a cocktail degree is not comparing himself/herself in the workforce with single degree graduate (as university marketing suggests) but, rather, with a peer who has a single degree and a year of work experience. Such a peer may in practice be earning up to 30-40% more than a cocktail degree student in his/her first year of professional life.

Students considering cocktail degrees should study university marketing material and course guides very carefully. Most universities have realised that if they provide a four-year single degree, followed by a single year program to achieve the double degree, then many students will drop out after the first degree. For this reason, and to preserve course earnings, most cocktail degrees have been deliberately intermeshed so that one cannot graduate without having fulfilled the requirements of both degrees over a five year period. This generally means that there is little chance of going back to an original single degree program after a decision has been made to apply for a cocktail degree – hence the requirement for vigilance in selection, and reference to actual course guides rather than marketing material before making a decision.

"Fad" degrees are the other mechanism that universities have chosen to use to attract students over the past decade, as a marketing vehicle, and potential students should be very wary of such offerings. Ultimately, a basic degree needs to last a lifetime even though, in the modern world, graduates will inevitably choose to undertake further forms of study later in life. A good first degree, however, sets the groundwork for a professional mindset and a professional career, and should offer far more than just a collection of subjects in a particular field. It should build depth; it should provide a systematic approach to learning and development; it should broaden the mind, and so on.

In the past decade, however, universities have found that there are student markets to be tapped by tugging on the heartstrings, and constructing degrees that appear to address student concerns at any particular point in time – for example, "Bachelor of Science (Global Warming)" or "Bachelor of Science (Stem Cells)". By virtue of the fact that these are fads as far as the media is concerned, and regardless of their validity as areas of knowledge or study, many students believe that they will go on in perpetuity, and hence that there is a future in having such a specialisation. The universities are fully aware of this, and play upon the emotional attachment to current fads and leverage the media hype to attract students.

The problem with such fad degree programs is that they lack any level of fundamental pedagogical integrity - basically because they are invariably little more than a collection of semi-related subjects that have been abstracted from a range of other (usually) already existing courses. These subjects are then cobbled together to create something that appears sensible in the context of the fad.

They are flawed because they are founded on a desire to capture a commercial student market rather than address a long-term basic learning need or a real area of science, medicine, economics, etc. Worse still, from a student perspective, media fads (regardless of their importance) seldom last more than a few years – a decade at most – after which they are either forgotten or else given a new (more "media friendly") title. This means that, after a few years, graduates can be left with a largely worthless qualification in an area that nobody even remembers as having been important.

As a general rule, and regardless of the marketing hyperbolae surrounding fad degrees, students should, wherever possible, seek to acquire basic graduate qualifications that are generic in nature and well established. Moreover, if these are tied to a specific profession, the qualifications should be linked to historically proven and recognised fields – for example, "Bachelor of Science (Chemistry)" or "Bachelor of Engineering (Civil)". Generic and established qualifications will always have greater credibility in the workforce in the short term because the attributes of former graduates are well understood. They will also have greater longevity in terms of a lifelong career. If students do have a taste for fad areas, there is generally ample opportunity for greater specialisation in subsequent postgraduate programs – the undergraduate programs should be selected on depth, history and longevity.

Chapter 4 Summary:

(i)   *Universities tend to adopt ethical marketing approaches but these still need to be recognised for what they are – that is, one-sided representations of reality.*

(ii)   *University marketing materials should only be used as a starting point for university selection – in order to make a meaningful decision students need to do some of their own groundwork, and this includes asking (or seeking the answers to) a range of questions.*

(iii)   *Students endeavouring to undertake courses requiring significant laboratory infrastructure (science, engineering, medicine, etc.) need to be very vigilant in selecting universities and courses – undergraduate laboratories and technical staffing are where universities most try to cut corners at the expense of students. Students need to benchmark the facilities at various universities.*

(iv)   *If universities refuse to cooperate in providing additional information (e.g., on laboratories), then students/parents should seek to have secondary school careers teachers write to the universities and formally request responses to the relevant queries.*

(v)   *Students should try to separate marketing fiction from reality – the best way to do this is to understand the nature of the professional work that will ensue after a university degree; and to understand what sorts of expertise; infrastructure and support will be required during the degree program. If possible, start by talking to a range of professionals who are already in the field to get a range of views.*

(vi)   *Students should be very wary of cocktail degree programs that are marketed by universities – these need to be studied very carefully in terms of exit strategies in the event that students decide that they do not wish to complete the cocktail of degrees.*

(vii) *Students should avoid fad degree programs, regardless of the marketing hyperbolae that surround them – if possible choose the most generic and well established undergraduate programs available, and leave specialisation to postgraduate study.*

5

Selecting

a

University

Read this chapter if you would like the following issues addressed:

- What techniques should be used to select a university?

- How can students determine whether a university is genuinely committed to the courses that it offers?

- How important is it to select the correct university?

Abraham Lincoln once cautioned people to,

"*…bear in mind that your own resolution to succeed is more important than any one thing*".

This point is profoundly important to those who are about to select a university for undergraduate study in the sense that, ultimately, it is not the university that will determine success or failure in later life but the individual and their resolve, integrity, motives and passion for what they do. Graduating from the world's greatest university, without a passion or commitment to achieving something thereafter, is as likely a recipe for failure as is graduating from the world's worst university, with a passion for achievement, likely to be a recipe for success.

A university, even the world's best university, is really little more than a collection of buildings and real estate filled with a range of academics and students that come and go over time. There is no magical entity that is a "Harvard" or "Cambridge" other than in the mindset of those who work or study there at any instant in time. Einstein did not become important because he worked at the Princeton Institute but the Princeton Institute (an inanimate collection of buildings and real-estate), it could be argued, became important because Einstein was there, as were numerous other great scientists of the 20th Century.

Every student then needs to ask himself/herself whether they are selecting a university because they expect some magical dust of greatness to descend upon them, by virtue of having attended a particular university, or because they themselves intend to make the

university greater by virtue of their presence and subsequent life achievements. If it is the former, then it is almost certain that the choice of university will have little impact on success and, if it is the latter, then the university's impact will stem from the inspiration, encouragement and guidance that it provides. In other words, as Lincoln observed, the university is merely "one thing" and a resolve to contribute and succeed is another.

Having understood that a university is not, of itself, a key to success, there is merit in the argument that the collection of people who work and study in a particular university at a particular time can inspire an individual to achieve greater outcomes because of the synergies that exist between the individual and the collegiate environment. So, in simple terms, a person with the resolve to succeed in some chosen life path is likely to succeed despite the choice of university but, if carefully chosen, the university should help to inspire and to motivate.

With this fundamental understanding in mind, there are then three basic elements to selecting a university for undergraduate study. These are:

(i) Considering universities in the context of their relevance to the career and/or life path that students expect to ensue following graduation.

(ii) Considering universities in the context of their real commitment to the course which is being considered – including staffing; infrastructure (specific and general); undergraduate technical support, and links with relevant partners (industry; hospitals; legal entities, etc.)

(iii)   Considering the overall ranking and reputation of various universities.

Again, here it needs to be emphasised that we do not refer to universities simply in the context of buildings, real-estate, or even some historical documents that suggest that both of these have existed for centuries but, rather, universities in the context of the people who currently work and study within them.

The three elements in the selection process really need to be undertaken in sequence in order to provide a systematic analysis of what is on offer and what will best suit a student's requirements. Elements (i) and (ii) are critical to the selection process and (iii), while important, needs to be relegated to tertiary consideration in order to avoid a situation where students buy in to a crafted or coincidental illusion or legacy, rather than current reality.

Ironically, in Australia, it is generally Element (iii) that receives the greatest attention because there is a perception that the results achieved in the final year of secondary schooling are a voucher that is to be used to buy a course and university, and the greater the results, the more prestigious the course and the university that needs to be bought – otherwise, there is a view that a portion of the voucher generated by secondary school academic results has been wasted. This misconception is particularly common in the parents of secondary school students *("…what kind of degree program can my son get with these high marks he got?").* It also has an element of the stereotypical image of parents living vicariously through their children *("…my son got into the highest entry score degree program in the best university…").* The danger with allowing such decision making to progress to an illogical conclusion is that those who make ill-

informed decisions about degree programs can end up performing poorly during the program, and subsequently as professionals once they graduate, because they simply don't have the passion required to achieve success, despite having the requisite academic grades. It is dangerous to confuse academic results and illusions of university and course prestige with lifelong ambitions and passions.

Just as secondary school learning is not the end of the process of human challenge, neither is university learning an end in itself. It is merely the beginning of a new set of challenges. A few months after graduation, when a professional is in the workforce, memories of the university that has been left behind are usually distant, and it becomes apparent that any cachet value that was derived from the prestige of that institution has been largely expended in acquiring that first professional position. Thereafter, any thought that someone, in the modern business world, will provide that individual with lifelong career opportunities simply because they graduated from a Cambridge or Harvard type university, and despite their record of professional performance, is self delusional. So, the simplistic view of buying lifelong prestige with university choices is misguided and naïve. However, the choice of university does have some consequences in terms of the types of individuals that it creates, and we will look at this issue herein.

In terms of the university entry "voucher" that is created from secondary school results, it needs to be remembered that, for all the different methods of assessment that are employed, academic grades are still significantly a reflection of rote learning and memorisation skills rather than innate intellect – they are even less relevant to the emotional capacity or willingness of an individual to perform a

particular professional role. For example, someone with a perfect secondary school score in science subjects may be completely unsuited to a role as a surgeon because of an intrinsic distaste for anatomy and human dissection.

The potential disconnect between high scholastic results in secondary school and the particular emotional intelligence required for some professions can also be a serious issue – particularly in areas such as law, management, social work, medicine, psychology, veterinary science, etc.   A high intellectual quotient and an introverted personality type, or low emotional intelligence quotient, may be a recipe for disaster in professions which are based on elements of human interaction and an understanding of human nature as much as intellect.

It is therefore important, from the outset, for potential university students to try and consider their entire personality, and their interests, passions and dislikes, before simply considering how to use a scholastic voucher to select a university.   Scholastic achievement provides a tool for achieving other life objectives – but, however satisfying, it should not be considered as the end in itself. The critical point is that the university selection that takes place needs to be based on the entirety of the individual not just his or her scholastic capacity to "buy in" to a particular institution.

In addition to these issues, it is important for students to understand that university entry scores for various courses are not simply determined by the complexity or scholastic requirements of a course, but are largely a reflection of:

- Positioning and branding of the university.

- Demand/popularity and availability of particular courses or professions.

- Salary/prestige levels associated with particular professions.

These issues are often incorrectly confused with the intellectual merit or rigour of the courses themselves, but there are numerous examples to the contrary. One could argue that the intellectual rigour and challenge of a Bachelor of Science degree in physics or mathematics would be significantly greater than that of medicine or law but, in general, the latter two have higher entry scores for a range of historical and perceived social prestige reasons, as well as their established track record in the 20th Century of attracting higher starting salaries.

With these basic issues covered, it is now possible to look at the three elements to selecting a university, commencing with the most important – the relevance of the university to the student's intended career and/or life path.

This is the most fundamental issue that needs to be addressed. Unfortunately, it is also an issue which requires significant soul-searching on the part of the student, generally at a time when they do not have sufficient life experience to make such a judgement call. It also requires some understanding of the sorts of universities that exist in Australia and the sorts of individuals/professionals that they create. Essentially, Australian universities fall into a few broad categories, these being:

- Research intensive universities.

- Applied/industry-oriented universities.

- Life/Social Science-oriented universities.

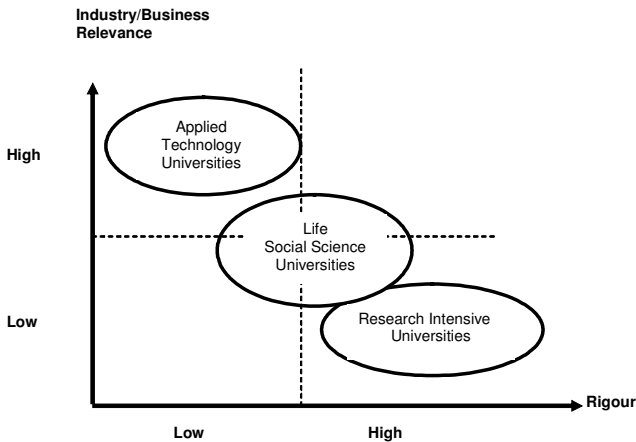These are shown mapped onto a quadrant diagram in Figure 5.1.

Figure 5.1 – Quadrant Diagram of University Types in Australia

Needless to say, the categorisations in Figure 5.1 are not hard and fast – they are just an indication of the sorts of emphases that exist within the system. There are some research intensive universities that perform well in terms of graduate employability, and there are some applied universities that perform well in rigour. And, again, it needs to be stressed that just because a student selects a university with a high degree of scholastic rigour it does not mean that they will ultimately perform well in a career on that basis – and neither may someone who chooses an applied university perform well in graduate employment. However, at their core, university cultures will inculcate particular mindsets in the individuals who

study within them, just because they have a propensity to hire academic staff with those sorts of mindsets. So, as previously noted, it isn't the buildings, real-estate and history that will intrinsically alter the course of a student's career but, rather, the mindsets of the students and the staff within the university.

It is also self evident that since universities don't label themselves according to the diagram in Figure 5.1, a student seeking a particular type of university has the task of identifying which universities have which particular traits. And, of course, there is a spectrum of traits that cross various boundaries. In general, however, there are a few defining attributes that broadly differentiate between universities:

- *Research intensive universities* which have scholastic rigour as an ethos generally have strong departments/faculties and research in the so-called traditional "hard sciences" (i.e., those sciences based upon maths and physics). As a general rule, because universities founded on scholastic rigour have a historical genesis, they also contain traditional high-profile areas such as medicine and law.

- *Applied, technologically-focused universities* tend to have strong departments and faculties in hard sciences but these are focused more on application rather than the science itself. The areas typically include engineering and applied science, as well as business and information technology.

• *The life/social science universities* tend to focus on a combination of the so-called "soft sciences" or "wet sciences" (chemistry, biology, etc.), social areas, arts and business. These tend to be associated with professions in areas such as biotechnology, nursing, teaching, social work, and so on.

In the state of Victoria, for example, The University of Melbourne would be illustrative of a research intensive university; RMIT University would be illustrative of an applied university, and Latrobe University would be illustrative of a life/social sciences university.

Students will spend between four to six years of their lives, and often more, at a university, so it is not surprising that some of the culture will be transferred to the student during their studies.

Students who study at a research intensive university are likely to be surrounded by academics and researchers who are focused upon pure research; have little interest in the specific, practical/business outcomes of that research but a strong interest in rigour and systematic investigation – these universities are driven by staff with a propensity for analysis rather than synthesis.

Students who study at applied universities will be exposed to staff who are used to problem-solving based upon industry requirements and timeframes, and with a commitment to the business drivers that govern research and development. These staff are driven by the desire for synthesis rather than analysis.

Students at life/social science universities will be exposed to staff who are driven by societal needs and the desire to build social

structures, rather than hard business principles or mathematically definable fields.

Whether by serendipity or a range of other complex factors, or just plain coincidence, those students who study at particular university types do tend to go on to particular roles in society. Those in research intensive universities, perhaps because of a focus on fundamentals and rigour in analysis, tend to go on to either research careers or senior, strategic leadership roles in industry. Those in applied universities tend to go on to more technocratic roles, and those in life/social science universities tend to go into roles in community, politics, media, etc.

There are, of course, other "underpinning" factors associated with various university types that also have the effect of channelling people into particular careers. Many of the older, research intensive universities have channelled people into senior, strategic roles simply by virtue of being the only universities available for study in the middle of the 20th Century – since few people in Australia in business in the 1950s and 1960s had tertiary qualifications, those who did (invariably from the (now) establishment universities) ultimately ended up at the top of the business ladder. It was also the case that many of those who did undertake university study in the middle of the 20th Century tended to do so because of parents who were already well established in business, law or medicine. Again, there was a dynastic element to the success, as much as any intrinsic quality of the universities themselves.

None of these dynastic elements are as strong in the modern world as they were in the middle of the 20th Century. In Australia, in particular, large scale immigration has changed the face of business,

medicine, politics, science and law.   The levels of education are higher across the board, so having a degree is no longer a ticket to success in any field.   Moreover, with the intensity of international business competition, there is less and less interest in the cachet value of degrees and universities, and far more interest in the ability of individuals to deliver tangible results.   This is one reason why students need to look well beyond historical factors in selecting a university for study.

Nevertheless, a student with a passion for a technocratic career, and with little or no interest in long-term strategic management positions, may be better served by a relationship with an applied technological university rather than a research intensive one.   Conversely, a student with a passing interest in science or technology but with a long-term goal of strategic management may be better placed in a research intensive university, even though they have no interest in research itself.

The sorts of staff and students that various universities attract can also have a direct impact upon an individual student.   For example, universities where academic staff are well placed in terms of research are far better equipped to provide opportunities for postgraduate scholarships and study, should a student wish to do this at the end of their undergraduate degree.   Academic staff with strong links to industry or political, medical or social work systems may also be far better placed to provide graduates with direct forays into the professional workforce than those in universities who have pure research staff.

The students themselves can also alter the form of learning within a particular institution.   For example, an institution which is

filled with high scholastic achievers may have the effect of driving an individual student to greater heights by virtue of the fierce competition – it may also have the reverse effect and cause an individual student to develop self doubts. In postgraduate courses, the student body can be very important, particularly if one is undertaking, say, a Master's degree in business administration – a good university will attract industry/business high achievers, and individual students will be able to form a network of potentially powerful allies that may be invaluable as contacts in later life.

In terms of long-term career goals, the same is also true of an undergraduate group of high achievers – many will go on to achieve high positions in business, industry, medicine, law, politics, etc. A student who believes that he/she wants to strive for high level positions in these sorts of fields has to understand that they will need allies to achieve such long term goals – these are not goals that can generally be achieved by an individual operating in isolation. Such allies can often be found by creating a network of friends at undergraduate level, who can help each other move up through the various professions.

It also needs to be remembered, however, in looking at the academic cohort to which one will attach oneself, that each will have his/her own motivations for their study. High scholastic achievers sometimes enjoy high scholastic achievement for the sake of high scholastic achievement, rather than because of a passion for a particular field itself. If this is the case, then a student with a lifelong passion for a field, rather than the scholastic achievement, may become disillusioned by his/her cohort.

All of these issues sound rather daunting but, in summary, come down to a few basic points. Specifically, when selecting a university in the context of life/career aspirations, students need to:

- Consider their complete "person", not just their scholastic achievement – does the university fit in with the entire individual and his/her aspirations?

- Distinguish clearly between scholastic achievement, university entry scores and life/career aspirations – they are not necessarily related.

- Recognise the different types of universities and learning environments that exist in relation to long term ambitions.

- Consider the student cohort that will exist at various universities – for this will have an impact on the individual during learning, and in later life as part of a long term collegiate network.

We now move on to the second element that needs to be considered in selecting a university and course of study – the actual commitment of the university to a particular field. This is something that was touched upon in Chapter 4 in the context of university marketing.   It is also something that potential students take for granted on the assumption that a university would never consider operating a particular course unless it had the staffing and physical resources that were required to do so. Sadly, this is not necessarily the case in Australia, and it is therefore a case of *caveat emptor* for all potential students, particularly for those seeking to study in areas of science and engineering, which are resource intensive.

University undergraduate courses require a number of elements to be present in order to provide a proper learning environment for students:

- Physical resources (buildings, laboratories, equipment, etc.).

- Academic resources (expertise in the particular field)

- Supporting resources (laboratory staff, tutors, demonstrators).

- Linkages (to industry, hospitals, law firms, professional bodies, etc.).

- Recognition/accreditation by professional bodies that enables an individual to practice a particular discipline.

Without these sorts of resources, students cannot necessarily get the sort of learning experience that one would expect at an international level.

In many areas of study (e.g., medicine, engineering, law, psychology, etc.), there are professional bodies and societies who have a role in ensuring that undergraduate courses are delivered to a minimum standard acceptable to those bodies. The starting point for students seeking to undertake courses related to a particular profession is therefore to always check the professional accreditation of the course they are seeking to undertake at a particular university. Does the course have national accreditation? Is the national accreditation transferable to international accreditation and, if so, in which countries? Without accreditation, it is possible that a degree

may be completely worthless, particularly in areas such as law or medicine.

Even if a course is accredited, it is important for students to understand what the accreditation actually means. For example, does an accredited degree in psychology actually allow a graduate to practise as a psychologist, or does it simply mean that the relevant body recognises it as a course? This is an important point because it goes to the core of how committed a particular university is to a course of study – does the university follow the area through to full practising accreditation?

The next point to keep in mind is that formal accreditation only signifies that a university/course has achieved a minimum standard. Many students will want to know how a university and course benchmark at a national or international level. At a national level, there are university guides which provide a hotel-style star ranking for all of Australia's universities and these cover a range of areas including teaching, student satisfaction, employability, etc. At an international level, there are numerous organisations that rank universities from all over the world. Some of the more famous ones include the Jiao Tong rankings of world universities and the Times Higher Education Supplement rankings. The latest rankings can readily be found and downloaded from the Internet.

Each international ranking system uses a different set of criteria, so it is important to understand which criteria are being used before actually examining the rankings themselves. For example, a ranking system may have, as one of its parameters, the number of Nobel Prize winners working at a particular university – if this is not of concern to a student, then he/she may choose to look at another

ranking system. As a general rule, universities that are highly ranked internationally because of particular disciplines will have a very strong commitment to staffing and/or infrastructure for those disciplines, especially in the context of research.

The most relevant issues for students, however, come down to how much commitment universities have to investing in staffing, infrastructure, support and linkages specifically aimed at the undergraduate programs. Sometimes, this commitment is visibly evident – some universities have extensive laboratories and some don't. Sometimes, students have to search for signs of commitment – for example, to determine how many technical staff are provided for support of undergraduate programs.

There are also intangible factors relating to commitment that need to be examined – for example, how many of the academic staff teaching in the program of interest actually have the same qualifications themselves? Do the majority of the staff teaching in, say, civil engineering actually have civil engineering degrees or do they have maths and physics degrees? This is a very important point because programs that are not staffed by professionals with basic qualifications in the same area do not have the same level of focus and strength as those programs that do.

Another aspect relating to university commitment in the context of staffing is to know how many of the academic staff are actually active members of the profession in which they are providing education – for example, how many lecturers in medicine are actually practicing medicine themselves? How closely linked are they to the profession, rather than just the course notes? These issues relate to the genuine commitment of a university to ensure that its

education is actually linked to the profession rather than just an abstract entity in its own right. In the final analysis, students can always learn the fundamentals on their own from text books but it is the professional insights, examples and anecdotes that complete the learning picture.

As a general rule-of-thumb, in considering the sorts of universities that provide the best overall proposition for students in Australia, the graph that was presented in Figure 2.1 is particularly important. The graph shows the relationship between university performance (in both education and research) and the size of a university, in terms of academic and research staff numbers. Although the performance figures in that graph were derived from one particular study, the trends are similar for a range of different performance criteria. Essentially, in publicly funded Australian universities, the larger the university, the better the overall performance. Moreover, the larger the university, the more stable the governance; the larger the resources available, and so on. In other words, as a rule-of-thumb, the larger the university, the greater the commitment to its constituent disciplines.

Clearly, universities cannot simply market themselves in terms of size, so modern university marketing dictates that institutions need to differentiate themselves in other ways. In the case of undergraduate learning, this is achieved through creating the illusion of a commitment to miraculous new learning techniques – "dynamic learning", "active learning", "adaptive learning", "multimodal learning", "distance learning" – the list goes on and on. Sometimes, universities claim that they have revolutionary new "learning models" of various kinds. While much of this is little more than

marketing gobbledy-gook, it does tend to make it more difficult for students to determine how much real commitment universities have to the core discipline which is being scrutinised for selection.

Students interests are perhaps best served by understanding that, regardless of the marketing gobbledy-gook, university undergraduate learning is fundamentally the transition from the taught environment of secondary schools to one of independent learning, guided by a framework which is gradually weakened in order to wean people away from teaching and move them towards genuine independence. This has not changed for centuries, despite the rhetoric, and despite the advent of computing, wireless communications, multimedia and so on. To this extent, it is important that students are not misled by the smoke and mirrors of seemingly meaningful words that do not fundamentally alter the genuine commitments of resources, linkages and recognition that are required to make good undergraduate education.

Most, if not all, universities will claim that they are fully committed to particular programs of study. The reality is that some are simply not. It is therefore left to the students to delve into the above issues and determine the real extent of a university's commitment before subscribing to a particular course. The simple rule is to always select a university based upon real commitment over and above any perceived prestige or status factors. Remember, the university is one element in the context of a lifelong set of goals – it is not the end in itself.

We now come to the final university selection element for consideration, and that is the ranking, status or standing of the university. As noted above, it is likely that a university that is highly

ranked at an international level, on one of the numerous indices, will have substance behind it, notwithstanding the fact that the rankings are designed to indicate strengths in specific areas (e.g., number of Nobel Prizes). It does need to be re-iterated, however, in the context of Figure 2.1, that performance in university rankings is generally related to university size (in terms of academic/research staff) rather than any intrinsic attribute of the university itself.

It has also been noted that a highly ranked university may have some cachet value in the context of a student moving from study to the first professional appointment – however, it is more likely that the cachet value is derived from the fact that highly ranked universities attract high achieving students who generally make for good graduate recruitment – rather than simply the fact that a university performs well on an international index. Nevertheless, the issue of examining universities from the perspective of how their cachet value translates into something potentially tangible is something that many students will embrace.

The various university ranking schemes should not be confused with the simplistic notion of prestige or status – these latter entities are largely dependent upon past history rather than current performance. Does it really matter to a current student whether Galileo himself studied and taught at a particular university if the current practice is poor? Again, the issue of prestige and status may translate into something tangible to the extent that they are responsible for attracting high achievers who go on to make history of the future.

And that leads us to conclude this chapter on the point raised at the beginning – universities are only meaningful in the context of

those who study and work there at a particular point in time. Although universities make much of the past, students should try to look beyond this and see how a university will address their future, through an alignment with individual life goals; through a genuine commitment to what is being offered, and through an environment which builds upon the aspirations of the individual concerned.

Chapter 5 Summary:

(i)   *There are three basic elements to selecting a university – these are:*

       (I)   *An alignment between the lifelong goals of the individual and the type of institution.*

       (II)   *The commitment of the institution to the particular program of study.*

       (III)   *The ranking or standing of the institution.*

(ii)   *It is important to consider scholastic achievement in the context of the complete individual, and ensure that a selected university fits comfortably with the complete individual – not just the scholastic record.*

(iii)   *Students need to determine how much commitment universities have to particular programs of study before selecting a university. This commitment is manifested in resources (academic, support and infrastructure) as well as linkages with industry and other bodies, and recognition (accreditation).*

(iv)   *There are numerous university ranking schemes. In order to use these, students need to be aware of the parameters that are used to determine rankings*

(v)   *Status and prestige are generally the result of historical track records. Students should ensure that any historical track records will translate into future university performance and relevance before making a final decision.*

6

Life
As an
Undergraduate

Read this chapter if you would like the following issues addressed:

- What sorts of issues do students need to deal with as undergraduates?

- What mechanisms are available for dealing with various issues that arise?

Universities are significantly and fundamentally different places to secondary schools because they are places of learning, rather than places where students go to be taught. In a university, it is not only the students that are there to learn, but also the researchers and academic staff. This creates an environment which not only has a different culture, layout and scale, but different human dynamics. If one had to define the best outcome of university learning then this would surely not be a simple set of scholastic achievements but, more importantly, the development of the self awareness necessary for individuals to recognise their own capabilities, potential and limitations.

Helen Keller once observed that,

"…the best educated human being is the one who understands most about the life in which he is placed."

In other words, one who has the maturity to understand his environment and limitations as well as potential. Unfortunately, not all university graduates develop this sense of maturity, with many having chosen to simply rote learn their way through the university system without developing the self awareness that is necessary for either professional success or internal peace of mind. In a nutshell, the entire undergraduate learning environment should therefore have a different feel to that of the secondary school because it is ultimately about self learning and the development of self awareness.

Most students cope well with the changing (and less structured) environment, and generally welcome it as a more

pleasant way of learning. Occasionally, however, students have difficulty making the transition from a taught environment to one where learning is more independent. In the early stages of university life, students can also have difficulties with the larger scale of the environment, compared with that in secondary school education. In this chapter we examine some of the basic challenges of life as an undergraduate in the Australian university system, and what sort of remedies are available to tackle them.

There are a few basic issues that we need to examine in order to provide some insight into what students should expect when they study at university, namely:

- Campus.

- Learning environment.

- Lecture theatres and lectures.

- Tutorial facilities and tutorials.

- Laboratory facilities and laboratory work.

- Industry based learning/projects/work experience.

- Support facilities/services.

- Amenities.

- Social activities.

The most obvious physical change that takes place in life as an undergraduate is the scale of a university campus compared to that of a secondary school. Not only is a university campus significantly larger but it is also, as a corollary, generally further away from students' homes because there are fewer universities in a given state

than there are secondary schools. Getting to a campus therefore becomes one of the first challenges in university life – getting around a campus becomes the second, particularly in larger universities.

In a secondary school, getting from one class to another may involve as little as moving a few metres – or sometimes not at all, when the new class comes to the student. In a university, it is relatively common to need to move from one building to another and, sometimes, from one campus to another, in order to go between lectures, tutorials and laboratories. In disciplines such as medicine, it may also be necessary to move between the university campus and a hospital based campus. After the initial confusion and novelty wear off, the tramping from lecture to lecture can become somewhat tiresome and annoying.

Most universities are logically laid out, with functionally similar buildings collocated in similar geographic locations. Unfortunately, however, the intrinsic difficulties with the size of a campus generally manifest themselves in the first year of undergraduate programs, because these are invariably composed of a broad range of introductory subjects – introduction to physics; introduction to chemistry; introduction to engineering, and so on. So, it is interesting to note that first year undergraduates generally need to walk more than most other university students and staff in order to arrive at their classes. This tends to exaggerate one of the fundamental, physical differences between secondary and tertiary education.

While simple geography and layout should be a trivial issue, it is interesting to note that many students cite this as a reason for transferring from one university to another (generally from larger to

smaller universities) in their early years, because size heightens a sense of alienation of the student from the environment. It adds to the sense that students don't belong to "a university" but, rather, move between a collection of fiefdoms, each of which has its own peculiar set of rules and regulations – the physics lectures and laboratories have one set of staff and rules; the chemistry lectures and laboratories have another, and so on.

Needless to say, it isn't just the scale of geography that can intimidate in the early days of university study but also the scale of the classes or lectures. Students move from a secondary school environment with classes in the order of 30 students, where the teachers know each student as an individual, to lectures with 400 students or more, where lecturers have little or no direct contact with students, and know them only as a student number when assessing examinations.

Compounding the alienation from the environment is the fact that first year undergraduates are invariably exposed to a broader program of learning, and hence a much broader variety of educational styles than they may have encountered in the latter years of secondary eduction. In large universities, the chemistry lecturers don't know the physics lecturers who don't know the maths lecturers, and so on. Unlike the secondary school environment, lecturers from different fields would rarely see one another. For this reason, the maths lecturers have one style of education; the business lecturers another, and each has a completely different set of expectations. It is often difficult to come to terms with all of these, because each style brings with it a different set of requirements and obligations on the part of the student – what is considered good for

one lecturer is considered bad for another.   All these elements combine with the sheer scale of a large university campus to overwhelm and intimidate the newcomer.

Perhaps the most straightforward way of dealing with this is to understand that all university students have to deal with this very same problem and, moreover, it is not a modern phenomenon but one that has been an intrinsic challenge in university learning for a long time.   There also needs to be some acceptance that one is not necessarily going to triumph in every subject in the first year of study, simply because there are too many differing requirements to provide a simple formula for success – there are too many formulae and there is limited time to master them all.

In terms of learning, one of the things that students notice when they commence university study is that the university learning environment is more competitive than that at secondary school – fundamentally because those who move into university study tend to be the more highly ranked secondary school students.   The end result, which can add to the sense of intimidation, is that students arrive to find that they are not the smartest kid on the block, as they were in secondary school, and, in fact, there are seemingly many other intelligent, or more intelligent, students with which to compete. The first year of university study also tends to be one in which students compare their secondary school results in a quest for one-upmanship.   As all students are trying to determine their place in the new environment it is not surprising that this leads some to pushing themselves harder in order to outshine their colleagues, or perhaps even leave them behind.   Students who believe in teamwork or collegiality find this a very difficult phenomenon to deal with, and it

can be demoralising. It is, however, a phenomenon that subsides after the first year of study, and students generally find their own clusters of colleagues with whom they are comfortable.

Many students therefore sum up their first year of university life as moving from exciting and novel to intimidating, tiring and exasperating and, for the most part, it certainly is. However, one needs to remember that, beyond the intimidation; beyond the tiring walks from one lecture to another; and beyond the exasperation of differing (sometimes conflicting) requirements from different lecturers, something quite extraordinary is actually occurring. The university is throwing an entire series of life challenges at first year students – it is broadening their geographic horizons; challenging them to broaden their thinking; daring them to compete even harder than they did in secondary school education. Most of this may well have occurred unintentionally – it is unlikely that the university fathers decided to design universities to be this way, but there they are – and there is merit to the accidental learning potion that has been created. The environment is throwing out a challenge to students to grow – not just to tackle simple, one dimensional problems set in a closely controlled classroom but, rather, to cope with transport; with parking; with conflicting and unreasonable objectives; with unreasonable competition and competitors, and so on. And in the midst of this turmoil and challenge is the need to learn formally as well.

It is all too easy, and all too common, for students to simply attempt to succeed in a scholastic way in their first year of university study – that is, maximise their academic results for the year. It may indeed be possible to achieve such an outcome, but if this outcome

has to be achieved at the expense of human growth and development then perhaps one needs to assess what it is that one is attempting to achieve from tertiary education – is it a simple set of scholastic numbers that will be forgotten a few days after graduation, or a lifelong approach to learning and tackling challenges in a professional manner? For that is the opportunity that the chaos of the university environment and the first year of university study provides.

There are many students who tackle the chaos and challenges of their first year of study by becoming workaholics, assiduously rote learning everything and achieving high results.   Then there are others who sit back and observe the environment and ask the profound question of "what am I trying to achieve here?". It is those students that can develop a more mature approach to learning and life – they want to genuinely understand rather than simply memorise; they are prepared to accept lower grades with the wisdom that grades, although important, are not the end in themselves.

Although it is (unfortunately) generally treated as such, the collection of high academic grades is not intended to be a competition, where the person with the highest numbers wins. The end point is the learning; the understanding; the development of self-awareness; the recognition of strengths and weaknesses.   Beyond that, students need to develop an understanding that they cannot succeed, in a broad sense, in either university study or later life, by existing and working in isolation – as John Donne profoundly observed:

"…No man is an island, entire of itself, every man is a piece of the continent, a part of the main, if a clod be washed away then Europe is the less…"

In other words, neither university study nor life are complete when undertaken in isolation. While it is possible to achieve high scholastic results as an individual, it is difficult to achieve human growth and development as an isolated individual – these latter attributes will have a greater impact on success in later life than will rote learned scholastic materials.

University study therefore provides a vehicle for students to form their own teams; to understand that such teams need to be formed from people with differing views, strengths and weaknesses, and to learn how to not only respect differences between team members but to embrace them for the extra value that they bring to the team. In other words, the gauntlet thrown down, in the challenges of the first year of university study, offers students the opportunity to create teams to tackle them, and to try and make the teams greater than just the sum of the parts. So, whether the challenges are as basic as getting to the university campus; or as complex as dealing with conflicting objectives laid down by different lecturers, a team approach can offer support and solutions, and keep morale from dropping when times are difficult.

Teams can also assist students in planning and moderating their workloads, or prevent students from slacking off at inappropriate times. In the first year of study, some students will inevitably slack off after the success of their ultimate year of secondary school study – this can lead to disastrous consequences.

Equally dire is the situation where students simply need to work too hard to achieve scholastic outcomes.

The person who achieves a string of first class honours for their subjects through an unduly harsh study workload is perhaps less likely to be successful in later life than one that is pragmatic enough to determine what is a reasonable workload to achieve a good understanding and reasonable outcomes – ultimately, the latter shows a greater self awareness of his/her capacity. Students who develop a team based approach to learning are far better placed to determine whether they are studying too little or too much than those who work in isolation – because team members have the luxury of relative scales.

Some people can naturally achieve outstanding scholastic results with limited work – those that can't need to develop a higher level of self awareness and understanding, and determine what their goals should be. Pushing oneself, and working hard to achieve one's goals, are fundamentally good attributes. In so doing, however, one also needs to consider whether one is attempting to achieve one's own goals or those of someone else.   At university level, it is necessary to consider the possibility that taking on an unsustainably large workload to achieve scholastic goals set by parents, for example, is not a sign of growing maturity – it is a sign of avoiding the responsibility of becoming an adult in one's own right. Neither is it physically likely nor feasible that someone who needs to work 100 hours per week in their study to achieve first class honours will ever magically become as smart or successful as someone who can achieve a first class honours with only 40 hours per week of study.

So, all first year students must ask themselves what exactly it is that they are trying to achieve.

The university learning environment is complex and students need to understand that it is generally beyond the reach of their parents to provide the necessary guidance and advice. So too, given the maturity of the students, as adults, does it become unreasonable for parents to place undue expectations on their children. The first year of university study is where the learning environment dictates that the students have to determine and set their own expectations. It is a year in which the students tend to outgrow the educational support structure that their parents can provide.

The first encounter that students have with the university learning environment is its physical hub – the lecture theatre and the lecture. Although slate and chalk have been replaced with data projectors and notebook computers, little else appears to have changed in lecture theatres for centuries. The first few lectures that students encounter at university can therefore be rather interesting experiences for two reasons:

(i)   Some lecturers conduct themselves in the exact same way as secondary school teachers – providing detailed curricula; writing notes and equations for students to copy down and memorise.

(ii)   Some lecturers have a more mature approach and simply walk in and start talking about a subject, with the expectation that students will go away and do their own research, find their own books and learn from those.

Needless to say, the majority of students arriving from secondary school study prefer approach (i) because it is structured and requires minimal transition from secondary school study (teaching) to independent learning. Many lecturers (perhaps even a majority) also prefer approach (i) because it requires the least understanding of the subject matter on their part, and enables them to cut and paste notes from books and the Internet to create subjects. Approach (ii) can really only work when lecturers have an enormous grasp of the material that they are lecturing in, and when they have maturity and confidence in their own abilities – it also requires that students have more maturity in their own learning approach.

Many first year students naively believe that all lecturers intimately understand the subjects that they are teaching. While this is often the case, it is also quite common in the modern university world for lecturers to have a very poor understanding of the subjects in which they lecture. Fundamentally, this is because universities tend to employ academic staff based upon their ability to perform research in particular areas, rather than upon their ability to actually lecture. The end result is that academics are often assigned to fill blanks in lecturing schedules, whether or not they have any detailed understanding of the subject matter. This is fundamentally different to what should happen in a well run secondary school. To this end, students need to understand that they are ultimately there to learn despite many of the lecturers, rather than because of them. That is the price one pays for becoming an adult – a realisation that the world is not always a well designed place.

In order to compensate for the inadequacies of the lecture environment, particularly when lectures can be conducted with 400

to 500 students, and without opportunities for asking questions, universities generally establish supporting tutorials. The nature of tutorials varies not only from university to university but also from subject to subject. There is no universal model that is applied for tutorials except to the extent that they are intended to support students in their learning process and in cognisance of the inadequacies of large scale lectures.

There are two characteristics that students should note about tutorials. The first is that they provide an opportunity for a more intimate learning environment, with smaller purpose-designed rooms which have only 20 to 50 students present, and the opportunity for students to ask questions or clarify material raised in lectures. The second characteristic of tutorials is that they are generally not operated by lecturers but, rather, by tutors who are either people whose full time job it is to provide support, or else part time tutors who are primarily postgraduate research students or postdoctoral researchers.

The use of postgraduate research students and postdoctoral researchers as tutors has both advantages and disadvantages. Many lecturers repeat the same lectures over and over, for year after year, and so tend to lose empathy with students who are encountering the material for the first time. Because the lecturers become increasingly familiar with the material, they tend to assume that new students will also be increasingly familiar with the material when in fact this is not the case. Postgraduate students and postdoctoral researchers, on the other hand, are people who have had to battle with learning the same material only a few years earlier and therefore have significantly more empathy with the difficulties of the students, and

also the common misconceptions that students may have. Postgraduate research students and postdoctoral researchers ultimately only take a particular subject tutorial for two or three years, and therefore do not exhibit the same over-familiarity with the material that is common to some lecturers.

The disadvantage of having postgraduate students and postdoctoral researchers as tutors is that they may simply view their tutorial work as a part-time background activity used to generate additional income while undertaking research. If this is the case (and it often is) then it will become apparent to the undergraduate students that there is insufficient effort put into the tutorials by the tutors.

Some universities employ full-time tutors whose entire role it is to find ways and means of easing the learning process of undergraduate students. If these tutors perform their job well then undergraduate students can get significant benefit from the tutorial process.

In general, tutors tend to be much closer in age to the undergraduate students than the lecturers. For this reason, there are opportunities for bonding between students and tutors, particularly in cases where students have not yet been able to form their own study groups or bond with their peers. In universities this has provided a natural mentoring (or big brother / big sister) approach to learning that helps students to better integrate into the university environment.

Another integral part of the learning process that supplements the lectures is laboratory work. This is obviously more directly

relevant to students in areas such as engineering, science, medicine, architecture, and so on, but can also exist in various forms in the arts, law, etc. Students tend to distinguish between laboratories and lectures as two separate (and disconnected) entities – largely this occurs because laboratories tend to be run by different staff; have their own separate marking schemes, and sometimes (for logistic reasons) are not in time phase with relevant background material covered in lectures. In fact, in order to maximise the learning associated with lectures, laboratory sessions need to be considered as important supportive elements of the learning process – in some cases they are actually far more important than the lectures themselves.

A common misconception that students have about laboratories is that they are provided purely so that students can have some practical observation of phenomena described in lectures – this is an important part of the laboratory process but it is not the only part. Fundamentally, the purpose of laboratories is for students to learn to decipher fact from fiction; theory from practice and, ultimately, to learn to tell the truth. Telling the truth in areas such as science, engineering and medicine is far more difficult than it sounds. People naturally want simplistic alignments between theory and practice but the problem with this is that theories tend to be a very simplified version of reality.

Sadly, many students miss the opportunity accorded by laboratory work to develop the discipline of telling the truth – rather, they zealously endeavour to fudge experimental results so that they can get simplistic agreements between theory and practice and, hopefully, good grades. In so doing, such students miss an

important opportunity for personal growth and maturity – they fail to understand that part of becoming an adult and a professional is to differentiate between fact and fiction and to understand the limitations of one's own work.

In the early years of laboratory work, those that design laboratory sessions have done much of the hard work for the students, and have designed experiments that have factored out many of the dimensions of an experiment that might complicate relationships. So, in the early years of university laboratory work it is common to get a good correlation between theory and practice. The objective of early year laboratory work is then for students to learn to understand the limitations of their experiments – inaccuracies in instruments; noise; inadequacies of experimental apparatus, and so on. Sometimes the objective of the laboratory work can be as basic as getting students to understand which instruments can be used for particular applications and which can't.

As students move upward through their university degree program, a well designed laboratory program will seek to remove the rigid frameworks from experiments that lead to simple relationships between theory and practice. So, as students become more adept at conducting experiments, the experiments become much more difficult to perform because the "training wheels" have been removed. Experiments have multiple dimensions to them and students need to learn how to provide their own constraints in order to make meaningful practical measurements and see how they relate to theory.

In the final year or years of undergraduate study, a well designed laboratory structure will ultimately leave students to their

own devices – that is, force them to design their own experiments; determine what sort of instruments to use; impose their own constraints, and then to see how well theory and practice match – if at all. A final year university undergraduate who has genuinely matured as a result of their laboratory work should be unconcerned when theory and practice don't match – except to the extent that they have been presented with the challenge of determining why they don't match. A student who has not matured as a result of the laboratory process will invariably attempt to fudge results to ensure that correlations occur, even when the lack of correlation is the genuine outcome of the experimentation process. Again, it comes down to students learning to tell the truth, rather than delivering falsified results that might pull the wool over the eyes of a supervisor or laboratory demonstrator.

Students need to learn to embrace laboratory work rather than treat it as an onerous burden or ordeal to be passed through as expediently as possible. Laboratory work is one of the fundamental growth and maturation tools that universities employ to help transform students into adults and professionals.

Another form of laboratory work is industry based learning or industry placement as an undergraduate. In some universities and courses this is a formal requirement of the undergraduate program, and is associated with marks that contribute to the final degree. In other cases it is treated as an informal component of the learning process where a student is left to his/her own devices.

Like laboratory work, industry based learning is a tool for helping students to mature and to grow – not necessarily just in their chosen professional field, but as human beings. Industry work

provides opportunities for students to work with practicing professionals; to mix in environments that are composed of people outside one's own profession – for example, administrators, accountants, and so on. It provides an overview of the practical realities of a profession and shows that, regardless of what is learnt at university, in a practical professional role, people have to be broader than the narrowband learning of university suggests.

Working in an industry (be it a hospital, legal firm, factory, software house, or whatever) brings with it a number of challenges and dangers for students. Appendix A of this book provides a detailed account of the various issues that students will encounter in industry, and the mechanisms that are available for students to tackle them and ensure their own physical and emotional wellbeing.

Undergraduate students can be placed into industry for a range of different reasons besides mere work experience. In some cases, final year projects or postgraduate research projects are undertaken on an industry premises by a student, simply because the university does not have particular facilities or support structures. Such projects provide significant opportunities for students as well as challenges, and students should familiarise themselves with these before undertaking such projects (see Appendix A).

Many undergraduate students in the modern university environment are also part-time employees in industry simply through a requirement to earn funds to support themselves through their study. With jobs as varied as stacking supermarket shelves through to working as trainee engineers in automotive companies, it is difficult to pre-empt the sort of challenges that students will face, or the burden such work will place on their study. Suffice to say that

universities design full-time courses to be full-time courses, and that this means a commitment of not less than 40-60 hours per week during semester to achieve reasonable results. This is not an ambit figure nor a wish-list item from academics but, rather the reality of a modern undergraduate program. With this in mind, students need to determine what outside work is feasible in the remaining time constraints that they have. The alternative to constraining outside work commitments is to seek to undertake the learning program on a part time basis rather than a full time basis. The penalties for this are significant – delays in achieving professional status and professional income; distractions from the core objective of learning, and so on.

The difficulties that modern students face, exacerbated by an increasingly complex and competitive environment; work pressures and so on, cannot be tackled by individuals in isolation. For this reason, universities provide a range of support structures to assist students if they get into difficulties or get into a rut. Albert Einstein once defined insanity as the process of *"…doing the same thing over and over again and expecting a different result"*. When students get to the stage where they are experiencing hardship, they would do well to keep in mind Einstein's observation, and recognise that just continuing with the same pattern is not going to lead to a solution. It is at this point that students should consider making use of the various university support services.

The most basic support service that a university provides is the student body itself – in many cases the best form of support that a student will ever get will be from his/her peers and colleagues rather than any other formal source. However, when this is insufficient, it is important for students to recognise that getting out

of a repetitive behaviour or problem pattern may only be resolved by more formal supporting mechanisms. To begin with, these can be as basic as tutors or laboratory demonstrators who can provide mentoring or coaching. Universities also have in place a range of different mechanisms to deal with unfair treatment in terms of study, particularly pertaining to areas such as discrimination, harassment, and so on. In addition, there are mechanisms in place to deal with the academic fairness of the assessments that are provided or of the workloads associated with individual subjects.   Normally universities have these procedures and mechanisms very well documented, and generally on-line so that they are readily accessible (typically under headings such as "procedures for assessments and appeals"). Students should be confident in using these mechanisms to ensure that they are given every opportunity to perform to the best of their abilities.

Typically, mechanisms relating to academic issues can be addressed to the subject convenor in the first instance; the undergraduate course coordinator in the second instance (e.g., first year coordinator; second year coordinator, etc.); the departmental head in the third instance, and the faculty deputy dean or dean in the fourth instance – if all these fail, then the issue can be brought to the attention of a deputy vice chancellor (academic) or to the vice chancellor.

A common complaint relates to the quality of lecturing by individual academics. If students are genuinely concerned about this then they should approach the departmental head or faculty dean to discuss the matter. Needless to say, it is probably of little merit as an argument if one student is dissatisfied with a lecturer and all other

students are content, so complaints about the quality of lecturers or the difficulty of subjects should generally only brought up after consultation with student peers – if there is a general consensus that a subject is too difficult; the lecturing quality poor, or the assessments unduly harsh or unfair, then there is merit in discussing the matter with senior staff – as a group of concerned students.

Most universities operate subject surveys to determine student perceptions of various subjects – however, these generally only take place when it is too late – after the subject has been completed. If there are genuine concerns about a subject then students should take action as early as possible.

As student problems become more complex or personal (and outside the scope of the study itself), there are a range of counselling; chaplaincy and psychological support structures that are routinely available within the university system. Students should make use of these before problems get out of hand. In many instances a university counsellor may be able to suggest other remedies available within the university system, and may be able to approach others on a student's behalf. Students should be aware that they are paying for these services in their fees and that they are there to be used, so there is no need for shyness in approaching staff.

Student support services are only one part of the total set of amenities and social activities that are available to undergraduates when they enter university. The objective of all of these is to broaden the horizons of students and to give them something more than just a scholastic experience. Most universities provide a range of amenities that facilitate sports and recreation, social and political groups, and so on. These provide an excellent opportunity for students to mix

with others outside their own narrowband undergraduate studies, and to acquire a greater understanding of differing opinions and study perspectives.

Some of the groupings that are formed within universities also provide students with the opportunity to change the nature of the university itself so that future students can benefit – this can occur through lobbying of the university council and chancellery, or through various political affiliations. Although many of the university groupings tend to foster political views which can be rather extreme relative to mainstream society, there is significant merit in students forming their own new groups which have an agenda of improving issues which may be more relevant to their own studies and life at the university. In general, universities provide small amounts of money to facilitate the establishment of new groups. Students who actively initiate, and participate in, such groups can achieve far more than just changing the university for the better. They can also develop public speaking and debating skills; writing skills, and lobbying skills that have enormous applications in later life.

As with all extra-curricula activities, students need to ensure that they find a balance between these and their core scholastic activities so that the extra-curricula activities support and enhance the overall learning experience rather than detract from it.

Chapter 6 Summary:

(i)   *The university learning experience is broader than just the scholastic program which is being undertaken – it should involve the growth, maturation and development of the individual.*

(ii)   *The intentional or unintentional consequences of university life – both physical and environmental – act to facilitate growth by presenting individuals with a far greater range of challenges than they encounter in secondary school.*

(iii)   *A key way of dealing with the challenges thrown up by university life is to learn to form and work in groups or teams, and to develop the maturity to embrace and use the different attributes of team members.*

(iv)   *The development of self-awareness, and an understanding of individual strengths, weaknesses, potentials and limitations is one of the most important attributes of university learning.*

(v)   *Universities have a range of support and extra-curricula facilities and services to assist individuals and to create an environment for personal development. These should be utilised and considered as part of the overall learning process.*

7

Undergraduate Learning

Read this chapter if you would like the following issues addressed:

- What is expected from undergraduates in terms of learning?

- What approaches need to be taken in terms of study, particularly in terms of changes from secondary school patterns?

- How can you plan and manage your study time at university?

Albert Einstein once said,

"*I never teach my pupils, I only attempt to provide the conditions in which they can learn*".

To a large extent, this is the fundamental role of universities in the learning process – that is, to provide the conditions in which students can learn. It is not a university's role to teach students, and neither is it of benefit to students of university age to be taught. In a university, the assumption is made that students have reached a level of maturity where they can learn for themselves, albeit with a framework and guidance laid out by academic staff, and within a conducive learning environment. The role of the academics, therefore, is to provide that framework and guidance, and then to allow the students to learn for themselves.

One of the great ironies of being a university student, particularly at undergraduate level, is that one discovers that the good lecturers and educators in a university are generally outnumbered by the mediocre ones – good educators are a rarity at any level of education, but particularly so in universities. This tends to stem from a number of intrinsic characteristics of universities:

- Firstly, universities are places of learning, and staff are generally recruited primarily on their ability "to learn" – that is, to undertake research.

- Secondly, academic staff tend to have their professional performance criteria (and promotions) focused upon research, and tend to relegate undergraduate learning to

a background activity, instead of the foreground activity which it should be.

- Thirdly, and rather extraordinarily, in terms of allocating lecturers to subjects, universities often don't look for the best or most appropriate person for the task – rather, they tend to fill lecturing slots with available staff – sometimes, staff who know little or nothing about the field in which they find themselves lecturing.

- Finally, even if it were not the case that (for various reasons) universities misguidedly allocate undergraduate activities a secondary priority, there is still the fundamental issue that undergraduate students, like the academic staff, are there to learn for themselves.

To a large extent, one could argue that a good university has made the bulk of its contribution to undergraduate learning when it has developed a sound framework in which students can learn – that is, when the university has:

- Provided a description of the key subject areas and issues that need to be covered; why they need to be learnt; when they need to be learnt; how they are important to the outcomes of the overall study program, and so on.

- Explained to students the possible ways by which they can best learn the subject matter, and has provided background notes; recommended text books; on-line materials, etc.

- Established a set of supporting mechanisms, materials and tools, including tutorials and learning assignments.

- Provided supporting infrastructure (including laboratories, technical staff, equipment, etc.), and laboratory projects and assignments that aid in the learning process.

- Explained to students how they will be assessed in terms of what they have learnt and why the assessment is meaningful in the context of learning.

Over and above these basic provisions, one generally assumes, particularly if one is an undergraduate, that a university will provide lecturers who can bring all the above elements together, and provide leadership, motivation and inspiration. This element is of course fundamental to providing an outstanding tertiary education but, as previously noted, it is an all-too-rare phenomenon in universities. With this in mind, it is imperative for students to recognise that there are intrinsic shortcomings in the university learning process, and that even though students shouldn't blindly accept them, in practice they may still need to endure them and work around them as part of their maturation process.

The efforts that universities have made in recent years, in regard to improving learning in the tertiary education system, could be described as well-intentioned tinkering around the edges of tertiary education. In response to the age old adage that *"…those who can, do; those who can't teach, and those who can't do or teach conduct research into how others should do and teach…"* there has been an explosion of "experts" engaged to develop innumerable models on

learning and education at universities (pedagogy). Despite making university governors feel as though they are contributing to undergraduate learning, these endeavours (which are growing exponentially around the world) are essentially window dressing, adding little more than background noise and bureaucracy to the undergraduate learning process, rather than real advancements or paradigm shifts.

In the final analysis, the greatest (and arguably only) "pedagogical" contribution that a university can make to undergraduate learning is to recruit academic staff with a genuine passion for the learning process and a genuine commitment to undergraduate learning, as a first priority. Most of the other factors, into which educational (pedagogical) researchers devote considerable energies, tend to fall into place automatically if there is genuine passion and commitment. In the words of Clay P. Bedford (who was both an educator and corporate executive):

"You can teach a student a lesson for a day; but if you can teach him to learn by creating curiosity, he will continue the learning process as long as he lives"

The creation of curiosity in students, by academics, can only take place when there is genuine passion and commitment on the part of those academics – it is not something that can be enshrined in bureaucratic procedures or learning models fabricated by educational researchers. It needs to come from within the academics themselves. This is what separates the good educators from the mediocre ones, and it is something that has long been the subject of research on the part of educationalists.

Notwithstanding the fundamental role for lecturers to create curiosity and a desire for learning amongst their charges, students need to be prepared to provide academic staff with some latitude in terms of their performance – perhaps some staff will have difficulty with English; perhaps they are not intrinsically good communicators – there are many inadequacies which need to be tolerated by students. However, the one inadequacy that should neither be accepted nor tolerated by students is academic staff who treat undergraduate education as being of secondary importance to their other research duties.

Students need to come down hard on academics who shirk their undergraduate responsibilities because if they don't, then they can rest assured that universities will continue to allow poor educational practices to continue. Students therefore have a vital role to play in not only learning but improving the learning process for those who follow. It needs to be kept in mind that those students who feel that their undergraduate education is treated as being of secondary importance by the academic staff probably feel that way because their predecessor students didn't act to fix the problem earlier.

The only practical pathway to improved learning in universities can come from students using their voice to ensure that the various university governors (chancellery and council) hear loud and clear when students feel that academics do not have the commitment or passion required to conduct various subjects. Sometimes this can be achieved through completion of subject survey forms, but perhaps more effectively achieved by students coming together as a group, and placing their concerns on the record,

in writing, through formal correspondence with heads of departments, deans and chancellery. The more correspondence that these people get telling them that the process is unsatisfactory, the more likely they are to initiate progress.

From an undergraduate student perspective, therefore, the university learning process ultimately imposes upon them the additional burden of leaving behind a legacy for those who follow. This burden is imposed upon students because of the fact that universities are operationally different to secondary schools in the sense that there is no independent, external group specifically instigated to look out for students' educational interests and welfare. In a university, it is the students who ultimately have the responsibility of calling a university to account when academics fail to deliver commitment and passion in their roles.

In recognising the intrinsic shortcomings of learning in the university system, there is also the need for students to recognise that any changes will be slow in coming and that there will be practical learning realities to deal with long before any changes become apparent. Therefore, the first thing that students need to do when they arrive at university is to steel themselves to learn despite the lecturers and not necessarily because of them – every now and then, a lecturer will capture the imaginations of students, and inspire and motivate – but, and this is a big but, if students see this as pivotal to learning in an undergraduate program then they may be disappointed with what lies ahead. The practical reality of university undergraduate learning is that many academics will treat it as a process without passion. This has profound implications for undergraduate students and the way that they learn in the university

environment. Importantly, it means that in many instances students will need to develop curiosity, passion and enthusiasm by themselves – not an easy task, but an important one if students are to mature and develop through their degree. And, those students who can self-motivate; who can develop curiosity, passion and enthusiasm, without relying upon others, certainly have the qualities necessary for success and leadership in later professional life.

In the remainder of this chapter we deal with the practicalities, emotions and politics of the university learning process in the context of undergraduate study.   Specifically we examine the following issues:

- Time allocation / planning for learning.

- Expectations and reality.

- Learning *vs* Marks.

- Group/team based learning.

- Laboratory learning.

- Coping with inconsistency.

- Bad educational practices in lecturers and how to manage them.

We begin this examination by recognising the fundamental challenge of the learning process, well encapsulated in the words of Thomas Szasz (scholar and controversial psychiatrist):

"Every act of conscious learning requires the willingness to suffer an injury to one's self-esteem. That is why young children, before they are aware of their own self-importance, learn so easily"

This is a very important point in regard to university learning at an undergraduate level, because it comes at a time when students are making the transition from adolescence to adulthood; and when they are in the process of developing their self-esteem and self-importance. Winston Churchill, perhaps more succinctly, summarised the problem by stating,

"I am always ready to learn although I do not always like being taught".

In other words, learning can be an uncomfortable process because it requires that mistakes be made, and lessons learnt from them – we are therefore taught by our own embarrassment – sometimes by a perceived lowering of esteem in the minds of others, and sometimes by damage to our own egos – sometimes spurred on to create internal changes within ourselves in order to avoid further embarrassment. In the words of Oliver Wendell Holmes,

"Man's mind, once stretched by a new idea, never regains its original dimensions".

The only simplistic pathway around the painful art of learning is one which is unfortunately practised by many university students – perhaps even the majority – that is, rote learning without developing maturity or true understanding. To quote Kurt Vonnegut,

"Beware of the man who works hard to learn something, learns it, and finds himself no wiser than before".

Many students seek learning without seeking wisdom, and this is an intrinsic shortcoming in attitude – ironically, one which

could be readily corrected in the presence of academic staff with a profound commitment to the learning process.

Anatole France (1844-1924), who was awarded the Nobel Prize for literature in 1921, went further and made the important connection between learning and self-awareness, when he observed:

"An education isn't how much you have committed to memory, or even how much you know. It's being able to differentiate between what you know and what you don't".

France's observations are a contextualised version of Shakespeare's, "*this above all: to thine own self be true*", and highlight the nexus between learning, wisdom and self-awareness. These are all interrelated entities. There are many people who go through the university system, often to Doctoral level, and yet fail to ever meet the true mark of an educated person, because they gain neither wisdom nor self-awareness during the course of the process – because they are unable to differentiate between what they know and what they don't know.

One could brush aside all the (above) phrases as cheap slogans but for the fact that, as one matures, one realises that they are not only profoundly accurate but profoundly important for those who undertake undergraduate degrees in universities. They underpin everything that students should be seeking to achieve in terms of learning within the university environment – specifically that genuine learning is:

- • A journey to wisdom through self-awareness and towards an understanding of one's own capabilities, strengths and limitations.

- Difficult, painful and often damaging to one's self-esteem.

- Not a simple quest for scholastic grades.

- Not about rote learning or memorisation.

Until a student develops into this mature mindset, undergraduate study will be little more than an expedient, process-driven pathway to a piece of paper that can be used to acquire a professional position. As a practical methodology, such an approach, based upon "*what can I get away with?*", rather than "*what am I actually learning?*" may yield short term success. In some cases such an expedient process may even yield better scholastic results than genuine learning. In the long term, however, those who attempt it generally come to realise, perhaps too late in life, the flaws in their approach, and the years of golden opportunity for genuine learning and self-awareness that have been lost.

In the university system, one often comes across people who return to undergraduate study long after they have retired – not because of a desire to get a degree that will lead to short term employment – but to acquire wisdom through genuine learning. Sometimes this occurs decades after they have passed through the same system by taking the expedient shortcuts.

As previously noted, one of the impediments to genuine learning on the part of the students comes from the academics themselves. When undergraduate learning is relegated to secondary importance, it is not possible for academics to inspire others because they themselves lack inspiration. In such cases, academics tend to find their own easy way out of the process. To this end, they create

subjects and teach in them in much the same way as a teacher would in a secondary school. This is indeed an easy way out because neither the academics nor the students have to extend themselves; to endure damage to their own egos or to ask themselves the important question "what are we actually learning from being here?".

It is all too easy for students to fall into the comfort of "taught" subjects, where all they have to do is memorise and perhaps rearrange a few equations in an exam – these sorts of learning approaches yield high marks with minimal work; minimal damage to the ego, and abrogate the need for self-reflection. The challenge for students, when they encounter such subjects and lectures, is to find ways to go above and beyond the simple prescriptive subject matter to get to deeper level understanding – and this is not an easy task. Just for starters, such an approach requires a significant time allocation – and one which may students simply don't have available.   To this end, we commence our examination of the practicalities of the learning process by looking at this basic issue.

(i)   Time Allocation / Planning for Learning

Planning for time allocation and learning in undergraduate study is something that few students actually do. This is unfortunate because the planning is really a trivial exercise but one which will reveal some startling insights into challenges and time restrictions that need to be addressed right from the first day of university study.

In the modern world, many university students are also employees, holding down part-time jobs while they study.

Although this is not a new phenomenon of itself, the proportion of students working while studying has increased over recent decades. Work, regardless of its nature, provides opportunities for students to broaden their horizons; improve their people and negotiation skills; develop responsibility, and so on. However, the harsh reality is that most modern undergraduate courses are designed to be full-time courses in the true sense – that is, they are designed without considering an allocation for other significant duties such as outside work. Accommodating learning and work is therefore a difficult task and it is an issue that needs to be tackled early on.

Most students would be aware that the learning process in the latter years of secondary study is more complex than it is in the earlier years. Fundamentally, this is because attending classes is one thing – actually learning is another. In a university undergraduate program this distinction is even more pronounced. In fact, lectures are effectively an adjunct to a learning process which needs to be driven by the student. Simply attending lectures; writing notes and then cramming, through rote learning, a few days before exams, is not a good way of learning, even though it is undoubtedly a technique practised by many students – if not the majority.

In a university, the notions of private or group study are perhaps the most important aspects of the learning process, and both of these are time consuming activities that need to be considered. They are also activities which require self-discipline on the part of students and hence are the ones most difficult to cultivate.

In a university, all undergraduate students will be made aware of their tangible (formal) time commitments in the context of lectures, tutorials, laboratories, and so on. These are the most straightforward to time manage because they have fixed start and end points. It is the private and group study elements that require planning, and although this does not need to be done exhaustively, it is something which should be considered in terms of a typical undergraduate week which, realistically, only has approximately 112 waking hours available for study, travel and recreation.

Table 7.1 shows the typical activities that need to be considered in an undergraduate workload (and, indeed, an overall undergraduate life).

In Table 7.1, Subject 1 contains only seven formal hours per week. However, for this subject, the hidden workload is approximately 16 hours per week. In total, therefore, 23 working hours per week are required just for a single subject. Many students in the Australian university system undertake four subjects per semester, and so can have a potential maximum workload of 92 hours per week during peak periods. Of course, most subjects don't run laboratory sessions or tutorials every week so, realistically, a four subject load probably averages out at around 60 – 80 hours per week. Also, one needs to consider that the first lecture in a subject is generally introductory in nature and doesn't require significant revision.

Item	Sub-Activities	Hours/Week	
		Formal	Hidden
Subject 1	Lectures	3	
	Preparation for Lectures		3
	Review of Lectures		6
	Tutorials	1	
	Preparation for Tutorials		1
	Tutorial Assignments/Projects		2
	Laboratory	3	
	Preparation for Laboratory		1
	Report Writing for Laboratory		3
:	:		
Subject N	Lectures		
	Preparation for Lectures		
	Review of Lectures		
	Tutorials		
	Preparation for Tutorials		
	Tutorial Assignments/Projects		
	Laboratory		
	Preparation for Laboratory		
	Report Writing for Laboratory		
Travel	To/From University		
	To/From Work		
Work			
Recreation	Sport		
	Social		
Total			

Table 7.1 – Typical Undergraduate Work/Lifestyle Load

The problem here should be self-evident – if one adds travel, work and recreation to a typical four subject workload

it will exceed the typical waking hours in a given week. Students can tackle this problem by cutting back on recreation or sleep but, more commonly, they cut back on the hidden workload which, ironically, is where all the real learning is supposed to take place. The end result is that undergraduates discover (belatedly) that they have no choice but to merely attend lectures and tutorials, then cram for exams by rote learning a few days (or hours) before the examinations. The "hidden" workload, as its name suggests, remains invisible until examinations become a looming figure in the mindset. Ironically, this should be the single most important aspect of planning for undergraduate workload.

The other (hidden) aspect of planning an undergraduate workload/life that needs to be considered is the issue of recreation. It is pointless for students to delude themselves that they will study for long hours, without considering that they will need recreation. Recreation, as the name suggests, provides an opportunity for renewal – where students can divorce themselves from their studies for a period each week so that they can tackle issues with a clear perspective – this has learning benefits and it also, self-evidently, is an important part of life for those at university. Recreation therefore needs to be included in planning for study because it is an aid to study.

Another hidden element of workload is travel. Students can spend more than two hours per day travelling to and from university; looking for parking spaces, and so on. This can

take up ten percent of the available waking hours in a given week and needs to be considered.

In tackling the overall problem, the simplest way to plan the university study workload is to download the details of all the subjects that will be taken in a given semester (or year) and develop a table (such as that in 7.1). Typically, this should contain formal and hidden commitments for each subject, plus recreation, travel, etc.

On the first draft, it may become apparent that the total number of hours that will be required to undertake full-time study; maintain a part-time job; travel and have recreational time will well exceed the number of waking hours in a week. The question then is what needs to be cut back?

To commence with, it is infeasible and unsustainable to expect to cut back on sleeping hours as part of a sensible workload plan – this may work for a few days but, in the long term, will be self-defeating because it is difficult for people to learn when they are tired. This means that, one way or another, the 112 waking hour week is probably the most sustainable model that can be accommodated, and hence thoughts need to turn to what else is expendable to make the model work in a meaningful way.

By way of background, students need to understand that attending lectures without having completed preliminary reading on the topics to be covered is all but worthless. Ironically, many students are afraid to miss lectures, and feel guilty for having done so, but will think nothing of attending

lectures without preparation. The reality of lectures is that they simply move too fast for unprepared students to absorb all the information at the time that it is presented – particularly when new ideas or theories are put forward. Lecturing is not about teaching – it is about presenting frameworks and boundaries in which students can learn. After a few minutes, therefore, unprepared students attending lectures generally find themselves falling further and further behind until, by the end of the lecture, they have lost track of the entire session – they leave confused, frustrated and tired – ironically to move on to the next lecture where the process repeats.

The moral here is that preparation for lectures is not expendable – if anything, when there is a choice to be made, students may achieve a better learning outcome by spending the lecture period learning for themselves, rather than attending a lecture for which they have not prepared. The only drawback with this approach is that students may end up neither attending the lecture nor undertaking private study, leading to their academic demise.

The second point about lectures is that they are not an end in themselves. Students should not leave a lecture having felt that it is the completion of the learning process – it is only the beginning. A lecture without follow up reinforcement study is as worthless as a lecture attended without preparation. So, follow up study is not expendable in the workload planning either.

The same sorts of issues apply to tutorials and laboratories. Attending either without preliminary work

negates the benefits. In the case of laboratory sessions, these are generally a compulsory part of various university subjects, so neither the preparation or the attendance are expendable in the workload. In the case of tutorials, attending without preparation, in anticipation of magic learning dust descending from the heavens, is equally fanciful – so, it may be that the formal tutorials are more expendable than the time required for preparation.

Where does all this leave the workload model? Well, in essence, the result is that the following items are potentially expendable:

- Outside work.

- Formal lectures.

- Formal tutorials.

The remainder (preparation; private study; recreation, etc.) are either non-expendable or unavoidable (such as travel). In general, students should be less concerned about attending lectures (particularly if they are non-compulsory) than they should be about the importance of private and group learning.

One of the benefits of group learning is that there is scope to accommodate the limitations in time that arise when one goes through the planning process. It may be that one student can miss a lecture provided another colleague attends to see if any important information is presented that needs to be considered in the context of a subject.

At the conclusion of this simple weekly workload planning process, there are several possible outcomes:

- There is sufficient time in a given week to undertake the prescribed subjects.

- There is insufficient time to complete the program of study, given the spread of time commitments, and the inability to balance the workload.

It is naive for students to believe that they can get by with an unsustainable weekly workload, and then cram all their learning into the last few days before exams. The reality is that students who attempt to do so fall further and further behind; become more frustrated and stressed – with the subsequent result that their study performance is affected – leading to more frustration; further lagging, and a downward spiral. And, at the end of all this, even if they succeed in terms of scholastic results, there is still the issue of "what have I actually learnt?" to be considered. So, if the outcome of the weekly workload planning process simply doesn't add up, students should consider:

- Reducing or eliminating outside commitments, such as work.

- Reducing the number of subjects studies in a given semester.

The latter option is one that students, by nature, tend to be loathe to do, because it inevitably extends the time taken to complete a degree. However, if the first option is not possible, then the latter should be considered because it provides better

learning outcomes (and time outcomes) than failing subjects and repeating an entire year.

On the assumption that the weekly workload is sustainable, students should then consider a semester-based workload schedule. Again, this is a straightforward exercise which simply requires that students backward schedule their activities from the time of their exams. Table 7.2 shows a typical series of events for a semester based upon 12 weeks of lectures. The point to note about Table 7.2 is that it provides for several revision periods, backward scheduled from the time of the exams. These revisions should be over and above those carried out each week in respect to the materials covered in lectures. On top of this, one has to consider that in the final weeks of semester there will also be projects that need to be submitted while attempting to simultaneously revise work covered in lectures.

A typical 12 week semester therefore provides little margin for lapses in study, and each week needs to have study and revision outcomes. It is important, however, to keep the planning of weekly and semester based workloads and milestones in context. The planning data in Tables 7.1 and 7.2 should be used as a guide for study – not to create a minute by minute prescription of undergraduate life, with no latitude for variation. The objective of such planning is so that students can commence their university studies in full cognisance of the demands that will be placed upon them, and in light of the fixed end points (examination dates) from which study planning needs to be backward scheduled.

Semester Week	Item	Milestone/Outcome
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		1st Cut Revision for Subject 1 Completed 1st Cut Revision for Subject 2 Completed Final Project for Subject 1 submitted
12		1st Cut Revision for Subject 3 Completed 1st Cut Revision for Subject 4 Completed Final Project for Subject 3 Submitted
13	Revision Week	2nd Cut Revision for Subject 1 Completed 2nd Cut Revision for Subject 2 Completed 2nd Cut Revision for Subject 3 Completed 2nd Cut Revision for Subject 4 Completed
14	Exam for Subject 1 Exam for Subject 2	Final Revision for Subject 1 Final Revision for Subject 2
15	Exam for Subject 3 Exam for Subject 4	Final Revision for Subject 3 Final Revision for Subject 4

Table 7.2 – Semester Based Study Milestones/Schedule

(ii)   Expectations and Reality

An important part of the learning and maturation process for university students comes in the form of reconciling expectations with reality. One important concern that many students have is whether or not they will pass a given subject (or achieve high grades) if they put in a substantial effort – at the back of every student's mind is the question of whether or not all the work that goes into a subject is worth the effort. The answer to this question is that in the majority of cases, students who put in effort for a subject feel that they receive a just reward for that effort. Whatever shortcomings the university system may have, underlying the core educational structure is a basic method of assessment that tends to reward effort. It is therefore unusual for a student to put substantial effort into a subject and not be rewarded by a fair mark.

At the heart of the effort versus reward issue, one needs to understand that academics do not intentionally design subjects such that they are intractable – most academics have a good understanding of what is or is not possible from a cohort of students studying a subject after having completed prerequisites. So, there is an underlying principle that the very fact that a student is present in a particular subject means that there should be a good probability of them achieving a positive result – provided that they put sufficient work into the subject.

The question many students ask is "what constitutes sufficient work?". This question is usually encapsulated in the

request to know how many "hours" constitute sufficient work. The answer to this question obviously varies from subject to subject and university to university but there are in fact numerical guides as to how much work is required for a particular subject. Each university has a system of measuring the contribution of a particular subject towards an overall outcome – say a Bachelor's degree. This system, which is used internationally in various forms, is known as a credit point system.   Each subject within a course is allocated a certain number of credit points and the total course requires that students receive a minimum number of credit points to graduate. Normally the credit points correlate to the work required to complete a particular subject. For example, in some Australian universities, students complete four subjects per semester, each with a value of 12.5 credit points – this means that if they pass all their subjects they earn a total of 100 credit points a year – 400 credit points may lead to a Bachelor's qualification.

As a rule of thumb, the credit point system correlates directly to the minimum working hour input required for a subject each week. So, for example, a 12.5 credit point subject would typically require a minimum of 12.5 hours per week (including lectures, tutorials, laboratory and private study) to achieve a bare pass mark. Higher grades would require an investment of greater effort. A 25 credit point subject would require 25 hours per week of study, and so on.

The reality of university life, however, tends to be a little more complex in the sense that academics are humans, and

humans each have their own perceptions of requirements, even when those requirements are laid down in syllabi. In a university, the sheer size of the organisation means that sometimes there is a lack of communication between academics and subject convenors. The end result of this can be a collection of real subject workloads which, when added together, are too heavy for students to manage. If each academic treats his/her subject as being the one of greatest importance, which often happens, then it stands to reason that the consequences for students will be an excessive workload which is poor for learning outcomes and can lead to unnecessary stress.

There are two things that can come out of the realities of the university learning process. The first is that students can put in the prescribed amount of work and not meet a lecturer's requirements – because the lecturer's requirements are well in excess of what was intended when the subject was designed. The second is that the scale of work can be so overwhelming that students simply give up. Neither of these are acceptable outcomes and so it is important that students learn to work together as a group, so that if the workload for a particular subject becomes disproportionately high, in the view of the entire group, then students can collectively and formally raise their concerns with the head of department or faculty dean. This sort of collective action needs to be taken as quickly as possible so that corrections can be made before it is too late. Complaining about subjects after examination results are released may be cathartic but it is generally not helpful to the

students who have been done an injustice by an unfair workload.

It is also the case that not all students learn at the same rate.   This is not necessarily just because of differing intelligence levels but also because of the different ways that people have of learning. Each individual has their own unique method for learning and their own learning rate. Humans also mature at different rates, and although most students enter their first year of university study at similar ages, not all students have the same level of maturity – not all students have the same levels of organisational and planning skills, and not all students have the same learning habits. For this reason, students working in groups have a good way of assessing their own performance relative to others during the course of a semester – they can track their relative progress and make corrections, where possible, before it is too late.

The first year of university study provides one of the most difficult sets of challenges because it effectively pits students with different levels of maturity up against each other. It is in first year that one sees the greatest variations in student maturity. Some students feel that they cannot keep up with pack leaders and become despondent – this can, however, be ameliorated if students keep in mind that what they are experiencing is not necessarily a lack of ability or intelligence but perhaps a different level of maturity to the pack leaders. As students progress through an undergraduate course, the level of maturity tends to even out and the

differences that are apparent in first year are less apparent in later years.

In the first year of a university program, therefore, students will have to come to terms with their own performance; their limitations, and so on. All students would naturally like to achieve high scores in all subjects but, in first year, there are many reasons why this may not be possible. A good set of questions for students to ask themselves, in assessing how they are fairing, is the following:

- How is my performance relative to that of my colleagues?

- Am I putting in sufficient work into each subject and how is my work input relative to that of my colleagues?

- Does the subject have a fair workload in the collective opinions of myself and my colleagues?

- How well organised am I relative to my colleagues?

- What is the best result that I can realistically aim for in this subject?

These are all important questions that need to be answered, early on in the university study process – they go to the heart of whether students need to change their study patterns or whether they need to reassess their expectations in the light of the reality of their relative performance. In setting expectations, one needs to be careful – aiming for the moon

may get one on top of the garage roof but aiming for the garage roof may not even get one off the ground. Aiming for stars that are completely out of reach may frustrate and confound rather than inspire. Levels need to be set that will challenge and extend one's capabilities rather than just demoralise.

All students undertaking university studies should be able to assess the expectations and realities of their subjects within the first three or four weeks of study in a given semester. This should enable them to set realistic targets for their subjects and to plan their times and study patterns accordingly.

(iii)   *Learning vs Marks*

It needs to be kept in mind that universities are not fundamentally intended as places where students can collect grades as they would postage stamps. The purpose of a university is to facilitate learning, and the grades/marks that are issued to students are intended as a guide to help students assess their own learning performance. Although universities the world over do have a culture of encouraging students to engage in a competition to achieve the largest number of high subject scores, this does not necessarily aid the deep level learning process.

Students need to be aware that all grading schemes have limitations; inaccuracies and intrinsic inequities that are difficult to remove.   For example, students often leave

examinations realising that, through the luck of the draw, some subject areas which they haven't studied have been given a greater prominence than they thought – or vice versa. Although there is an underlying systematic process in subject assessment, one should not over-analyse the minutiae of subject results themselves – is a student who gets 97.3% for a subject smarter than one who gets 97.2%? Or perhaps 96.2%? Or even 94.2%? The answer to this question is not simple – it depends upon whether the students all studied the exact same material, or each had a different emphasis – or whether there were subjective elements in the assessment – there are many reasons to consider. Realistically, two students within a ten percent band should be treated as having achieved similar outcomes, given the limitations of the overall assessment processes in various subjects.

The most important result to consider, however, is the one that students generally consider the least – that is, "what have I actually learnt by doing this subject?" If the answer to this question is that a student has memorised numerous equations and other material and has been able to cipher it out on an examination paper, then perhaps that student has learnt very little, even if they have achieved a high subject score. Conversely, if a student has carefully considered what the objectives of the subject are; what the key issues are and how to intelligently apply various principles then, perhaps, even if he/she hasn't achieved a high subject score, that student has actually had a better learning outcome.

The point here is for students to be driven by the need to achieve wisdom not results borne out of rote learning. And, the temptation will always be there for students to take the easy way out – the rote learning approach – the most expedient path to high subject results; an easy degree and employment. This sort of pragmatic but shallow approach is both understandable and forgivable when academics provide a subject and assessment structure that encourages it. The argument against taking this approach is much harder to sell – because it requires students to consider how they will look back on their undergraduate education years or decades later – did they just ticket-punch their way through the process or did they seek to get the best possible experience out of three or four years of their lives?

(iv)   *Group/Team Based Learning*

Group or team based learning is not just a way of making life easier for students, it is perhaps one of the single most important tools that students should deploy for learning. There are numerous advantages to learning in a group of peers, including:

- The learning workload can be shared, and barriers to learning more quickly removed than in isolated learning – something which appears to be an intractable problem to an individual working in isolation, can often be resolved in

minutes or seconds by another individual in the group – so learning efficiency is much greater.

- Each member of a learning group will have different strengths and weaknesses – in a group, if these are recognised and used, then the whole becomes much greater than the sum of the parts.

- Students working in a group can set up their own relative metrics to see how well they are going against their peers. This provides an ongoing, constant stream of feedback which allows students to correct problems – this is far more effective than waiting for poorly prepared assignments to come back with bad grades (the other form of feedback).

- Students are often intimidated by lecturers and are afraid to ask questions for fear of being seen as foolish – in a peer group there is much less reluctance for students to air their concerns – students can be blunt with each other (*"…I just don't understand anything the lecturer said about…"*).

- When a university doesn't live up to its expectations, and does not provide academics who perform well, a group of students is far better placed to formally complain to a head of department or dean – an individual complaint can be brushed off as an isolated incident but a

group complaint is viewed as a far more serious problem.

In the longer term, forming a network of peers and friends is something that will stay with the student for a lifetime, so it has far more value than just providing short term solutions to learning problems. Working in a group also teaches students about human dynamics in a team – some members will not pull their weight; some will try to dominate; some will try to carry all the burden, and so on. Learning how to manage this situation is an important part of becoming a professional and a vital part of becoming a leader.

(v)   Laboratory Learning

Depending upon the course of study undertaken in a university, there will be subjects that contain a component of laboratory work. Laboratory work is critical to students learning to differentiate fact from fiction, and learning to understand the limitations of theories. It is also critical to students learning how to be systematic; rigorous and scrupulously honest with themselves.

In the early years, laboratory experiments tend to be carefully structured by those who design them – they tend to be single dimensional experiments where students have to measure parameters (X, Y, etc.) and see the physical relationship between them in the context of what is presented in theory. Those that design such experiments generally ensure that other extraneous factors are removed from the

experiments so that students can focus on the relationship between theory and practice, and also upon the sources of experimental error (*How accurate are the instruments? What is the resistance of the leads? Etc*.). Laboratory work in earlier years also tends to be prescriptive – constructed like a recipe where students simply follow the instructions in order to achieve outcomes.

As students progress, the experiments become less structured and other dimensions come into play – there are no longer simple correlations between what is measured in the laboratory and what is suggested in theory – students have to determine all the other extraneous dimensions; how to conduct controlled experiments, and so on. Ultimately, students need to learn how to design their own experiments; evaluate results and determine when and why theory and practice don't match. In latter years, there is more knowledge involved in determining why theory and practice don't match than there is in the experiments themselves.

The development of laboratory work should mirror the increasing maturity of the students. Students need to recognise that life isn't as straightforward as it is made to appear in secondary school experiments – there are many factors to consider. When theory and practice don't match, it is no longer sufficient to brush this off with speculation (such as "instrument error"; "noise", etc.) – there needs to be some physical proof as to how various factors cause inconsistencies between theory and practice – perhaps the theory itself is

flawed – perhaps the experiments have been badly designed or even incorrectly performed.

Laboratory work is one of the most important aspects of learning, particularly in the fields of science and engineering because it forces students to face reality – here are the experimental facts – here are the theories – they don't match – why?

Unfortunately, the reality of undergraduate life is that many students will simply fudge experimental results to make them match with theory – in the expectation that this will give them better grades. This, however, undermines the entire purpose of the laboratory learning exercise and, as most academic staff are astute enough to know when results have been embellished, the fudging of laboratory outcomes is largely self-defeating. Perhaps the best way of countering the need to fudge results is to ask the fundamental question – *"What am I actually learning here?   Theory and practice don't match – it is part of my learning to understand why – not just to falsify results to get the answers I think the academic staff want"*. Those students that develop a mature approach will find that laboratory work is far less stressful and that their learning is far deeper and more profound. There is far more to be learnt by performing experiments incorrectly; recognising that the results are flawed, and understanding why, than there is in getting the experiments right the first time. It is a painful part of the learning process.

Getting experiments wrong, then fudging results to make them look right isn't learning at all – it is inculcating

fraudulent practices and self-deception. Ironically, such traits, once they are inculcated can go through to later professional life, where the stakes are much, much greater, and the fall from grace far more profound. Better then, to make one's own life easier by taking note, early in life, Shakespeare's line "*this above all: to thine own self be true*".

(vi)   Coping with Inconsistency

A consequence of becoming an adult and maturing is the recognition that the world simply doesn't work the way that people think it should. The world is full of anomalies, prejudices, and blatant unfairness, and despite being elite places of learning, universities are little different.

Academics are not endowed by their creator with some all-encompassing wisdom, and suffer from the same human problems as those found in any other organisation. To this end, it should therefore not be surprising that sometimes academics can be unreasonable, or perhaps expect standards and performances that they could not achieve themselves – sometimes putting forth double standards for professionalism and integrity. The fact that all of these traits are bad doesn't mean that they don't exist – it does mean that students will need to work around them in one way or another. The world is full of inconsistencies, and university is as good a place as any to learn to deal with them. Typical inconsistencies that students can encounter may include:

- Two different academics tackling particular issues in contradictory ways, and then each blaming students for not adhering to their method.

- Academics treating their subject as more important than others with the consequence of placing an unfair workload on students.

- Academics employing subjective assessment techniques, and then allowing their own opinions and prejudices to bias the subject results for students.

- Academics expecting students to apply passion and commitment to their subject when they themselves have neither passion nor commitment to it.

Students are entitled to be treated fairly, without prejudice, and given a supportive educational environment. Nonetheless, they will inevitably encounter problems and need to develop ways and means of dealing with them – it is one thing to say that something isn't fair or isn't right, but another thing altogether to do something about it.

(vii)   *Bad Educational Practices in Lecturers and How to Manage Them*

It has already been noted that those students who learn despite their educators learn far more than those who learn because of them.   This, however, does not excuse poor

practices amongst academic staff and it is the students that ultimately need to deal with these. As has previously been observed, universities do not have an independent "parents" group looking out for the interests of students – this is one reason why educational practices in universities are sometimes poorer than those found in secondary schools. Clearly, it is not sensible for universities to have such groups because their students are already adults, and should be capable of looking out for their own interests. Hence, when bad educational practices arise, it is left to the students to do something about them. Again, it needs to be stated that the reasons many students encounter poor educational practices is because their predecessors chose to do nothing about them when they were there – so the buck ultimately stops with the current crop of students to leave a positive legacy for their successors.

Students may encounter many problems as individuals – perhaps discrimination; personal unfair treatment, victimisation, and so on. Generally, there are formal mechanisms and procedures within the university for dealing with these serious issues, and students should not be intimidated in any way from using such tools to stop bad behaviour. The broader range of issues that students will encounter relate to general educational practices:

- Poor lecturing technique – poor communications skills.

- Poor lecturing facilities.

- Unreasonable subject workloads.

- Unreasonable subject expectations in terms of learning.

- Unreasonable degree of difficulty in the subject.

- Indifferent or uncaring lecturing staff.

- Lecturing staff who are themselves ignorant of the subjects in which they lecture.

- Tedious/dull subjects.

Taking the last point first, one needs to understand that the university learning environment is not intended to be a circus or an arcade game – there is no requirement that everything presented to students is exciting and entertaining. Indeed, in many areas of undergraduate study, students will have to accept that they need to cover materials which, although tedious or dull, are fundamental to learning and form the basis of other subjects which may be far more interesting. Students need to be mature enough to understand and accept this, otherwise continued complaining may lead to little more than watering down of the degree to avoid important but otherwise uninteresting materials. It is unlikely that any degree program in any field will ultimately have a collection of subjects which are all individually exciting and stimulating.

The fact that subject materials are dry and uninspiring does not mean that lecturing staff have to be the same – and, if it is the case that lecturing staff don't project enthusiasm, then students have a legitimate reason for grievance.

The other issues in the list are all, to varying degrees, also legitimate reasons for complaint on the part of students. Poor lecturing techniques and poor communications skills, for example, are common complaints – sometimes not arising of themselves. In other words, students often complain of poor communications skills in a lecturer not solely because of the communication but more likely because the lecturer does not have the skills or passion to get his/her message out.

The other frequent complaint of students is about subjects being "too difficult" or "too much work". Students who wish to lobby a university for change based upon this argument need to consider their argument carefully before proceeding. Some subjects are inherently difficult – the fact that they are so does not mean that they should be removed from the curriculum or even watered down. At some stage, students need to accept that a particular subject is fundamental to the learning outcomes of a degree and that they need to consider it thus. The alternative is that the university could respond to student concerns and water down the course to the extent that it neither challenges the students nor meets the learning requirements of the degree program. Similarly, when students complain that a subject is "too much work" they need to be certain that they differentiate between the actual workload and an attitude of, "*I can't be bothered doing this much work for one subject because the other subjects have less work…*"

In both cases there are shades of grey – sometimes subjects are indeed made unnecessarily difficult by lecturers

who do not fully understand the subject matter themselves. In those cases the difficulty of the subject arises from a lack of competent academic leadership. Sometimes, academics also impose unrealistic workloads because they have a disregard for other subject commitments – again, this shows a lack of competent academic leadership. But, beware the temptation to challenge the subjects that are intentionally placed into courses to challenge the students – for it is these subjects that provide the most significant opportunities for pushing the boundaries and extending learning and analytical abilities.

Overall, the items on the above list all have differing degrees of seriousness, and the opinions of an individual student on any of them, in general, will not lead to a significant response from the university. But, while one student saying a lecture theatre is unsatisfactory may have no response, all students collectively stating that the theatre is unsatisfactory and they will not attend the lectures until a new venue is found will almost certainly get an immediate response.

In taking such actions, of course, students need to keep in mind what is or is not possible. It may be, for example, that a university has a run down set of facilities but it is pointless complaining to a lecturer in the hope that he can rebuild the entire campus by the end of semester. So the expectations have to be reasonable and consistent with the authority and influence of the person to whom they are put. If students are subjected to a bad lecture theatre, and there are other

alternatives, it would not be unreasonable for the students to request that their lectures be shifted to a new venue.

The same reasoning applies to all the issues that students have to deal with. The basic questions that need to be answered before students voice their concerns are:

(a)   What is the level of authority and influence of the person to whom we are addressing issues?

(b)   What specific outcomes do we want from the university in responding to our complaint?

(c)   What timeframes are involved in getting the required outcomes?

(d)   How practical are the outcomes we are seeking?

So, for example, if students are dissatisfied with the English language skills of a lecturer, and the lecturer only has English as a second language, in answering the above questions we would conclude:

•   *Authority* - there is no point discussing such an issue with the lecturer himself/herself because he/she does not have the power to improve their skills overnight. The issue has to be raised with a person who has the authority to replace the lecturer concerned.

•   *Specific outcomes* - the outcome we would seek would be a replacement of the lecturer.

- *Timing of outcomes* - the timeframe would be immediate (realistically a week) in order to avoid further disruption to the subject.

- *Practicality of outcomes* - the university has a responsibility to provide a lecturer with good English language skills and they should have more than one person capable of taking a particular subject in a faculty.

All of the problems noted earlier can be tackled on the basis of the above approach. Before commencing, however, it needs to be reiterated that students need to be sure that what they perceive to be problems are actually problems.

If, for example, an individual student is dissatisfied with a lecturer and the remainder are happy with the same lecturer, is this a problem or is it simply the case that the dissatisfied student has a different approach to learning?

In general, when many students collectively consider an issue and all independently conclude that there is a problem, then there is a legitimate case for taking the matter further. In the first instance, students can consider talking directly to a lecturer, through a small representative group. However, if the issues pertain to the actions or behaviour of that lecturer then this is clearly unwise, and the matter needs to be taken further up the tree to a course convenor or head of department or dean or vice chancellor.

In general, students should seek meetings with the above people as quickly as possible after a problem is recognised, and outline, in writing:

- The specific issues to be addressed.

- The specific actions that they would like the university to take to address the issues

It is no good students simply going to university management and talking in vague terms about dissatisfaction with lectures and the fact that they don't like various lecturers – managers want to know what specific problems need to be addressed and what students would specifically see as a solution to those problems.

Whatever the nature or scale of the problem to be addressed, students should not be intimidated from working their way up the university management tree to get a resolution. However, the more senior the level they attempt to address their problems, the more likely they are to be brushed off by personal assistants or secretaries whose job it is to prevent people gaining access to senior staff. Again, students should neither be intimidated nor deterred from such action because it is common practice in all large organisations. Students need to be direct, clear and determined. If for example, a secretary tells them that a dean or vice chancellor is busy, rather than walking away, students should ask when that staff member will be available to meet with them, and insist on making an appointment. In all likelihood, an

appointment will be given and students will have an opportunity to voice their opinions.

Students should also be aware that in most universities they will have representatives at various levels – faculty boards, academic board, university council, etc. Students should learn who their representatives are and keep in contact with them.   Where possible they should provide written instructions for issues to be formally raised at the various forums, so that issues don't get swept under the carpet. The moral of all this is that when students are genuinely dissatisfied with their treatment, they should not accept "no" for an answer – that is another important part of the learning process, and an important part of the legacy that they will leave behind because it will prevent the university from degenerating into bad practices that damage future students.

In closing this chapter on learning, we end with the words of one who was quoted at the beginning, Albert Einstein, who once profoundly said that:

"Wisdom is not a product of schooling but of the lifelong attempt to acquire it."

And, what better place to begin the lifelong attempt to acquiring wisdom than at university?

Chapter 7 Summary:

(i)   *Universities are not places of teaching – they are places of learning, and learning is something that needs to come from within the individual and from the group of colleagues with which that individual surrounds himself/herself.*

(ii)   *Universities are generally not filled with great educators and students need to work around the shortcomings of the system to cope with it – in particular, group based learning is critical.*

(iii)   *Universities do not have a "parents' group looking after the interests of the students – in a university, it is the students who need to take on the role of the "parents" group, not only to ensure their own studies progress well but also to leave behind a positive legacy for those students who follow.*

(iv)   *A critical element to beginning university learning is to plan and schedule a learning program for each subject – although this does not have to be overly prescriptive, it will reveal the balances that students will need to make between formal and informal study; recreation; travel and outside work.*

(v)   *The development of wisdom, through self-awareness, and an understanding of individual strengths, weaknesses, potentials and limitations is one of the most important attributes of university learning.*

(vi)   *Laboratory learning is critical to many undergraduate programs and students should endeavour to maximise the benefits they gain from laboratory based learning*

(vii)   When students are dissatisfied with various aspects of what is provided in the learning environment, they should not be intimidated from dealing with them and, indeed, dealing with such problems in a professional way is an integral part of the learning process.

8

When
Learning
Goes Wrong

Read this chapter if you would like the following issues addressed:

- What mechanisms are available to students when university learning goes wrong?

- What should students do when they realise they have selected the wrong course of study or the wrong university?

One of the intrinsic unfairnesses of the university system is that students generally need to decide upon a life's vocation at the age of 16 or 17 before selecting a university or course. Often, this means that people have to decide upon careers and professions well before they even understand what they entail, and usually long before they have any practical basis for a genuine passion or commitment for them.   Some universities operate generalist undergraduate programs with the ability to vary content, but the reality is that, beyond the window dressing of the marketed "flexibility", students still need to enter the university portals with a reasonably clear picture of their long term goals in order to get a meaningful outcome from their study. And, although many students develop a passion for a particular vocation at an early age and can make well founded decisions, others simply take courses on the "*seemed like a good idea at the time*" principle without realising the consequences of their actions.

Generally, it is only during the course of university studies that a percentage of students realise that they have gotten things terribly wrong and need to take corrective action. Other students genuinely feel that they have made the correct decision but are simply unable to cope with university study. To a large extent, the problems that arise in this context speak of the need for something far greater than simply stumbling through a course by passing subjects, and specifically of a point in life that requires, from students, something tangibly different to what has been called for in secondary school – particularly, in attributes of self-awareness,

courage, commitment, maturity and accepting responsibility for one's own decisions. In the words of Helen Hayes,

"…Every human being on this earth is born with a tragedy, and it isn't original sin. He's born with the tragedy that he has to grow up. That he has to leave the nest, the security and go out to do battle. He has to lose everything that is lovely and fight for a new loveliness of his own making, and it's a tragedy. A lot of people don't have the courage to do it…"

The problems typically encountered by students when learning goes wrong are indeed a call to grow up, and to make good previous decisions, or perhaps to reflect upon one's own attributes and have the courage make changes to move forward in a different way. What really makes solving these problems difficult is that it requires students to change childhood mindsets which have served well in adolescence, and within the security of the nest, and to face the realities and battles of adulthood. Many problems require students to draw the fabled line in the sand and simply recognise that a problem actually exists and needs to be addressed.

There are of course numerous reasons that cause students to reconsider their life at university. These include:

(i)   Inadequate commitment to a chosen course leading to poor academic outcomes.

(ii)   A growing realisation that the chosen career and course of study are completely misaligned with life objectives.

(iii)   A desire just to drop out with no other personal objectives in mind – a feeling that university study is not the way of the future but with no clear conception of what the alternative pathway could be.

(iv)   Poor academic outcomes resulting despite genuine effort and intense commitment.

(v)   Growing external distractions (recreation, sports, social life, etc.) leading to diminished interest in a course of study and, consequently, poor academic outcomes.

The bad news is that all of these are serious problems and none have "easy" solutions. The good news is that, firstly, there are solutions to all the problems, and that life does go on despite them - in many cases it gets better as a result of the problems having occurred as one of life's punctuation marks.   Secondly, these problems are neither uncommon nor unique to an individual, so those students who do experience them should neither feel alone nor embarrassed nor isolated as a result of having them. In essence, all the problems are a junction point in life, and one at which important battles need to be fought – ironically with one's self more often than with the university.

Problems (i), (ii) and (iii) all have a similar basis in the sense that they relate to students maturing and changing, and realising that a particular course or life choice may not lead to fulfilment or strong commitment. Many secondary school students (and sometimes even primary school students) are convinced early in life about their passion and vocation – typically these passions are for professions which are well understood in the community – for example, medicine, nursing, veterinary science, teaching, and so on. Commitment to these areas, even early in life, can be well founded because people have a reasonable understanding of what such professions entail.

But what about careers in areas that are not well understood in the broad community? Engineering, actuarial studies, economics, biochemistry, etc. – these are but a few of many, many professions in society which have little or no media exposure and, yet, there will inevitably be people in society who are well suited to them and who will develop a commitment to them, and may gain a life's fulfilment from them. The problem is, how is a 16 or 17 year old supposed to make such a decision based on research into the scant information that floats around society, and what happens when an incorrect decision is made?

As a starting point, all students entering university study need to understand that a university degree is not a prison sentence – it does not compel graduates to channel the rest of their lives into a particular environment or role. The fact that someone graduates in science does not mean that they cannot subsequently pursue a career in business or law or medicine or marketing or economics. While for the majority, a degree forms the basis of a long term career in a particular field, there is a significant number of people for whom the degree is just a starting point for life's career journey. Many people will undertake postgraduate degrees in a different field to shift their career – for example, a medical doctor may undertake a postgraduate qualification in business administration and pursue a career in management, perhaps in companies with a medical or biomedical theme. Some people will change fields altogether and take a second Bachelor's degree, for example, moving from a Bachelor's degree in, say, science, to take an additional degree in medicine or perhaps veterinary science.

The traditional notion of a university providing a single degree for individuals to use for a single career for the rest of their lives has, for some decades, given way to the notion of the degree being a starting point for a professional journey – one that may have many branches, diversions, back-tracks and repetitions.

In essence, whatever degree is chosen as a course of undergraduate study, provided that the university is doing its job in terms of learning, then the time spent during that degree is not wasted, regardless of the career changes that take place over the course of a lifetime. University learning isn't simply about vocational training – it is about maturing as a person and as a thinker. An engineering degree program is not simply about training people to become engineers, and a medical degree program is not simply about training people to become doctors. All good university degree programs are about students developing the ability to learn for themselves; to develop professional patterns of thinking and behaviour, and so on – paramount amongst these are the need to develop self-discipline, rigour and integrity. The vocational elements of the degree program are only tools that need to be mastered in order to be admitted to a particular profession – it is the capacity for ongoing self learning and maturation of thought that ultimately differentiates the professional from the lay-person.

In the final analysis, it is very rare to find individuals who, having completed an entire undergraduate program, whether as a result of a seemingly "good" or "bad" decision, would wish to turn back the clock and relive their lives differently. In fact, a hallmark of increasing maturity is the wisdom of understanding that in life there are really no "good" or "bad" decisions, and that how decisions and

choices are viewed in retrospect is a function of the integrity, perseverance and commitment with which their consequences are dealt by the individual.

With this background in mind, let us now look at possible ways forward for each of the problems highlighted earlier in this chapter.

Firstly, we look at the issue of inadequate commitment to a chosen course leading to poor academic outcomes. This is a serious problem that arises regularly in the university sector. Often, students have chosen a course without being prepared to genuinely commit to the level of study required to pass. They would like a degree if it comes easily but not if it requires an exhaustive work program. It isn't that these students can't pass – it is simply a question of not following through with one of life's earlier decisions. The real underlying problem with this situation is ultimately not whether students pass or fail but the fact that they are living with a problem that needs to be addressed and is, instead, often brushed aside with rationalisation:

"…I don't really care whether I pass this year or not – I'll see what happens and then if I fail I might do something else…"

This commonly applied rationalisation is self evidently (to all but those who make the claim) irrational because it suggests that an intelligent person would waste their time in the university system for months on end with no wish to have a positive outcome. In essence, it is a way of avoiding short-term responsibility for one's own actions, and the consequences of this can be serious, not just from an academic perspective but also from a life perspective.

Any student who becomes aware of a lack of commitment has to be mature enough to recognise that the problem will not go away unless they make some fundamental change to what they are doing. And, the longer a student takes to make that fundamental change the more difficult that change will be. So, with this in mind, what are the possible ways to resolve such a problem?

- The *status quo* is not an option, despite the fact that it may provide an easy short-term path that avoids accepting responsibility.   When a student recognises that they simply don't have the commitment to continue then they must stop and institute change – this step, drawing a line in the sand, is generally the most difficult part of remedying a poor situation.

- The next step in the process is clearly instituting some form of change.   This involves developing some maturity – recognising that it is easy to make decisions about life's directions but much more difficult to have the responsibility and professionalism to see those decisions through. So, one potentially valuable solution is not to change university programs or to drop out but, rather, to change one's outlook and understand that being at university also means being an adult with responsibilities. One of those responsibilities is making good a bad decision and seeing a decision through to the end. Students who struggle with commitment but ultimately use one of life's punctuation marks as a means of changing their outlook (rather than their direction) can gain enormous satisfaction at the end of

their university journey – for they have not just completed a degree, they have greatly matured as individuals.

- On recognising a lack of commitment, students can also seek to change courses or career paths. This is a common approach to tackling a lack of commitment. Again, this requires some maturity because it means accepting responsibility for a bad decision and making it good by a formal change that may require even more work or study. Again, it requires students to be proactive, rather than taking the seemingly easy path of allowing events to run their natural course. It also requires that students formally meet with their undergraduate course convenor to discuss possible options for transfer to other courses or universities. Moreover, it requires that students stop what they are currently doing and actively research other courses, study requirements, prerequisites, entry standards and so on. This is not a trivial task. The idea of changing courses or career paths also carries with it a significant element of risk – is the student tackling the actual problem or a symptom of the problem? Has the lack of commitment to the current course arisen because of a lack of maturity to see things through to the end? It is an easy task to convince oneself that all will be well if only the course of study is changed *("…then I'm sure I will have the commitment…")*. The reality is that once students give up (too soon) on one program then many

will give up on another, and another. The moral here is for students not to change programs until they have tackled their own personal issues and shortcomings.

• Another option for changing the level of commitment to a program can be changing universities. It may well be that students simply find themselves incompatible with the emphasis and ethos of a particular university and will thrive better in another environment. In particular, some universities are more theoretical and others more applied in their learning approaches – a change from one to another may lead to better congruity between a student's learning objectives and belief system and the university environment. Again, before such a step is taken it is critical that students evaluate themselves before they evaluate the university and the other options. Again, the moral is to tackle the fundamental problem not the symptoms.

The second problem which commonly arises amongst students is a realisation that a particular course of study is completely misaligned with their life objectives. Even though such students make a sound decision at the time they choose their course, and even though they make a genuine commitment to it, and perform well, they have come to realise that the course is not for them. This sort of situation arises frequently in disciplines that require specific human traits in addition to scholastic traits – typically, medicine, law, veterinary science, psychology, social work, and so on. In many cases, one simply cannot complete such degrees, regardless of commitment, unless one has a range of human attributes that make

one well suited to the particular profession. This can be a traumatic discovery for students because they come to a realisation that they cannot continue with something for which they have devoted a full measure of their thoughts and lives for some years.

Again, in these instances, the university environment is throwing up a challenge that speaks of maturity and responsibility. The maturity to understand that in life there are numerous points at which fundamental decisions have to be made – and that whether seemingly good or seemingly bad, all decisions have consequences. A mature person needs to deal with those consequences and move forward – that is a responsibility which is accorded to all adults in exchange for increasing freedom and autonomy. Recognising this, there are two possible solution scenarios here:

- If it is possible for a student to complete the chosen course of study, despite it being in conflict with changing perceptions of life directions, then there is considerable merit in doing so. It is a sign of self-discipline, maturity and responsibility that an individual makes good a seemingly bad decision. Students need to understand that there is no real "life" penalty for completing a degree program and then subsequently moving on to a different program of study later in life, particularly when the completion of the first degree has led to students developing self-discipline and responsibility – these traits are perhaps more important than the tools within the course itself.

- Where it is simply not possible for a student to continue with a particular course of study (e.g., medical students

who realise that they simply can't emotionally cope with anatomy or death), there are often options available which can minimise the trauma of change. Key among these are examining careers related to the initially chosen field of study – for example, moving from medicine to biomedical instrumentation or pathology enables a person to remain in the medical sector despite simply not having the personal attributes required to complete an originally chosen degree in medicine. Again, this sort of change requires drawing a line in the sand on the current program; recognising that it is not possible to continue, and then undertaking research into compatible alternatives.

The third problem which commonly arises in universities is when students simply decide that they want to drop out because they just don't like university study. Perhaps they are passing and just scraping through, but don't have the enthusiasm to do really well.   Such students often don't know what they want as an alternative – they just feel bored and frustrated, and don't want to be continuing with study.   In such cases there are numerous rationalisations that are applied:

"…if I just drop out and take a year off to find myself, then I'm sure that I'll be able to decide on something different in the future and I'll be really committed…"

"…the course I'm doing is really boring. Maybe I'll just drop out for a while then do something different later…"

If only life were so simple that such tempting rationalisations bore fruit – that, by shifting from minimal effort to zero effort, one could actually achieve contentment, commitment and fulfilment. And yet, this is a commonly occurring theme amongst students who choose to drop out of various study programs with no alternatives in mind – the allure of contentment through lack of effort. Unfortunately, the problem (irony) with this line of thought is that those who do achieve contentment and fulfilment through their work and lives do so because of perseverance, effort, commitment, integrity (*"…to thine own self be true…"*). It is also unfortunately the case that those who move towards such a negative thought process, based upon giving up their university learning, often do so because they have achieved their current level of performance with minimal work; few challenges and impediments.

When students say that they are bored with a university course, in effect what they are saying is that they have not yet developed the maturity to be at university. A university undergraduate program is largely whatever students wish to make of it, and although there is a structured program that underpins it, there is a need for students (hopefully inspired by the academic staff) to build their own program around the structure – a program which is exciting to them as individuals. Universities don't prevent students from getting books from the library or searching the Internet for materials that build upon the established courses. These are all options available to students to make courses interesting. When students aren't finding courses interesting it is because they are not doing the hard work that is required for self-motivation.

So, the first point that needs to be addressed when students consider dropping out, with no alternative in mind, is how did I get to this point in the first place? Have I done all that I can to prevent myself from getting to this stage? Have I done something wrong?

In many cases, what students have done wrong is to come to university with the adolescent mindset that the adult world is little more than an amusement park that should offer them entertainment, excitement and fulfilment – and, when the adult world doesn't live up to such expectations, then it should provide the wronged child with compensation or redress.   The world, however, has the unfortunate trait of bestowing upon adults the burden of responsibility as a counterbalance to the rights which it accords. One of those responsibilities is that adults have to do battle to shape themselves and their environment into a form that provides entertainment and fulfilment – adult students can't simply go back to their parents or lecturers and say *"…I'm bored, find me something more interesting to do…"*, for this is one of the responsibilities they themselves have inherited as adults.

Of course, in practice, students do tend to blame the university and the lecturers for not creating the level of motivation required. Even when this criticism is well founded (and it often is), it is generally only a symptom of a larger problem. Consider the fact that many (perhaps most) students go through university with poor and uninspiring lecturers; poorly structured programs, and so on, and yet they still thrive – largely, these students are able to self-motivate, while the remainder do not. Worse still, the unmotivated ones can delude themselves with the notion that, by having even less motivation, they will perform better.

The moral here is that dropping out without a meaningful plan tends to demonstrate a complete lack of self motivation. So, if a student is thinking of dropping out, then they should first give themselves a test of their own maturity:

- Conduct an audit on one's previous personal performance in achieving life goals – how many times has one planned for study and other outcomes without having achieved the required end goals?

- Develop a detailed plan for how the "drop out" period will be spent in reorganising one's life, study and career. This should include how time will be spent pursuing other alternatives – perhaps technical studies or apprenticeships; whether work experience will be pursued (and if so how); how many months will be spent pursuing various activities and how these activities will be funded.

The reality is that many students who simply choose to drop out of university study do not want to face the challenge of such a personal test of one's own maturity – *"…I need some time and space to myself…"*; *"…I just need a break, I'll think about all of those things later…"*. But - if a student isn't prepared to subject themselves to such a test, then what are they really saying about their approach to life and their career? Perhaps that they are simply seeking an easy escape from the battles of adulthood.   Trying the following mantra as an alternative might have some effect – *"…I am an adult; I made a decision as an adult, and I am mature enough to make good on that decision, regardless of the effort that is required…"*

But what of those students who fall into the fourth problem group – where there is genuine commitment and effort, and despite this, the academic outcomes are either poor or catastrophic in the sense that they are leading to total failure?

When a student is making a genuine commitment, and yet this is not reflected in academic outcomes then there are really only two possible causes – the first being that the student has the capacity to do well but has been let down by the structure and learning program of the university; the second being that, despite the best of intentions, the student does not have the capacity to complete the program.

Determining where the cause of poor academic performance lies is not a difficult task from a student's perspective. The obvious litmus test is to benchmark against one's own peers. Clearly, if the bulk of one's peers are doing well then, regardless of how the university is delivering its programs, the cause is at the level of the individual student. On the other hand, if the bulk of students are performing poorly in subjects, then there is good reason to believe that the university needs to be formally challenged on how it delivers its programs.

It is the exception, rather than the rule, that university programs have the bulk of enrolled students performing poorly. So, if it is indeed the case that the problem lies with the individual, then what can be done to remedy the problem of poor performance? As a starting point, individual students need to understand that, by accepting people into a program, based upon a scholastic record (high school results, etc.), the university has entered into a *de facto* contract with the individual that implies that the individual has the intellectual capacity to achieve the required academic outcome,

provided that they put in the required effort. Of course, this is not an ironclad guarantee but rather a *bona fide* attempt at ensuring that people who get into a course of study can actually complete it.

So what can be going wrong when a student puts in the work but is not achieving the required outcomes?

- University learning makes an implicit assumption that an individual student will mature as they progress through a course. This maturation will include the development of more sophisticated thought processes, reasoning, logic, etc. This assumption, however, is not always valid – different humans mature and develop at different rates. So, in some instances, it is simply the case that the student isn't maturing as quickly as his/her peers, and is seeing the consequences manifested in scholastic achievement. This is an intrinsic human trait which can't be fixed with pills or a more concerted effort but will take time to resolve.

- Students have a penchant for different types of learning environments – for example, some students like to start with practical examples and have the theory follow later, while others prefer the theory and have difficulty with the practical implications. Some students prefer a top-down learning approach, commencing with a broad overview and then moving down towards detailed analysis while others prefer a bottom up approach, commencing with detail elements and working up to a broader perspective. If there is an ongoing mismatch between the learning approach provided by the

university, and that which is preferred by the student, then there is a case for looking at a different type of university – perhaps moving from an applied university to a theoretical one or vice-versa.

- In some cases, a particular course requires a particular mindset – for example, the hard sciences (physics, maths, engineering, etc.) require a detailed, analytical mindset which has little tolerance for the abstract and focuses, instead, on sequential, systematic learning. In the arts, there is a need for a mindset which can look at broader and more abstract issues that cannot be resolved by simple sequential logic and analysis. One either has a mindset predisposed to one of these courses or one doesn't – students who move from creative fields to hard sciences experience the same difficulties as students who move from hard sciences to creative fields – they simply cannot make the mindset transition that is required.

The most common concern that students have when they are not performing well is that they are simply not intellectually capable of handling the program, but it is far more often the case that the cause comes down to one of the above three causes – maturity, learning preference or mindset predisposition.

Obviously, one can't remedy the issue of maturity – the natural development of the human brain and mind – if a student isn't naturally maturing at the average rate that is expected (arbitrarily) by the university, the only solutions are either to accept that this is a problem and compensate by hard work; seek another

program of study, or take time (e.g., a year) off to mature by gaining practical work experience in a related area. The first and third options offer the greatest likelihood of achieving the life objective of completing the course. Increased effort, through hard work, however, is a big ask, particularly when one knows that the hard work is largely there to compensate rather than excel. The option of work experience is also another excellent alternative – perhaps deferring study after having secured a job in a relevant field. This has the combined advantages of increasing maturity; developing professional skills, and providing a basis for future employment when the degree program is completed.

If a student can determine that the cause of poor performance relates to the learning paradigm employed by the university, then one option is to seek a transfer to another university with a more compatible learning paradigm – this has potential advantages in the sense that it may enable a student to move from struggling through to excelling and enjoying his/her study time.

If students recognise that they simply do not have the mindset for a particular course – that is, they are intrinsically oriented towards creative pursuits or hard science based pursuits, and the course they are undertaking is in direct conflict with these, then there is clearly a case for considering a radical change in course. If one has genuinely made an effort to achieve good outcomes but is unable to do so because of a mindset incompatibility with the chosen course, then there comes a time when the student has to again draw the line in the sand, and say enough is enough. There is little merit in pursuing a course which is diametrically opposed to one's entire learning mindset, and little likelihood that one will ever excel in the

field after graduation. It is in this instance that the case for course change is well justified.

In the majority of cases, dealing with the above issues is not the first step in rectifying basic performance problems. Sometimes, the remedies are far simpler, and all that is required is additional support for a period of time. This can often be obtained from university tutors and demonstrators, academic staff, or even by hiring personal/professional tutors for a period of time. The amount of money that is invested in hiring professional tutors may be recouped many times over, if one considers the alternative of failing and repeating a subject or a year of a program.

By far the largest cause of poor performance in university stems from growing external distractions – part-time work; sports; recreation; social activities, and so on. Again, one needs to remember that most of these activities and freedoms are those accorded to adults, in exchange for responsibility and obligation. Many students need to undertake work during their undergraduate program for obvious, practical reasons of survival. But if such work ends up being deleterious to the study which it supports, then one has to question the entire structure that the student has set up in order to undertake a university degree program.

Sports, recreation and social activities are all privileges that are important to developing as an adult, but are all given to an adult on the assumption that such an adult will be able to moderate them to the extent where they are an enhancement to long-term life choices rather than a distraction from them. Students naturally gravitate towards these activities because of the increased level of independence that they acquire within the university environment.

When they affect academic performance, however, students have to recognise that these activities have a cost, and it is an adult's responsibility to trade off the costs against the benefits. At the very minimum, students should attempt to plan sports, recreation and social activities around a meaningful study program, so that they can recognise when the line has been crossed in terms of commitment to lifestyle as opposed to commitment to life goals.

In the final analysis, all of the things that go wrong with university learning come down to one key issue – the transition from adolescence to adulthood, and the battle that students face in dealing with this significant challenge. There are those who face adulthood head on and accept the challenges and responsibilities, and those who revert back to adolescence and avoid the transition for as long as possible. Again, quoting from Helen Hayes, on the transition to adulthood,

"…a lot of people don't have the courage to do it…"

Chapter 8 Summary:

(i)   *University learning can go wrong for a number of reasons – many of these pertain to the transition from adolescent behaviour to adult behaviour and the maturation of students as human beings.*

(ii)   *The first step in resolving all the problems related to learning is to recognise that there is a problem – drawing a line in the sand on the problem, and reconciling oneself to the fact that a problem exists and needs to be remedied.*

(iii)   *It is important for students to understand whether learning problems exist because of external factors (e.g., the university) or because of intrinsic behaviour patterns and shortcomings within themselves – until one understands which of these have led to the problem then the issues are difficult to resolve.*

(iv)   *It is unusual for students to perform poorly in university programs simply because of a lack of intellectual capacity – typically the problem resides elsewhere and relates to issues of maturity; learning patterns, and the mindset that one has for particular fields of study.*

(v)   *All the problems that arise when learning goes wrong are difficult to resolve from a personal level and an emotional level. They require self-examination, resolve and an acceptance of responsibility.*

(vi)   *Students need to recognise that learning problems arise frequently in the university system, and that they are neither unique nor alone in facing them. They are a challenge to be faced, not an insurmountable obstacle to life and fulfilment.*

9

Value

For

Money

Read this chapter if you would like the following issues addressed:

- Are students getting value for money from their university?

- What is "staffing efficiency" and how does it affect the learning and research performance of a university (i.e., value for money)?

- What should students do if they feel that they are not getting value for money?

The famous American investment entrepreneur, Warren Buffett, once wisely observed that,

"Price is what you pay. Value is what you get."

In this chapter we look at what students should expect to get in exchange for the money that is paid to universities to provide their education. It does not matter whether that money comes from the students themselves; the government; corporate sponsors, or other benefactors – in any reasonable assessment, all the money that a university derives for education is because of the students and their learning and research needs. However, in practice, not all university expenditure can be directed towards these ends and, hence, there is always an issue of whether a university has delivered value for money, and who is responsible for ensuring that it does.

In terms of size, universities are significant organisations by any standard. Even small universities can have budgets of hundreds of millions of dollars – larger, international universities have budgets in the billions of dollars, and some North American universities even manage investment portfolios in the order of tens of billions of dollars. With this in mind, the undergraduate student might assume that there are numerous checks and balances in place to ensure that universities act with financial propriety and provide "value for money" – and, to a large extent, there are. Universities generally have internal financial experts, investment advisors, internal auditors, external auditors, finance committees, governing councils, and so on. In principle, these experts have a role to play in ensuring that universities deliver value for money to the students they serve.

Ultimately, however, the only real arbiters of value for money can be the students themselves.

One might well ask how an 18 year old student is supposed to make sense of telephone number sized budgets, and then determine whether or not they have received a fair deal – and, moreover, what is a student to do if he/she feels that they have not received value for money from the system that is in place to serve them. Ironically, this assessment isn't as difficult as it seems, and undergraduate students all have an important role in keeping pressure on university leaders to ensure that money derived for education is indeed spent on what it was intended for – that is, learning and research.

Universities obviously can't expend all their money directly on learning and research – as large organisations, there are numerous outgoings for facilities, functions and services that have to be provided – some visible to the students and some not. Overall, university outgoings can include:

- Buildings, laboratories and grounds ("the campus").

- Academic (lecturing) and research staff.

- Research students.

- Non-education based research (i.e., professional research, contract research and development, etc.).

- Technical Support.

- Administration and management.

- Travel.

- Marketing.

- Supporting services (libraries, information technology, finance, legal, student counselling, etc.).

- Research grants and scholarships.

The university cake has to be divided into a number of slices, and the question for students is whether or not their slice is fair in the overall context. The issue then is what sort of things should go into the students' "slice" of the funding, and what should students be entitled to receive while at university. The basic items should include:

(i)   Quality learning facilities (lecture theatres, tutorial rooms, meeting/breakout rooms, etc.) which are well maintained.

(ii) Lecturing staff who are genuinely knowledgeable in the field in which they lecture, and have sufficient time to dedicate to undergraduate students.

(iii) Laboratories which are safe; well equipped and well staffed with technicians and demonstrators who manage and maintain the facilities, and can support student experiments and projects.

(iv) A basic, functional information technology structure that can support learning and research needs.

(v)   Basic on-line/printed teaching materials that are required for undergraduate study.

(vi) Access to specialised software/hardware required to undertake study programs.

(vii) Private study areas where students can work collectively on assignments and projects.

(viii) Library facilities, including both hardcopy and electronic information – in particular, text books prescribed for courses should be readily available in libraries and in sufficient volume to make them accessible even during peak demand. For senior undergraduate students and postgraduates, libraries should also stock a relevant range of journals and conference proceedings.

(ix) A campus which is well maintained and provides sufficient space for social and recreational activities; student meeting areas, and so on.

(x) Basic support services including student administration, access to computing and Internet; general software, etc.

(xi) Extraneous supporting services, including counselling, careers advice, basic nursing/medical, etc.

Over and above these basic items, the better universities may choose to provide other facilities and services, including:

- Individual mentoring for undergraduate students.

- Comprehensive tutorial support, including personalised support for students with emotional or physical difficulties.

- Comprehensive printed/on-line teaching materials rather than just basic notes.

- Facilities and financial support for clubs and societies.

- Sports and recreational facilities (gymnasium, swimming pool, etc.).

The unfortunate reality, however, is that not all universities even provide the basic elements required to support undergraduate education, much less those additional items which could be considered as above and beyond the call of duty. So, where does the money go?

As previously noted, a university budget is divided into numerous elements, but these can be simplistically categorised into two basic types of expenditure:

- *Core activity costs* – academic, technical, library and research staff; research scholarships; facilities (and maintenance staff), and information technology infrastructure (and support staff).

- *Overhead costs* – management, administration, marketing, legal, finance, etc.

In an ideal world, one would naturally wish to expend 100% of a university's turnover on core business and none on overheads but, in practice, some overhead costs are essential in order to have a functioning organisation. The difficulty is in determining what ratio is reasonable in terms of core activity expenditure to overheads. In business, this ratio might be as high as 90%:10% - in universities, however, the ratio can be less than 50%:50%. The ratio is important to students because, for every dollar that is expended on overheads, there is one less dollar expended on core activity, and this impacts

directly upon students and whether or not they gain value for money from their university.

Figure 9.1 shows the staffing efficiency of Australia's universities, based upon staffing figures compiled in 2006 by the (then) Department of Education Science and Training (DEST) (Appendix B of this book contains a more detailed analysis).
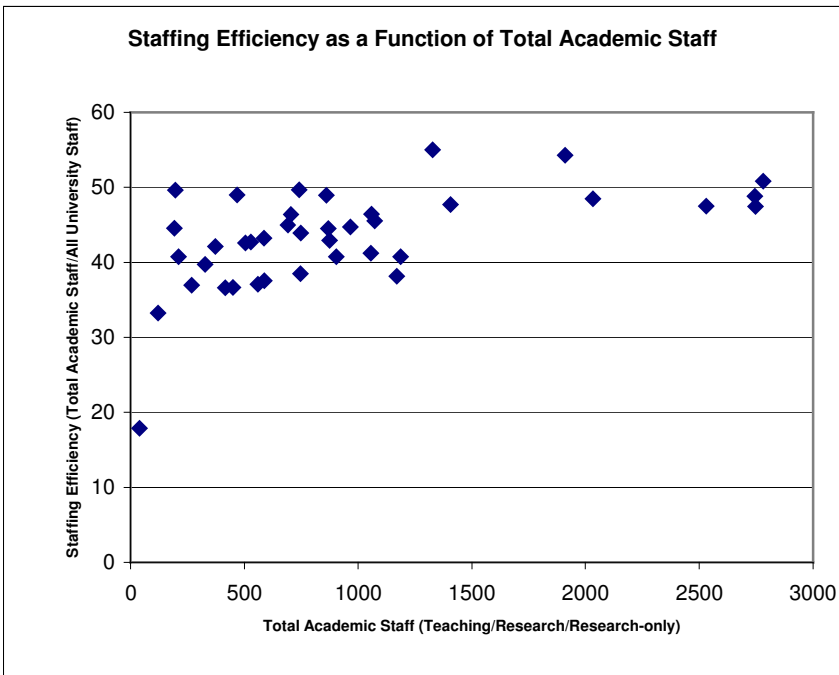
Figure 9.1 – Staffing Efficiency of Australia's Universities, as a Function of Total Academic & Research Staff at Each University (Staffing Figures from DEST, 2006)

Staffing efficiency here is defined as the ratio of core staff (i.e., academic and research staff who are engaged in learning and research activities) to total university staff (i.e., management, administrative, academic, research, marketing, technical, etc.).

Figure 9.1 shows that universities with a higher number of core staff (i.e., larger universities) tend to have a higher staffing efficiency than those with a smaller number of core staff (i.e., smaller universities). In some smaller universities, the ratio of core staff to total staff is less than 40%, whereas in larger universities the figure approaches 50%.   There is nothing remarkable about this phenomenon in the sense that size creates efficiencies in most organisations, particularly in business, and leads to better returns for shareholders.   In Australian universities, there are no profits to return to shareholders, but the benefits of staffing efficiency should be visible to students through:

- A university with a greater depth and breadth of academic and research expertise.

- Better campus and facilities as a result of proportionately lower overheads.

Students considering study options at several universities can readily determine their staffing efficiency by examining the statistics pages on the universities' websites, or by downloading the data directly from the Federal Government website (i.e., the Department of Education Employment and Workplace Relations).

Figure 9.2 shows how the performance of Australian universities relates to their staffing efficiency – again, Appendix B of this book contains a more detailed analysis.

University Performance as a Function of Staffing Efficiency
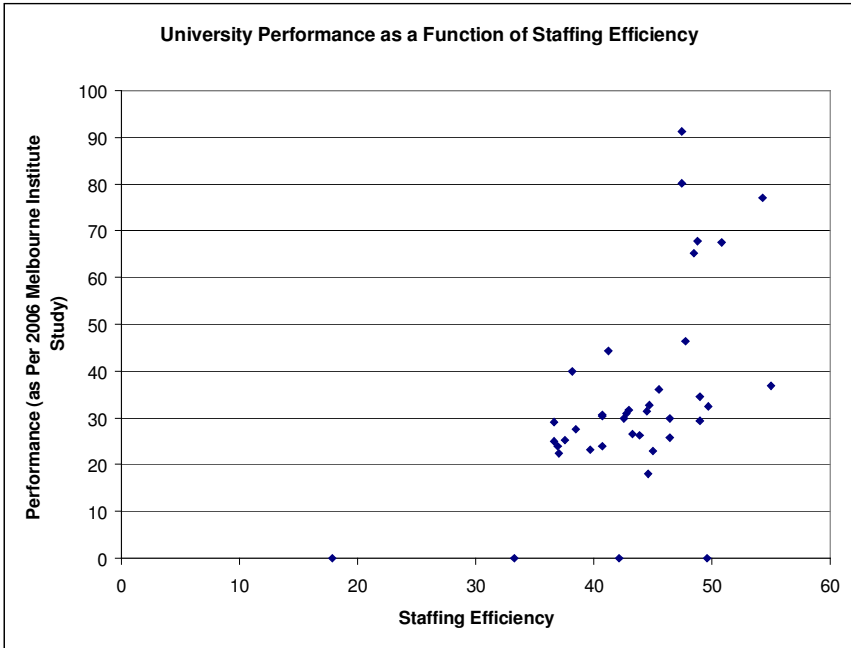
Figure 9.2 – University Performance (as per 2006 Melbourne Institute Rankings) as a Function of Staffing Efficiency (DEST 2006 Figures)

Not surprisingly, perhaps, Figure 9.2 shows that the Australian universities with the lowest staffing efficiency also tend to be those that are the poorest performing when subjected to an external assessment of learning and research outcomes. In this case, the performance figures were derived from the 2006 Melbourne Institute study on discipline rankings but, given that much of this study was itself largely based upon government (DEST) performance

data, there is some confidence that any independent review would yield similar results.

Staffing efficiency is therefore also important to students who are already at university because a university with a low staffing efficiency is less likely to be able to deliver good learning and research outcomes – that is, value for money. Ultimately, students do not go to university to admire the management, finances, administration or marketing of the organisation but to make use of the core elements related to learning and research.

The problem with overheads, such as management, marketing and administration, is that they tend to become an end in their own right – good management for the sake of good management; good marketing for the sake of good marketing, and good administration for the sake of good administration. In all organisations, therefore, there is a tendency for such costs to naturally increase, simply because those involved in them believe they can improve their performance with more resources and more staff. There is also a natural tendency in developed societies for statutory regulation and bureaucracy to increase, thereby increasing the complexity of management and administration.   The corollary of increasing overheads is a diminution of the amount of money available for the core functions of learning and research – that is, a decrease in the "value for money" provided to students by a university.

Importantly, because management controls the purse strings of an organisation, there is a general trend to avoid cost cutting that affects management, marketing and administration, and to push cost cutting down to a lower level (core business). So, as a general trend, if left unchecked, the ratio of core business expenditure to overheads

generally declines over time, and an organisation becomes less productive and more top-heavy.

In the business world, there is a large force which acts to drive down the amount of money expended on overheads – this force is competition. Whenever new players enter an established business arena, they seek to gain market share by undercutting or outperforming the existing players. New business players tend to start life as lean, flexible and responsive organisations – simply because they don't have the money or cash-flow to be top-heavy. Hence, for this reason, any "fat" in the broader system, in the form of overheads, has to be kept to a minimum in order to keep existing players competitive. Those that are not competitive are forced out of the market. Of course, even in business, when the environment stagnates, and there are no new players entering (or existing players leaving) the market, then there is no force to drive down overheads, and all the existing players become disproportionately top-heavy. This also occurs in the extreme case where a business has a monopoly on the type of business it conducts.

Sometimes there are other forces that prevent new players from entering a market to drive down overheads – for example, "cost of entry" into the marketplace can be a big factor, which means that unless new players have vast financial resources, they are unable to get a foothold into a market, and existing players have the luxury of a stable environment which becomes progressively less efficient. A good example of a market place which has a high cost of entry would be the passenger aircraft industry, where a new player would need to invest billions of dollars, up front, in order to become a serious competitor to the established players. Such a market tends to be

relatively stable, with only a few key players that each tend to migrate towards a fixed proportion of the market. At best, players can compete by each seeking to take a higher proportion of their competitors' market shares – but, with all players well established, the gains tend to be only incremental, and oscillate backwards and forwards as each competitor responds in kind. At worst, the remaining players in a stable market can be content with their share of market and collectively become less efficient than they might otherwise be. In practice, there is generally no dramatic downward pressure on the market until a new player seeks to acquire a substantial proportion of what the existing players already have – by undercutting them or by providing a better product or service.

The university environment is a relatively stable/stagnant market in Australia for a number of reasons. Firstly, in Australia, universities are generally underpinned by government funding. Although it is technically possible for a university to "go broke", it is interesting to note that in the first hundred and fifty years of operation, not a single university had ever done so, despite some having amassed considerable debts and financial problems – the worst case scenario is generally that a poorly performing university would merge or be absorbed into another university.

Secondly, the financial and regulatory barriers to new players entering the university marketplace are enormous – new universities would need to get regulatory approval from the government to call themselves universities, and potentially invest tens or hundreds of millions of dollars at the outset to set up even a basic campus.

On top of the direct financial barrier to entry for new players is the indirect financial barrier known as "brand value". Universities

that have been in existence for a century, or more, carry with them an enormous brand value based on their contributions to society – this is not something that can readily be usurped by a new player, even if they invest heavily in slick marketing and developing a new brand. It has been estimated that the intrinsic brand value of some of North America's finest universities is in the order of billions of dollars – simply because of the value such brands have in attracting students, research investment, endowments, and so on. The brand value of the university may not be entirely "real" in the sense that such brands are never likely to be sold, but the brand value is indicative of the real money that a competitor would have to expend to have their new brand attract the same level of customers and investment as the established brands. So, brand value is a cost barrier to entry.

The third reason for stability in the Australian university sector is that the domestic student market in Australia is relatively stagnant – there are few opportunities to dramatically increase the size of the cake at a local level, and as the average age of the population increases, the size of the cake actually diminishes.

The only dynamism in the Australian university market arises from internationalism. On this front, there are two threats. One is that, as a major exporter of university education, if Australia's university system performs poorly across the board, then international students may choose to go elsewhere in preference, thereby damaging the viability of some of the nation's universities and their brand value. The other threat is from large, international universities, which have both the brand value and the resources to overcome the barrier to entry, that may choose to establish a base in Australia in competition with the existing universities – that is, to

become new players in the market, seeking to attract market share (i.e., students) from the existing players by providing a better brand and/or educational "product".

In the context of international university education, the student market tends to make decisions about universities on a number of key factors, including:

- University brand.

- International rankings (Jiao Tong, Times Higher Education, etc.).

- Political climate of the country in which the universities are located (i.e., Is the country safe and free from instability, terrorism, etc.?)

- Economic climate of the country in which they universities are located (i.e., What are the job prospects in that country after getting a degree?).

- Immigration policies of the country in which the universities are located (i.e., Is the target country sympathetic to giving residency, work visas or citizenship to foreigners who graduate from their universities?).

- Fees associated with degree programs.

As one can see, beyond the fees and the brands themselves, none of the above international factors go directly to the issue of whether or not universities actually provide "value for money", in terms of what they tangibly deliver in exchange for the fees that are paid.   Many international students are pragmatically "brand

conscious", and simply equate "value for money" with the brand (degree) delivered in return for the tuition fees that are paid. So, even though one might think that the dynamic international student market might provide a large, downward force on university overheads, this is not necessarily the case.

With these points in mind, students need to be aware that the Australian university marketplace does not intrinsically have sufficient downward pressure on overhead costs to ensure that they are at their lowest possible levels and, therefore, that the amounts of money expended on core learning and research are at their highest possible levels.

Successive federal governments have attempted to force universities to improve their efficiency by decreasing the number of real dollars per student which they allocate each year. The theory is that new technologies and management approaches provide pathways to better organisational efficiency each year, and the reduced funding should have the effect of coercing universities to adopt them, without impacting upon learning. In practice, this only works in universities with high calibre managers, because ongoing organisational change is a complex and painful process.

For the remainder of universities, the end result tends to be cost cutting of core activities – that is, reducing academic and technical staff numbers; foregoing maintenance on buildings, lecture theatres and laboratories, etc. This sort of cost cutting is largely invisible in the short term but has dire consequences over a long period of time – because once the deficiencies are identified in the long term, they are difficult (if not impractical) to remedy. Cost cutting of core activities in public organisations, such as universities,

is essentially analogous to asset stripping in business organisations – particularly because, once core assets have been allowed to decay, there is little prospect of acquiring additional funding to reinstate them – since it is a lack of funding that leads to the decay in the first instance.

It is a difficult task for governments to attempt to engender operating efficiencies into the university system from above in order to ensure that the maximum amount of money is expended on core business. It is a task made all the more difficult by the need for university systems to be managed independently of government to preserve integrity. The real pressure point for universities to deliver value for money therefore has to come from the students themselves. It is the students who are best placed to judge how they are being treated at the end of the long and complex chain of strategies and decisions made by government, university chancelleries, faculties and departments.

In Australia, students tend to be overly accepting and forgiving of poor facilities, or insufficient expenditure on core resources, such as the provision of academics who are experts in the fields in which they lecture. When students don't get value for money, there is a tendency to accept at face value the proposition that universities should be forgiven for their sins because they have insufficient funds to do any better. When students accept such a proposition, they should understand that they are effectively absolving university leaders from the responsibility of securing and allocating the resources required for core activities, in order to provide value for money.

It is all too easy for an undergraduate student to be confused by the size and complexity of university budgets and expenditures. In general, when universities don't deliver value, they therefore tend to rationalise their actions with complex financial arguments, perhaps in the hope that this will dissuade students from taking matters further. Ultimately, however, financial arguments are not the students' concern – these are matters for university management. Students should therefore not be sidetracked from getting value for money by arguments based upon budgetary considerations.

In order to simplify the situation, let us therefore consider the fundamentals of value for money for students, unsullied by complex budget and funding issues. The basic facts are these:

- Students have a right to have good facilities, good academic staff, etc. Most universities have, in their Act of Establishment, a formal commitment to providing quality learning and research outcomes, and consequently, adequate staffing, student facilities and services are central to this.

- It is not a matter for students how universities are funded; whether they receive adequate funding, or even how they organise their budgets to provide facilities and services. It is the students' concern when these basic items are not delivered.

- University leaders are very well paid to ensure that facilities and educational services are provided to students, and to secure funding and resources accordingly.

- If a university is under-funded, or mismanaged to the extent where it is unable to provide quality educational staffing, facilities and services, then the university leaders have a formal responsibility to act by either securing additional funding from other sources; restructuring the university (e.g., cutting overhead costs; merging the university with another entity, etc.) or, ultimately, even closing the university and transferring the students elsewhere.

- Universities exist for the benefit of students and society through a compact of mutual learning – they do not exist for the sake of existing, or simply as historical curiosity pieces, for the sole reason that they have been in existence for decades or even centuries. When universities cease to provide benefits to students and society, for whatever reason, they forfeit their right to exist.

When the arguments are simplified to this level, it becomes clear that students have an important role in making the universities more efficient; more accountable, and better at delivering learning and research outcomes.

So how does a student really know whether or not their university is delivering value for money? There are several ways of determining this:

- *Staffing Efficiency* – it is a simple matter for students to get data that illustrates how efficient their university is in comparison to other universities – the general rule is,

the poorer the staffing efficiency, the poorer the management, the poorer the learning and research outcomes, and the poorer the value for money.

- *Instinct* – most students are intelligent enough to know when they are being treated poorly – perhaps they are being provided with "fill-in" lecturers who know little or nothing about the field in which they lecture, or perhaps the lecture theatres are dilapidated and untidy – perhaps there are no laboratories or there are inadequate technical staff - there are numerous tell-tale signs.

- *Benchmarking* – most students have peers/colleagues in other universities – they should compare facilities, etc. Spending the time to visit a few other universities in the local area, and making a comparison, is a valuable exercise. Browsing the Internet to look at the facilities and programs offered by the world's leading universities is another good way to assess where one's own university fits in at an international level.

- *Rationalisation from the university* – students that are subjected to ongoing rationalisation from academic staff or university leaders should be able to determine there is a core problem *("…we've had numerous cutbacks…"; "…the number of dollars per student decreases each year in real terms…"; "…we simply can't afford to run real laboratories, we need to simulate…")*

These are all things that can be considered collectively by students and, if the determination is that value for money is not being delivered, the issue then becomes "what do we do next?".

History shows us that most students will simply ignore the problems and "make do", thereby leaving the problems to the next cohort of students, who will also "make do", and leave their problems to the next cohort, and so on. There is a perception that it is not the students' role to initiate change in the system. There is also a perception that students don't have the capacity to make a change when, in practice, university leaders are more likely to respond to widespread, genuine concerns from students than they are to many other external pressures.

The other reason for students failing to initiate corrective action when value for money is not being delivered is that students are genuinely preoccupied with passing their subjects, and other personal pursuits, and feel that they don't have the time to turn their attentions to broader, underlying issues such as fixing the university world – *"…Why should I have to do it? Let somebody else fix it…"*.

The answer to the question of *"why should I?"* is relatively simple – responsibility. When students enter into a university, whether they like it or not, and whether they have chosen it or not, they become endowed with adult responsibilities. The students become the *de facto* "parents association" whose role it is to look after not only their own interests, but also the interests of other current and future students. Put more succinctly, in the words of John D. Rockefeller,

"…Every right implies a responsibility; every opportunity an obligation, and every possession a duty…"

For those students who understand that universities do endow them with rights; with opportunities, and with possessions to pass on to the next generation, there is a need to accept the mantle of responsibility, obligation and duty. In so doing, and in recognising areas where a university does not deliver value for money, in keeping with its charter for learning and research, there is a basic sequence of steps to follow:

(a) If a problem has been identified by an individual student in the context of not receiving value for money, then that student should discuss the issue with his/her peers to determine whether there is a widely held view about the problem.

(b) A problem identified by an individual, which appears to be unique to that individual, needs to be tackled differently to a problem shared by many peers.

(c) If there is a widespread belief amongst student peers that the university is not delivering value for money, then the most effective form of response is a collective one. This amplifies the message that is being sent and ensures that it does not appear to be a petty or personal grievance.

(d) Universities tend to encourage students to provide feedback via surveys. While these provide one forum for voicing grievances, the reality is that feedback surveys are treated as bureaucratic, administrative

documents which have only limited impact *("…the statistics aren't particularly good this year but we expect them to improve…")*.   It is far better for students to formally raise issues of concern by creating a separate forum, so that it creates a punctuation mark in management and focuses university attention – there are various forums open to students, including the faculty management, faculty board, academic board and university council.

(e)   In the context of "value for money", an issue of concern should be formally raised in writing, with the offer of meeting appropriate university staff to discuss possible remedies later.   Any written documents should be businesslike; based upon facts and data (rather than emotions and opinions), and free from petty, personal remarks or observations. Specific problems should be clearly enunciated. Wherever possible, university staff should be referred to by their titles, not their names, to avoid any suggestion of issues being based upon personality.

(f)   Any problems that are raised should be raised in conjunction with a possible pathway to resolution – for example, *"…we believe that the lecture theatre for the XY101 subject is dilapidated and unsuitable for educational purposes and the remaining lectures should be moved to a new venue..."*

(g)   Any problems that are raised in the context of "value for money" should be worded in such a way as to pre-empt

a response from the university suggesting that it does not have sufficient funds to remedy the problem. For example, *"…the university chancellery will be only too aware that it is funded by the government and the students for the express purpose of providing quality education in engineering, and this requires quality laboratories and technical staffing – these have not been provided…"*

(h)   Problems with value for money that arise from inadequate resourcing by the university should be sheeted home directly to the university leaders to avoid buck-passing the issue back to the students. For example, *"…it is not for the students to advise the university where it should derive additional funding or how to divide that funding – the students have identified serious inadequacies in the value for money provided in this course and it is our expectation that the university management will accept responsibility for the problem and remedy it by providing those resources…"*

(i)   As with all problems encountered at university, there is a chain of command, and students need to decide what level in the chain needs to be addressed in the context of a complaint in regard to value for money. For example, issues relating to poor academic staff or academic staff who are not experts in the field can be addressed to a head of department or dean in the first instance. If no satisfactory response is received then the complaint needs to be moved to a deputy vice chancellor, vice

chancellor and, if still unresolved, to the university council via the student representative if necessary.

(j)   In all cases, if a university is unwilling to address an issue of value for money which appears, from the student perspective, to be a valid one, then the student should move the matter outside the university to a local federal or state member of parliament or the relevant federal or state minister for education. If the issue involves a breach of university procedure or policy, then the matter may also be referred to the relevant Ombudsman.

(k)   If an issue of value for money pertains only to an individual student and not to the wider student body (for example, a student who feels his marks are not an accurate reflection of his performance, or perhaps a student who is unfairly charged for a subject after withdrawing from it), then that issue needs to be addressed, in the first instance, through the rules and regulations of the university – tiresome as this may be in a large, bureaucratic organisation, there is little practical scope to remedy such a problem without first going through the standard procedures. Only after the standard procedures have been exhausted, without resolution, should a student move up through the chain of command and, if necessary, through to state and federal members of parliament.

(l)   In all cases, students should familiarise themselves with their representatives on the university council and,

whenever necessary, put forward suggestions to their representative to raise with the council for improving the university from the students' perspective.

The moral of this chapter is that although one may expect to automatically receive value for money from the university system, in practice, this sometimes has to be earned, and sometimes has to be fought for through an acceptance of responsibility and by challenging the system itself. And, in the words of Winston Churchill,

"The price of greatness is responsibility".

Chapter 9 Summary:

(i)   *Students are entitled to a basic set of resources and services that aid in their learning and research – the extent to which these are provided constitutes the value for money that a university provides those students.*

(ii)   *Although value for money is generally something which is indirectly alluded to in the various Acts of Establishment of universities, it is not always provided.*

(iii)   *Students need to understand that in the university system, as adults, they are the ones who need to take up the mantle of ensuring that a university not only delivers value for money to them but to their peers and successors in the system.*

(iv)   *A key element in universities delivering value for money is staffing efficiency (that is a high proportion of academic and research staff to total staff). Students should monitor the staffing efficiency of their university and, if it fails to meet national competitors, the issue should be brought to the attention of the university because it directly affects student learning and research outcomes.*

(v)   *A failure to deliver value for money can affect an individual student or an entire collection of peers. The processes involved in individual problems are different to those of a group. An individual faced with a problem needs to work through university procedures and protocols. A group confronted with a problem can elect to go around those procedures by voicing their concerns directly and forthrightly with university managers.*

(vi)   *Students should not be dissuaded by financial arguments (from university management) from pursuing issues that affect the value for money they receive from their education.   University management has a responsibility to provide value for money and it is not the students' concern how they organise their finances to achieve this end.*

(vii)   *Many students are reluctant to challenge a university when it fails to deliver value for money. This not only represents an error of judgement, but also diminishes the opportunity for resolving a problem that may be passed on to the next generation of students.*

10

University Research

Read this chapter if you would like the following issues addressed:

- What is university research?

- How does university research impact upon undergraduate students?

- How do undergraduates determine whether or not their university undertakes quality research?

Many students go through their entire period of undergraduate study without ever understanding the details of the research that goes on within their university. Some students graduate without any understanding of how universities conduct research, or how the quality of outcomes is assessed. There is usually a simple acceptance that what goes on has some value, and that university research is well outside the realm and interests of undergraduates. However, university research is of importance to undergraduates for two reasons, specifically:

- The basic tenet of university learning is that academic staff have a role to play in not only imparting fundamental theories but also cutting edge knowledge from their field of specialisation. Academic staff therefore need to undertake research to remain at the forefront of the knowledge wave in their area. This is a benefit that should flow on directly to the students.

- A proportion of undergraduates (typically between one and ten percent) will go on to undertake some form of professional research (in either universities or industry) after they complete their first degree, and they need to understand the nature of professional research.

The common public misconception in regard to research, whether conducted at universities or elsewhere, is that it is an open-ended and unstructured quest for knowledge and/or solutions to problems.   There is also a view that researchers can simply

undertake whatever investigations they feel are appropriate, unfettered by any boundaries or financial considerations.

From the outside, therefore, it can appear that the university research environment is simply composed of a collection of intellectuals, acting in some random manner, and occasionally producing some major breakthrough in science or perhaps medicine. However, as we shall discover through the course of this chapter, professional research, such as that conducted in universities around the world, is far more structured; far more systematic, and far more restricted in its scope. For example, while it may be the broadly stated objective of a major research institute to cure a particular disease, the reality for individual researchers is that they would conduct their research on one small element of a large research program, which may have thousands, or tens of thousands of individual elements. Even within that small element, the number of pathways investigated by an individual researcher is restricted by time and resources.

So, the first point that needs to be noted about university research is that it differs from the notion of "invention" in the sense that it is not simply about fossicking around for a solution to a problem, or about creating a new product for which there is no existing basis.

University research, like other forms of professional research, needs to have a logical starting point and needs to be conducted systematically in a logical sequence, specifically:

(i)   Identifying a problem or a hypothesis to be tested.

(ii)   Investigating what has been done in the past and what other researchers are currently doing through an analysis of documented information (literature) produced by learned individuals.

(iii)   Based upon the review of scholarly literature, identifying the potential starting points for resolving a problem or testing a hypothesis.

(iv)   Based upon the review of scholarly literature, identifying a logical sequence of steps for resolving a problem or testing a hypothesis

(v)   Developing a strategy for implementing the steps or testing the hypothesis.

(vi)   Developing a range of experiments, models or surveys that can be used to evaluate the method and/or hypothesis.

(vii)   Impartially evaluating/assessing the results of an investigation.

(viii) Publication of the research outcomes in scholarly journals for assessment by others.

Step (ii) is particularly important because it highlights an important issue pertaining to professional research – that is, the research pathway is not just randomly selected because it might be a good idea, as is often the case in unstructured invention.   The pathway tends to be based upon a consideration of what has gone on before and, in particular, what has been rigorously documented by other experts (learned scholars).   While there is some scope for

"pioneering" research, for which there has been no prior (documented) basis, this is more the exception than the rule, and a luxury which is normally accorded to more senior staff who already have an existing track record of achievement in delivering outcomes from the structured research environment.

The other point to note about Step (ii) is that knowledge and information is passed on from researcher to researcher by the written word, whether this be in a printed book or journal or, increasingly, in electronic form on the Internet (as an electronic journal). The purpose of publishing research is to enable other scholars to view the work; attempt to reproduce it and, perhaps, to move the work forward. In many cases, other researchers who attempt to reproduce earlier published work find that they cannot do so, and they may publish findings which dispute previous research.

In the long term, the process of publishing scholarly work creates a public forum in which research can either be confirmed or repudiated. So, if a researcher or research team publish a finding, and over a period of time other researchers corroborate that finding, then those that view the overall process of research discovery can have greater confidence that the original work was valid. Conversely, a lack of corroboration by subsequent researchers could lead to a view that the original work was flawed.

In the university context, therefore, publication is central to the way in which the quality and value of research is assessed. The more times that a piece of published research is cited by others (in a positive sense), the more significant the work is deemed to be. Sometimes, however, research is published but not cited by others simply because there is no broad interest in pursuing the field

further – this does not imply that the initial research was poor or even flawed – simply that it did not create any momentum in the environment to cause others to pursue it further.

Research in universities can broadly be categorised into two types:

- Pure (basic).

- Applied.

Pure/basic research is research that is not targeted towards achieving a specific outcome (e.g., curing a disease). It is simply performed for the sake of increasing knowledge in the field. The fact that pure research does not lead to any direct outcomes does not imply that the work has no value – on the contrary, the extensions to human knowledge that it creates may form the basis of important, subsequent outcomes that have direct benefits for society. Nevertheless, because pure/basic research does not commence from the perspective of achieving a specific outcome, the time period between the commencement of pure/basic research and a tangible outcome can be decades.

Applied research is that which has a specific outcome in mind, at the time it is commenced. For example, the objective of an applied research program may be to develop a more fuel-efficient jet engine. The timeframe between the initiation of an applied research program and the translation of its results into a tangible outcome may be as short as a few years.

Universities generally undertake a combination of pure and applied research, with some universities focused more heavily on one than the other. In general, the more traditional universities

endeavour to focus their activities more on pure/basic research and the newer universities focus theirs on applied research. Governments in most countries recognise the importance of both branches of research and tend to have funding mechanisms for both.

Universities also mix their ratios of pure and applied research to achieve various strategic ends – some universities seek a technological focus while others seek a more theoretical focus. In developing countries, universities tend to pursue a higher proportion of applied research because it leads to short term gains that aid in economic development. In developed societies, there is sufficient wealth to enable the pursuit of long term outcomes.

University leaders are acutely aware that an excessive concentration on pure research tends to divorce researchers from reality and leads to progressively more esoteric research directions. On the other hand, an excessive reliance on applied research means that researchers use existing knowledge but do not necessarily create new knowledge – in the end, if all research was applied then eventually society would stagnate because there is no new knowledge to drive that society forward.

The next question that generally arises in the context of university research is, *"who actually carries out the research?"*. In practice, the research is carried out by a number of different players, including:

- Academic staff (i.e., professors, lecturers, etc.)

- Research staff (i.e., postdoctoral researchers, research engineers and scientists, research assistants, etc.)

- Postgraduate research students (i.e., students working towards their Master's or PhD degrees).

- Postgraduate coursework students (i.e., students who undertake coursework leading towards a Master's degree, and who also have to undertake a research project as part of that degree).

- Final year undergraduate/honours students (i.e., students undertaking final year theses).

Within the above spectrum of researchers, the academic staff are generally funded through a university's recurrent operating funds (i.e., are ongoing staff of the university), but most of the other researchers need to be funded by project-based funding – such as government or industry grants for specific research programs. For this reason, in the university system, some of the senior researchers have the responsibility for generating the income required to fund the others. Hence, the more senior an academic staff member, the less "hands-on" research they would actually perform, and the greater their role in seeking funds, managing research programs, and supervising other researchers and students.

In order to attract funds for research projects from various sources (and, in particular, the government), researchers normally need to compete against one another to win funding from a limited pool. Funds are theoretically allocated in terms of the quality of the researchers and the quality of their applications. This process is known as a competitive granting process, and is in common usage in many countries. The objective of the competition is notionally to encourage excellence amongst research groups.

There are, however, four major disadvantages of the competitive research granting system, specifically:

- A proportion of academic staff, whose salaries are funded by their universities to undertake research anyway, are not able to do so if they are unsuccessful in competitive grants.

- The process of applying for grants is bureaucratic and costly (because academics spend weeks of tax-payer funded time to prepare grants, and teams of tax-payer funded people are required to judge grant applications from many fields).

- In order to have a grant application assessed, researchers effectively have to submit their applications to competitors in the same field. In a large competitive granting system, such as that in the United States, this is not a large problem but, in small countries, such as Australia and New Zealand, where most of the researchers in a particular field know one another, it is a significant shortcoming because it introduces biases into the system.

- The fact that grants are awarded to individual researchers rather than universities makes it difficult for universities to plan and build research programs in a strategic sense, because there is no secure, ongoing source of funding. This also makes it difficult for universities to move research "forward" from a discovery through to applied research, and

subsequently commercialisation – once the competitive funding ceases, so too does the research.

The competitive research granting processes are also questionable in terms of achieving national or societal outcomes – for example, a researcher applying for funds in research field "A" ends up being directly compared with a researcher applying for funds in field "B" – in other words, the system compares apples against oranges – sometimes it chooses to fund the apples (because apples are better than oranges) and sometimes the oranges (because oranges are better than apples). Moreover, on each funding round, the competitive process funds excellence in research teams, rather than a consistent and logical sequence of research programs from an individual team that lead to some societal benefit. In other words, once a "new" team of researchers in field "B" is deemed to be superior to an existing team of researchers in field "A", then research program "A" tends to be discarded in favour of pursuing excellence in "B".

Governments around the world have argued that the competitive research granting process ensures excellence in the system because each funding round requires research teams to be excellent in order to secure funding – this claim, however, remains largely untested, primarily because it is difficult to find equivalent countries who run alternative systems. Certainly, the competitive research granting process is an anachronism compared to industry research practice, where a sequenced program of research is planned and monitored in accordance with strategic requirements. Nevertheless, given that competitive granting processes are an

international phenomenon, they are unlikely to change in the coming years.

Considering the above issues, it should be evident that the process of applying for research grants is a relatively complex one, and undergraduate students will be sometimes made aware, by academic staff members, that those staff are unable to deliver a particular undergraduate outcome because they are preoccupied with writing or submitting grant applications. While this is clearly a "downside" to research, from the undergraduate's perspective, the "upside" should be that undergraduates get exposure to the cutting edge research conducted by such academics – whether it be from final year research projects; specialised lectures or laboratory sessions.

In universities, research can be carried out in a number of different forums, including within:

- Faculties and departments, where academic staff, research staff and postgraduate research students work in the normal university framework

- Research institutes and centres, where research-only staff are specifically appointed to undertake research.

Research conducted within a faculty or department normally tends to mirror the undergraduate and postgraduate learning activities. The purpose of research institutes and centres, on the other hand, is to concentrate research effort into a specific field – for example, meteorology or neuroscience – these fields may not relate directly to the undergraduate learning areas. In research institutes and centres, there tend to be a range of staff who are either

employees of the institute or else seconded by the university from their normal activities to work in the institute or centre. For these reasons, institute and centre staff do not necessarily interact with undergraduate students and, unless undergraduates actively pursued final year or honours projects with such institutes or centres, they may never see what goes on inside them or interact with the staff.

Regardless of whether research is conducted within conventional faculties or within research institutes and centres, there are a number of ways in which the quality of the research effort, and the overall quality of the university, in the context of research, are assessed. Essentially, these include measuring:

- The number of journal/conference publications produced by staff

- The number of times that journal articles produced by staff are cited by other learned researchers (this is known as the citation rate).

- The number of competitive research grants (or dollar income) that universities get – because the grants themselves are an indicator of the quality of the researchers.

- The number of research student completions over the course of each year.

- The number of patents registered by a university.

- The number of awards and honours accorded to university staff (e.g., Nobel Prizes).

The measurements that relate to the number of publications and citations are referred to as bibliometrics. These are used extensively around the world as measures of research activity and performance – the reason being that publication is viewed by universities as the basic forum in which research quality is tested.

The problem, however, with all measurements that relate to university research performance is that they are only indicators of performance and quality – they are neither absolute nor definitive. Moreover, universities and individual researchers inevitably seek to maximise all the performance parameters without necessarily actually providing the substance that is required behind the numbers themselves. It therefore requires considerable expertise, maturity and subjectivity to analyse university research performance data and determine whether such data provides an accurate reflection of reality – simply accepting such information at face value contains an element of risk in regard to misinterpretation. In other words, while research performance data contains information, the translation of that information into a meaningful understanding of performance requires considerable expertise.

Many undergraduate students trawl through university selection guides and choose universities based upon their perceived prestige in regard to research performance. The assumption is that the better the research performance of the university, the better the level of learning for the undergraduate. There are a number of problems with this line of thought. The first is that numerical university rankings, regardless of their widespread acceptance, tend to be simple, formula-based applications of research performance data. Although rankings provide some indication of quality,

students should not read too much into them, simply because of the expertise required in order to interpret them. For example, one university may numerically rank better than another simply because of its size, rather than the intrinsic quality of its staff. As Figure 2.1 clearly shows, Australia's publicly funded universities tend to perform better overall (in learning and research) as they get bigger in terms of the number of academic and research staff, rather than for any intrinsic reason relating to the actual staff in any individual university (or group of universities).

Another example where university research rankings can be misleading is where they count the number of eminent researchers (typically Nobel Prize winners or Fields Medalists), as one of their performance indicators. In this case, the significance of such a number depends upon whether the recipients conducted their prize winning research at the university in question, or whether they were simply recruited at a later date in order to buy prestige – in other words, whether the university nurtured international research stars or simply purchased them after they became eminent. These are all issues that need to be considered by experts, rather than simply accepted as facts, based on data in a university "score sheet".

A person considering the choice of a university can, however, take some comfort in knowing that the major university rankings do present a reasonable portrait of the world's universities in terms of their ability to:

- Achieve critical mass in research.

- Nurture and develop world leading (eminent) researchers.

- Provide research infrastructure and support.

- Attract world leading (eminent) researchers who can go on to create other international research leaders.

However, and perhaps more importantly for undergraduate students, good research performance does not necessarily translate into good learning experiences for students – even though research should be a natural driver for education and learning. Sometimes, staff who are outstanding researchers are either poor educators or have little or no interest in (or understanding of) undergraduate learning – for those staff, research is their primary interest. Conversely, some academic staff who have a limited research track record are outstanding educators because that is their primary interest. It is also the case that universities with strong research track records tend to reward staff for their research performance rather than their ability as educators – it is not surprising, therefore, that in such universities, undergraduates may be relegated to a lower level of importance than they would be in less research intensive universities.

Within the university system, undergraduate students also need to learn to accept the anomalies of variations in academic staff quality for what they are. Students need to accept, for example, that highly regarded researchers may contribute greatly to their learning despite the fact that such staff are poor educators – their contribution to student learning is in passing on cutting edge knowledge – and not in terms of providing well-prepared, "*easy to understand*" lectures.

Students also need to understand that one of the benefits that they enjoy in the majority of their early undergraduate subjects is that, because those subjects tend to be "fundamental" in nature, and have been taught for years or decades, the learning tools used to convey the long-established knowledge have been well refined. As students move into their more senior years, they are exposed to more and more leading edge knowledge, and information based upon research. For this reason, the educational tools that have been developed to convey this knowledge to students tend to be less refined. At the same time, because the students receiving the information are more mature, there is an expectation that they will be able to fill in the blanks left by the gaps in the education process. Overall, therefore, students need to provide some latitude in the quality of the learning process as it pertains to state-of-the-art knowledge emanating from research – but, students should neither blindly accept nor endure a marked lack of interest in their learning emanating from research oriented academics.

For most students, the primary connection between university research and undergraduate study comes in the more senior years, where students undertake more project/thesis work, and less structured lecturing and/or laboratory work. Students may be given the opportunity to undertake projects in conjunction with research-focused academics in the faculty, or with research institutes/centres connected with the university. In some cases, students will have the opportunity of working with Doctoral or Master's research students or, perhaps, postdoctoral researchers who are experts in a narrow field of research. Exposure to such research projects and staff maximises the benefits that students can derive from their university

education and students should endeavour to pursue such options wherever possible.

In undertaking final year or honours projects with research staff or research oriented academics, students also need to be wary that they are not exploited for non-educational purposes. Given the nature of the university research environment – that is, one which is focused on publication and competitive grants, it is not surprising that staff may endeavour to maximise their performance in these activities. Part of this can occur by asking final year or honours students to write and publish papers on their work. In principle, publication in an international journal can be of significant benefit to undergraduate students, particularly if they wish to pursue a research career later in life. In a broader sense, however, it is not the role of the undergraduate student to enhance the career prospects of a university's academic and research staff. For this reason, care needs to be taken in deciding whether activities that are allocated to students during undergraduate final year / honours subjects are for the purposes of learning, or for the benefit of the staff. If it is the former, then students should take advantage of the opportunity – if it is the latter, then students should voice their concerns.

At the end of the undergraduate learning process, perhaps as a consequence of their involvement in final year or honours research projects, some undergraduate students may be inspired to continue their research as postgraduates within the university system – and become the knowledge creators of the future.

Chapter 10 Summary:

(i)   University research is a systematic and structured process of investigation that differs markedly from the notion of invention.

(ii)   University research can be undertaken by academic staff; research staff (postdoctoral researchers); research students (PhD and Master's candidates) or even senior undergraduates

(iii)   University research can either be undertaken within conventional faculties or within research institutes and centres.

(iv)   University research tends to be funded on a project by project basis, and the funding for projects is normally issued on a competitive basis.   The result is that the greater the research income for academics, the more likely they are to be perceived as high calibre researchers.

(v)   The basic measures of research are publication (and subsequent citation by others) because this is the way that the validity of research is tested – by exposing it to other learned experts to extend, reproduce or challenge.

(vi)   There are numerous ways of measuring research outputs and research quality.   Some of these are used to rank universities. However, understanding numerical rankings requires significant expertise in its own right.

(vii)   *Students should benefit from university research through exposure to leading edge knowledge and through participation in research projects in their senior undergraduate years of study.*

11

The Professional
Career After University

Read this chapter if you would like the following issues addressed:

- What do students need to do in order to move from undergraduate study into a professional career?

- What changes will students experience in moving from the university environment to professional employment?

Winston Churchill once said that,

"*Success is the ability to go from one failure to another with no loss of enthusiasm…*".

Churchill's observation, together with the old adage that,

"*The man who never made a mistake never made anything…*"

 summarise an important characteristic of professional life, and one which differentiates the professional world from the undergraduate world.   The sayings highlight that mistakes and failures are an integral part of moving forward.   Needless to say, graduates who have just spent 17 – 19 years of their lives being encouraged to always arrive at the "correct answers", and to avoid "mistakes", can therefore find the unstructured professional world markedly different from the secure constructs of the academic environment.

Regardless of the career that is chosen, and regardless of the decisions made along the way, those that learn to accept mistakes and failures, as an integral part of professional development and learning, are those who best embody the principles of a professional – that is, a person who can grow through increasing self-awareness, rather than by masking over shortcomings.

In the university undergraduate environment, the majority of students become accustomed to the notion of continuous success, simply because the majority of students do succeed and move on a steady upward path through their study program. This success isn't purely coincidental or based solely upon student capabilities. It is, more likely, related to the fact that undergraduate studies are

specifically designed to provide a controlled environment with a series of upward challenges or steps. Of particular significance is the fact that the success of one student is generally not predicated on the failure of another – in other words, there is no filtering force acting to prevent all students from performing well and moving forward, should they make the effort.

Once out of the rarefied university environment, which has the effect of nurturing, encouraging and building, graduates encounter a far less structured environment, which is very much based upon issues of promotion through filtering, and individuals moving forward at the expense of other individuals.

The professional workplace is a pyramid, the base of which contains a large number of graduate positions – then each upward step contains fewer positions, until the apex is reached, where there is only room for one individual. Each step up the workplace pyramid requires contenders to be eliminated and, with each step, the stakes become higher – the remuneration increases; the level of authority increases, and so on. The movement of one individual up the pyramid is therefore generally at the expense of another, and the environment is competitive rather than nurturing.

Regardless of whether the professional environment is business, industry, health, public service, or even the arts, there are pressures imposed on that environment which require the individuals within it to deliver outcomes, and to add "value" to the organisation. The more value that individuals add, the better their prospects for moving up the professional pyramid.

For those students who are in the final months of university study, the notion of adding value to other parties is not one that comes naturally. To begin with, most students have spent their entire lives, up to the point of graduation, seeking personal outcomes (good academic results, etc.). For this reason, they tend to be inward looking in examining how they perform in terms of their own betterment and growth. Employers, on the other hand, want people who are outward looking. In other words, they are more interested in what individuals can offer the organisation if they become employees, and less interested in how this contributes to the personal betterment of the individual.

Employers are particularly focused on issues such as the enthusiasm and commitment that new graduates can bring to a position, rather than just their academic results. In most cases, employers are also interested in the inter-personal skills that applicants have, simply because few professionals are able to function effectively in isolation. Sometimes, employers look for evidence of leadership ability, because they are interested in having a long-term relationship with new employee, beyond the narrow confines of their starting position – this provides the employer with some stability and long term flexibility.

So, in seeking to make the transition from undergraduate university study to a professional career outside the university, students in the final stages of study have to undertake another learning journey – that is, to go from being inwardly focused individuals, to become people who learn to observe the world from the perspective of others – specifically, to view themselves in terms of what value they add to others.

For those students who have had work experience in their secondary school and university years, the transition to the professional work environment is smoother than for those who have solely been engaged in studies. There is an understanding that, much as one might wish it to be otherwise, the workplace is not there for the benefit of the individual – the individual has to adapt to the needs of the work environment.

The old saying that, if work was always enjoyable then they wouldn't need to pay people to do it, is one with which graduates have to come to terms, when they leave the university and join the workforce.   Of particular importance is the fact that most students have to make the transition from a lifetime of being a customer (student) who has expectations of service, to becoming the service provider that has to deliver on other people's expectations.

A few of the basic issues that students have in adapting to the environment include a continued mindset of preconceived expectations – specifically, that the workplace:

- Has to utilise the specific skill set which graduates acquired while at university because otherwise the learning has been wasted *(- the workplace normally requires a broader application of knowledge than that which is developed at university).*

- Is obliged to provide graduates with an ongoing stream of interesting and stimulating activities *(- the workplace generally exists for the broader benefit of its stakeholders, rather than for the personal benefit of an individual).*

- Has to recognise and respect the intellect of graduates and their academic record of achievement *(- respect in the workforce has to be earned, and is based upon the value that individuals add to the workplace).*

- Has to provide avenues for personal growth and development *(- again, the workplace exists for the broader benefit of its stakeholder, rather than for the benefit of an individual).*

In the ideal case, the professional workplace might provide all the above benefits and many more. In reality, graduates have to learn how to accept and manage situations where the workplace doesn't behave in the manner that they expect.

As a starting point, graduates have to recognise that the majority of professional positions, whether they be in business, industry, government or medicine, are founded on the principle of repetition – specifically, having individuals performing the same tasks over and over again. This can manifest itself in various different ways, including:

- Engineering professionals who are responsible for problem solving in mass production.

- Medical doctors who work in general practice, and see an ongoing stream of common ailments, day after day.

- Legal practitioners who work on regularly occurring minor disputes or transactions in business.

- Advertising professionals who need to develop similar, mundane advertising programs for similar, mundane products.

The media tends to give a very glamorised view of the professions which it portrays in the artistic forums of film and television. In particular, the image is one of a constantly changing environment filled with drama, excitement and new challenges. In reality, it would be very difficult for such a world to exist because it would imply that there was sufficient wealth to pay for individuals to be constantly part of a learning curve, and to be challenged by new issues. In the practical professional environment, learning curves are something that are consciously avoided – because they consume time and resources – repetition, on the other hand, brings returns without repeated learning.

Some two centuries after the commencement of the industrial revolution, which is something that people equate with repetitive human tasks, the rhetoric of various industries has changed to make them sound more exciting and glamorous – for example, "knowledge industries", "biotechnology industries", "cyber industries", etc. The reality, however, is that the wealth from these industries is still generated by repetition, just as it was two centuries ago – the difference is in the sort of repetition, and the broader options that individuals now have to change their engagement with the environment.

Of course, for the fortunate few, there are positions in society, typically in areas such as the arts, research, etc., which provide avenues for ongoing change and creativity. Even there, however, one finds the need for repetition – for example, an actor might need

to perform an identical stage show several hundred times in order for that show to be a financial success.

After years of learning, where there is constant change and growth, an individual graduate might therefore find the notion of early professional employment difficult to deal with:

- *"What happens when I am asked to do the same thing over and over again?"*

- *"How do I maintain enthusiasm?"*

- *"How can I grow and develop as an individual?"*

All of these questions are ones which form part of life's new learning challenges after university.

Interestingly, various studies show that graduates tend to address these problems by moving relatively rapidly from their first appointment to another appointment elsewhere – usually this occurs within 24 months of professional employment – this tends to be the transition period between an individual's university life as the "*expector*", and the development of that individual as a mature professional (the "*expectee*"), from whom things are demanded. In general, graduate positions don't live up to unrealistically high graduate expectations and, often, when graduates quickly move on to another position, it is not the environment that changes but, rather, the expectations of the graduates, which generally come into line with the realities of the professional world.

As graduates move into synchronisation with the professional world, and come to understand that it is not there solely to serve their personal requirements, they mature to the extent where they

can make decisions about the sorts of things that are important to them in order to grow as individuals. In so doing, they also come to terms with the sort of deals that they have to make with the professional world in order to make such things become a reality. For example, a graduate employee may decide that they wish to move into a management role, where they can have greater autonomy in decision-making – this may require up-skilling, and extensive after-hours learning, in order to handle the added requirements of the position. A graduate may decide that they wish to stay in the same sort of hands-on role in which they entered their organisation, but that they wish to have a greater variety of work – this may require movement from one organisation to another. None of the benefits and freedoms that accrue automatically within the university environment appear without conscious effort or determination in the professional workplace.

As undergraduate university life draws to a close, however, the biggest issue that students have in regard to the professional environment is how to get into it in the first place. In some high-demand areas, the effort required is minimal, and sometimes, the demand for graduates is well in excess of supply – so final-year students can pick and choose from a range of potential opportunities.

For the majority of impending graduates, however, the reality is that there are generally more graduates than there are employment places, so the starting point for entry into the workplace is effectively a competition.

There are a few basic issues that need to be understood before one can enter the graduate employment competition. These are:

- The business process of recruitment.

- The current employment/unemployment rate.

- Outward focus versus inward focus.

- The value proposition.

The most important point about recruitment is that it is "person*nel*" not "person*al*" – it is not about deciding whether a person is good or bad but whether they are suitable for a particular job. In other words, deciding which applicants best match the job requirements. It is also the case that, regardless of the processes that are put in place to recruit individuals, there is always an element of subjectivity that is involved in deciding which individuals best suit the requirements of the job in question. Matching jobs to individuals is therefore a somewhat mechanical process which inevitably needs to be performed by humans with emotions and prejudices – for this reason, it is a process subject to a high degree of error.

In some instances, it may well be the case that a rejected applicant could have become a better employee than one that was accepted – this is the practical reality of recruitment. And, when the process goes wrong, there is no way of reversing time back to the initial decision point to correct the error.

From the perspective of an employer, the recruitment process is simply a business process – good employers endeavour to make the process as objective and impartial as possible because that provides the employer with the best potential outcome in the recruitment. Unfortunately, graduates tend to take each rejection personally, and this is neither productive nor generally reflective of the actual decisions that were made by those that reject applicants.

One reason that graduates take rejection personally is that they sometimes have high expectations about a specific job. Given the error margins in the recruitment process, this is a naïve way of viewing professional job seeking, because there is a finite possibility that, even if a person is genuinely the best candidate for a position, he/she may still be rejected.

Job seeking is therefore very much a numbers game. If a graduate applies for a single position, and is genuinely the best candidate for that position, the probability of getting that position is still less than one.

If we assume (given all the potential error sources in the recruitment process) the chances of getting a position for which a person was perfectly suited were seven in ten then, in the long run, for every ten applications a person would only get seven offers. Pragmatically, the three offers that were missed could well be the ones that the applicant most wanted to have. The moral is that simply wanting a particular position, and being well suited to it, are no guarantee of being successful.

A good way of removing the emotion from applying for positions is to do some simple "back of the envelope" calculations about the chances of getting a job, and then determining how many jobs one needs to apply for, on average, to achieve success.

For example, if one assumes there are ten well-matched applicants for each position, then the chances of getting a position are one in ten at best (in the long run). If a person is not as well matched as other applicants, then the chances may be one in 20 or one in 50.

Sometimes, positions that are advertised are not genuine positions – for example, an organisation (particularly in the case of government departments) may have already made up its mind about who they intend to hire, but are required to go through a sham recruitment process in order to meet various guidelines. For every ten jobs that are advertised, perhaps, unbeknown to the applicants, the outcomes of three may have already been predetermined – so, even if a person applied for all ten jobs, statistically, he/she may get none.

There are two basic solutions to this problem. The first is to focus on applying for jobs for which one feels best suited.   This increases significantly the chances of success. The second is simply volume. If the "guestimate" is that there are ten good applicants for every job, then one may reasonably expect to apply for at least 20 to strike success.

Graduates needs to psychologically prepare themselves for the job application process from the very outset by understanding how many applications will be required and how many rejections are likely to be received. Needless to say, when one looks at the process from a clinical perspective, one doesn't need to be disappointed if rejected – rejection simply becomes another step in a business process. And, of course, statistically, there is always the possibility that the very first job application will be successful.

Unemployment rates rise and fall, sometimes temporarily in specific fields and, sometimes, during recessions or depressions, universally across the board.   In periods of low employment demand, students/graduates can quickly become disheartened at the limited prospects and can turn to despair. This, however, again

tends to personalise a business process. If there is a one in ten chance of getting a position during good economic periods then, in periods of low economic activity, the chances may reduce to one in a hundred.

The basic objective of taking the businesslike approach to applying for employment is that it is not about "if" one gets a job but, rather, about how many applications one needs to submit in order to get a match between one's own personal skills and the requirements of the employer. Recessions and depressions can change the number of applications that will be required, but they do not change the basic nature of the process.

Needless to say, in applying for positions, students have to become aware of the quality of their applications, and the quality of their performance at interviews. If the quality of applications is low, or performance at interviews is low, then the probability of securing a position can decrease dramatically. In other words, it can prejudice the "numbers game" against the applicant.

Employers all have different expectations of what is required in terms of an employment application but, in the case of recent graduates, the basic information tends to be similar – that is, a *curriculum vitae* (resumé) containing personal details; academic results; final year projects/theses; work experience; interests, etc. The purpose of a *curriculum vitae* (CV) is to introduce, in writing, an applicant to an employer. Once an employer is sufficiently satisfied with an applicant that they are prepared to interview them, then the CV has done the bulk of its work. The CV needs to present an honest portrait of a graduate but it also needs to present his/her attributes in terms of the sorts of things that are of interest to the employer.

There is little value in structuring a CV such that it only represents things that are of interest to the applicant.

It is therefore useful for final year students to compare their approaches so that they can benchmark their CVs against peers. This is a good way of ensuring that one's applications are up to the sort of standard presented by other candidates.

In addition to getting peer reviews of one's applications, final year undergraduates can also make use of the careers units which are in place at universities to support students in applying for jobs. These units have staff available to assist with the preparation of applications for jobs. In addition, universities, through their careers units, tend to organise careers fairs and on-campus recruitment sessions for final year students.   These provide important employment opportunities, particularly because many organisations use on-campus recruitment of graduates to the exclusion of other options – this means that if final year students miss on-campus opportunities, they may not be able to apply elsewhere to work for particular organisations.

Regardless of the source of job opportunities, professional appointments require students to sit for formal interviews, and it is these that ultimately determine the success or failure of an application. As with the CV, the purpose of the interview is to determine what the applicant can do for the recruiting organisation, and how the applicant believes that he/she is a match for the position that is on offer. This, in turn, requires student applicants to be outwardly focused. Specifically, to understand:

- The nature of the organisation for which he/she is applying.

- The role for which he/she is applying.

- How the skills that he/she has acquired during university study can be directly applied to achieve outcomes for the prospective employer.

- How he/she will be able to fit into the company culture through his/her communication and personal skills.

It is of little value to an employing organisation to know that an individual has a record of high scholastic achievement if that individual is unable to enunciate how that achievement results in benefits to the employer – in other words, the applicant has to match his/her life's experience and qualifications with the specific needs of the employer.

In business terms, a final year university student has to make a "value proposition" to a potential employer through a CV and an interview process at which he/she demonstrates how they can add value by becoming part of the organisation. A good way of putting together a value proposition is to try to understand the employer's value proposition. As a rule-of-thumb, in simple monetary terms, an employer expends approximately twice the value of a salary on an employee when one considers the cost of office space and other overheads. The challenge for the student applicant is not to provide a dollar by dollar accounting of how this money will be returned through work but, rather, to put forward an argument of how the employer's investment will lead to value-added returns which are of direct relevance to the organisation's activities. This requires an

applicant to do some research into the employer organisation, and to understand:

- The nature of the organisation's activities, as well as its strengths, weaknesses and competitors.

- The organisational structure.

- The elements that are of particular importance to the organisation.

Often this research can be conducted on the Internet – sometimes (in the case of companies or government departments), the answers to the above questions can be derived by contacting the organisation and requesting an annual report.

Once the value proposition has been put, and the numbers game has been played and won, graduates have to decide how they will pursue their professional career in the workforce.   A number of issues can arise within the first few years of professional life:

- Do I wish to stay in my core profession for my entire career or to branch out into other areas (such as management)?

- Do I want to have a long term association with my first professional employer, or do I want to gain broader experience by moving from employer to employer?

- Will I seek to undertake further studies in the future to change the course of my career, or to enhance it?

Staying in one's core profession for an entire career shows passion and dedication to one's work but it also has downsides. In

particular, if a professional continues to do the same work, for year after year, following graduation, then the employer may question why they are paying progressively larger amounts of money to that professional, when they can have a lower-cost graduate come in and replace the original person. The status quo is generally not a long term option. So, a graduate has to be prepared to embark on ongoing change. Figure 11.1 is a quadrant diagram that shows, in broad terms, professional career options.
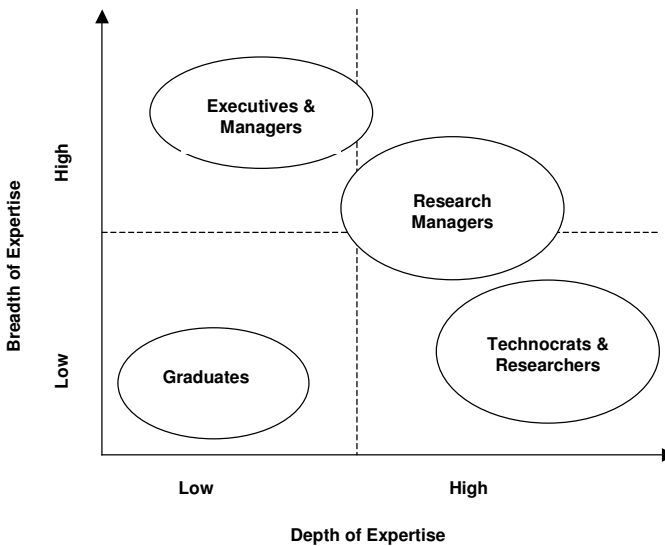
Figure 11.1 – Professional Career Options

Figure 11.1 shows that the options available to a graduate are two-fold, and generally mutually exclusive. Graduates can either increase their depth of expertise and move towards a technocratic or research career, or increase their breadth of expertise and move towards a management career. Companies that earmark employees for management roles will tend to move them around from department to department, or subsidiary to subsidiary, in order to increase their breadth of expertise. Such companies may also support individuals with management potential to undertake postgraduate coursework programs in basic management (such as an MBA or DBA).

In some cases, companies will recognise that individuals would prefer to remain in technocratic positions and will support such professionals in their efforts to increase their specialisation. Sometimes, this might come about by sending those individuals to spend time in central research headquarters in other countries or, perhaps, by allowing individuals to undertake a postgraduate research degree in a university.

It is also generally the case that the commercial demand for highly specialised staff is considerably less than the demand for broader management skills and, so, there is less likelihood of a company supporting increasing specialisation than there is of a company supporting increasing breadth of knowledge.

Historically, loyalty to an individual employer was a trait that was lauded and recognised as a positive attribute. In the modern world, however, this perception has changed for several reasons. The first reason is that companies generally run much leaner than they did in the past and, despite the best of intentions, it is unlikely

that a company would maintain a surplus of employees in bad economic times. In other words, there is little practical prospect of professional employees getting loyalty from an employing organisation, so the imperative for loyalty to organisations has also changed. The second reason is that the lifespan of organisations has decreased as a result of increasing competition, thereby leading to staff having more frequent changes of employment. The third reason is that employers prefer employees to have a broader range of experiences (than they did in the past) in order to contribute new knowledge to their organisation.

A question that therefore arises for many graduates in the professional workforce is how long to stay with a single organisation. The simple answer to this question, from an ethical perspective, is that a professional should stay, at the very least, until they have made a contribution to that organisation which more than recovers that organisation's investment in them. Although there are situations where workplace conflicts arise and prevent this from happening, graduates need to understand that their reputations will be built or lost based upon how their employers view the contributions they have made. All professionals therefore need to look at how much value they have added to their organisation before deciding whether to "career hop" to another organisation.

Some graduates believe that they can move up the professional ladder far more quickly if they career hop from one organisation to another. This is because each time they enter a new organisation they are judged on their own terms (that is, their CV), whereas when they attempt to move up in their existing organisation, they are judged on their employer's terms, based upon

a known track record.   Needless to say, career hopping gives graduates some short term advantages because it enables them to step upward without facing direct accountability for value-adding from the people who employed them.

In the long term, career hopping tends to be counterproductive for two reasons. The first is that professionals who career hop move upwards too quickly, without having gained the substance, life-skills and maturity required to undertake each subsequent step up the pyramid.   This leads to the age-old problem of people being promoted above their level of competence, and crashing badly as a result. The second problem is that those professionals who do get a reputation for career hopping become a potential liability to future employers, who see the "hit and run" pattern of employment as being a high risk – that is, an investment which is not rewarded with a value-added return In both cases, the damage to a professional's reputation can be serious or even irreversible.   In any given profession, the environment is limited; the colleagues numerous, and the corporate memory for rogue professionals is long.   For this reason, poor reputations can spread very quickly through the informal communications networks and undermine an individual's career prospects. The only long-term-sustainable pathway for those professionals who do wish to move from organisation to organisation is to ensure that they have added value along the way before making their move.

Many professionals also choose to grow within a single organisation, and one of the accepted ways for professionals to grow within an organisation is through further training or learning. This tends to allow for either specialisation or for branching out into

broader areas such as management. While many graduates are pleased to escape the learning environment, after a few years in the professional workforce, the concept of learning is viewed differently, and takes on much greater value, both emotionally and from a career perspective. For this reason, it is commonplace for modern professionals to return to their university roots or perhaps explore options in other universities as a natural part of their career.

Whichever career pathway is chosen, in the unstructured professional environment, most professionals will make mistakes; have setbacks, and sometimes lose their jobs as a consequence. The process of making mistakes, and learning and growing from them, is the way that learning takes place outside the university undergraduate environment. To assume that one will go through an entire professional career without making mistakes is either overestimating one's own capabilities or seriously underestimating the complexity of the environment. An important part of professional life is therefore making a basic assumption that mistakes will be made and that individuals will grow from them.

In some cases, it won't be simple mistakes that lead to career setbacks. Almost all professionals, at some stage in their careers, are faced with issues of propriety or principle, where it becomes impossible for them to maintain their jobs without sacrificing their integrity. It is in these situations where the true value of university learning will become apparent – professionals sometimes have to choose between expediency and principle – some will always choose expediency and some will always choose principle. For those that do choose a pathway based upon principle, there is normally a requirement for the professional to either resign or to be retrenched

when the situation at hand is serious. This can cause a career to go into hiatus, or even reverse, for a period of time. The important point here is that this is a natural part of professional development, and those that leave the university environment having acquired, at the very least, principles and integrity, will inevitably have to face such situations from time to time. The expedient alternative, which is to allow issues of principle or integrity to go unchallenged for the sake of maintaining short term career or employment opportunities, is a form of appeasement that inevitably leads to a lowering of professional standards, and the certainty that such behaviour will continue unabated.

Some professionals like to map out their entire careers from the beginning, while others are content to let nature take its course and simply focus on being the best at whatever they do and acting, at all times, with principle and integrity. In the final analysis, as the song goes,

"…life is what happens to you when you're busy making other plans".

The professional graduate would do well to consider this because, in the long term, the best career strategy is to always act with integrity and add value, rather than planning for career paths that may never eventuate.   It is genuine value adding that builds careers of substance, and creates demand from employers.

University life is therefore an opportunity for students to grow as much as possible in preparation for what happens in professional life after university.

Chapter 11 Summary:

(i)   *The professional employment environment differs markedly from the undergraduate student environment in the sense that there are boundaries and limitations on the number of people who can move up the professional pyramid..*

(ii)   *The professional world does not provide a controlled and nurturing environment, so graduates need to be accept that they will make mistakes and experience setbacks, and that these are an important part of the learning process after university.*

(iii)   *The professional world is less interested in what is of interest to individuals, and more concerned with what value the individuals add to the professional world.*

(iv)   *Getting into the professional world from university can be an ordeal for some, particularly in periods of low employment activity. Students in the final months of their undergraduate study should learn to view employment seeking as a business process rather than an emotive, personal issue.*

(v)   *Graduates need to make numerous decisions during the course of their career in terms of how long to stay in their organisation; when to move on, etc. The basic rule-of-thumb for developing a good reputation is to ensure that professionals always leave an organisation having added more value than they have extracted..*

12

Postgraduate
Study Options

Read this chapter if you would like the following issues addressed:

- What options are available to students who want to get more out of university study than a basic Bachelor's degree?

- How can postgraduate study options be pursued and how do they impact upon professional careers?

The influential 20th Century philosopher, Martin Heidegger made the following statement about teaching and learning:

"Teaching is more difficult than learning because what teaching calls for is this: To let learn. The real teacher, in fact, lets nothing else be learned than learning. His conduct, therefore, often produces the impression that we properly learn nothing from him, if by "learning" we now suddenly understand merely the procurement of useful information."

It is interesting to note, in the context of Heidegger's statement, that in universities, the word "teaching" is not widely used because the fundamental tenet of universities is to "let learn".

A university that has performed its role well should have endowed its graduates with the ability to self learn in the broadest sense – that is:

- To read, in the true context of the word.

- To understand.

- To analyse.

- To question.

- To compare.

- To evaluate opportunities.

- To evaluate risks.

- To synthesise solutions.

- To be impartial.

- To be self-aware and self-critical.

- To understand limitations, including one's own.

Armed with these attributes, one might well ask why an individual would consider undertaking further study beyond that which is provided by an undergraduate program.

The answer to this question is somewhat complicated, and there are numerous reasons, including:

- A professional requirement for a particular postgraduate qualification (e.g., a Master of Business Administration degree).

- A personal or professional interest in expanding one's own knowledge by branching out into other areas (e.g., moving from a Bachelor's degree in, say, science, to a postgraduate qualification in arts).

- A need to move from one field to another as a result of maturing in one's own career (e.g., from law to business).

- An interest in increasing specialist knowledge in a sub-field of the original degree (e.g., undertaking a Master of Engineering coursework degree in a specialised area).

- An interest in increasing specialisation by undertaking postgraduate research either at Master's or Doctoral levels.

- An interest in further learning and personal development for the sake of further learning and personal development.

Of course, beyond the formal accreditation provided by universities that offer postgraduate learning, one could ask why formal study programs are required if students have genuinely "learnt how to learn" during their undergraduate education.

In fact, there are several reasons that students choose to study in a university environment, rather than just informally learning by themselves. The first is that not all students graduate from university having "learnt how to learn" – many graduates have a lifelong requirement for structured learning, in which the process is driven and controlled by others. The second is that some areas of postgraduate learning require facilities and resources – it is unlikely that individuals could fund the cost of multimillion dollar laboratories in their own homes for the sake of further learning. The third reason is that, in order to achieve any recognised outcomes, some areas of postgraduate learning (chiefly research) need to be conducted in a structured and controlled environment – for example, the likelihood of someone achieving credibility for a medical research breakthrough arising in a garage is very small.

One other important reason that leads people to undertake postgraduate degrees is the ability to network with people in a narrow field. This is particularly important for those interested in areas such as business and management – the ability to strike friendships with colleagues in the same cohort can present lifelong opportunities and support in a career. This is not something that can readily be achieved by self-learning. In particular, in the case of business schools, the calibre of the school is generally directly defined by the calibre of the people who undertake courses there.

Having decided that there is a need for some people to undertake postgraduate study, the next issue is when such study should take place. Some graduates elect to move directly on to postgraduate study immediately upon completing their undergraduate qualification. Others move into the professional workforce and return to study years later – sometimes on a part-time basis and sometimes on a full-time basis.

There are five basic types of postgraduate degrees that can be acquired from universities around the world, specifically:

(i) *Postgraduate Coursework Degrees* – these are degrees that are composed of a collection of subjects and projects in specialised fields. The titles that arise from such degrees are typically Graduate Certificate; Graduate Diploma and Master's. The sub-titles reflect the specialisation of the study – for example, Master of Arts (European History), or Graduate Diploma (Polymer Science). Sometimes, postgraduate coursework degrees can contain a minor research thesis or project as part of their structure, particularly in the case of Master's level qualifications. As their titles suggest, the scope of postgraduate programs is generally narrower than those undertaken at undergraduate level.

(ii) *Professional Postgraduate Coursework Degrees* - In some university systems, particularly in North America and parts of Europe, the Master's programs are effectively professional extensions to generic Bachelor's programs – for example, rather than offering a simple four-year Bachelor of Engineering degree, some universities can

require students to undertake a three-year Bachelor of Science degree followed by a professional postgraduate coursework degree such as a Master of Engineering (Electrical). In these situations, the Master's degrees are essentially pseudo Bachelor's degrees.   In Europe, this 3+2 (Bachelor's + Master's) structure is referred to as the Bologna Model and it is the one which was first adopted in Australia by the University of Melbourne in 2006.

(iii)   *Postgraduate Research Degrees* – these are also known as higher degrees by research (HDRs) or research higher degrees (RHDs).   These include the Master's (by Research); Master of Philosophy (MPhil), and Doctor of Philosophy (PhD). A postgraduate research degree is generally based upon the completion of a single research project, which is then documented and submitted for examination as a major thesis.

(iv)   *Hybrid Degrees* – typically referred to as professional doctorates, these degrees are composed of both coursework elements and major research project elements, and are often seen in the context of degrees such as the Doctor of Business Administration.

(v)   *Higher Doctorates* – normally, these degrees are of primary relevance to research oriented organisations such as universities. They tend to recognise a history of research work through publication, or significant contributions to a particular field. Such qualifications are relatively rare and are issued in recognition of a

career in research, rather than as a qualification for research.

In general, the flagship postgraduate qualification provided by a university is the PhD, and this is the one which is widely recognised as a formal apprenticeship for research. The other postgraduate qualifications have varying levels of recognition. For example, the Master of Business Administration is one of the most widely recognised Master's coursework programs because it is used internationally as an entry benchmark for many management positions in the workplace. The recognition of other postgraduate qualifications depends highly upon the individual degree.

Some postgraduate degrees have diminished in significance as the learning and workplace environments have evolved. In particular, the value of many Master's degrees has declined significantly for several reasons. One reason is the fact that Master's degrees are sometimes used as qualifiers for entry to Doctoral programs – this has diminished the value of the degrees in their own right. The other factor is the introduction of professional Master's degree programs (outlined in (ii), above). These have effectively accorded professional Bachelor's programs the status of Master's, again leading to a corresponding decline in the value of the Master's in its own right. In Australia, these and other factors led to a steady decline in the number of students enrolling in Master's (research) degrees – a decline of some 40% in the decade commencing in the mid-1990s. The decline in interest for Master's programs has led to a steady increase in enrolments in PhD programs.

The value, to the individual, of a postgraduate degree can vary significantly. Firstly, there are personal benefits which arise from the

enjoyment of learning and, subsequently, from the feeling of achievement that one can have from completing an advanced coursework or research degree.   These benefits are real but intangible.

The second set of benefits that an individual can acquire from postgraduate study are career or professional benefits.   These benefits are tangible but are highly dependent on an individual's career decisions, and the nature of the postgraduate degrees themselves. Specifically, these depend upon:

- How well recognised the qualification is in the profession where advancement is being sought.

- How well recognised the university provider is in the area in which it provides degrees.

- Whether an individual employer pro-actively supports postgraduate qualifications (for example, by sponsoring staff to undertake further education).

Looking at the last issue first, it is important to note that not all employers support the notion of postgraduate qualifications. Some are genuinely active supporters; some are merely tolerant of the qualifications, and others are negatively predisposed to them. It is a commonly held view that an individual who is overqualified for his/her workplace is likely to have difficulty fitting in; become bored and/or move on – to the detriment of the employer.

A major issue in regard to the acceptance of postgraduate qualifications in the workplace is therefore the overall profile of that workplace. For example, in a government research laboratory or university, it would be commonplace for staff to have Doctoral

qualifications and it would therefore (potentially) be beneficial for individuals to pursue them through further study – the same would obviously not be true in the case of an employee working in a dry-cleaning store. So, it is important to understand that higher qualifications do not necessarily translate into higher positions or income unless those qualifications add value to the organisation that employs the recipient.

Even within a workplace that supports postgraduate qualifications there are issues in regard to the qualifications themselves. An employing organisation may well ask how relevant a particular qualification is to their needs. For example, a company may be predisposed to having its managers hold Master of Business Administration (MBA) degrees rather than Master's degrees in business or economics. The reasons for this are numerous but can be as simple as how familiar an employer is with the skills that are acquired through a particular degree. An employer may know what to expect from an employee with an MBA but not one who holds a Master of Business degree – even though the content of the two programs may be similar or even identical.

The value of a postgraduate qualification to an individual can also be dependent upon the institution which awarded the degree. For example, a Harvard MBA has significant cachet value for the recipient – far more so than one from an obscure university.

Even with cachet value, there is no guarantee that a postgraduate qualification will convert into tangible benefits for an individual. The individual must have attributes that augment the qualification rather than detract from it. For example, an introverted individual is unlikely to gain significant advantage from an MBA but

they may gain advantage from a research degree that enables them to work at a high level of specialisation in limited isolation.

In simple monetary terms, the other tangible factor that impacts upon the net value of a postgraduate degree is the cost of acquiring it. In fact, this cost is composed of several elements:

- University fees.

- Forfeiture of income.

- Career opportunity losses.

- Investment opportunity losses.

The university fees associated with postgraduate study are the most visible costs associated with study because they translate directly into out-of-pocket expenses. Somewhat less obvious is the fact that an individual sometimes also has to forfeit income in order to undertake study and, over several years of study, the net income which has been forfeited is substantial. In order to recover the income that has been forfeited, an individual would need to have an increase in income (after receiving the postgraduate qualification) that was well in excess of what was expected prior to acquiring the qualification.

Even less obvious than the fee costs associated with postgraduate study are the career opportunity losses. An individual who enters the workplace after graduating from an undergraduate degree can typically expect at least one promotion (and perhaps more) during the time that it would take to complete a postgraduate qualification. Again, this means that someone graduating from a postgraduate program would have to commence at a salary well in

excess of that of an equivalent "promoted" person if the qualification is to have a cost benefit.

Another invisible cost associated with postgraduate study, that needs to be considered, is the investment opportunity loss. An individual "A" who terminates study at Bachelor's level, and enters the workforce, is able to accrue several years of savings during the time another individual "B" undertakes postgraduate study. By the time the "B" has completed his studies, individual "A" already has sufficient savings to invest in, say, real-estate. By the time "B" is ready to make the same investment, the value of the same real-estate may have risen significantly – in other words, to acquire the same asset, "B" would need to expend significantly more money than "A". And, if "B" has to borrow money to acquire the asset then the problem is compounded significantly. Overall then, "B" has incurred additional expenditure; forfeited income; foregone promotions and has missed investment opportunities.

For these reasons, postgraduate studies are very, very costly to undertake and, if the only motivation for undertaking them is a perceived financial gain, then individuals need to carefully consider the full costs associated with postgraduate study – which are substantial. The real benefits of postgraduate study are therefore seldom strictly financial simply because the costs incurred can rarely be recovered – they are, instead, generally related to personal development; broader career options, and an interest in increasing knowledge and understanding.

Many people who are interested in postgraduate study are unable to shoulder the entire costs, simply because they are so large

when considered in totality. For these reasons, there are several mechanisms available to make such study feasible:

- Employer-subsidised study.

- Part-time study.

- Scholarships.

Of the three mechanisms, clearly the best alternative for postgraduate study is when an employer is prepared to support that study – by subsidising tuition fess and/or providing time release from employment. This is a common practice in enterprises that encompass areas such as finance, management and law – it is less common in areas such as science and engineering. Moreover, employers only tend to fund a limited range of study options – generally those in business and management.

A common technique for reducing the costs associated with postgraduate study is to undertake such study on a part-time basis. In this way, an individual can undertake employment and simultaneously undertake a postgraduate study program. The benefits are that the individual has income to fund living and fee expenses while studying, and does not suffer from career opportunity losses because of the study. The downside of this is that it presents an enormous workload – particularly if the person has family concerns. In addition, it is difficult for an individual to perform well in two arenas simultaneously.

The final option is to acquire a scholarship for postgraduate study. Normally, scholarships are geared towards research degrees (Master's, Master of Philosophy and PhD), but sometimes there are mechanisms for funding postgraduate coursework programs as well.

Research scholarships, in turn, are geared towards recent graduates – predominantly because the objective of postgraduate research programs is to provide an apprenticeship to research. For this reason, the value of such scholarships is limited and aimed at supporting only a single person – this can cause problems if an individual has a family to support.

Accepting that there are significant costs associated with postgraduate study, it is a fact that each year the number of students enrolled in such programs increases. In 1960, in Australia, there were fewer than 100 PhDs awarded across the entire university system – in 2006, the number of Doctoral completions had risen to almost 5500 and the total number of postgraduate completions (Master's, Doctorate, Higher Doctorate, etc.) had reached almost 90,000. In other words, by 2006, almost half a percent of the national population was being awarded a higher degree each year.

The increasing number of postgraduate qualifications is also a reflection of the increasing complexity of society, with more and more specialist areas evolving as science, technology and human endeavours evolve. So, one intangible benefit of postgraduate qualifications is that they enable an individual to maintain pace with the "qualifications" wave that arises from an increasingly educated society.

Given that there are definite benefits to postgraduate study, the next question is how does one become involved in such study?

In the context of postgraduate coursework programs, the answer is relatively straightforward. An individual can scour university websites; read brochures; attend postgraduate open days,

and so on, in order to select a course that is relevant to their learning requirements. The application process is relatively straightforward and generally based upon a defined set of parameters (e.g., undergraduate results; work experience, etc.).

It is more complex, however, when individuals wish to enrol for postgraduate research programs. For these programs, an individual generally needs to make contact with an academic supervisor in a field of interest and university of interest; define a project for research, and then submit an application for research candidature with the university. For research degrees, the student not only has to satisfy basic entry criteria (based upon undergraduate academic records) but also to satisfy a potential academic supervisor that they have the capacity to undertake such a program of study.

An application form for research candidature then needs to be approved by various university committees which are set up to govern postgraduate research. In addition, if the candidature form requires experimentation that involves humans (including surveys and interviews) or animals, then there is a need for the program of research to be approved by an ethics committee.

The other factor that needs to be considered in the context of a research degree is the sort of research that is to be undertaken – that is, pure or applied; university based or industry collaboration. In some disciplines (particularly applied disciplines such as engineering), there is limited value in undertaking a pure research degree within the confines of a university, because the research is far removed from the application – which, after all, is the objective of the discipline itself.   In other areas, such as medical research, there may

be better opportunities for those that have undertaken a postgraduate research degree in a pure research area, in an established university laboratory.

So, the decision to undertake a research degree requires far more consideration than a coursework degree. All the more so because the career opportunities for those with postgraduate research degrees are limited and specialised – some opportunities for employment can only be pursued internationally.

Given an understanding of all the above issues, the next question is when should a person undertake a program of postgraduate study? There is no simple answer to such a question but there are a few basic principles that need to be considered.

Firstly, degrees that are undertaken for personal satisfaction or personal growth can be undertaken whenever an individual feels that they are ready and whenever they are able to fund the costs of such a program.

Secondly, degrees that are taken strictly for professional or career development purposes should really only be considered after an individual has undertaken an investigation of how the costs of such a program will be offset by compensation from an employer (or potential employer). It is naïve for an undergraduate student, with no professional experience, to believe that they understand the requirements of an employer and then pursue a postgraduate program only to find that it is not something that employers require. Generally, some time spent in the professional workforce will provide people with the opportunity to make such a decision.

Thirdly, in the case of research degrees, it needs to be recognised that these are an apprenticeship and, by definition, generally aimed at individuals who wish to pursue a career in research – ergo, they should be undertaken when an individual decides that such a career is what they wish to pursue. Moreover, in the case of research degrees, these are best taken early in one's career, as it takes many years of subsequent work to build up a career in a research field.

Given the growth in postgraduate student numbers each year, for most undergraduates, the question of postgraduate study will not be one of "whether" to undertake such study but "when" such study should be undertaken and "what" sort of study will best suit their requirements.

Chapter 12 Summary:

(i) *There are five basic types of postgraduate degree – these are the postgraduate coursework program; the professional postgraduate degree; the research degree, the professional doctorate and the higher doctorates.*

(ii) *The "value" of a degree depends upon the specific nature of the degree and its relevance to the work environment. It also depends upon other issues such as the reputation of the university, and the intrinsic characteristics of the individual who undertakes the degree.*

(iii) *The costs associated with postgraduate study options are considerable – they include direct costs (the fees) and indirect costs such as loss of income, as well as opportunity losses in terms of career and investment.*

(iv) *The benefits of postgraduate degrees vary significantly depending upon the individual – they can include personal self-esteem; networking opportunities; career opportunities, and general fulfilment from the learning process.*

(v) *Individuals need to consider the best time to undertake postgraduate degrees. Research degrees are generally aimed at early career individuals. Other degrees, such as MBAs need to be considered in the light of career opportunities and personal maturity.*

13

Summing Up

If you have managed to read through to this point, then you have probably discovered that universities are quite complex organisations, with complex internal structures and complex governance arrangements.

Students don't need to know everything about every aspect of universities in order to do well in an undergraduate course, but they do need to get a perspective on what universities stand for at their core. For this reason, at the beginning of this book, and at numerous points throughout, it has been emphasised that universities are fundamentally about learning – and that that learning applies not only to the students but to all the staff as well.

The question now is what, in the broadest sense, are all the university participants there to learn? Perhaps this question is best answered by a statement from Leo Tolstoy, who once said that,

"Everyone thinks of changing the world, but no one thinks of changing themselves."

If there was to be a simple summation of the outcomes of university learning, removed from all the complexities of structure, governance, courses, research and subjects, it would be this – people go to universities to learn about themselves, their capabilities and limitations, and how these can be used for the betterment of society. In other words, to provide a pathway to the advancement of society through genuine self-awareness.

Needless to say, the bulk of students that attend university do not primarily do so in order to gain self-awareness or any other form of spiritual enlightenment – rather, the majority of students merely

seek formal accreditation which will provide an entry point to professional employment. Some seek the prestige of a high profile university brand, and expect the magic dust of greatness to descend upon them when they receive their "branded" degree. For many people then, the university experience will be little more than a collection of rote-learned subjects, which are forgotten minutes or hours after the examinations have ended, and the accreditation degree has been awarded.

For those that view their university education purely as a vocational accreditation process, the university's worth is little more than that of an "egg-board", whose role is to put the stamp on the outside of eggs as they are packaged into cartons – the eggs that come out are identical to the eggs that go in, with the exception of the fact that they have been stamped with an accreditation. Along the way, the egg-board throws away a few eggs that it thinks are bad – without ever having actually examined or changed the contents of any of the ones that have passed through. Hence, for those that pass through the university system, and discover that their only reward has been to have an "ok" stamped on their forehead as they exit, there have been important opportunities wasted and lost.

It is only years or decades later, however, that some graduates discover that the formal accreditation accorded by a university is not a sprinkling of magic dust that leads to fulfilment or success – for there are many individuals who have become fulfilled and successful without ever having gained any formal educational accreditation. And, it is not the rote learning of formulae or theorems that leads to knowledge – for there are many knowledgeable people who have never had the benefit of a university education.

The real difficulty in understanding the benefits of university learning stems from understanding that universities are not established solely to provide vocational training – they have a much more subtle role, which is to broaden the mind by getting individuals to understand their own capabilities, strengths and limitations – and, more importantly, to understand the strengths and limitations of the environment in which they live. Of course, it is not only the students that have to grapple with this concept – many academics go through their entire careers without any sense of self-awareness, or any sense of their important role in inspiring students.   And therein a basic problem lies.

In entering the university system, therefore, students need to make a commitment – not just to others but, more importantly, to themselves, that they will use their time to genuinely discover what they are capable of achieving, and how this can be used to change their society and environment for the better.   Moreover, this commitment has to be made with the awareness that academics will not always be capable of inspiring or leading students through their journey of discovery – indeed a proportion of academics will endeavour to lead students down the easy pathway of rote-learning.

Somehow then, those students with a higher sense of purpose about their university learning need to transcend the shortcomings of their own academic leaders; transcend any rote learning structures that are imposed upon them, and self-motivate to become better than any intrinsic shortcomings of the system.

With these points in mind, and given the inherent weaknesses in the university system, we now ask what it is that the university system is actually providing to students in order to support them in

their learning journey? Obviously, there are basic, tangible elements such as bricks and mortar; learning structures, and learning tools (such as laboratories and libraries). But, if one has to summarise the three most important contributions that any university provides to the learning journey of an undergraduate, it would be these:

- *Time* – a three to six year period in which students are genuinely free to contemplate how they will make the transition from adolescence into adulthood, and how they will make their adult lives valuable – in other words, how they will change themselves in order to change the world by adding value to it.

- *Colleagues* – a collection of friends, peers and foes with whom students can share their ambitions; dreams and concerns and, above all, their journey of discovery.

- *Challenges* – not just those imposed in a simple academic sense but also life challenges associated with dealing with the shortcomings of the system, and one's own limitations.

So, in a larger sense, it is not the choice of university or its prestige (or even the minutiae of the subject contents in a course) that are fundamental to what emerges from a university education in its broadest terms. It is what students do with one of the few periods in their lives where they are free to develop and grow as individuals so that they can adapt to take on the world's challenges.

In the words of Jimmy Dean,

 "I can't change the direction of the wind, but I can adjust my sails to always reach my destination…"

The real objective of universities and university learning then is to enable students to understand the wind, and to understand how to adjust their sails to reach the life destination that they seek.

Appendix A
Fundamentals
Of
Industry Based
Project/Work Experience

1.   Introduction

Each year, Australian universities place students into companies so that they can undertake projects, work experience, major and minor thesis research work in an industrial setting. This has enormous potential benefits for the students and potential benefits for the collaborating company. However, there are also challenges and difficulties that need to be understood and resolved in order for projects to be carried out successfully, and in order to support the safety and well-being of students.

Primarily, this guide is aimed at students undertaking projects with collaborating organisations, typically companies but also potentially public service entities. The general contents of this guide are also suitable for students undertaking work experience during the course of their studies. The guidelines in this document are set out in order to ensure:

(i)   Clarity of purpose and outcomes in regard to student projects.

(ii)   That students and the university are positively viewed by the company.

(iii)   That both the student and the company achieve a positive outcome from the project.

(iv)   That students who have not previously had industry experience understand the basic principles of collaborative projects.

(v)   That students are not mistreated by companies or placed into hazardous situations.

At the outset, it needs to be made clear that students who believe that their personal safety or emotional well-being is placed in jeopardy by their role in the collaborating company should report this to their relevant academic supervisor immediately so that the University can address the problem.

2.   Background to Projects

Industry based projects that are established by universities for the benefit of students are generally the result of discussions that have taken place between university academic staff and company representatives.   During the course of project establishment, companies often suggest a number of project areas that may be suitable for students. In collaboration with the companies, a final list of projects is assembled. Students are sometimes asked to nominate for various companies by submitting a summary curriculum vitae. Sometimes, students are simply allocated to company projects.

The nature of projects is often predefined before students first make contact with their collaborating company.   Sometimes, however, the nature of projects changes because:

- Company requirements have changed since the time of project formulation.

- Company staff have changed.

- Equipment or supervisory resources have changed.

Students therefore need to be prepared to accommodate variations to projects in the early stages of their work. The key point is that a final project outline has to be clearly defined and agreed upon as soon as practical after the student commences project work. Finite outcomes (deliverables) need to be mutually agreed upon by the company, the student and the supervisor.

Companies generally take collaborative projects and work experience very seriously because they consume staff resources, in terms of supervision, and because companies sometimes have to reveal sensitive information to students. Students are therefore expected to conduct themselves in a professional manner and to make every effort to contribute to the successful completion of the project. The following points need to be noted:

- Students who are not employees of the company are not normally required to perform day to day work activities of the company. They are only required to contribute to the successful completion of their specific project.

- Students are generally expected to be at a collaborating company in accordance with their project requirements, and at times that accommodate the schedules of collaborating staff. However, if students are not employees, they do not need to be at the company for a full working week unless their project demands it.

3.   Presentation and Behaviour

3.1   Presentation/Deportment

Companies generally project a particular image in regard to their employees in terms of presentation. For example, companies operating out of central business district offices, generally expect male staff to wear suits and ties. Although there may be no formal dress code in a particular organisation, there is generally a standard of attire that is expected from staff.

Students need to present themselves in a professional and business like manner. This means that dress, grooming and presentation should be in line with company expectations. If students are working in an office environment, particularly in central business districts, it is generally expected that employees wear formal business attire – in the case of male students this would be a suit and tie and leather shoes. In a factory based organisation the dress standards may be less formal but, in any case, it would generally be expected that students not wear jeans, tee shirts or sports shoes.

It is equally important that students should not "overdress" and alienate themselves from collaborating staff. A good way of overcoming this problem is for students to dress well on the first visit and, while touring the company premises, make a mental note of the standard of attire used by their peers and other general staff

Some companies can take exception to the standard of attire worn by students and this can color their view of the entire project. It is important therefore that students do not jeopardise an important

opportunity for learning and development over a small issue such as deportment.

3.2   Behaviour

Students should take careful note of the way in which staff address each other in collaborating companies. If in doubt, it would be polite for a student to ask senior staff how they would like to be addressed. It should not be taken for granted that a senior staff member will approve of being addressed by their first name. A good way of resolving the problem is for the student to ask:

"How would you like to be addressed while I am working here at the company? Should I address you as Mr. X?"

Companies are also sensitive about which people are spoken to, and how they are spoken to. For example, in some companies it would be inappropriate for a student to directly approach factory floor staff and discuss issues about productivity improvements leading to staff reductions. If in doubt about behaviour or protocols for discussing issues with staff – always ask:

"Do you think it would be appropriate for me to discuss the issue of productivity improvements directly with Mr. X?"

As a general rule, unless a company liaison person has indicated that a student should talk with other staff, the student should get permission before doing so. A general question at the start of the project would be useful. For example,

"During the course of my project I will need to discuss issues and get information from various people around the office. Should I confer with you before discussing any particular issues with other staff?"

Whenever students meet a member of staff in a company, they should formally introduce themselves on the first encounter:

"Hello, my name is X. I am an engineering student at the XX University. I am currently undertaking my XXX degree. I am here to do an industry-based project as part of my studies…"

Company representatives are generally busy with day to day activities and quite often students are intimidated when they are brushed off by a company representative who tells them that they are busy. The polite way to resolve this problem is to ask to schedule a meeting that suits the company representative:

"Could you tell me what day and time would suit you to make an appointment to discuss some issues relating to my project? I can work the meeting time around your schedule."

A key rule to remember is that, as outsiders to the company, it is important that students do not express personal opinions on either technical or other matters unless specifically asked to do so. Generally, students should otherwise stick to facts and analysis.

4.   Discussions with Company Staff

4.1   Initial Meeting

Company representatives are generally very busy people. For this reason it is important that students are not seen to be wasting staff time. Whenever students initiate a meeting with company staff, the meeting should have:

- A specific objective

- Specific outcomes and actions.

When a student first meets with company representatives it is generally polite for the student to introduce himself/herself and provide a very short background, covering the following points:

(i)   Student's full name and the name by which the student would like to be addressed while at the company.

(ii)   Purpose of the interaction (e.g., *"…I am the person that has been appointed to look at the scheduling issues in your casting plant…"*).

(iii)   Who initiated the interaction (e.g., *"…This project was put together by Dr. X from XXX University and Mr. Y from your company…"*).

(iv)   Short summary of background (e.g., *"…I am completing a degree in business and economics, and this work constitutes part of my final year thesis…"*).

Following the introduction, students should immediately make it clear why they are meeting with the staff and what they expect out of the meeting:

"…As you are aware, I will be starting my project work in the next few days, so the objective of this meeting is to go through the preliminary issues that we need to cover in order to get the process started and ensure that the project proceeds efficiently..."

Where applicable, students should also make it clear from the outset that they are not to be confused as employees:

"…As you may be aware, my involvement with your company will be to undertake the project that was negotiated between the company and the university. As such, I will not be here to act as an employee but I will be trying to contribute to your company through the successful conduct of my project…"

Students should also ensure that the following company induction issues are addressed at initial meetings:

(i)   *"Can you tell me the names of the staff I will need to liaise with while conducting my project?"*

(ii)   *"Do I need to have a visitor's card or badge?"*

(iii)   *"Can I park my vehicle in the company car park?"*

(iv)   *"Do I need to participate in a safety induction program before commencing my project?"*

(v)   *"With whom can I discuss the project outside the company?"*

(vi)   *"Are there any safety issues I need to be aware of before commencing?"*

(vii)   *"Which staff can I discuss the project with?"*

(viii)   *"Do I need permission from anyone before approaching staff or visiting particular areas of the organisation?"*

(ix)   *"How can I notify reception to ensure that they know who I am in case someone telephones me here?"*

The final outcome of the initial meeting should be to set the next meeting time, at which a formal project proposal should be established:

"…I would like to set up a time to meet with you formally in two weeks time, so that we can finalise the project with mutually agreed milestones and outcomes"

4.2   Getting the Company Profile and Key Issues

In order to conduct any meaningful project or minor thesis research work with a company it is important that students have a good understanding of the company. For this reason, they should initiate a meeting with relevant staff in order to ascertain the following information (some of this can be derived from an annual report but it needs to be followed up with discussions with staff):

(i)   The background of the organisation – Who owns it? Is it a subsidiary of a larger company? Is it a public or private company? How long has it been operating?

(ii)   What products and/or services does the company provide?

(iii)   Who are the typical customers and what is the profile of customers – Are they large or small? Are they local, interstate or international?

(iv)   The financial perspective of the organisation – What is the turnover of the entire organisation? What is the turnover of this subsidiary? Is the organisation currently profitable?

(v)   The staff profile – How many staff does the company have? How many are management? How many are professional? How many are technical? How many are trade? How many are semiskilled? How many are unskilled? What is the staff turnover like?

(vi)   Who are the competitors to the organisation?

(vii)   On what basis does the organisation compete (i.e., price, flexibility, responsiveness, technical expertise)?

(viii) What are the key factors that influence the organisation's competitiveness (e.g., labour cost, supply chain management, logistics)?

(ix)   In order of priority, what does the organisation believe are currently its greatest challenges/problems/threats (e.g., international competition)?

(x)   In order of priority, what does the organisation believe are its greatest opportunities (e.g., new products; entering the Asian marketplace)?

A student will be working in a particular area of an organisation. The following information also therefore needs to be obtained:

(xi)   What is the nature of the area and how does it interact with other areas?

(xii)   How many staff work in the area?

(xiii)   What are the key issues/challenges in the area and how does the current project relate to these in terms of importance?

4.3   Project, Milestone and Outcome Definitions

The single, largest cause of project failure in collaborations with industry partners arises from poor project definition combined with a misunderstanding of milestones and outcomes. Each party in a collaboration generally believes that it understands what the outcomes and milestones are intended to be but often this understanding varies from one person to another. For this reason, it is absolutely imperative that project outcomes and milestones are recorded in writing and each member of the collaboration has a written copy of what has been agreed.

The basic rule of thumb is that students should promise less than they can deliver and then deliver more than they promise. This prevents collaborators from being let down or feeling that they have been misled by students.

It is entirely inappropriate for students to promise things which they do not believe that they can deliver upon. For example, if a student promised to deliver "a working software package", a collaborating organisation may assume that the student can develop a fully operational and professional piece of software. Generally such an outcome would be completely infeasible in projects and minor theses. A more realistic promise might be "*a prototype piece of software that would later need to be developed by a professional IT person*".

Students are often intimidated at early meetings and feel that they will make a better impression by agreeing to company outcomes or milestones which the students themselves do not believe in. This is very poor practice and it needs to be corrected from the outset with a polite response:

"I'm sorry but I do not believe that I can have a full scheduling algorithm completed by the time the next meeting arrives. I can however provide you with an overview of the method that will be in place and a progress report on how the algorithm is proceeding…"

One of the most difficult aspects of collaborative projects is that students need to balance the need for understanding their own limitations with a preparedness to extend themselves.

At the end of the introductory phase of the project, the student should have clearly agreed with his/her academic and company supervisors (in writing):

(i)   The definition of the project

(ii)   The specific outcomes of the project that will be delivered to the company

(iii)   The form of the outcomes (e.g., a spreadsheet and report; a Powerpoint presentation; a thesis, etc.)

(iv)   The milestones and milestone dates for various phases along the way

(v)   The reporting schedule by which the company and academic supervisors will be kept up to date with progress

4.4   Resourcing Issues

Some projects require specific resources in order to be completed. For example, a project may require workpieces to be removed from a production line for destructive testing, or perhaps the use of technical staff to do metrology measurements. Companies generally place a value on all workpieces, scrap, staff times, etc. so it cannot be simply assumed that such resources will be given to the student without prior notice.

As part of the original project definition, it is important that students agree upon the resources to be supplied by the company and the university. It is also important that students advise the company when such resources are required in order to enable them to plan for expenditure or changes in staffing. In some instances it may not be known, from the outset, what specific resources are required, and the requirements may only become apparent when the project progresses. In any event, it is critical that students advise

company and academic supervisors of impending requirements as soon as these are known.

In some instances, companies may refuse to provide resources which are required to complete a project:

"…your project is no longer a priority at this point in time and because our cash-flow position is tight, we have decided not to purchase the modeling package we initially agreed upon…"

In other instances resources may be delayed, for any number of reasons, thereby leading to problems with project milestones. Students can only deliver outcomes based upon provision of resources so, if resources change, it is vital that students contact their supervisors and organise for a meeting to redress the issue. Obviously if a company collaborator has decided not to fund a resource because it does not have the money, then the project has to change. It is the student's job to then get agreement on a redefined project:

"…The outcomes we agreed to at the beginning of this project were conditional on us having a simulation package. It appears that this is no longer an option so we have had to change the program outcomes accordingly. The purpose of this meeting is to get agreement on a new set of project outcomes and milestones based upon using a spreadsheet package instead of the originally intended simulation package…"

4.5   Reporting Issues

Students are often intimately involved with their own project and lose perspective of the significance of their project relative to other day to day company activities in which other employees are involved. A student's project may be low down on the priority list of a senior company person who has many staff and resources to supervise. For this reason, it is important that students keep their company liaison people informed of the current state of the project. Sometimes this requires that students are assertive and organise meetings to keep company staff involved – even if they are reluctant to do so.   Without regular feedback, student projects may be relegated lower and lower on the list of staff priorities and a positive outcome may not be achieved because the project loses a staff champion within the company.

Student meeting sessions with company staff should be kept to as short a time as possible – say 30 minutes maximum for presentation and question time. The agenda for reporting should be along the following lines:

(i)   Summary/restatement of project objectives (sometimes company staff need to be reminded of what the objectives are, particularly when they have many different tasks under way)   *(2 minutes).*

(ii)   Restatement   of   mutually   agreed   outcomes   and milestones   *(2 minutes).*

(iii)   Summary of progress to date and progress/outcomes since previous meeting   *(4 minutes).*

(iv)   Summary of outcomes to be achieved by next meeting and current project timeline relative to original plan *(2 minutes).*

(v)   Question/discussion time for staff   *(10 – 20 minutes).*

Total Meeting Time is approximately 30 minutes. At each meeting hand out a summary sheet of the project status. This should not exceed one page and should cover the issues in (i) to (v) above.

4.6   Technical Feedback

Feedback is essential in order for students to determine whether or not they are on the correct path in regard to their experiments or research. The best technical feedback on company based projects will generally come from the company staff themselves. Students need to approach appropriate staff on a regular basis to determine whether or not what they are doing is meaningful. Although staff may be busy, a polite request may achieve the required outcome:

"…Would you be good enough to tell me when I could have an appointment with you for, say, 10 minutes, in order to show you a summary of my results and analysis. I need someone with hands-on experience to provide me with some feedback as to whether or not the results I am getting are meaningful…"

The regularity of the meetings will require professional judgment on the part of the student. Clearly, if students attempt to

get verification of every minor measurement then staff will quickly tire of providing support. A good rule of thumb would be:

- Validate early work to see if it is meaningful before expending large amounts of time on more detailed work.

- Validate trends to see if they are meaningful before conducting detailed analysis.

- Validate analytical approaches.

- Validate results of analysis.

This would mean that students could make around four meetings with technical staff, over the course of a semester project, to check that they are on the correct path.

5.   Confidentiality

Students will often be made privy to confidential information regarding a collaborating organisation. This may relate to designs, marketing, production techniques, etc. It may also relate to flaws and inefficiencies in company processes. For example, a company may have a production facility which is not as efficient as it could be. Generally, companies are very sensitive to what information is released about them and to whom it is released. At the start of the project, students should approach company liaison staff up front and get clarification of what can be released:

"…as you are aware, I am a student and I will need to discuss various issues regarding the project with academic staff and colleagues. Could you please advise me on what issues I need to keep in confidence so that I do not inadvertently reveal any sensitive information…"

Confidentiality is also a serious issue in regard to clients and suppliers. A company may not want its suppliers or customers to know anything about internal costings. Students should never approach suppliers or customers/clients without first gaining approval from a company representative, and they should also get clarification on what issues can be discussed with clients and suppliers.

Some students may be asked to sign a confidentiality agreement or a non-disclosure agreement. This is a legally binding agreement between the company and the student. Students should get their own professional advice (preferably legal) before signing such documents as they could have ramifications both for project reporting and for future use of any technologies that they develop.

6.   Intellectual Property

Some students may be asked by a company to sign an agreement handing over intellectual property developed by the student to the company. As with confidentiality and non-disclosure agreements, a document handing over intellectual property has significant implications (both short and long term) for the student.

In some cases, the handover of intellectual property may prevent a student from doing similar work for other companies later in their career. Students should not sign intellectual property transfers unless they have taken external advice from informed professionals on the implications of the agreement.

In some cases the university and the company will have signed an intellectual property agreement and the student will be asked to sign an agreement with the university before commencing a project. Again, students should not sign any such legal documents (even with the university) unless they have received professional advice on the subject.

5.   Resolution of Problems

From time to time it is inevitable that problems will arise during the conduct of projects. These generally relate to:

- The relationship between the student and company staff.

- Differences in opinion on how the project should proceed.

- Resourcing issues.

- Performance issues.

- Other personal or health issues.

When such problems arise, it is important that students contact their university/academic supervisor as soon as practical and discuss the matter with them. If a satisfactory conclusion can not be reached with the academic supervisor, then students should take the matter up with their student representative groups within the university.

7.   Safety

Student safety and welfare is of paramount importance whether students are university or at a collaborating organisation. In the case of industry based projects, students have to deal with both safety issues relating to university laboratory use and issues related to the company work environment.

If students ever feel that their safety, physical or mental well-being is affected by any aspects of an industry project, they should report the matter immediately to:

- Company safety representatives if the incident is on company premises

- Their academic supervisor and/or university occupational health and safety representatives, if the incident is at the university or even company premises.

Safety, physical and mental well-being must always take priority over any issues related to project work. If a collaborating

organisation is not willing to act on a safety threat to students, then the students should leave the company premises immediately and seek guidance from university/academic supervisors.

Additionally, students are not required to endure abuse or mistreatment from any company staff. Students who are not able to deal with such issues should make it clear to company representatives that they are not prepared to tolerate such behaviour:

"…I'm sorry. I am not required to tolerate this behaviour. I am therefore terminating this discussion and will be leaving immediately to confer with my academic supervisors. We will give you a formal response as soon as practical."

8.   Concluding the Relationship

Students need to ensure that their relationship with a collaborating organisation ends on a positive note. Specifically, the following closure items need attention:

- Deliverable items handed over to collaborator as per agreement.

- Final reports and presentations provided to collaborator as per initial project agreement.

- Formal and informal thanks given to all staff in the collaborating organisation who provided assistance or support.

Appendix B
Australian University
Performance Trends

B.1   Data Sources for Performance Trends

The data contained in this Appendix shows trends in the performance of Australian universities. The purpose of highlighting these trends is not to look at individual universities but, rather, trends in the system as a whole. This should enable potential and current students to make assessments about the attributes of universities of interest.

The data that was used to determine these trends was extracted from three sources:

(i)   Australian Department of Education Science and Training (DEST) (Currently the Australian Department of Education, Employment and Workplace Relations) 2006 Statistics.

(ii)   Williams, R. and Van Dyke, N., "Discipline Ratings for Australian Universities" <u>Melbourne Institute of Applied Economic and Social Research</u>, 2006.

(iii)   Williams, R., "Ranking Australian Universities – Controlling for Scope", <u>Melbourne Institute of Applied Economic and Social Research</u>, 2007.

There are innumerable combinations and sources of data that could have been chosen to look at the performance trends of Australian universities. The above three sources have been chosen for several reasons:

•   The 2006 DEST statistics were the latest available government data on Australian universities at the time of examining these trends.

- The Melbourne Institute Discipline Ratings represented one of the most comprehensive reviews of Australian universities across disciplines in 2006 – this review was based on a combination of conventional government (DEST) performance figures as well as surveys.

- The 2007 Melbourne Institute paper on "Controlling for Scope" represented one of the most comprehensive reviews of the specialisation of Australian universities.

B.2   Currency of Data and Trends

Self-evidently, the performance data for each individual university varies from year to year. The question then arises as to how valid the trends presented here are, given that the data used for the analysis originated in 2006. How sensitive are the trends to annual variations in statistics? The answer is that although the performance of individual universities will change from year to year, it is unlikely that the overall trends will do likewise. In the final analysis, an examination of the data shows that there are numerous, overriding issues that influence the performance of Australian universities, and the trends arising from these remain stable while the system retains its current form. Hence, the basic trends remain valid until there are fundamental changes to the composition of universities, or dramatic changes to the size of individual universities.

B.3   Size of Australian Universities

In the statistics presented in this Appendix, the size of universities is defined by the total number of academic staff – that is, those staff involved in:

- Teaching only.

- Teaching and research.

- Research only.

This presents the best indicator of the size of Australian universities in terms of their core activities of learning and research. It also provides an ability to compare Australian universities with international competitors in terms of the size of their core activities.

The size of universities could also have been measured in terms of total student numbers but it was determined that this was not a good indicator because the ratio of staff to students varies from one university to another.

B.4 Performance of Australian Universities as a Function of Size

Melbourne Institute Rating vs Academic & Research Staff Numbers
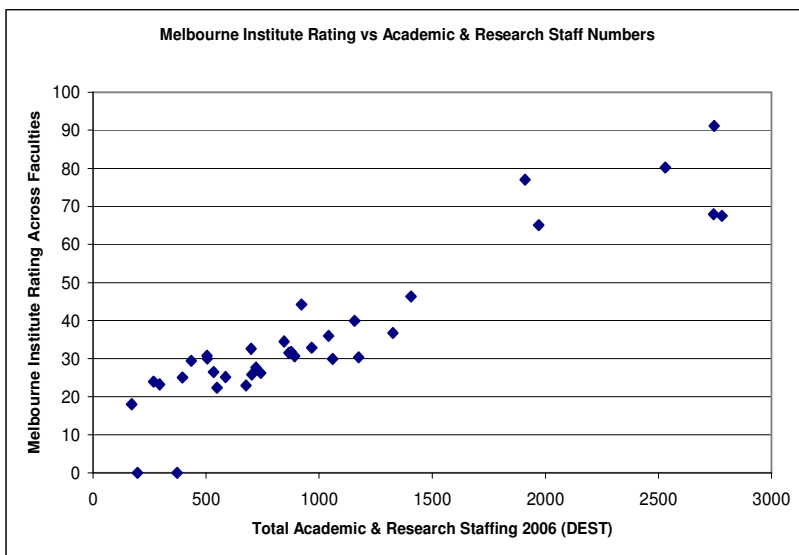
Trend:

In examining the overall performance of Australian universities, averaging across the disciplines in which each claims to be active, it becomes apparent that, in general, the larger the overall number of academic/research staff in a university, the better that university performs in terms of learning, research and international standing. It is also apparent that the key differentiator between early establishment universities and post-1987 universities is neither prestige nor history but, primarily, the fact that early establishment universities are Australia's largest universities in terms of core staffing.

B.5   University Performance as a Function of Specialisation
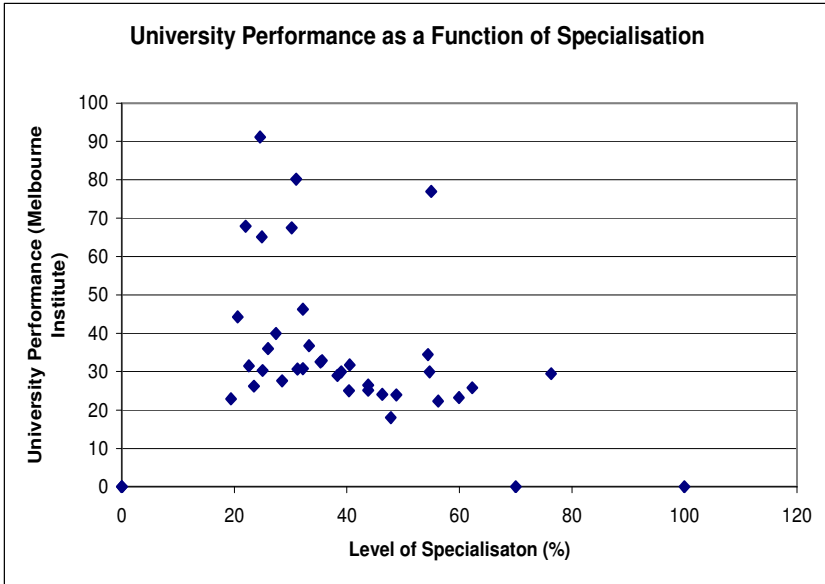
Trend:

One would assume that the more specialised a university is, the better it would perform in its chosen disciplines.   However, the above graph shows that this is not the case.   This is because specialised universities in Australia tend to be smaller universities which have difficulty in achieving critical mass even in their chosen areas.

B.6   Staffing Efficiency of Australian Universities

Staffing Efficiency as a Function of Total Academic Staff
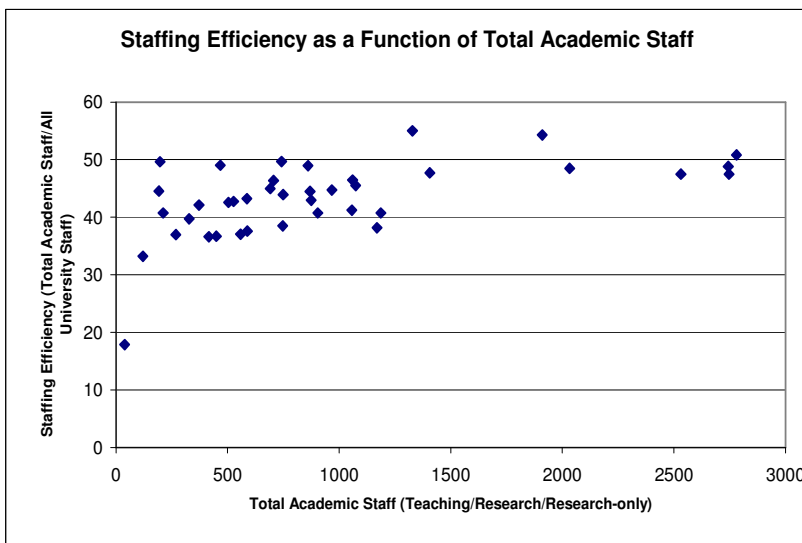
Trend:

Staffing efficiency here is defined as the ratio of core staff (that is, academic and research) to total staff in a university.   Not surprisingly, the larger the number of core staff, the more efficient a university becomes – that is, the higher the proportion of total university staff that are involved in learning and research – in other words, the lower the proportional overheads.

B.7   University Performance as a Function of Staffing Efficiency
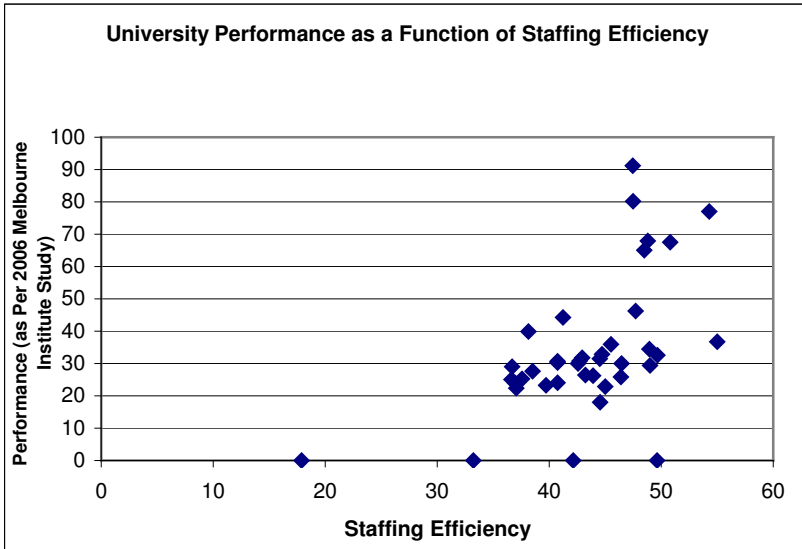
Trend:

The general trend here is clear – the greater the staffing efficiency of a university, the better its overall performance in terms of learning and research outcomes. This should not be surprising given that staffing efficiency relates to university size, and university size relates to overall performance.

B.8 University Staff Productivity as a Function of University Size

University Performance Per Staff Member as a Function of University Size

x-axis: Total Academic Staff (Teaching and Research)
y-axis: University Performance (Melbourne Institute)/Staff Member
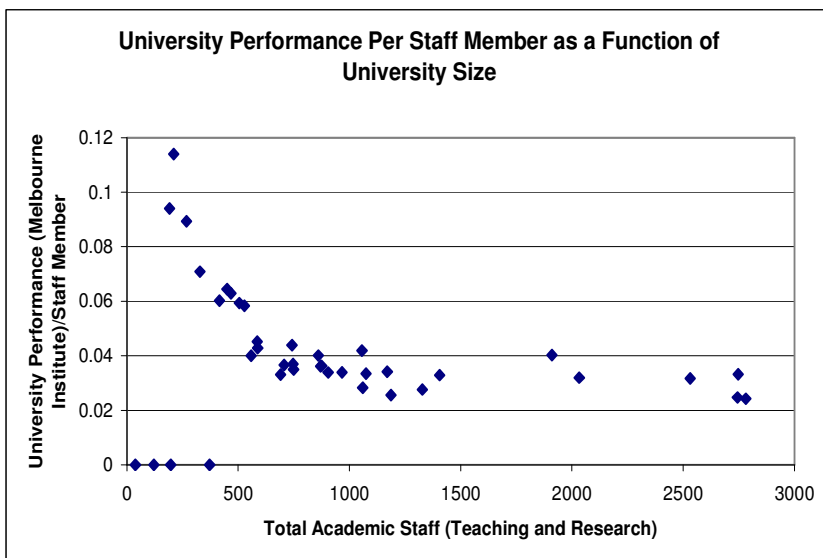
Trend:

On an individual basis, academic staff in smaller universities proportionately contribute significantly more to university outcomes in terms of learning and research than staff in larger universities. Notwithstanding this trend, their total effect on learning and research outcomes at an institutional level is still small because of a lack of critical mass in the institution itself.

B.9   Staff-Student Ratios as a Function of University Size
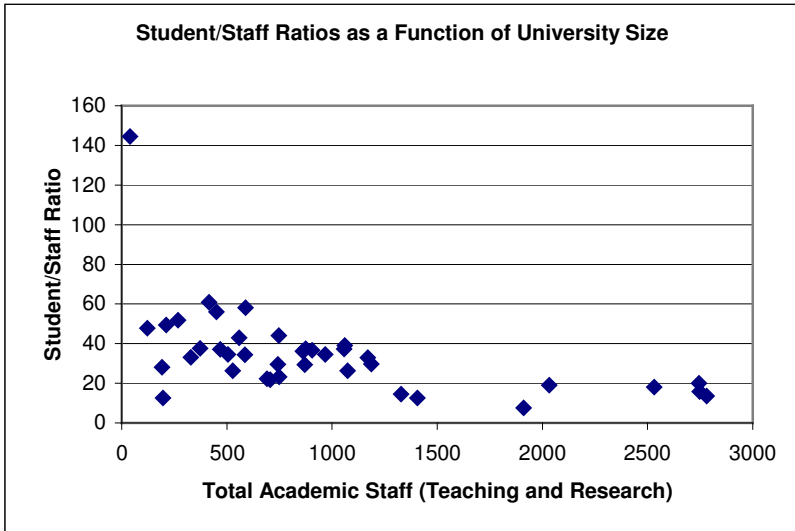
Trend:

In general, the ratio of students to staff decreases as the size of universities increases (in terms of total academic staffing). In other words, the larger the university, the more core expertise that is potentially available to individual students.

B.10   Overall Australian University Trends

The overall trends from the data, in the context of Australian universities, are relatively clear – specifically:

(i)   Overall university performance in learning and research is predicated on university size (in terms of total academic staff numbers) rather than history, prestige or ethos.

(ii)   Larger universities are marginally more efficient in terms of overall staffing than smaller universities, but the individual contribution of academic staff in smaller universities (towards institutional outcomes) tends to be significantly larger.

(iii)   The higher the staffing efficiency of universities the better the performance of universities in terms of learning and research. This stems from two factors – the first being that that larger universities are more efficient (and larger universities are better performers overall), and the second being that better staffing efficiencies can also be attributed to better management which, in turn, leads to better learning and research outcomes.

(iv)   In principle, larger universities have a higher level of core expertise available to students because there are more staff available per student. In practice, whether students benefit from such a ratio would depend upon how many of the core staff actually interact with students – in larger universities, the proportion of

research-only staff is higher. Nevertheless, overall, in larger universities the body of knowledge that resides within the entity (per student) is greater than in smaller universities.

B.11   DEST/Melbourne Institute Data Used for Trend Analysis

University	2006 Total Academic & Research Staff (DEST)	2006 Non Academic Staff (DEST)	Staffing Efficiency (Academic:Total Staff) (%)	2006 Total Students (DEST)	2006 Student/Staff Ratios	2006 Average Melbourne Institute Ranking	Melbourne Institute Specialisation %
Australian Catholic University	372	511	42.13	13967	37.55	N/A	70
Australian Defence Force Academy	197	200	49.49	2483	12.60	N/A	N/A
Central Queensland University	416	720	35.43	25305	60.83	25.04	40.4
Charles Darwin University	192	239	41.56	5396	28.10	18.05	47.8
Charles Sturt University	588	977	37.49	34147	58.07	25.2	43.8
Curtin University of Technology	1057	1506	37.97	39459	37.33	44.26	20.6
Deakin University	905	1316	40.37	33202	36.69	30.68	31.2
Edith Cowan University	559	949	36.61	23989	42.91	22.34	56.2
Griffith University	1187	1727	40.47	35335	29.77	30.31	25
James Cook University	691	845	44.44	15378	22.25	22.9	19.4
Latrobe University	1074	1285	44.78	28317	26.37	35.97	26
Macquarie University	861	898	48.48	31126	36.15	34.5	54.4
Monash University	2744	2879	48.80	54824	19.98	67.91	22
Murdoch University	528	708	41.58	13917	26.36	30.8	32.2
Queensland University of Technology	1170	1897	37.88	38524	32.93	39.93	27.4
RMIT University	1060	1222	46.43	41447	39.10	29.96	39
Southern Cross University	268	457	36.97	13883	51.80	23.95	48.8
Swinburne University of Technology	468	487	47.12	17390	37.16	29.45	76.3

University	2006 Total Academic & Research Staff (DEST)	2006 Non Academic Staff (DEST)	Staffing Efficiency (Academic:Total Staff) (%)	2006 Total Students (DEST)	2006 Student/Staff Ratios	2006 Average Melbourne Institute Ranking	Melbourne Institute Specialisation %
The Australian National University	1910	1608	54.29	14553	7.62	77.01	55
The Flinders University of South Australia	706	816	46.25	15418	21.84	25.83	62.3
The University of Adelaide	1328	1086	54.98	19290	14.53	36.74	33.3
The University of Melbourne	2747	3041	47.46	43389	15.80	91.14	24.6
The University of New England	505	681	42.58	17482	34.62	29.98	54.7
The University of New South Wales	2033	2161	47.70	38776	19.07	65.09	24.9
The University of Newcastle	870	1085	44.39	25570	29.39	31.46	22.6
The University of Notre Dame Australia	39	179	17.89	5636	144.51	N/A	N/A
The University of Queensland	2781	2693	50.80	37518	13.49	67.49	30.2
The University of Sydney	2531	2799	47.49	45848	18.11	80.2	31
The University of Western Australia	1406	1540	47.73	17761	12.63	46.27	32.2
University of Ballarat	211	307	34.68	10430	49.43	24.05	46.3
University of Canberra	328	498	37.20	10858	33.10	23.24	59.9
University of South Australia	967	1195	44.73	33410	34.55	32.84	35.6
University of Southern Queensland	450	777	33.53	25243	56.10	29	38.3
University of Tasmania	749	957	43.64	17471	23.33	26.23	23.5
University of Technology, Sydney	875	1163	42.93	32712	37.39	31.75	40.5
University of the Sunshine Coast	121	243	33.24	5787	47.83	N/A	100
University of Western Sydney	747	1193	37.67	32935	44.09	27.6	28.5
University of Wollongong	742	752	48.17	21875	29.48	32.55	35.3
Victoria University	586	770	40.91	20180	34.44	26.48	43.8

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